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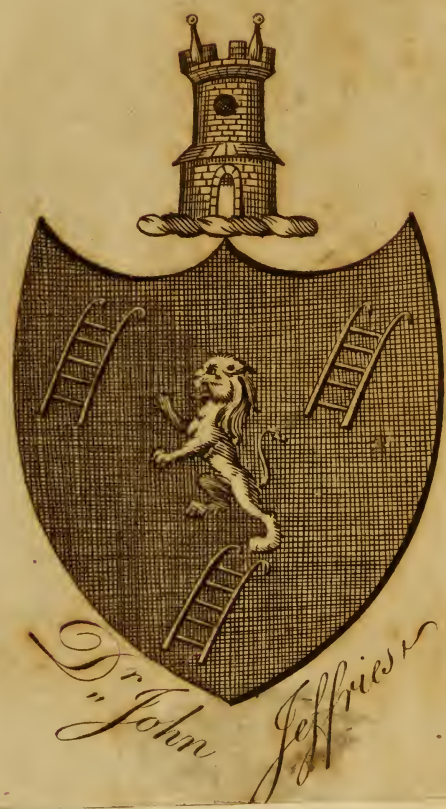
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GIFT OF HIS GRANDSON

B. JOY JEFFRIES, M.D.

(Class of 1854)

Received December 22, 1902.



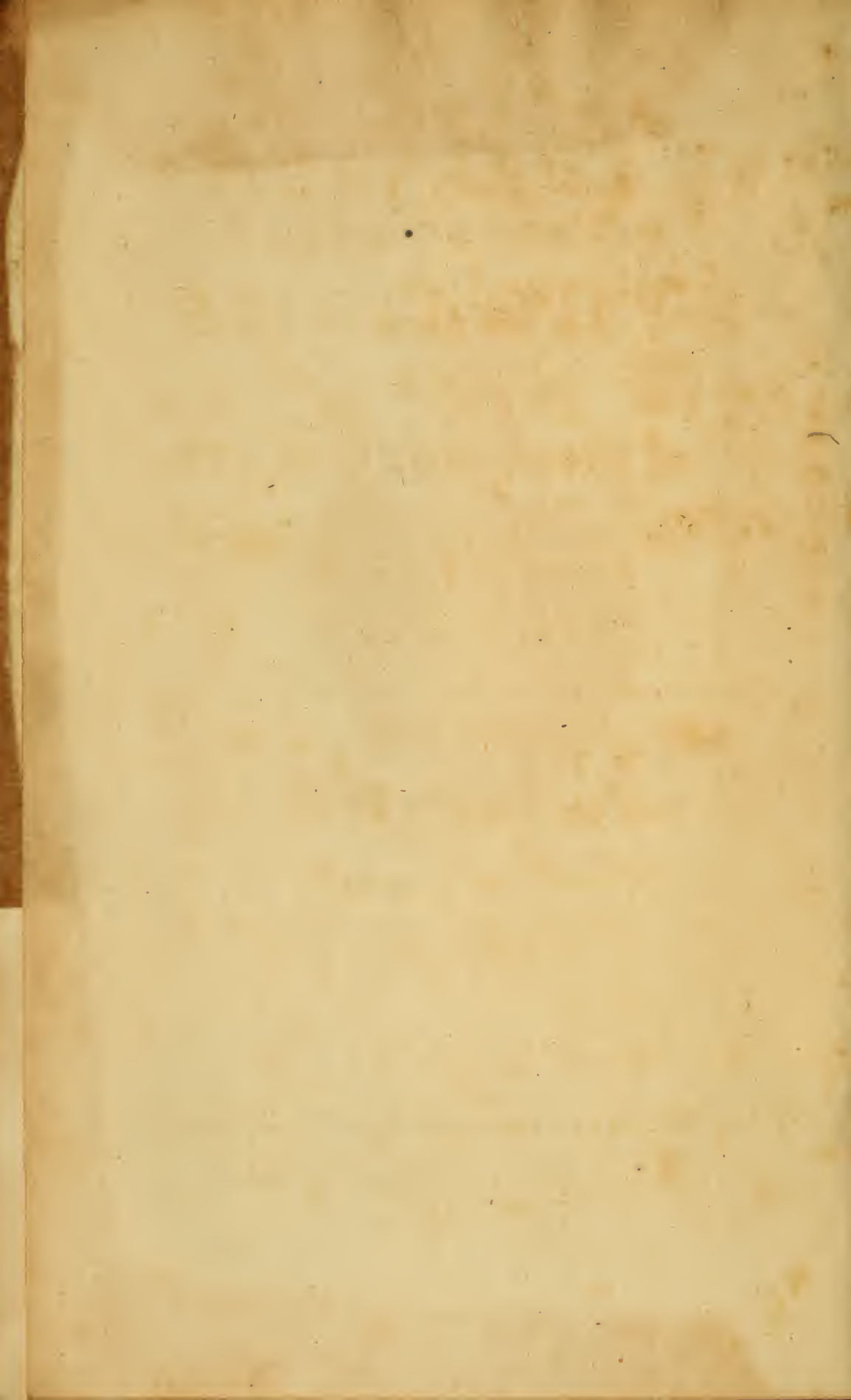
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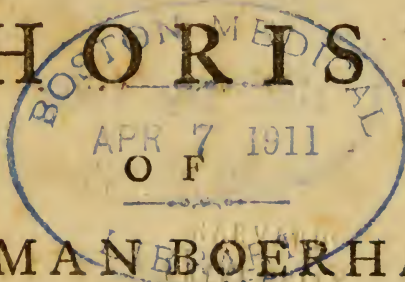
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~~Robert Horsfield~~

T H E
C O M M E N T A R I E S
U P O N T H E
A P H O R I S M S



Dr. HERMAN BOERHAAVE,

The late Learned Professor of Physic in the
Univerfity of LEYDEN,

C O N C E R N I N G

The KNOWLEDGE and CURE of the feveral
DISEASES incident to HUMAN BODIES.

By GERARD VAN SWIETEN, M. D.

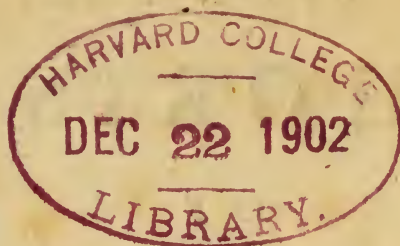
Translated into ENGLISH.

V O L. XV.

L O N D O N :

Printed for ROBERT HORSFIELD, in Ludgate-Street ;
A N D
THOMAS LONGMAN, in Pater-Noster-Row.
MDCCLXXIII.

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Gift of
Dr. B. J. Jeffries.

T H E
A U T H O R ' S P R E F A C E
T O T H E
Fifth V O L U M E of this W O R K,
Printed at L E Y D E N, in Quarto.

I H A V E, at length, brought to a conclusion the work I had promised; late, indeed, I must own, as it is almost thirty years since I published the first volume.

Much as I longed to make an end of so great an undertaking, and much as my grey hairs put me in mind of the necessity of speedily doing it, lest death, the boundary of all human affairs, should prevent me, I could not help, with all my earnestness and zeal for this business, attending to other things, with which it was incompatible; and which, of course, could not but take up a great deal of the time I had, at my first setting out, dedicated to it.

Besides, I thought it my duty to give as compleat a history of the six disorders, which still remained to be treated of, as I had done

of those I had already considered. Indeed, I have done more, having added *Boerhaave's Treatise on the Materia Medica and Formulæ of Medicines* to these last volumes, as it is frequently mentioned in them and the preceding ones.

These volumes begin with the small-pox, the history of which I had long ago finished; and, indeed, before any of the Imperial family had been visited with that disorder.

And, as soon as I could foresee, that, in process of time, some of the children of it must, in all probability, be married into other countries, I got printed the whole of this my history of the small-pox, in order to be able to present each of them, at their departure, with a copy of it. But I was, at this time, a perfect stranger to the Suttonian method of inoculation, in which a small matter of the variolous pus is deposited with a lancet between the cuticle and the cutis, and never fails to produce the disorder.

Some preparation is however used; and a purge administered the day after the operation. The patients are likewise made to observe a strict abstinence with regard to animal food, and the broths made with it; also to fat substances; and eggs; but allowed the free use of pure water, emulsions, lemonades,

monades, and the like ; but, now and then, they are made to take another purge ; and sometimes, a clyster, when they happen to be too much bound.

But, the most remarkable circumstance in all this method is, that the patients are daily suffered to breathe the open air, and allowed to coach or walk it about, the whole day ; and that, without any alteration in their dress.

But, then, they are made to take some powders, of different kinds, from different physicians ; but all, with something antimonial, or some mercurial preparation, in them. Sutton makes a great mystery of these remedies, to which he ascribes an extraordinary degree of efficacy in curing the inoculated small-pox.

As the fame of this process spread at a great rate, I made it my business to visit constantly several persons, who had submitted to it, from the beginning to the end of their disorder, that I might be able to observe the whole progress of it ; and the consequence was, that I found that the preparatory treatment might be safely dispensed with.

It is a rule not to inoculate any persons whatsoever, but such as are actually in a good state of health.

Nay,

Nay, some physicians at Vienna have gone so far as to try inoculation on children but six hours old, in which case, it is plain, no preparation could be used.

Still, however, several famous physicians, who had adopted the method of inoculation, continued of the same opinion with regard to the preparatory treatment.

But, as the abstinence from broths, and every other kind of animal food, seemed rather too severe, some thought proper to try, if it might not be dispensed with. Accordingly, the children, who were inoculated in the Orphan-house, in the suburbs of Vienna, were allowed the same diet with the rest of the children, and as they themselves had before used; yet never found themselves any thing the worse for it.

They were all, likewise, without exception, permitted to breathe the open air from morning till night, and made to sleep in spacious, lofty, and very airy rooms.

The next thing the very same physicians did, was to try, if there was any occasion for medicines after the operation.

For,

For, as Sutton made a secret of those medicines, which he would have the world believe were possessed of a specific virtue against the small-pox; nothing, it is plain, could as yet be said, with any certainty, concerning them.

This gave me an opportunity of seeing several inoculated patients perfectly recover, without ever taking the least grain of physick in any stage of the disorder.

They lived on broths, the flesh of young animals, the tender kinds of garden stuff, very ripe summer fruits, bread and other farinaceous foods; and sometimes eggs jointly with other things.

They were lodged in a pretty spacious summer palace; found in the necessary meat, drink, and bedding, by the Empress; and, when almost well, presented with some little tokens from her. They, every one of them, spent several hours, every day, in the gardens, both in the forenoon and the afternoon, just coming in to dinner and supper; and were all attended by one of the court physicans, who had been chosen for that purpose.

As I myself then happened to live at no great distance from the theatre of these trans-

transactions, I made it my business to attend the whole course of the disorder, in fifteen young people, from the time of their being inoculated to their recovery; and I shall speedily publish an account of every thing worthy of notice, I could observe during the whole process.

The inoculated small-pox being equally catching with that bred in the natural way, many persons in the neighbourhood of the palace caught the infection; and being thereupon taken into it, were placed amongst the rest, and treated in the same manner, and with the same happy success.

Hence some have concluded, that the natural small-pox stood as little in need of remedies and regimen, as the inoculated, provided those afflicted with it were allowed the free enjoyment of the fresh air.

Among the patients I have been mentioning, and under the same roof, there was a girl, who, though she had the disorder very confluent, was every day brought into the gardens along with the rest, and whom I had the pleasure to see recover, notwithstanding.

This method of treatment, therefore, I ventured to try on several others ill of a
distinct

distinct small-pox, but over-run with pimples; and they all got over it as happily as I could wish.

As many as saw this could not help expressing their wonder at so cruel a disorder's yielding to so simple a treatment. But it is an old saying—

Simplex, veri sigillum.

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SEVENTH VOLUME

Of the Small-Pox.

COMMENTARIES

UPON THE

APHORISMS

HERMAN BOERHAAVE,

CONCERNING THE

KNOWLEDGE and CURE of DISEASES.

Of the SMALL-POX.

SECT. MCCCLXXIX.

THE disorder, called the small-pox, being so common to children, I shall speak of it in this place. It has been so accurately described by *Sydenham*, who cannot be too often read, that I have but little to add to what he has said on the subject, and that, just to make it appear, that the small-pox may be reduced to the same simplicity with the diseases already treated of, and that there is something still wanting in the method of cure.

VOL. XV.

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We

We find this new term in modern authors, it being a diminutive from the word *Vari*, or eruptions of the face, so called by *Celsus* (a); these he considered of so little moment, that he referred the treatment of them to the most ignorant; whence it is evident, that there is no similitude between the two distempers, but in the name. Yet it is known, that *Celsus* was very conversant in the writings of the ancient Greek Physicians.

In the mean time, the learned differed considerably in their sentiments concerning the antiquity of the small-pox, some averring, that evident vestiges of the distemper may be found in the works of *Hippocrates*, *Ætius*, and others, whilst others intirely denied it. It is known, that the learned and celebrated *John Gothofrede Habn* (b) endeavoured (with much labour) to prove, that the small-pox was a disorder known to the Greeks; whilst the celebrated and learned *Paul Gottlieb Werlbof* (c), to whom physick is indebted for many and great improvements, maintained the contrary opinion with equal erudition. These famous men, though they differed in opinion, carried on the friendly contest with the greatest modesty, and without any bitterness; it may therefore serve as an example how literary contentions may, and ought to be managed. The celebrated *Habn* has endeavoured, in an other treatise (d), to support his own opinion, and overturn that of his learned adversary; and has added to it two epistles of *Trillerus*, that famous professor, who adorns medical knowledge with universal learning, and likewise defends the antiquity

(a) Lib. VI. Cap. v. pag. 345. (b) Variol. Antiquit. nunc primum a Græcis eruta, &c. Brigæ, 1733. in 4to. (c) Disquisitio medica & philolog. de variolis & anthrac. Hannoveræ, 1735. in 4to. (d) Carbo pestilens a carbunculis sive variolis veterum distinctus, &c. Vratislaviæ, 1736. in 4to.

quity of the small-pox. I have rather preferred pointing out to my readers these two great fountains, that will please both by their usefulness and erudition, than give, myself, a cursory and imperfect idea of their works.

It would be rash in a man, who has a long time since learned to measure himself by his own little standard, to pretend to judge of the merits of such great men; but this, I believe, I may venture to affirm, that it will not appear to every one, at the first glance, that the small-pox was a disorder known to the ancient Greek physicians, or described by them; for, when I gave myself up to the practice of physick, I began to read them carefully, and scrupulously collect from them all such materials, as seemed principally useful for the knowledge and treatment of distempers, and common-placed their rules concerning every disorder, in such a manner, that I could, at one glance, see every thing worthy of notice, in these primitive fountains of medical knowledge.

The great labour of this undertaking was amply compensated by its greater utility, as it afforded me the means of converting the very sound principles of the ancients into flesh and blood, as I may say, when intricate cases occurred, as they frequently did in my pretty extensive practice. I had done this long before I was acquainted with any particulars relative to the foregoing controversy; when therefore I had perused the famous *Hahn*, I consulted my commonplace book, but could not find in it the least trace of any mention of the small-pox in the writings of the antient Greek physicians. I am aware, indeed, that by being almost constantly employed near the bed sides of the wretched sick,

it was impossible for me to make any great progress in polite literature, however highly I esteemed it; and that consequently many things might have escaped me in my perusal of the Greek physicians, which a man of greater penetration would have observed. This, however, I think I may conclude, from the silence of my common-place book with regard to the small-pox, that the description of it is not obvious enough in the writings of the ancient physicians, to be taken notice of by every reader.

It may likewise appear singular, that, if the ancient Greek physicians were acquainted with this disorder, which is so troublesome and conspicuous, they should touch on it in so cursory a manner; for, though the brevity of *Hippocrates* may be alledged as a reason for our not meeting with the small-pox in his works, what shall we say of the diffusive *Galen*, in whom, notwithstanding, there occurs as little?

But, though the learned differ so much with regard to the antiquity of this disorder, they all seem to agree in this one point, that *Rhazes* was the first to give a distinct history of it (*e*); though he himself confesses, that he compiled it from the writings of the ancient Arabian physicians, which, however, have not come down to our times, unless it be concealed in some voluminous manuscripts. Moreover it seems manifest, that this distemper diffused itself, with the arms of *Mahomet*, over many countries, where it was before unknown (*f*); for the truth of which assertion, the reader may consult the celebrated authors whom I have here quoted.

It

(*e*) Friend Hist. of Physick, Tom ii, Page 190.
 (*f*) Friend de purgant, in Variol. confluent. Page 76;
 & sequent. Hillary on the small-pox, Page 6, & sequent.

It likewise spread itself widely over Europe, after the wars carried on against the Saracens to recover the Holy Land (*g*): and it is clear, that, in the 13th century, this distemper was so frequent in England, as to be known even to the old women of that country (*b*), where it has never since totally disappeared. Nay, it is rather manifest, that, when once this contagious evil has got into any country, it there takes up its residence, and now and then breaks out again. 'Tis the common opinion that the Americans caught the small-pox, with which they were before entirely unacquainted, from their new European guests (*i*).

Although every stage of life is, as will appear hereafter, subject to this distemper; yet, as youth is particularly so, the history of it naturally follows that of the disorders incident to children.

The justly admired *Sydenham*, who has so well copied *Hippocrates*, in attending to the history of diseases, laid himself out to acquire a perfect knowledge of the various symptoms of this in particular, and the mode of treating it; and opposing, unassisted and alone, the torrent of vulgar prejudice, rejected the destructive hot regimen; in which most of the *European* physicians have followed him to this day, with the greatest success. Hence one would be apt to imagine, that for the knowledge and treatment of the small-pox, the perusal of this author alone was sufficient; and therefore any further enquiries into the matter might very well be dispensed with.

But notwithstanding all this merit, the practice of some of the moderns ought not to be

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neglected;

(*g*) Mead de Variol. et Morbil. page 8. (*b*) Hillary on the small-pox, Page 21, 22. (*i*) Werlhoff de variol, et anthrac, Page 15.

neglected; though the honour acquired by *Sydenham* must still remain with him, since it is so much more easy to improve than invent; for this great man was particularly attentive to check the fury of the distemper, by a proper regimen, and suitable medicines; remove every thing that could exasperate it; prevent the putridity of the humours so much to be dreaded in it, or correct them if already putrified. Since his time, means have been studied to render the small-pox, when it had seized the human body, so inactive, that it might be expelled before it had entirely vitiated the humours; or at least weaken it so much, as to render it less hurtful and dangerous. Moreover, as it appeared from constant observation, that but few men lived and died without ever having the small-pox; that it proved more dangerous at one period of life, and season of the year, than another; many began to be aware that it would be of the greatest service to mankind, if the contagion could be communicated, by art, to those, who had not had it in the natural way, at a season when the small-pox happened to be of a mild nature, the body being first prepared for the infection; and at that age, in which experience shewed that the greatest number of persons sick of the disorder recovered; the experiments founded on these conclusions, gave room to new observations, which more clearly pointed out the nature of the disease, and proved, of course, of the greatest use in the treatment of it. It is these observations I shall now endeavour to take a view of, separately and in order, in the following pages.

S E C T. MCCCCLXXX.

THIS disorder is very epidemical, beginning early in the spring, encreasing in summer, abating in autumn, ceasing almost entirely during the following winter, to return in the spring, and reign again, in the same order. The sooner it begins in winter, the more violent will the nature of it be; and the later, the more gentle. Hence we may gather, at what season of the year it is attended with the greatest danger.

When particular distempers perpetually prevail in the same place, then they are called endemick, or native; such is the *scurvy*, for example, which we have already treated of. On the other hand, when any one disorder attacks numbers of people, at the same time, and with similar symptoms; and yet does not perpetually prevail in the same place, but ceases for a time, to return perhaps in a few years; then it is called an epidemick or popular distemper; on which subject I shall say more in the following chapter.

The observations of *Sydenham*, and all other practising physicians, prove that the small-pox is to be classed amongst the epidemick distempers, seeing that it rages for years together, and then disappears. This is very manifest in villages and small towns, where, sometimes, the small-pox is not to be seen for a succession of years. Celebrated practitioners have observed, that now and then, indeed, the small-pox does not rage in great cities, in the manner of an epidemick distemper,

but that here and there one or two only shall have it without seeming to infect others; and this kind they call the Sporadick, or bastard small-pox. But, as strangers are apt to flock in great crowds to great cities, and particularly to celebrated emporiums, they may bring the seeds of the contagion along with them, and by that means communicate the disorder to others, though in too small a number to entitle it to the name of epidemick; for, besides the contagion, there are other predisposing causes requisite to render the distemper general, as will be demonstrated in the following pages. I have sometimes observed large towns to be free from the small pox, whilst it raged epidemically in the neighbouring villages; and, on the contrary, some large towns, universally visited by the complaint, whilst the villages in the neighbourhood remained in health, though the inhabitants of both mixed daily with each other. I also perfectly remember, that I once removed two patients of mine from a place where the small-pox raged, to a large town, without propagating the contagion there; and many excellent physicians, with whom I have cultivated a friendly commerce with respect to medical knowledge, testify, that they have observed the same thing. Besides, in some places, the small-pox returns at particular periods of time; for *Bartholinus* (*k*) tells us he had heard from some Icelandick students of his acquaintance, *in Islandia quovis anno vicesimo recurrentes tantum eas grassari, et tantam esse ejus periodi vim, ut qui liber a variolis fuit*

(k) Th. Barthol. Epist. Medic. Centur. 3 Epist. 90. pag. 390.

fuit eo anno, quo epidemicae sunt, superstitis esse non possit ad recurrentem terminum. “ That, in Iceland, it raged but every twentieth year; that such, however, was the force of that period, that whoever happened not to be infected with the small-pox, during the year in which it was thus epidemick, could not survive to the next twentieth year.”

Moreover it has been observed, that the small-pox, being carried into a camp by some new-raised recruits, quickly disappeared, without becoming general (*l*); although it is notorious, that other epidemick camp-diseases are but too apt quickly to spread themselves.

Hence it is with justice said, that this distemper is, for the most part, epidemick, but not always so, as at some particular times it appears in the form of a sporadic disease.

Beginning early in the spring &c.] *Sydenham*, who was so skilled in distinguishing epidemick disorders, observed that the small-pox frequently appeared about the vernal equinox (*m*); that from that time it daily gained ground; that it was during the autumn the greatest numbers had it; but that the number lessened at the approach of the winter's cold; that in the succeeding spring it made its appearance again, and proceeded as before, till it was entirely checked by the following winter; that, the third spring following, the disorder again became frequent, but proved more languid and gentle during the summer, till the month of August, when it entirely disappeared, giving place to another epidemick, viz. the dysentery. At the same time he observed, that the most regular and mild
small-

(*l*) Pringle on the Diseases of the Army, Pag. 42.

(*m*) *Prax Medic.* Sect. 3. Cap. 1. Pag. 159.

small-pox is that, which begins about the time of the vernal equinox; whereas, the irregular and more dangerous sort shews itself sooner; viz. in the month of January (*n*). I myself have seen the small-pox first appear, in the manner described by *Sydenham*: but in the month of November of the year 1733, I saw it regular and distinct; in the following month of December, the number of sick was a little encreased; and the disorder held on, in this manner, the whole of the month of January, 1734; the number encreased in the month of February, and also in March; and still more in the month of April; but the disorder proved of the distinct and regular kind; and of a pretty large number of patients, whom I treated, I had the good fortune not to lose one. In the month of May, the disorder became more general, but it was of the gentle kind; in June, it began to be confluent; and in July, of a far more putrid kind, attacking grown up persons more frequently than before; in August it spread itself even to old age. In the month of September, a more confluent and dangerous sort appeared; in October, the number of sick diminished one half, and the pock again began to be distinct; the number still lessened in November, but the suppuration became slower, and the disease of longer continuance; in December, it almost entirely ceased. In the month of January 1735, it again encreased a little, but entirely disappeared in February and March; in April, it was again seen, but only in one part of the city; and of seven patients, three had it confluent; in May and June, few had it, and that but in one part of the city, nor did the disorder spread. From that
time.

(*n*) *Ibid*, cap. 2. p. 161.

time, the real small-pox entirely ceased, and gave place to a spurious kind, with us commonly called the *steenpokken*, in which the pimples never suppurate, but grow hard and fall off. Many children, even at the breast, were seized with it, but it was of so gentle a sort, that they were not obliged to keep their beds, and had little or no fever; the small-pox appeared again in the month of February 1739, and raged epidemically, sometimes more, sometimes less, for two years together and upwards.

I have seen many variolous epidemick constitutions, and they agreed, in most things, with the observations of *Sydenham*; for sometimes I could observe a difference. A small-pox, which broke out in the months of *November* and *December*, proved very regular and benign, and very few died of it; though this epidemick constitution did not begin about the vernal Equinox, but a great deal earlier; even so early as the beginning of winter: but every physician of any practice must be sensible, that the same disorder is often found to vary in different epidemick constitutions; and *Sydenham* himself was well aware of it; for he takes notice, that in the years 1667, 1668, and part of the year 1669, the regular small-pox was very epidemick (*o*); but that, in the years 1674 and 1675, a true anomalous kind, and different from the former, prevailed likewise epidemically (*p*). It is certainly of great service diligently to observe every circumstance attending epidemick disorders, whether with respect to time, duration, symptoms, their happy or fatal issue, &c. and then compare them with the same circumstances of the same disorder, when

(*o*) Ibid. cap. 2. page 161. (*p*) Ibid. sect. v. cap. 4. page 294.

when it happens to return some years after. By these means it will quickly appear, how far they differ from each other; and many circumstances may be discovered by the attentive physician, that would escape others, who, vainly running about the whole day, see many sick men, but understand very few disorders. Of such it may be justly said, "They have eyes, and see not; they have ears, and hear not," that is the counsels of able men. They have hands indeed, and feet, but it is only to feel and to walk; so that all they get by their long practice, is to be more confirmed in ignorance and stupidity. "Yet even these Fortune lifts to the summit of her wheel, when, in a playful mood, she chuses to divert herself at the expence of poor mortals." *Summa ad fastigia rerum extollit, quoties voluit fortuna jocari.*

Hence we may gather at what season of the year it is attended with the greatest danger.] In those epidemical constitutions, which it has been my fortune to see, I have pretty constantly observed, that the number of the sick increased towards the middle of spring, and still more during the summer months; at the same time that the disorder grew more dangerous, particularly in the month of *September*, especially if the preceding summer had been hot and sultry; but, in *October*, not only the number of the sick lessened, but the fierceness of the disease abated; and still more in the ensuing months. Moreover, in the first year, if all the other circumstances happen to be the same, the force of the disease is greater; and, in the succeeding years, less. In the beginning of an epidemick variolous constitution, the disorder attacked none but children and young persons; about the end of summer, it reached the adult, and even old people; and then,

likewise, it carried with it signs of greater putrefaction. I have also had an opportunity of experiencing the truth of what *Sydenham* observes (*q*), that it is in very dry springs and summers, during which the grass is every where burnt up, the small-pox proves most dangerous, and is attended with the most fatal symptoms.

There is no doubt, however, but that in other places, and in different epidemic constitutions, something has been observed, which does not agree with the foregoing. *Sydenham*, as was said, in the year 1667, and in the year following, remarked, that the small-pox grew milder during the cold of winter; and, in *France*, in the year 1666, it was observed, that a most dangerous kind of small-pox raged wider, and killed an infinitely greater number, in a severe winter, than in the hottest summer (*r*).

But in this all practitioners pretty well agree, that spring and autumn are the seasons most favourable to patients labouring under this disease, as well because the weather is then more temperate; as because the disorder itself is apt to be milder in spring, and, in autumn, is generally less attended with those fearful symptoms, with which it usually rages in the summer months.

The winter, however, must, upon the whole, be allowed preferable to the summer, for having the small-pox, as the most intense colds may be conveniently enough moderated by a fire, whereas the great summer heats cannot be easily cooled, at least by the poorer sort, who are often cooped up, and that with large families, in houses so small, that in the last of these seasons, even the healthiest among them scarce escape suffocation

But

(*q*) *Dissert. Epistol.* page 443. (*r*) *La Motte Traité complet de Chirurgie*, tom. III. page 383.

But, though inoculation for the small-pox is practised at *Constantinople* chiefly during the winter, perhaps because the plague so frequent there generally ceases at that time; in *England*, the spring and autumn are preferred, as may be seen in that useful treatise (*s*), in which all things relative to inoculation are collected together.

S E C T. MCCCLXXXI.

IT seizes every age and sex, but especially children, and such as have not already had it; the more age has dissipated the fluids of the body, and condensed the solids, the more violent the disorder: hence it proves rather favourable to children, women, and others of a soft and loose texture; and the reverse to persons of much exercise, men, and old people.

It seizes every age and sex, but especially children, &c.] No one, indeed, who has not already had this distemper, can flatter himself that he shall never have it; not even those, who, though they have been often exposed to the variolous contagion, never suffered by it. I remember to have once attended an old woman, past sixty, who, when I told her that she might soon expect the small-pox to break out upon her, laughed at me for my pains; she was sure, forsooth, that she had for many weeks eat and drank, nay slept in the same bed, with her brothers and sisters, at the time they had this disease, and that too, in hopes of having it with them, as it was a benign kind which then epidemically prevailed; yet she never took it; and, thence concluding she never should,

(*s*) Kirkpatrick, the analysis of Inoculation, pages 201, 207.

had since attended, with equal immunity, many labouring under the same disease; I know very well, that there are some (though few) of such an idiosyncrasy, that though a thousand times exposed to the contagion, they have never been infected with it. I knew a very famous physician, who lived to be upwards of seventy, and died at last without ever having it, though, in the course of a most extensive practice, he had attended some thousands of persons who were ill of it. It is notorious, that, amongst those persons who have been inoculated for the small-pox, there have been some few, who could never be made to take it. This, however, I believe, that no man, who has not already had the disorder, can ever promise himself an entire immunity from it, although he never experienced any injury from being frequently exposed to it; seeing that, even in the decrepit old age, some have been seized with it, who had great reason to flatter themselves, they had now escaped the danger of ever having it. I remember an old woman past eighty, to have been seized with this disorder; and that, whilst her greedy grand-children, who had flocked round her, even from very distant places, made themselves exceedingly merry at the thoughts of a speedy and plentiful succession, she recovered, lived six years longer, and enjoyed the whole time as good a state of health as one of her age could reasonably expect. Many similar cases may be seen in the works of *Stalpart van der Wiel* (1), and others.

Are we then to conclude, that, as there are hereditary disorders in some families, so there are in others, though very few, an hereditary immunity from that we are treating of? Certain it is,
that

(1) *Observat. rarior Centur. poster. part. priorobserv. 42.*
pag. 425.

that *Diembroeck* (*u*), affirms of himself, that tho' he was almost seventy, had seen and attended thousands ill of the small-pox, had been often obliged to endure the horrid stench peculiar to this disorder for a considerable time, and had handled the ulcers of the sick, he never took it; nay he mentions his father and uncle, each almost ninety years old; his grandmother, eighty-two; and some others of his family; none of whom ever had it.

After all, it is not only from one's birth to one's death, let it come ever so late, that this disorder is to be dreaded; it sometimes attacks children in the womb, making them suffer the calamities of this life, even before they come into it. *Bartholinus* (*w*) affirms, as an eye witness, that a poor woman, ill of the small-pox, was delivered of a child, whose tender body had as many pocks on it as the mother's, and who died soon after the birth, as the mother herself did three days after, of the disorder. In this case, both mother and child seem to have caught the infection at the same time. But there is another case, in which we see the mother first infected, and then the child. A pregnant woman, just recovered from a mild small-pox, attended with few pustules, having taken a slight purge, and then another, the next day but one, on account of the first not having taken effect, had notwithstanding but one or two stools; she therefore took, two days after, a strong cathartic, which not only produced very violent evacuations both ways, but faintings and convulsions; and, on the fifth day, she was delivered of a dead female child, which, though otherwise of a good habit

(*u*) De Variol. et Morbill. cap. 3. page 274. (*w*) Epist. Med. cent. 2. page 682.

habit was all over covered with pustules full of ripe matter (*x*). Considering the intimate connection between women and their children while in the womb, it cannot seem so strange, that the latter should receive the infection from the former; it is rather surprising, that the child, instead of being immediately infected with the mother, should not take the disorder, till the mother had happily got over it. I could not, however, but think it still more surprising, that a lady of quality, whom the illustrious *Boerhaave* had attended with good success in a very bad and confluent small-pox, and in the sixth month of her pregnancy, should be delivered, when her time was up, of a healthy boy, on whom not the least trace of the disorder could be found. Thus the foetus continued free from the disorder of the mother, though constantly receiving its blood and food from her.

On the other hand, it has been observed, that children in the womb have had this disorder, without the mother's being infected with it. *Mauriceau* (*y*) affirms, that he had heard his father and mother often say, that he came into the world with five or six pocks upon him: it seems a brother of his, six years old, whom his mother had anxiously attended day and night during the small-pox, had died of it on the seventh day; and our author was born the next, after taking it from the deceased. But, as it is not evident, to me at least, whether *Mauriceau* ever had the small-pox after that period, and it may therefore be doubted, whether the pustules he speaks of, as found on himself, belonged to the true small-pox, I shall relate another case communicated to me by persons every way worthy of credit, as I am certain they were neither men to be deceived themselves, or deceive

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(*x*) *Philosoph. Transact. abridged, Tom. III. pag. 308.*

(*y*) *Traité des maladies des femmes grosses. Tom. I. pag. 66, 67.*

others. A woman far advanced in her pregnancy, who had the small pox several years before, having attended with great assiduity a servant maid labouring under the same disorder, was, when her time was out, delivered of a healthy female child, on whose body, however, Doctor *Watson*, one of the most eminent physicians of *London*, affirms he had found evident marks of her having had the small-pox; nay, he ventured to engage she would never afterwards have it. Four years after, one of the child's brothers being to be inoculated for the small pox, the Doctor prevailed on the parents to let him try the same operation upon her. It was accordingly performed upon both, in the same manner; and the same variolous matter applied to openings made in both their arms. Yet the issue in both proved very different. The boy bred the disorder, but recovered; whereas not the least inflammation or suppuration (circumstances which ever attend an eruption produced by inoculation) could be discovered in the opening made in the girl's arm. On the tenth day, indeed, after the inoculation, she grew paler than usual, was faint for two days, and then found herself as well as ever she had been. There appeared a pimple near the spot where her arm had been opened, not unlike those, which we may frequently observe in persons, who, after having had the disorder themselves, night and day perpetually attend others who are actually labouring under it. We may therefore gather from the present observation, that a child in the womb may catch this disorder, and recover, without the mother's being infected with it; and, likewise, that such child is not liable to take it again. Nothing, therefore, can be truer than the following position of *Sydenham* (2) concerning the small-pox:

nemini

(2) Sect. iii, cap. 1. pag. 161,

nemini parcunt, cujus cumque demum ætatis is fuerit, nisi prius hoc morbo laboraverit: “ The small pox
 “ spares nobody, of whatever age, that has not
 “ already had it.”

But then physicians are not agreed concerning the certainty of a person, who has once had the small pox, never having it again. Some assert it, others deny it; and there are to be found very great medical names on both sides of the question. I have a thousand times heard people speak of their having had the small-pox twice, thrice, and even four times; nay, they took offence at my not giving entire credit to these tales of theirs, and still more at my using the same precautions with regard to them, on their happening to be taken ill of a continued fever at a time the small-pox raged epidemically, as if I expected them to have it in their turn; and it proved the case with many of them, who most solemnly affirmed, they had gone through it a long time before. On these occasions I ever dreaded the small pox, unless I was sure, that I myself had attended, in it, the persons thus affected; or could perceive on their skin certain signs of their having already had it. But here I must observe, that what I did on these occasions, could be done with the greatest safety, since all the precautions usually taken in the first stage of the small-pox, may be taken without danger in other acute diseases, as will hereafter appear, when we come to speak of the treatment of the small-pox in particular.

It is well known to all practising physicians, that there sometimes occur certain disorders, which, as at first sight they do not appear different from the genuine small-pox, are called so by

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

those ill of it trouble a physician, and seldomer still, that, though they all get the better of it, they take any kind of physic. Hence it appears that we are not to be surpris'd at ignorant people's mistaking the spurious for the genuine small-pox. Is there, then, the same infection in the former as in the latter, with this difference, that the former, as either already worn out, or become more inert, is, from its own nature, less apt to disorder the body, or more apt to be easily carried off by suppuration? Some at least have thought so, in consequence of their seeing the spurious small-pox prevail, when the genuine small-pox had done raging. But to this opinion it may be objected, that the spurious small-pox did not spare those, who, but a few months before, had got over the genuine kind, though such persons are wont to be ever after exempt from the variolous contagion: add to this, that those who had had the spurious small pox, were often seized a short time after with the genuine sort, if it happened to be rife. But let these matters be as they will, it is confirmed by practical observations, that *Sydenham* (a) was perfectly right in taking notice, that those are by no means exempt from the contagion of the genuine small pox, *quos adulterinum variolarum genus aliquod, ad hunc morbum nihil attinentium, prius obsederit,* “ who have been already afflicted with any of “ the spurious kinds, which have no connection with the genuine kind.”

If we now likewise take into consideration, that sometimes the genuine small-pox happens to be very mild, as causing but very little disorder in the body, bringing with it but very few, and those very slight symptoms, and soon drying

up and falling off, it cannot appear strange, that the ignorant should confound the two kinds one with another. And as the spurious sort often attacks the same person two or three times, it is plain that the many accounts we have of the same person having had the genuine small pox more than once, are not well enough grounded to command our entire belief. Besides, several of these accounts come from persons who had them from their parents, without remembering themselves any thing of the matter, as happening in their earliest infancy.

But we are not to think so slightly of the testimony of physicians, long skilled in the treatment of this disorder, and of course perfectly well acquainted with its nature, when they aver that they themselves have seen the same person twice, and even oftener, infected with the genuine small pox. Thus *Forrestus* (*b*) tells us of a son of his own, that he had the meazles at the age of four, after having twice had the small pox. But, all circumstances well weighed, it will appear that this testimony of his is by no means as conclusive, as at first sight it may appear to be. Let us only remember, that in the scholium to the preceding observation he had adopted, the description of this disorder given by *Fracastorius*, who, it is evident, confounded the spurious with the genuine small pox; take his own words (*c*); *nam ut plurimum circa quartum diem, aut paulo post, apparere solent primum sparsæ quædam seu maculæ rubentes, mox manifestius in pustulas concresecunt, interdum humidiores et varis similes, interdum sicciæres et similes illis exanthematibus, quæ ex caloriæ solent pueris evenire, quas vulgus suffusuras vocat;*

“ for

(b) Lib. VI. Obser. 43. Tom. I. pag. 244.

(c) De morbis contag. Lib. II. cap. 2. pag. 119. verisè,

“ for it is usual with them to appear about the
 “ fourth day at farthest, or a little later, scattered
 “ over the body like reddish spots ; then they quick-
 “ ly become more manifest and grow to pustules,
 “ sometimes moist and like *vari*, sometimes dry
 “ and resembling those *exanthemata*, which chil-
 “ dren are liable to from heat, and the common
 “ people call flustrings (*suffusuræ*.)” He after-
 wards adds in the same chapter ; *ob id etiam, quum*
semel accessit, non reverti præterea solet, quoniam
secretâ jam sit infectio : visa tamen quandoque fuit
bis accessisse, quibus scilicet prius non exacte secretâ
fuisse. Sigitur sanguis pituitosior sit, pustulæ va-
riformes sunt, albæ, rotundæ, mucosæ quodam plenæ ;
si vero biliosior exiterit, pustulæ sicciore erumpunt :

“ It is not usual with this disorder to attack
 “ people a second time, because the infectious
 “ matter has been secreted, the first. Sometimes,
 “ however, it has been known to return, when
 “ such secretion has not been compleatly perform-
 “ ed. When therefore the blood happens to be
 “ too pituitous, the pustules assume the form of
 “ *vari*, are red, round, and full of a kind of
 “ mucus ; whereas, when the blood happens to
 “ be too bilious, the pustules come out drier.”

Now, on comparing these words of *Fracastorius*, with what he had already advanced concerning the spurious kind of small-pox, it will sufficiently appear, that he did not distinguish it from the genuine kind. Besides, it might very well have happened, that *Forrestus* was from home during his son's illness ; for he does not tell us what kind of pock he had, but only that he had the disorder twice. Certain it is, that *Forrestus* himself owns, that he was not with his son when he had the meazles ; *cum proficisci hoc tempore debebat in Thessaliam (Texel), insulam Batavorum, non Græ-*

corum, quum ad egros ibi curandos accitus esset; “ as he was at this time obliged to repair to “ the *Texel*, a Dutch Island, to attend some patients there, who had sent for him.” It is therefore, I think, plain from what has been said, that we have no manner of certainty of *Forrestus*’s son having twice had the genuine small-pox.

We read of another case (*d*): A boy of seven happened to see an infant dead of the small-pox, whom the mother was carrying from door to door to collect something to bury it with; and, being sorely frightened, was immediately taken ill, and laid up with a very thick and dangerous small-pox. Happening, ten years after, to be equally frightened with another sight of the same kind, he had the small-pox again in a still more dangerous degree; however he again recovered. But it is to be noted, that Dr. *Jacobus Dobrzensky de nigro ponte*, who communicated this observation to the Academy *Naturæ curiosorum*, does not appear to have been himself an eye witness to it; for, to confirm his account, he adds the letters of his father, who candidly confesses he had met with these particulars amongst some memorandums. Now all these letters say, is that the child, when almost eight, took the small-pox from the shocking sight we have mentioned, and that, ten years after, he had a most dangerous relapse from a similar cause: He likewise adds, that when a youth he had seen at *Lintz*, where he then resided, a man of sixty dead of the small-pox, who, as he was informed by his servants, had twice before had the disorder.

An observation of *Diembroeck*’s (*e*) seems, I must own, to carry more weight with it. Describing the

(*d*) Miscell. nat. curios. dec. 2. an. 4, pag. 80.

(*e*) Oper. omn. pag. 290.

the epidemic constitution of the year 1640, he says, *varios hoc tempore vidimus, qui cum variolas copiosissimas habuissent, vix ab his sanati, paulo post in idem malum reciderunt, atque illis ista secunda vice sæpe multo majori copiâ eruperunt, quam prima: Imo aliqui visi sunt, qui intra spatium sex mensium ter copiosissimis variolis laboraverint, quod alioqui raro solet contingere, imprimis tam parvo temporis spatio;* “ At this time I saw several who, having
 “ had the small pox very thick, were scarce re-
 “ covered, when they fell ill of it again, and of-
 “ ten had it, the second time, a great deal thicker
 “ than the first; nay some have been seen to have
 “ it very thick, thrice within the space of six
 “ months; a thing which happens but seldom,
 “ especially with regard to the shortness of the
 “ period.” That *Diembroeck* was a sedulous observer of diseases, sufficiently appears from the observations he has left us on the plague, the small-pox, the meazles, and other diseases; yet I cannot, I must own, help suspecting a little, that on this occasion he confounded the spurious with the genuine small-pox; for a little lower he says, *Multis post primum aut secundum, sed pluribus non ante tertium, vel quintum, diem, Variolæ prodibant. Quibus tardius apparebant, illi periclitabantur, multique moriebantur:* “ The pock came out on
 “ many after the first or second day; but on more,
 “ not before the third, fourth, or fifth. Those on
 “ whom it appeared latest had it very bad, and
 “ several of them died.” Now it is plain from the daily observations of *Sydenham*, and other physicians, that, all other circumstances being equal, the sooner the genuine small-pox comes out, the more dangerous it proves. May we not therefore suspect, that the small-pox which came out the first or second day, and did not prove dangerous,

ous, was of the spurious kind; and that which broke out later, the genuine disorder; especially as he tells us, that the pimples came out much thicker the second time than the first?

But there is in the same author another observation (*f*), which seems to render it still more probable, that the same person may often have the small-pox. He saw it happen four times in the very house in which he lived, and he expressly tells us, he observed the case with the greatest attention, and scarce let an hour pass without looking at the sick. The first was a youth of fourteen, and he had the disorder very thick. During his recovery, and on the fourteenth day after he had been taken ill, a brother of his, aged twelve, was in like manner seized with the disorder, and had it thick. When this boy had been ill sixteen days, a sister of his, of ten, took it; and, at length, in fourteen days after, a younger sister, of eight, who had it very thick like the eldest of the two brothers. In the mean time, the two brothers, being quite recovered, were permitted to walk abroad; but, on the twentieth day from the disorder's seizing the youngest of the girls, the eldest of the boys was again taken ill of a fever and small-pox, and then the other, on the recovery of the first: Afterwards, the two sisters sickened and recovered, in the same order. And thus every one of the four had the disorder twice within a very short period. From this description, it seems pretty evident, that it was the genuine sort of small-pox they all had the first time, as the spurious sorts are much sooner over: But, as he takes no notice of the duration of the second disorder, nor so much as says that the pock was thick, we may still lawfully entertain some doubt

doubt of this second disorder having been the genuine kind of small-pox. One thing is certain, that they all recovered; and it seems very surprising, that the delicate bodies of these children could have borne so grievous a disorder, as the true genuine small-pox, twice in so short a space of time. Besides, he adds, that the disorder did not leave the least scar or pit on any of their faces; another circumstance, which would be quite out of the common course of things if it was the genuine small pox they had both times.

There are, no doubt, many cases in medical history, which tend to prove that the same person has had the small pox twice, and even oftener: But I have not time to relate them, nor is it worth while. These I have selected, are, it must be owned, pretty conclusive. But, if we consider, that it appears from experiments expressly made for the purpose, that those who have once had the disorder do not take it again, we may venture, one would imagine, to relieve those who have gone through it, from the fear of a relapse. Amongst the malefactors upon whom the method of inoculating for the small-pox was tried by public authority, previous to its being adopted by the royal family, there was one, who, the year before, had had it in prison, and had now the openings made in him plentifully bedewed with the variculous matter; yet the wounds never were inflamed by it, but dried up and closed the sixth day, without any consequent illness. A woman amongst these malefactors, who had saved her life by submitting to inoculation, attended afterwards a score of patients ill of the disorder, and yet never took it. Some, after happily recovering from the disorder given them by inoculation, lay in the same bed with others actually labouring under it during

during the whole course of their illness, without finding themselves the worse for it. A girl of twelve, some weeks after happily recovering from the same disorder, and given in the same manner, gave herself a fresh cut, and for three days successively applied the variolous matter to it, without suffering any relapse (g). Whilst a pregnant woman, who had already had the small pox, was nursing her husband actually ill of the same disorder, she was delivered, at the proper time, of a dead child, whose whole body was covered with variolous pustules; yet she herself did not partake of the disorder, though she carried in her body the carcase of a child whom it had killed (h). Hence Mead, so famous in England for the happy practice of this old art, concludes, *Nemo igitur, mortalium quemquam hoc periculum bis unquam subire posse, vel minimam suspicionem fovere debet*: “No one, therefore, ought to entertain the least suspicion of any man’s being liable to have the small pox twice.” And in another place he lays it down as a maxim (i), *experientia compertum esse, nunquam iterum reverti posse variolas*; “That it has been found by experience, that the small-pox can never return.” If I may add my own testimony to that of such great men, I must candidly own, that in the course of a very extensive practice, and that for the space of thirty years, I never met with a single instance of the same person having the small-pox twice. I myself, being very desirous to get over it, before I engaged in the study of physick, went purposely, when I was sixteen, to visit a person who was ill of it, and caught it, immediately, according to my wishes. I had it very bad,

but

(g) Kirkpatrick, the Analys. of inoculation, pag. 119, 120. (h) Mead de variol. & morbill. pag. 66.

(i) Ibid. pag. 74.

but happily recovered ; and, though I have been since a thousand and a thousand times with people ill of the small-pox, never took it again. Hence I never made myself uneasy about it, either with regard to myself or others who had already had it. I know there are very eminent physicians, for whom I entertain the greatest respect, of a contrary opinion ; I know there may be many things which it did not come in my way to observe ; still, I may venture to lay it down as a maxim, that the small-pox seldom or never attacks the same person twice. After all, as it is universally allowed that practical axioms are to be deduced from obvious and common cases, I see no reason why we should give up that axiom, which affirms, without exception, that no man is liable to have the small-pox twice.

The more age has dissipated the fluids &c.] This disorder, as will afterwards appear *Sect.* 1384, imparts to the blood that kind of sizziness, which is perceivable in disorders that are highly inflammatory ; and this sizziness encreases rather than decreases during the whole course of the disorder ; nay those who recover, are sometimes troubled with inflammatory ophthalmiæ, furunculi, and the like, unless in the worst kind of it, in which the blood, and almost all the humours of the body, turn to a putrid liquamen, and almost always prove fatal, unless this dreadful putridity can be obviated or corrected. It has been observed, in some men quite healthy in other respects, that their blood manifests a disposition to an inflammatory sizziness, nay often exhibits a thick crust, called pleuritic, on the surface of a little red kind of island on it, as often as they get themselves bled in the spring for a phletora, or from a habit many persons give themselves. Now, as it has been made evidently appear by physiological

cal writers, that both the chyle and the blood are condensed by the action of the vessels; and, as it is moreover certain, that there is a thin liquid disposed between the particles of the blood most prone to concretion, to prevent their cohering together too strongly, the reason is plain why the dissipation of the fluids, and the great cohesion of the solids, are not favourable circumstances in this disorder; in which the blood is of itself but too prone to degenerate into an inflammatory sizziness. Now, this is the effect of age. In new born infants, the whole body is moist, soft, and quite flexible; by the age of fifty, all the parts become firm, but less succulent; in decrepit old age, every thing is rigid and dry. It must however be allowed, that, when the disorder first shews itself, the blood often appears good in every respect; but in a few days it puts on certain signs of an inflammatory sizziness: Now few persons die of this disorder in the very first stage of it; but there is very great reason to be alarmed in every subsequent stage, for those whose blood, even when in health, is apt to become of an inflammatory sizziness. This accounts for what *Sydenham* observed, *viz.* that the worst small-pox, and that attended with the worst symptoms, was such as raged after a very dry spring and summer, which had carried off a great deal of moisture from the body. This we took notice of in the preceding paragraph.

Hence its disorder proves rather favourable, &c.] because the blood in such subjects is the very reverse of inflammatory and sizzly; and their soft solids easily yield to the liquids in brisk motion, without so much danger of being broken, or not deobstructed: Besides, very young patients do not fear the disorder; a thing of the last conse-

quence in this case. I have often seen grown up persons dead almost from the very dread of it, as soon as they were told the pock had shewn itself upon them; nay I have often, by a lawful fraud, concealed the true nature of their disorder from my patients, till they were out of danger, on being informed that it had proved fatal to several persons in their family, and having reason to apprehend any extraordinary degree of uneasiness in those under my care, if they knew they had the same disorder. It is well known to every practitioner, how much it imports, in the treatment of the sick, that they should enjoy a perfect tranquillity of mind, and entertain as little doubt as possible of their doing well.

But, then, we are to apprehend convulsions in children, even from slight causes; and it often happens that they cannot be made to take necessary remedies; so that many die of the small-pox in their infancy, who might have been cured, had it not attacked them till they were a little grown up. The best period of life, to have this disorder in, seems to be that from the age of four compleat, to very near that of puberty; as, at this time of life, we are seldom anxious about futurity, and are generally submissive enough to the physician with regard both to regimen and remedies. Besides, there is no danger, during this interval, of dentition's coming to the assistance of the disorder, and encreasing the danger. Add that it appears by the bills of mortality for different parts of *Europe*, that many more die between the birth and the age of five, than between five and the age of puberty. For these reasons too, this seems to be the best stage of life for inoculating for the small-pox (*k*).

But

(*k*) Kirckpatrick, the Analysis of innoculat. pag. 144 & seq.

But still, all physicians acknowledge, that, every thing else being equal, the small-pox proves mildest in bodies of a soft and loose texture; and Sydenham (1) has already taken notice, *in sanguine laxiori atque ευμεταβλήτω nonnunquam accedere, ut separationis periodus sensim atque gradatim sine insigni aliqua ægritudine transigatur, priusquam expulsio materiæ pustularum eruptione se prodatur*: “ That, “ in a loose and ευμεταβλήτω state of the blood, it “ sometimes happens, the period of separation “ passes away gradually and insensibly, without “ any unusual uneasiness, before the expulsion of “ the morbid matter has shewed itself by the “ eruption of the pustules.” I remember, however, to have known many cases, one of which I could not help greatly admiring. A young man of quality, after taking one evening, in winter, the diversion of driving, in a sledge, over a deep snow, till eleven o’clock, supped on his return home; slept very well the whole night; awaked the next morning without feeling any sickness or pain; but is surpris’d at seeing his face, neck, and hands covered with pustules. On being sent for, I find them to be those of the genuine small-pox, but of the mild kind; and, accordingly, he easily, and speedily recovered; nay, he was so far from being obliged to take to his bed, that he amus’d himself the whole time with musick, and the company of his friends.

Now, as the bodies of women are of a softer and looser texture than those of men, so, every thing else being equal, the disorder is generally much milder in the former than the latter.

But bodies of a hard texture, and such as have had much exercise, as likewise fattish persons

(1) Sect. iii. cap. 2. pag. 162.

ons, who in the flower of their youth live high, especially in point of drinking, are apt to have this disorder in a very dangerous way.

Old men, notwithstanding, get over it pretty often, as we may see by the forgoing cases: there indeed prevails that juiceless rigidity, peculiar to old age, in the solid parts of their bodies; but their greater vessels do not bear being much distended, on account of that very rigidity, sometimes equal to that of bone: hence their reaction on the fluids is weaker, and of course the condensation of fluids less. There is indeed in the blood of old people a lentor, but mucous, inert, cold, and the very reverse of that inflammatory siveness, which, as has been already observed, is above all things to be dreaded in this disorder. Hence, if old men have strength enough to bear the inconveniences attending this disorder, they often get over it.

S E C T. MCCCCLXXXII.

THIS disorder, though epidemick, is taken by a contagion communicated from some person who has already had it; which contagion, as inherent in the air, seems first to attack the lungs, mouth, nose, œsophagus, stomach, and intestines; and, therefore, to have, at such time, very little poisonous matter in its composition.

I have already given, in my commentary on Sect. 1380, the reason why the small-pox is stiled an epidemick disorder. But there are several epidemick disorders, as will appear in the next chapter, which have a manifest cause, such, for

instance, as depends on the sensible qualities of the air which surrounds us, viz. heat, cold, &c. or on bad food, as in places afflicted with a dearth, besieged towns, &c. when it is observed, that such as can avoid the causes productive of the epidemick disorder, do not take it, though they reside in the neighbourhood of the sick. Thus, as I have already taken notice in my history of the scurvy, the soldiers in besieged towns very often have that disorder to a violent degree, whilst the besiegers enjoy the best of health. In times of scarcity, the poor people of the lower classes are often grievously visited with sickness, on account of the badness of their food, whilst the rich, who want for nothing, are entirely free from it. It has been frequently observed by army physicians, that, whilst one part of an army, stationed in low and moist grounds, was afflicted with epidemick diseases, the rest, incamped on high and dry grounds, complained of nothing. On these occasions, it is with great reason such diseases are attributed to sensible causes; by the avoiding, or removing of which, such diseases themselves may be likewise avoided or removed.

But some physicians, famous for their practice, have learned from careful observation, that diseases, sprung from manifest and obvious causes, alter the body, and make its humours degenerate, to such a degree, as to become capable of propagating, by mere contagion, such diseases originally bred from manifest and obvious causes; so that, in consequence of this contagion, the healthiest persons, who were never exposed to the original causes of the disease, shall immediately fall sick of it. I have already mentioned, in my commenatry on Sect. 1150, those mistakes with regard to diet, which are sufficient to produce the
scurvy,

ſcurvy, and by avoiding of which that diforder may be avoided, or even cured, if it has not attained its higheſt degree of malignity; but then I have taken notice, Sect. 1151, N^o. IV, that there is reaſon to dread a rapid contagion, when the ſcurvy has reached the laſt degree of its laſt ſtage; and likewise, that it does not appear quite certain, that the ſcurvy can be produced, by mere contagion, in a body perfectly healthy in other reſpects; though this ſeems to be the caſe in ſeveral other diſeaſes. It has been obſerved by army phyſicians, that ſoldiers are extremely liable to breed the dyſentery, when obliged to lie down upon moiſt ground, eſpecially without tents; as is often the caſe immediately after an engagement, when the victorious troops make a point of paſſing the next night on the field of battle, though in want of almoſt every thing. Here the dyſentery has a manifeſt cauſe; and, accordingly, the ſoldiers, who have not had the ſame inconveniencies to ſuffer, feel nothing of it, though incamped at a ſmall diſtance, and uſing the ſame proviſions and water (*m*). But, as ſoon as the diſperſed troops come together, the dyſentery produced in the firſt, by manifeſt cauſes, preſently communicates itſelf to the reſt, by contagion alone, without any aſſiſtance from its original cauſes; and on taking ſeveral of the ſick ſoldiers to a little town a mile from the camp, moſt of the inhabitants caught the infection. I took notice, on another occaſion, in my commentary on Sect. 722, that a very famous phyſician was immediately ſeized with this diſorder on examining the very ſœtid ſtools of a patient that was then dying of it. Moreover, it appears from obſervations that may be depended upon, that the naſtineſs of

(*m*) Pringle's Diſeaſes of the army, page 24. & ſeq.

Prisons, in which poor creatures are obliged to continue a long time without the benefit of fresh air, the too great fulness of hospitals, especially when there happens to be one or more gangrenous patients in them, are sufficient to breed a malignant, nay, pestilential fever, which, after springing from such a cause, is communicated, by a true contagion, to other subjects, perfectly healthy in other respects. The same very celebrated author (*n*), to whom medicine is indebted for many and great discoveries, relates another surprising case, which confirms the first. Some patients, ill of this fever, happening to be on board a vessel coming down the Rhine from Germany, with a parcel of tents, that were to be finally repaired at Ghent, three and twenty hands already employed on the work, were immediately seized with the same disorder, and seventeen died of it.

It is therefore evident, that disorders may be bred in the body by manifest causes, of which, of course, such disorders are the effects; and nevertheless, that the body, labouring under these disorders, may be so altered by them, as to give them, by contagion, to other bodies, which had not been exposed to the original causes of them. So that it may be truly said, in this case, “the whole man is become a disease,” and every where propagates it. Thus, therefore, a contagion is bred in a body ill of a disorder, which was bred without any contagion; and the disorder may be afterwards spread far and wide by such contagion. In treating of the canine madness, I said, Sect. 1133 & 1134, that this dreadful disorder is bred in some animals from internal causes without any contagion;

(*n*) Pringle of hospital and gaol fevers, page 11.

contagion ; and that, when this has once happened, the whole of such animal, and every the smallest part of it, is sufficient to propagate the disorder by contagion, so that being applied to an healthy body, in ever so small a quantity, it shall produce the same disorder. Accordingly, a woman caught it, merely biting off the thread with which she was mending the clothes of a person which had been torn by a mad dog ; no doubt, *Aretæus*, expressing his surprize at a man's being suddenly suffocated, in the worst kind of the *Angina*, without any apparent swelling in his throat, gives it as his opinion, that the cause of so sudden a disorder is bred internally in the body (*o*): *quandoquidem et alia millena eorum quæ in homine sunt, eandem speciem cum exterioribus exhibent ; succi per dentes intus et extus : morbi quoque medicamentis perniciosis similes, &c.* “ Since a thousand other things within the body wear the same appearance with those without: the juices waſting within and without likewise disorders not unlike pernicious medicines, &c.” And, then, to confirm his opinion, he mentions the madness in dogs. He afterwards adds, that some were of opinion, that the famous plague of *Athens* was owing to the *Peloponeſians* having poisoned the wells in its neighbourhood ; *homines enim pestilentis mali cum venenis similitudinem ignorabant* ; “ for men, at this time, did not know the difference between poison and pestilence.” *Galen* says as much (*p*), in endeavouring to account for hysterical effects ; his words are, *nos infestari affectionibus, qui, in nobismet ipsis accepto sue originis impetu, similes sunt iis, qui pernicioso spoto eveniunt* ; “ we are afflicted with diseases,

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“ which,

(*o*) *Morbor. acutor. Lib. I. cap. 7. pag. 5.*

(*p*) *De Locis Affectis, Lib. VI. cap. 5. Charter. Tom. VII. pag. 520.*

“ which, having derived from ourselves their original violence, yet resemble those, which arise from the drinking of any thing prejudicial to the body.” And, that he imagined a contagion might be bred in this manner, is plain from his adducing, as an example to illustrate this opinion, what happens in a mad dog; *in quo animali tanta fit humorum corruptio, ut sola ejus saliva, si humanum corpus contigerit, rabiem excitet*; “ in whom there ensues such a corruption of humours, that his saliva alone, if it happens to come in contact with the human body, is sufficient to produce the same disorder in it.”

These things, if well weighed, are, I should imagine, sufficient to demonstrate, that a disorder may be produced in the human body without any pre-existing cause; and yet produce a contagion, which shall spread afterwards far and near, and multiply without any determinate bounds, just in the same manner, that a great conflagration may be produced by a single spark, where combustible matter is not wanting to feed the fire.

But let this question be ever so much examined and discussed, it must be allowed, that the first man, who had the small pox, had it not by infection. If therefore this disorder could have been once bred by any other causes, to which I willingly own myself a stranger, it may be produced again by the same causes, without the assistance of any contagion. It is indeed probable, that, now, the constant re-reproduction of this disorder may be owing to contagion, as it seldom ceases for any length of time in great towns, and the variolous matter, as we shall hereafter prove, can retain all its efficacy for a considerable time. Be that as it will, it cannot be denied, that the small-pox may be produced, without any contagion, by a course

course of other causes ; since it must have been originally produced in that manner.

This holds good of every other disorder, capable of being communicated by contagion from one man to another, since the man, who had it first, could not have taken it from any other man ; for this would be a manifest contradiction. This perhaps may be the reason, why certain disorders, which in former times were common and very contagious, have now totally disappeared in several places ; for, the contagion once subdued, the disorder will not appear again, without the same concurrence of causes which produced it in the first man who had it ; a thing which perhaps seldom happens ; and is never known to happen in some countries. Hence it appears, why some disorders are endemious in certain places, and carried, by mere contagion, to other places, in which there does not happen to be the same concurrence of causes, by which they may be immediately excited. The leprosy of the Jews, so exactly described in the Old Testament (*q*), affected not only their bodies, but even their linen and woollen garments ; nay strongly adhered to the very walls of their houses ; and such was the dreadful contagion of this ugly disease, that the persons who had it, kings not excepted, were to be banished human society, and their houses levelled with the ground, to prevent its spreading. Yet, at this time of day, there is not the least trace of it to be found in any part of *Europe*. Nay, other kinds of the leprosy, described by *Greek* and *Arabian* physicians, which raged in *Europe* in the twelfth century, when the inhabitants of it undertook so many expeditions to the Holy Land, began to abate of their malignity in the fifteenth,

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and

(*q*) Levitic. cap. 13, & 14.

and sensibly died away in the sixteenth; so that they are now scarce to be met with. Hence the hospitals for lepers, in these times so numerous in every part of *Europe*, have since, in several places, been applied to other uses. This disorder was brought by contagion from *Syria* and *Egypt* into *Europe*. Nay, the venereal disease, which we likewise received by contagion, is sensibly beginning to abate of its malignity; of which more hereafter.

Sometimes such a morbid contagion continues for years, before it comes to be entirely extinguished; sometimes it ends sooner. That ephemeral British pestilence, so exactly described by *Caius Britannus*, which used to carry off the healthiest persons in other respects, within the space of a few hours, visited *England* no less than five times in a period of seventy years; now it is two hundred and more since it appeared last.

It is therefore plain, that new disorders are produced by causes, often not sufficiently obvious to be exactly observed; which disorders are spread by contagion; and that such contagion is sometimes sooner, sometimes later, extinguished. Now we may conceive the greatest hopes of such a disorder being on the decline, when the malignity of it begins to abate greatly, and the contagion becomes slower: That ephemeral British plague, called *Sudor Anglicanus*, in the beginning, sometimes killed within the hour; then it took up three hours; the fourth time, it gave the patient six hours; and, at its last attack, still more time, as *Caius Britannus* informs us.

The opinion, that the small-pox was brought by contagion into *Europe*, seems to me very probable for the reasons I have already assigned; notwithstanding which, as it has now subsisted for so many

many ages, the earliest descriptions of it tally with its present appearance, and it does not seem to have yet remitted of its original violence, I think there is great reason to fear, that this disorder, so fatal to mankind, is as yet at a great distance from its extinction, especially as it is evident from certain experiments, of which I shall speak hereafter, that the contagion of the small-pox can retain, for a long time, its aptitude to propagate the disease; and we are as yet utter strangers to the space of time it requires to evaporate, or become quite inert. If we further consider, that this variolous contagion is endued with an incredible power of multiplying itself, this opinion will appear still more credible. Certain it is, that the smallest drop of the variolous matter, in which that contagion resides, is enough, on being applied to a little new and green wound, to produce the disorder in the healthiest body to such a degree, that, within two weeks, it shall be all over covered with pustules full of matter, the least particle of which is sufficient to propagate the disorder in its turn; the very effluvia of a person labouring under this disorder, are alone sufficient to spread it; for it evidently appears from numberless practical observations, that numbers have caught the small pox by only entering the bed chamber, or even the house, in which somebody lay ill of it. Nay, I have seen whole colleges infected with the small-pox, merely by a boy, who had had the disorder, returning to school, and mixing with the other boys, before the red spots, left on his body by the disorder, were worn off. Nay, the malignity of this virus is not to be extinguished by death itself, as appears by the cases I have already given, by which it appears, that the very corpse of a person dead
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of this disorder has proved sufficient to give it. I remember an infant but six weeks old dying of this disorder; and he was the only one in the town that then had it to my knowledge, though my practice was pretty extensive; the little corpse was strewed with flowers; and, according to the custom of the country, several persons were invited from places in the neighbourhood to visit it, now laid out in a very large room, not only not the same in which it lay when living, but in one at some distance; yet some days after all the visitors, who had not had the disorder before, were seized with it, though they had made but a short stay in the room, where the corpse was exposed. Seeing therefore, that the bodies of persons in the best health are liable to be so changed by the smallest particles of the variolous matter, that during the disorder, after their recovery from it, nay after their dying of it, every part of them shall breathe contagion, and that a contagion fitted to adhere to several kinds of substance, and retain its malignity for a considerable time; it is pretty evident that we can entertain no great hopes of the small-pox ever becoming extinct. Were this ever to be the case, we might begin to expect it, as soon as we could be certain that there were no observations to prove the small pox had broke out in Europe of its own accord, and without any contagion, and, on the contrary, great reason to think that it was brought to us by contagion from other countries.

But several physicians having observed, that scarce one man in a thousand escapes the small pox; that children in the womb have sometimes had it; that it is to be dreaded by such as have not already had it from their birth to their death, let them die ever so old; they began thereupon to look up-

on

on the fomes of this disorder as having its origin in and with man; and to think that this fomes lay concealed in his body, and sometimes for a long time, before it became active, and produced the disorder. This opinion was particularly relished by such as would have it, that the disorder was coeval with man himself.

Rhazes, who tells us he was the first to treat expressly of the small pox (*r*), supposed such innate contagion communicated by the mother to the child, while still in the womb; and that, when brought into action, it deperates the blood, just as fermentation converts the turbid juice of the grape into a fragrant and limpid wine, by a separation of the thick lees. As it appeared from experience, that sometimes men are seized with the disorder in the womb, and very often in their youth; and that those, who once had it, never had it again, this opinion took with many; nay in former days it was almost universally laid down as a maxim, that such morbid leaven, communicated by the mother to the foetus, came into action, sometimes sooner and sometimes later, excited the disorder, and was then, by this very disorder, expelled the body; that the whole mass of blood was thereby deperated from all inherent virus; and that this was the reason, a man who once had the small-pox was never to have it again. They therefore looked upon the small-pox as a natural and useful despumation of the blood, by which those only perished, whose bad fortune it was to receive a portion of leaven of the sharper kind; or too great a quantity of it; or, in fine, not to be blessed with a constitution strong enough to bear the disturbance it created in their bodies.

And,

(*r*) Friend Histor. of Physic, Tom. II. pag. 190.

And, as the menstrual blood has a bad character with many people, and is generally retained by women during the whole time of their pregnancy, in order to yield nourishment to the future man, they were pleased to conceit, that it likewise communicated to the blood and humours of the foetus some kind of malignity, which was afterwards expelled by the depuration wrought by means of the small-pox. I have already, in the chapter on the *disorders of Virgins*, given my thoughts concerning the opinion we ought to entertain of the menstrual blood, and made it appear, that the disorders, which follow the suppression of such blood, are not to be attributed to any kind of malignity in it, but to very different causes. Others accused the liquid of the amnios, in which the foetus swims, and which they likewise imagined made part of its nourishment. Others again, considering that it is usual to tie the navel-string, on the child's coming into the world, at some distance from the navel, and that the part between the ligature and the navel withers and dies away, though not without remaining fastened for some days to the live parts; those, I say, were of opinion, that some bad affection was thereby communicated to the blood of the foetus, capable of producing, in process of time, this morbid leaven. If I have not given, by name, the authors of these opinions, it is because the number of them is too great, as every one versed in medical writings must know. But, though these authors are divided in their opinions concerning the first origin of this fomes, or morbid leaven, yet they are all pretty well agreed in this one point, that, whatever the nature of it may be, it is communicated to the foetus, still resident in the mother's womb, and may lie concealed

cealed in the body a long time, before it becomes active.

But they presently saw that this fomes or leaven could not long continue mixed with the circulating humours; for then it must have been speedily eliminated the body; at least, there was no conceiving how it could remain inert for so many years, without losing any thing of its quality, or its aptitude to produce the small-pox in its due season, if it were to be kept in perpetual protrusion through the vessels of the body with the circulating humours.

This difficulty laid them under a necessity of supposing, that there were some spots in the body, in which such connate fomes might safely lurk. The illustrious *Hoffman* (*f*) had laid it down as a maxim, *ex succo quidem chyloso lymphatico corrupto et impuro. matris, oriri prius hunc subtilem et virulentum humorem, sed viscositate quadam obvolutum, firmiusque tubulis quibusdam impactum, delitescere tamdiu, donec in motum fermentativum, sui multiplicativum, ab aliis causis deducatur, succis insinuatur, et critica quasi despumatione ex corpore exturbetur*; “ That this subtle and virulent humour first springs from a chylous and lymphatic, but corrupt and impure, juice of the mother; but that being covered with a kind of viscosity, and more compactly shut up in some small tubes, it continues concealed in them, till it is by other causes brought into a fermentative motion, sufficient to multiply it, insinuated into the other juices, and at length expelled the body by a kind of critical despumation.” He was of opinion, that this juice had its nest in certain obstructed tubules of the spinal marrow, because the spinal marrow and the head
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are the first parts visible in the smallest embryos, and are of a considerable bulk with respect to the other parts, which afterwards successively make their appearance. Further, he placed this nest in the lowest part of the spinal marrow, because the disorder in its beginning sometimes disturbs the whole nervous system, and this disturbance is followed by convulsions and deliriums: he looked upon the pains in the head, back, and loins, which almost always accompany the incipient small-pox, as so many supernumerary proofs of the same opinion.

Violante, famous for a long and successful practice of our art, placed the nest of this morbid fomes in the atrabilarian capsules, or the reins known by the name of succenturiate; or at least strenuously maintained this opinion, which had long before been advanced by *Willis* (1). The grounds upon which he chiefly endeavours to establish this opinion, are, that neither anatomists nor physiologists had as yet been able to assign any use for these parts; and that these atrabilarian capsules encrease in size the nearer man approaches to his origin, whereas they become less as he advances in years, and almost disappear in old age. Besides, there is found in them a black juice, which he takes to be the fomes of this disorder; laying it down as a maxim, that the contagion of the small-pox does nothing more than bring this humour into action. But, with this great man's leave, I must own, that I cannot approve this doctrine. There are, no doubt, several parts of the human body, the use of which is not yet ascertained, though it may perhaps hereafter; and which likewise are of a great bulk in fœtuses and young

(1) *Violante de Variol. et morbill. pag. 22. & seq.*

young people ; and afterwards sensibly grow less and less during the remainder of our lives, till they come at last to be totally abolished. Such, for instance, is the gland, called thymus, concerning the use of which we are as yet totally in the dark ; nay, we are not as yet clear with regard to the peculiar functions of the mesenteriac glands in chylification ; and these glands are of a great size in young people, whereas they sometimes totally disappear in extreme old age. Might not therefore these parts be the seat of this fomes ? I must own they do not contain that black juice ; but then we are not sure that the fomes of the small-pox must be of that colour.

Many other and very capital objections might be made to this doctrine ; for thence it would follow, that the small-pox was coeval with the human race, since every man carried a stock of it about him ; but I believe it will appear by what I have already said, that this opinion is not altogether so probable. Besides, as the atrabiliarian capsules are larger in young people, and sensibly decrease as we advance in years, the small-pox should prove more fatal to growing persons than adults, which is contrary to experience ; nay, it is usual above all other periods of human life to chuse, for the inoculation of the small-pox, that between the fourth or fifth year, and the age of puberty. Since violent intermitting, nay, and acute fevers, so often seize young people, should not this virus lurking in the succenturiate reins be then excited and brought into action ? Contagion alone is sufficient to produce the small-pox in the healthiest bodies ; why then need we recur to an uncertain cause, when we know that contagion alone is sufficient in other contagious disorders ? It will be no easy matter to convince us, that

there is any necessity for some pre-existing morbid fomes in the body, to make a man bit by a mad dog become mad, to make a man mixing with people in the plague, breed the plague, to make a physician inspecting the fæces of a dysenteric patient, catch the dysentery. Whoever seriously attends to these considerations, will not be easily brought to relish this doctrine, which teaches, that in a perfect and healthy human body, and that too from its very origin, there are laid, by some natural law, the seeds of a future disorder, and that those seeds can continue there, without losing any thing of their efficacy, to extreme old age, when every thing in us, the most solid parts not excepted, is in a constant state, of wear by those very actions which contribute to life and health, and of restitution by food (*u*).

There is another theory of the small-pox, lately proposed by *Habnius* (*w*), a famous stickler for the antiquity of this disorder. By this doctrine it should appear, that the small-pox was coëval with the human race, and therefore always had a being. Nay, our author was for striking the small-pox out of the catalogue of human diseases, asserting that it was *speciem evolutionis corporis humani*: “A kind of evolution, or “unfolding, of the human body (*x*),” by which some new minute blood vessels, which had hitherto lain folded up and hid, come out on the skin, and being now unfolded, become better able to exercise their functions; and he endeavours to prove that there are to be found in the human body, many such primordia of future things, which continue for a long time dead, as it were,
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(*u*) H. Boerh. Instit. Sect. 476.

(*w*) Variolarum ratio, &c. Wratislavæ, 1751, in 4to.

(*x*) Ibid. p. 11.

and useless; such as the rudiments of the second teeth, which occur, even in children; come before their time; he likewise gives as another instance; that remarkable change, which takes place in both sexes about the age of puberty. These are his words: *Scilicet intellexi tandem, quod illæ ipsæ variolarum pustulæ revera sint totidem prægnantes arteriarum gemmæ, ab, illarum ramulis sub cuticula abditis, determinatæque evolutioni suæ propinquis, emissæ. Quibus multiplicatarum, incremento corporis, summitatum vasculosarum stamina prorumpant; soluto cuticulæ cum cute nexu bullulas efformant; hisque tamquam totidem perianthiis tantisper custodita latent, affluentique succo benigno nutrita, justam maturitatem indijiscuntur, liberumque aeris accessum sine læsione ferunt. Quo ipso temporis momento feliciter impetrato, eadem variolarum gemmæ, hucusque florum coniventium more clausæ, diductis labiis suis rictum aperientis, superfluas humiditates exhalare patiuntur, tumque denique tamquam inutiles carrollæ defluunt, vasculo ipsa, tali florendi ratione renata, novaque cuticula munita, functionibus suis obeundis paria sibi relinquentes.* “ For I have at
 “ last had the happiness to perceive, that those
 “ very identical pustules of the small-pox, are,
 “ in fact, nothing but so many pregnant gemmæ
 “ of the arteries, put forth by their minute
 “ branches hid under the skin, and approaching
 “ the time fixed for their evolution; and from
 “ which break forth the stamina of the vasculous
 “ summits multiplied by the encrease of the
 “ body; these summits form little bubbles by
 “ destroying the contiguity between the skin and
 “ the cuticle, and lie hid in them a little, as in
 “ so many perianthia, till being nourished by the
 “ afflux of a friendly humour, they acquire their
 “ proper degree of maturity, and become capable

“ of bearing without injury, the free access of
 “ the air. Having happily attained this period,
 “ these same gemmæ of the small-pox, hitherto
 “ closed in the manner of unblown flowers, at
 “ length form an outlet by the opening of their
 “ lips, permit the superfluous humours to eva-
 “ porate, and then, at length, fall off like so
 “ many useless carollæ, leaving the little vessels
 “ themselves, reproduced by this mode of
 “ flowering, and provided with a new cuticle,
 “ in a condition to do their own duty (y).” *Hab-*
nus would have it, that, as the gemmæ defend
 the tender parts of the plant on the point of their
 evolution; the pustules of the small-pox are, in
 like manner, glomeræ of the nascent vessels on
 the point of their evolution; and are therefore
 destined to the very same uses in men, which we
 well know the gemmæ are in trees (z). Nay, as
 the gemmæ of trees are sometimes covered with an
 unctuous substance for their defence, and this sub-
 stance is often endued with a peculiar smell; so the
 variolous pimples, when about to come out, or
 actually coming out, are attended with a smell of
 their own, quite different from that stench, which
 is a sign of corruption, and is exhaled from ul-
 cerated places, or scabs wet with sanies; and, by the
 variolous pustules themselves, when suppurated
 (a). Now, the pus of the variolous pustules, I
 mean that of the good kind, which he calls the
 variolous humour, is not unlike a certain kind of
 humour found in the amnios, which surrounds,
 cherishes, nourishes, and, by its stay, in process of
 time, perfects those minute embryos of the little
 nascent

(y) Variolarum ratio Wratislaviæ 1751, in 4to. page 12.

(z) Ibid. page 30.

(a) Ibid. page 32.

nascent arteries (*b*). And, as in flowers, the perianthium answers the purpose of defending them in their tender state from the injuries of the air; and then, on their growing stronger, and blowing, falls off as a now useless defence, according to an elegant poet (*c*):

*Omnes enim verno spes est in flore : tenellum
Hinc solers natura fovet, ramoque comanti
Et duro calicis munimine vestit, hiantem
Di en modice jubet, explicitas evolvere frondes,
Nec totos aperire sinus, sed discere sensim
Frigora nocte pati, calidoque assuescere soli.*

Just in the same manner, would *Habnius* have the falling scabs of the small-pox considered as their withering perianthia; and having observed that children liked the taste of them, he, from the thus manifested innoxiousness of so strange a delicacy, acquitted the matter contained in the variolous pustules of being indued with any poisonous quality (*d*). But nothing can be surer, notwithstanding, than that the small-pox may be propagated by these scabs, though they prove perfectly innocent with regard to those who have already had it.

From all this, our illustrious author concluded (*e*), that the whole web of the skin was renewed by the small-pox. Being, however, aware, that a very strong objection to his doctrine might be drawn from the constant danger, and frequent fatality, attending the confluent small-pox, he endeavours to obviate it by alledging.

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that

(*b*) Ibid. page 37.

(*c*) Vanier. Præd. Rust. Lib. V.

(*d*) Hahn. ibid. page 41.

(*e*) Hahn. ibid. page 43.

that, *Distat variolarum confluentium morbus a distinctarum morbo vere ut partus difficilis et preternaturalis a facili et naturali. Eruntque adeo nobis variolæ confluentes, variolæ difficiles, sive evolutio difficilis vasorum sanguiferorum cutis, qua illorum actus florendi, pustularum aut duriorum, aut gentilitia quadem pravitare dignoscendarum, copia, vicinia, confluxu, nunc totus fatiscit, nunc insurgentibus inde diris symptomatibus per cuncta variolarum stadia interturbatur (f):*

“ The confluent small-pox differs from the distinct, just as a difficult and preternatural labour from an easy and natural one. Hence the confluent small-pox must be considered as a difficult small-pox, or a difficult evolution of the blood vessels of the skin, in which their flowing is sometimes entirely prevented by the number, nearness and, confluence of pimples, remarkable for their hardness, or some other peculiar vice; and sometimes only disturbed, through every stage of the disorder, by the dangerous symptoms thence arising.” Moreover, our author considering that the great disturbance raised in the human frame, by the confluent small-pox, and the so often unhappy issue of that kind, might be made another objection to his system, as an event altogether the reverse of an useful evolution of the blood-vessels of the skin, preordained, if we believe him, by nature herself; he is pleased to ascribe all the mischief done on this occasion to an epidemic malignity concurring with this natural evolution of the blood vessels. His words are: *Accidit tunc variolis laborantibus, sola ejusmodi epidemiarum culpa quod florentibus hortis, quod sylvis virentibus, quod fertilibus agris. Fædæ tempestatis injuria dispercutunt flores, folia, fruges;*

fruges ; pressundantur, horti, sylvæ, agri : sed nulla vel hortulani, vel agrorum, unice incongruæ tempestatis, culpa. “ It then fares with the small-pox pimples in labour, merely through the fault of such epidemy, as, in a storm, with the blooming gardens, the green woods, the fertile fields. It is merely by the violence of the wind the flowers hang down their heads, the leaves fall off, the grain is laid even with the ground ; that the gardens, woods, and fields, are laid waste ; and not through any fault either in the soil or the hand that cultivates it ; the bad weather alone is to blame (g).”

Such are the arguments to which our illustrious author was driven to establish his new doctrine concerning the small-pox ; of which, I must own, I could never, after the most serious examination, entertain any other opinion, than that of its being more ingenious than solid ; and I make no doubt of its appearing in the same light to many more besides myself. Physicians are universally agreed, that the small-pox, every thing else being equal, is always slight and safe in proportion to the fewness of the eruptions ; so that according to our author, those must be happiest, in whom the natural evolutions of the blood vessels of the skin happen to prove most imperfect ; yet I believe there are very few, who would chuse to purchase a more perfect evolution of them, at the expence of an heavier fit of illness. Besides, the small-pox, as I shall hereafter shew, seizes the surface of the interior as well as exterior parts of the body, though the structure of the former differs widely from that of the latter ; and, surely, it cannot be for the purpose of any evolution of

the blood vessels, that the germens of the small-pox, in that case so mischievous, come out on the interior parts. They over-run the nostrils, throat, and roof of the palate, &c. where there is no cutis. The pale and juiceless skin of decrepit old people does not appear ever so little qualified to put forth the gemmæ of vessels going to unfold themselves; yet, this last stage of human life is not proof against the small-pox. Our being able to communicate the small-pox by inoculation, is a proof, that the variolous pus is possessed of a real degree of contagion; and that not of the mildest kind; since the little wounds imbued with this matter often degenerate into ulcers very hard to be cured. This self same pus, taken by resorption into the veins, produces likewise very stubborn disorders; and when it happens to be discharged from the blood, by a metastasis, on any particular spot, it not only produces bad ulcers, but eats into the very bones, and renders them carious. Nay, the dry scabs of the eruptions, which our author is pleased to consider as the withered priantia of the cutaneous gemmæ, are not free from contagion, being found sufficient, when applied to the nostrils in the Chinese manner, to produce the disorder. Moreover, those who have but very few pimples, provided they are of the right and genuine sort, are not liable to have the disorder again, though the infectious matter should be applied, in the way of inoculation, to a green and bleeding wound; yet, in our author's hypothesis, an infinite number of the blood vessels of their skin must still remain to be unfolded.

These are but a specimen of the many difficulties I started against this new system, in consequence of the illustrious author having written
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me several letters, and all in the most friendly stile, for my sentiments of it. But my objections had not weight enough with him to make him give it up; however, it was only in opinion we differed; I maintained a no less friendly than useful correspondence with this very learned Physician, as long as he lived. Some time before his death, he wrote another treatise (*b*), in which he not only defends his opinion, notwithstanding the objection made by many famous men, that whole nations were for ages together strangers to the small-pox, and that, when they at length received that disorder, it was merely by contagion, and a contagion which proved fatal to many; but he endeavours to prove, that the lymphatic vessels of the skin are unfolded by the meazles, just in the same manner that the blood vessels of the skin are unfolded by the small-pox; and hence he stiled the former the champions of the latter; for he flattered himself, that the meazles confirmed, beyond the possibility of doubt, every thing he had advanced concerning the small-pox. Nay, he abided so firmly by this, his new system, that he seemed to make as little of a contagion spreading the small-pox through a whole nation, hitherto unacquainted with it, as of a forest of barren palm trees being fæcundated and rendered prolific by the dust of the antheræ (*i*); he then adds: *Ludere velle, hæc asserens, in re seria videri poteram, nisi variolas flores humani corporis esse intime cognovissem, et nisi publice tale quid contra integrum secus sentientium exercitum proponere ausus fuisssem*: “ I should be afraid, in consequence of
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(*b*) Morbilli Variol. vind. delineat. a Jo. Goth. de Hahn. Wraislav. 1753.

(*i*) Ibid. page 18, 19.

“ pable of trifling in a matter of moment, unless I was quite satisfied within myself, that the eruptions of the small-pox are the flowers of the human body; and had the confidence to defend my opinion, publickly, against a whole army of physicians who think otherwise.” But, with all due deference to the judgment of this great physician, whose memory will ever be honoured by all good men, I cannot help joining against him; nay, I trust I shall take warning from him, not to suffer myself to be led astray by specious appearances, in my endeavours to deliver, to the best of my abilities, the history and treatment of diseases. After all, there are, in these two tracts, many things well worth our perusal, particularly several faithful observations, and exact descriptions, of both the small-pox and the meazles, in every stage of them.

I believe that no one, who has been at the pains of attentively considering all I have said of the small pox, can entertain the least doubt of its being propagated by contagion. The next thing we are to consider, is by what means it is conveyed from the body of a person labouring under it into that of another in good health.

It appears from very many observations, that this contagion is capable of floating in the air, and entering our body with that element. Numbers have been infected with the small-pox, merely by coming into the room, where another was ill of it; and that, without ever touching the sick person, or even touching any thing he had touched: nay, some have taken it by just crossing the threshold of a house, in which there happened to be somebody down in it; moreover, the bodies of persons who have died of the small-pox still continue to fill the circumambient air with the seeds

seeds of it, as I have already related. Now, to float in the air, and fly about with that thin and subtil element, it must be, itself, extremely thin and subtil; and, therefore, when taken into the lungs with the air, in the act of inspiration, it may get out of them again, by means of the same vehicle, in the act of expiration; and so escape the body.

But, then, we are to observe, that the mouth, nostrils, aspera arteria, lungs, stomach, intestines, to which the air has free access by inspiration or deglutition, are perpetually lined with a slimy mucous humour, well qualified by its viscosity to catch these contagious miasmata, though naturally so volatile; nay, that the skin is covered, throughout, with an unctuous matter, and at all times equally accessible to the air; it cannot therefore appear any way improbable, that the variolous contagion should adhere to the skin so constituted, and by that means propagate the disorder. We have an account of it having been tried, if the small-pox could be produced in an healthy body, merely by applying some of the variolous pus to the skin, without any wound to receive it; and the thing succeeded in many, when the pus was kept on by a sticking plaister (*k*); but, as it did not succeed in all, there is great reason to conjecture, that the contagion is not as easily communicated by applications of the contagion to the skin, as by the inspiration and deglutition of it; and it must ever remain a matter of doubt, whether or no the contagious effluvia may not be taken by inspiration into the body, at the same time that the variolous pus is applied to the skin. Some observations, however, seem to imply, that

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(*k*) Journ. Britann. mars, avril, 1754, page 417.

such contagion now and then adheres to the skin; and thereby, alone, produces the disorder.

I have sometimes seen a single pimple come out on the body of a person in perfect health, grow red, give pain, suppurate, and eat deep into the skin, leaving a pretty large cicatrix behind it; and in a few days the small-pox followed with its usual train of symptoms. I have been told by other physicians, that they have sometimes observed the same thing; even the poor women, who make a trade of nursing persons ill of the small-pox, have a name for these solitary eruptions; they call them mother-pocks, as if they were the mothers of the small-pox that is soon to follow; nay, they, on their appearing, make no scruple of prognosticating the speedy appearance of the small-pox itself. This kind of pimple generally shews itself on the face; and, some times, though but seldom, there are two or three of them. For my part, I do not remember, that, in all my practice, I ever saw the number exceed two, but they always leave behind them a more disagreeable cicatrix, than the subsequent genuine eruptions. Hence I have been led to suspect, that the contagious miasmata, by adhering to some particular spot of the skin, might cause such little ulcers, which afterwards infected the humours flowing to it, so as in time to produce the disorder; this, at least, is certain, that, in the process of inoculation, the lips of the wounds made for that purpose, first inflame, and then open; that suppuration ensues, and a trifling little wound degenerates into a deep and pretty wide ulcer (*l*).

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(*l*) *Academ. de Chirurg. tom. 2. page 558.*

But this contagion, considering how it floats in the air, and that it is not then to be discerned by any of the senses, must, one would imagine, be extremely minute and subtil; and that it really is so, may be deduced from direct experiments. Formerly, the way to inoculate was to apply to the wound some pus newly squeezed from the variolous pustule, taking care to lose no time in the application. But, as persons ill of the disorder were not always at hand, they tried another more convenient method, particularly in *England*, when the use of inoculation began to prevail there: They dipt a thread into the variolous pus; and this thread they found could be kept, when dried, for some months, without losing any of its efficacy; as, to give the disorder, they had nothing to do, but lay it on the wound, and then bind it down with a sticking plaister. Now, what a trifling quantity of infection must that be, which can be contained in a little bit of such thread? and even all that trifling quantity is not taken in by the bibulous veins; nay, it appears from experiment, that it is sufficient to leave the thread in the wound a very short time, to produce the disorder. What is still more surprizing, the mere rubbing of the wound, and that but once, with a little rag containing some of the variolous pus, has been sufficient to answer the same end (*m*). A woman, who had some threads imbued with the variolous pus applied to an opening made in her skin, for the purpose of inoculation; but, speedily repenting of her having submitted to the operation, removed the dressing, took out the threads, and replaced them with others that were not infected, and then bound them down with the usual dressing, without letting her physician know any thing of the matter,

(*m*) Kirkpatrick on inoculation, pag. 165.

matter, least he should check her for her want of resolution; all in hopes she had not as yet caught the infection; this woman, I say, had the disorder, notwithstanding; got over it happily; and then confessed the trick she had played.

Hence it appears, that, terrible a disorder as the small-pox may be, the least particle of the variolous pus is sufficient to produce it; yet this pus, after all, seems to be nothing more than the bare vehicle of the contagion itself, the exility of which must therefore surpass all imagination. But what must appear still more surprising, let the quantity of this contagious matter applied to the body of an healthy person be ever so great, it never makes the disorder worse. It was once the custom in *Greece* to make several incisions or punctures, and bestow on every one of them, plenty of the variolous pus; yet the persons thus treated generally had the disorder very favourably. In *England*, when they were trying the method of inoculation on some poor wretches under sentence of death, they applied to each of them three rags imbued with a large quantity of the pus, yet they all got over the disorder (*n*). A doubt arising, that the youngest of three infants, under inoculation for the small pox, had not taken the infection, as his wound did not appear equally inflamed with those of the other two, the variolous matter was again applied to it, yet he had not the disorder before them; nay, he had fewer eruptions, and better symptoms (*o*).

On the other hand, the least quantity of the variolous pus has sometimes been known to produce a most dangerous small-pox, nay, one that has proved fatal. It is plain, therefore, that an incredibly small quantity of the contagious matter is sufficient to produce the small pox, and that the disorder

(*n*) Ibid. pag. 162.

(*o*) Ibid. pag. 166.

disorder is never the worse for having been produced by a large quantity of it.

After all, this so very contagious matter of the small-pox, though light enough to float in the air, and subtil enough to escape all our senses, can adhere to other bodies, and retain for a long time its aptitude to propagate the disorder. A woman caught the small-pox, merely by washing, in the Islands of *Ferroe*, the shirt of a young man who had had it in *Denmark*; and the disorder afterwards spread itself, and carried off numbers. Nay a girl, by carrying about her, for a few days, some letters she had received from a brother ill of the small-pox, was seized with it herself, though there was no sign of the disorder in the place where she lived (*p*). A man, merely by entering the room, in which another had had it three months before, caught it likewise. A surgeon, merely by bleeding a woman with a lancet he had used nine days before to take off some ripe pustules, infected her to such a degree, that she had the disorder soon after (*q*). Threads, imbued with the variolous matter, have been known to communicate the disorder on being applied to a green wound, after they had been kept several months in a box, which, indeed, was very close shut (*r*). It has been however observed, that the contagious matter, when kept some time, is three or four days slower in taking effect (*s*). It is usual with the Chinese, to preserve, in a porcelain vessel, perfectly closed with wax, the scabs of well dried pustules; and they thus make them retain, for several years, their infectious quality
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(*p*) Werlhoff de variol. & anthrac. pag. 16. 17. in notis.

(*q*) Kirkpatrick of inoculation, pag. 167, 168.

(*r*) Acad. de Chirurg. Tom. II. pag. 556,

(*s*) Ibid. pag. 559.

which they would, otherwise, lose in little more than three months (*t*). To inoculate a person, they take two large, or four small, scabs, and lapping them up, with a little mofs, in some silk-down, they make the whole into a roll, which is put up the nose; and in a short time the small-pox is sure to follow. It is plain, therefore, that this contagion keeps a long time; and that it is not as yet known, what length of time is requisite for it to lose, entirely, its aptitude to produce the small-pox.

It may not, perhaps, be amiss, before I proceed any further, to give a few corollaries, which follow from what has been said in the foregoing pages.

1st. It is certain that the small-pox is propagated by the contagion which a person, who actually has, or has lately had, it, communicates to another.

2dly. And it does not appear by any experiment that can be depended on, that the small-pox ever shewed itself in *Europe*, otherwise than by contagion.

3dly. Man alone, of all animals, is liable to take the disorder; for it does not appear, by any experiment I know of, that dogs or any other domestic animals have ever been infected with it, though they have lain in the same bed with those who had it, and have frequently touched, and even licked the ripe pustules, full of matter.

4thly. The body is so disposed by the small-pox produced by contagion, as to bear afterwards with impunity the self same contagion applied in any manner, and to any part of it.

5thly. Though several persons, even such as have been frequently exposed to the contagion, have lived and died without ever having the small-pox,

(*t*) Lettres edif. & curieuses. Tom. XX. pag. 317, 318.

pox, no man living can be sure of his never having it.

6thly. This contagion, though it disturbs the human body, even that of the healthiest persons in so strange a manner, is too small in point of bulk, and too subtil, to strike any of the senses.

7thly. But then it is capable of being arrested by any viscid and tenacious substances, and of adhering to, and inhering in, different bodies, and that too for a long time, without losing any thing of its aptitude to propagate the disorder.

8thly. This contagion is possessed of a surprising power, by which it converts the most healthy humours into its own nature, and thereby becomes capable of being multiplied almost to infinity. The smallest particle of the variolous pus will infect a person in good health, as is plain from the effects of inoculation ; and every single suppurated pustule of such infected person contains a contagious pus of the same kind, by which the disease may be again communicated to others. The variolous pus has been produced, by a series of successive inoculations, to the eighth generation ; and that of the last generation proved equally contagious with the parent pus (*u*).

9thly. Such, therefore, being the faculty of this contagion, to multiply itself, and adhere to so many substances, without losing any of its efficacy, we are not to be surprised at its seldom ceasing, for any great length of time, in large and populous places ; or at its so often breaking out afresh in them ; nor, on the other hand, at its often not appearing, for years together, in country places, blessed with a free and open air, and having little intercourse with great towns.

10thly.

(*u*) Kirkpatrick of inoculation, pag. 132.

10thly. Neither does the receiving of a greater quantity of the contagious matter seem to make the disorder worse; nor the receiving of a lesser quantity, to make it better; and the least quantity of it is sufficient to produce the disorder. A slender thread, imbued almost ever so sparingly with the variolous pus, is attended with the same effects, when applied to a green wound, as a large feather dripping with the same substance. It appears by many and sure observations, that a person, who has made but a moment's stay in a place infected with the variolous miasmata, is seized with the disorder, in the same manner with one, who has continued in it for several hours, nay days and nights; and must, of course, have imbibed a much greater quantity of the contagion.

11thly. Notwithstanding all this, the same contagion, applied to different persons, will produce a mild sort of small-pox in some, and a dangerous sort in others; though it had been applied to them all at the same time, and under the same roof; and the same regimen observed by them all, while they were ill of it. The celebrated *Hoffman* once observed this disorder to proceed and terminate very differently in two female twins of four years, who took it at the same time (*w*). It proved of the confluent kind in both; but in one, who was gross, dull, and heavy, the pimples came out very late, not till the seventh day, and never filled with pus, but with a bloody serum; and this child died on the tenth day of the disorder: In the other, the pustules came out the third day; the disorder proved milder in every stage of it; and the child happily recovered.

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the pustules drying up on the ninth day. But this child was thin, little, and lively.

The degree of its malignity, therefore, in the person seized with it, does not depend upon the degree of virulence in the contagion itself, but, rather, on the difference in the disposition of the body, to which it is applied. The ichor of the confluent small-pox seems to differ greatly from the pus of the distinct and gentle sort; yet it appears from repeated experiments, that the ichor of the confluent small-pox, even that which has proved mortal, being applied to a wound, has produced a small-pox of a very mild and benign kind (*). On the other hand, I have seen the contagion of the mildest and most benign small-pox, produce the worst I ever met with. A young man, who had been some weeks at *Amsterdam*, whilst the small-pox happened to prevail there epidemically, coming home to his friends, who were spending the summer at a farm near *Leyden*, where there was no sign of the small-pox at that time, nor in any place in the neighbourhood, was, however, seized with the disorder, which, besides not being preceded by any fever, or attended with any symptoms, proved of the distinct kind, with few pustules; in short, he had it so gentle, that he recovered without being obliged to lie down for it, or even confine himself to his room: he was, indeed, a youth of great temperance, and blessed with an exceeding good habit of body. An aunt by his father, who was on the contrary of a very atrabilarious habit, scorbutic, and above forty, was likewise seized with the disorder; and, though she took it from her nephew who had it so gentle, she was immediately obliged to take to her bed, with the

(*) Kirkpatrick of inoculation. pag. 135. 136.

worst of symptoms. The disorder proved so violent, that not only her whole body became one entire sore, by the extraordinary confluence of the pustules; but there, here and there, broke out upon it, on the fifth day, large bladders replete with so putrid an ichor, that, though pretty well inured to the worst of smells, I was ready to faint, as often as she happened to burst one of them, whilst tossing and tumbling in her bed on account of the great uneasiness she endured; and it was only by constantly applying to their mouths and noses sponges dipt in fragrant vinegar, that her own friends were able to withstand the horrid stench. There was, however, no hindering the daughter of this poor creature from attending frequently at her bedside; and, after her mother's death, she was, in her turn, seized with the small-pox; but she had it as mild as her cousin, who had brought it into the family; and, though exposed to a contagion of the worst kind, escaped without any danger in point of life or beauty. These and many other similar cases, which I have had an opportunity of seeing in the course of my practice, have made such an impression on me, that I most willingly subscribe to the opinion of the very illustrious *Mead*, who says (y), *Præterea plus mea opinione referit, in quale corpus infundatur, quam de quali eximatur, pestilentie virus*; “ Besides, it is, in my opinion, of much more
 “ consequence, by what body the pestilential
 “ virus is received, than from what it has been taken.” It is, therefore, with great reason he condemns those surgeons, who are rash enough to inoculate infirm or sickly persons.

12thly. This contagion, however, seems to produce the small-pox, alone, and, by no means, any other disorder.

It is a sure thing, that those, who have once had the small-pox, never have it again, as I have already proved by a great variety of observations, let them reside ever so long in an air replete with the contagious measmata exhaling on all sides from bodies ill of the disorder; nay, though they should be again inoculated for it.

But, as the meazles sometimes precede the small-pox, and sometimes follow it; nay, sometimes both prevail epidemically together; and further, as the meazles attack young people chiefly; they are deemed by the *Japanese* (2) a kind of small-pox; and, when they come out, they appear so like the confluent kind of that disorder, that even able physicians have sometimes been at a loss to distinguish them; hence many have been induced to suspect, that these two disorders, which they thought so nearly allied, might spring from the same contagion. It is a fact, that in *England*, in the year 1732, when the meazles and the small-pox prevailed both together in some parts of that island, the variolous pus having been laid on a green wound, there ensued a fever on the seventh day; and, on the ninth, the whole body appeared covered with the meazles, instead of the small-pox, which was the disorder expected, attended with a troublesome cough, their constant companion. The fever then began to abate; but was succeeded, on the eleventh or twelfth day, by another; and, on the fourteenth, a distinct small-pox made its appearance, and performed its usual course, without any ill consequence to the

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patients

(2) Koempfer hist. van Japan pag. 123.

Patients (*a*). But, weighing all things well, we may still, I think, with great reason conclude, that the small-pox and the meazles are very different disorders: for the meazles were at this time epidemick; and few young people escaped them. They came out, it is true, after the variolous contagion had been applied to the body, but then that contagion proved so tenacious of its own peculiar quality, that it could not be entirely diverted, even by the interposition of another disorder, from doing its duty. The meazles, it must be owned, kept back the small-pox that was to be produced by the contagion applied to the body, but they by no means destroyed it; nor did they so alter the body of the patient, as to prevent his suffering any thing from the variolous contagion, which is however known to be the case, when that contagion has once produced a disorder of the same nature with itself in the human body.

We read of another case (*b*), which gave room to suspect, that the venereal virus might degenerate into a variolous contagion. A poor woman, who used to draw the breasts of women too full of milk, happening to have a venereal ulcer on the inside of her lower lip, infected all those who employed her, except one, whom however she attended twice a day for the purpose; but then the woman, who thus escaped the venereal disease, was immediately taken with the small-pox, and that too of the most confluent kind. But, surely, this woman might have caught her small-pox by contagion, in the usual way; and the venereal virus, supposing she had actually taken it in, might have been destroyed in the body, or expelled

(*a*) Philosophic. Trans. num. 429. Sect. IX. pag. 121, &c. Journal des Scavans 1740. avril, pag. 500.

(*b*) Medical Essays, Vol. III. num. XXI. pag. 326.

ed it, by the violent and constant fever usually accompanying the confluent small-pox; as well as in consequence of the emaciation generally occasioned by so considerable a disorder. It will hereafter appear, when we come to speak of the venereal disease, that the whole body is emaciated, and this filthy disorder often happily cured, by filling it with the decoction of guaiacum, and then raising a sweat by means of an artificial fever. Thus it is plain, that the case in question is not a sufficient proof, that the venereal virus produced the small-pox.

It is but just, I think, before I proceed any further, to attend to an opinion broached by some illustrious professors of our art, that there are in the fluids of the human body certain particles, which suffer themselves to be assimilated to the contagious matter, sooner than others. They considered, that the minutest particle of the contagion was sufficient to produce the disorder; but they observed, at the same time, that such contagion was multiplied by the very disorder so produced, as the pus contained in every suppurated pimple is contagious; nay the whole body breathes contagion. Consequently, the contagion taken into the body must assimilate to itself many particles of our humours, and convert them into its own nature. These particles, thus adapted to such assimilation, they were pleased to call the pabulum or fomes of the disorder; and suppose, that, in different men, there was a different portion of this variolous pabulum or fomes; and that those had the disorder mildest, who had the least share of it; and those, on the other hand, worst, who had the greatest; they exempted from the disorder, those in whose humours none of these particles were to be found;

and, of course, those, in whom they had been already consumed by it (c). They were far from thinking, that the pabulum or fomes, upon which the variolous contagion acted, and which it converted into its own nature, kept lurking in any one particular spot of the body, but held that it was equally dispersed throughout the whole mass of circulating humours. This doctrine they endeavoured to enforce by many practical observations, which indeed seemed to favour it. For, allowing such pabulum to be mixed with the whole mass of our humours, it necessarily follows, that, when the quantity of our humours is reduced, that of such morbid pabulum must be reduced in the same ratio. And the illustrious Mead tell us he has observed (d), *morbum hunc, si forte post insignem aliquam humorum exinanitionem, sive natura sive arte factam, quemquam invadat, plerumque mitissimum esse*; “ That this disorder generally proves very favourable to those, who happen to have it after any notable loss of their humours by nature or art.” Hence child-bearing women, who have not yet recovered much strength, generally have it very mild; and he has known persons who were seized with the small-pox, after they had been almost entirely exhausted by mercurial salivation, get happily over it: Hence he laid it down, “ as a manifest sign, that every diminution of matter, by robbing the fire of its fuel, must prove of the greatest service in this disorder;” *indicium fati manifestum, quamcumque materiae diminutionem, fomentem igni substrahendo, huic morbo apprime convenire*. Nor, was it only such a diminution of humours,

(c) Hillary, Essay on the small-pox. pag. 57. Lobb of the small-pox, pag. 169, &c. Kirkpatrick of inoculation, pag. 37. (d) De variol. et morbill. cap. IV. pag. 70, 71.

humours, as preceded the reception of the distemper into the body, that proved serviceable; violent evacuations after that period, nay, after the distemper had begun to disturb the whole frame, proved sometimes sufficient to carry it entirely off, or, at least, to render it so mild, as to be attended with little or no danger in any stage of it. *Bebrens* takes notice, that, at a time several young people were ill together of the small-pox, and under the same roof, one of them, on the fourth day, and with all those signs upon him, which usually precede the eruption of the pustules, was seized with a violent diarrhœa, attended with a horrid stench; but that, at the same time, he got suddenly rid of his small-pox, and never had it again (*e*). I myself have seen such things happen more than once in the course of my practice. It has been observed, that copious sweats, spontaneous ones I mean, and not those procured by hot medicines, during the first days of the disorder, have proved of great service (*f*). At a time the disorder prevailed epidemically, a young man was taken ill, with a great pain in his head and his back, attended with a delirium; these complaints were followed by a great number of pimples, which his physician acknowledged to be the small-pox; in this state, he was seized with a profuse bleeding at the nose, to the amount of at least two pounds; but soon after all his symptoms disappeared along with the pimples; and he perfectly recovered; nor did the small-pox ever return (*g*): I might bring several other observations of the same kind from authors of good note, and even add some from my own practice, all tending

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(*e*) *Werlhoff de variol. et anthrac. pag. 32, in notis.*

(*f*) *Lobb of the small-pox, pag. 209, 210.*

(*g*) *Hillary on the small-pox, pag. 48.*

to shew, that a diminution of the humours, sometimes by spontaneous, sometimes by artificial evacuations, has very often proved of service in the small-pox. It is besides known, that the most sensible physicians generally bleed before inoculation, and that with the greatest success.

These things, however, to consider them attentively, do not seem to prove, that it is only some certain particles of our humours, which supply the variolous contagion with a pabulum or fomes; and that these particles being once consumed by the disorder, the contagion itself is no longer of any efficacy, though actually applied to the body, for want of such fomes or pabulum to foster and feed it.

For, were this new doctrine true, a person recovered from the small-pox, and perfectly restored to the use of all his functions, the variolous fomes being entirely consumed, could not retain in his body a contagion, which now no longer had any fomes; yet practical observations sufficiently shew, that the whole of such a body continues to breathe contagion for several weeks after; a contagion, indeed, no way hurtful to that body, but to every other body, which has not as yet had the small-pox. Besides, the internal parts of the body are attacked, as well as the skin; yet the humours, secreted by the internal parts, differ widely from those secreted by the skin; the whole of the mucous membrane, with which the nostrils, mouth, and throat, are lined, is sometimes overrun with pustules; yet in this membrane there is a constant and copious secretion of mucus, which differs entirely from the humours manufactured by the skin; nay the solid parts of the skin are corroded by the small-pox, as plainly appears from the pits and ugly scars so often left on it by the disorder; and the solid scabs of the well dried pustules, applied to the nostrils in the manner of
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the *Chinese*, are sufficient to propagate the disorder. From all this one would be apt to infer, that it is not only some certain moleculæ of the humours, which the variolous contagion can assimilate to itself; but that it has the power of tainting the whole of our fluids and solids, without exception.

The small-pox has been sometimes observed to prevail epidemically, but that in so mild a manner, as to be attended with very few pimples, and suffer almost all those who had it to escape. Now, can it be believed, that on these occasions those only are infected, the humours of whose bodies contain but a small, scanty portion of the variolous pabulum. Or, on the other hand, that at such times as the confluent small-pox, and that of a very bad kind, prevails, there must be in all those who have it, a vast quantity of such particles, as may be easily assimilated to the contagion, and supply it with a fomes. Certainly, if the power and malignity of the disorder depends on the plenty of the particles which are to be thus assimilated, it does not seem possible to conceive, why the contagion communicated by inoculation, should so after produce but a very slight disorder.

Besides, that variolous pabulum, which, according to the opinion in question, pre-exists in the humours, before the contagion is applied to the body, must have made part of the healthy fluids; for it is notorious, that the healthiest persons take the small-pox. Now, as such is the condition of the human body, that, by means of the action of the vessels and viscera, it recovers from the substances taken in by it, the same parts, in number and nature, as it is constantly losing by the very actions of life and health; what reason can be assigned, why this self-same pabulum, which had been consumed in persons who have
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had the small-pox, should not afterwards be reproduced in them, when they were perfectly recovered. The action of the vessels and the viscera must certainly be similar on similar substances; and, as the same causes remain, the same effects should necessarily follow.

May we not therefore conclude, that the same contagion, applied to different persons, is capable of producing, sometimes a mild, and sometimes a dangerous, small-pox; and, consequently, that this difference does not depend on the contagion itself, but on the peculiar constitution of the body receiving it; and, likewise, in some measure, on the patient's former kind of life, the temperature of the air, the greater or less density of the humours, their different degrees of acrimony, &c. of which we shall treat, *See*. 1397.

But seeing, as we shall observe, *See*. 1384, that an inflammatory sickness is produced in the blood by the fever of the contagion's own making, and every stage of the disorder is so much the worse, as the signs of inflammation are greater, it must be easy to account for the small-pox being rendered milder by emptying the vessels a little, or attenuating their contents by the power of mercury.

We are now to speak of the effects of the contagion, when applied to the body.

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THIS contagious matter (182), being mixed with the humours, immediately produces certain effects, which regularly succeed each other; these are an horripilatio; a rigor; an acute fever; a great
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and constant heat; a glistening of the eyes occasioned by the afflux of a thin warm humour; a great pain in the head, back, and limbs, particularly about the parts lying under the heart; a vomiting, and nausea; a great uneasiness; a stupor; a drowsiness; and, in children, epileptic fits.

It has been already observed, that the contagion taken into the body, and mixed with the humours, sometimes, but seldom, creates no disturbance in the body, so that the disorder breaks out suddenly without the patient's ever dreaming of it; in which case it generally proves very mild, and goes off with very few pustules. But it much oftener happens, that the small-pox is attended, in its incipient state, with many, and those frequently dangerous, symptoms.

I took notice in the preceding paragraph, that this contagion, as it floats in the air, enters along with that element, when taken in by inspiration or deglutition, the nose, mouth, lungs, &c. is there caught and fixed by the tenacious mucus of these parts, and then produces every subsequent stage of the small-pox. Now, it is well worth while to examine, in what manner this contagion affects the part to which it adheres; as, likewise, whether it immediately becomes active, and produces the disorder; or may not, first, remain inert, for some time, and lie, as it were asleep, in its nest. Besides, it seems highly probable, that, exclusive of the common symptoms of this disorder in its incipient state, there are others, which depend entirely on the part upon which the contagion has fastened. But, as the contagion, when taken in with the air, adheres to such parts as
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cannot be conveniently examined with the eye, it will not be amiss to consider those symptoms which successively make their appearance, when the contagion is communicated by inoculation to a green bleeding wound; and then compare these symptoms with such as occur in patients, who have taken the disorder in the natural way.

Some practical observations seem to imply, that the contagion, taken into the body, produces the disorder in a very short time. I remember a gentleman of great family, and greater merit, whose bad fortune it was, as he was going into the country, to get into a house where there was a child ill of the small-pox. He sickened that very day, with every symptom of the disorder about him; and, early on the third, was in a manner but one entire pustule, of which he died. I have been a witness to many other cases of the same kind; but it was almost always in those, who laboured constantly under a mortal dread of the disorder, and use to lose their colour at the very name of it. *Helmontius* has observed, that fear and sadness add greatly to the malignity of contagious disorders (*b*); nay, he was of opinion, that fear alone is capable of producing the plague, without any assistance from contagion; (which by the bye I cannot agree to) as fearful people catch it sooner, and have it worse, than others; for which reason he recommends a chearful glass of generous wine, as the best prophylactic remedy against it (*i*). We know for certain, that *Diembroek*, though for two years together he constantly attended, day and night, people afflicted with that scourge, never caught the infection; and he thus describes the life he led the whole

(*b*) *Tumul. Pestis*, pag. 871.

(*i*) *Ibid*, pag. 887.

whole time ; *omnes animi excessivos motus, quantum poteram refrenabam, intrepidus plane vivebam, nec pericula, nec mortem, nec aliud quippiam, timens : mihi eodem redibat, ædesne infectas, an non infectas, adirem ; pestifero, sive, an alios ægrotos, inuiserem. Nec terrori, nec mærori, locum concedebam ;* “ I took great care to keep all my passions under ; I lived on boldly, without suffering danger, or death, or any thing to fright me : It was all one to me, whether the houses I went to were infected or not ; or the patients I visited had the plague or any other disorder. I banished all fear, anger, and grief (k).”

He owns, at the same time, that he now and then took a chearful glass, but never enough to affect his reason. Nay, as often as he found any melancholy stealing upon him, a thing which might very naturally be expected in a time of such calamity, he immediately had recourse to his bottle to dispel it.

Nevertheless, there are other observations, and these pretty numerous, which seem to import, that the contagion may lurk a long time in the body without taking effect. Now, as, in the natural kind of small-pox, we cannot be always certain with regard to the time of the contagion's having entered the body, we had better have recourse to the inoculated small-pox for the clearing up of this point. It plainly appears from a great number of observations made in *England*, that the morbid symptoms make their appearance on the seventh or eighth day after the inoculation has been performed ; and that the pimples come out on the ninth or tenth (l). At *Geneva*, the symptoms

(k) Diembroek de Peste, lib. ii. cap. 12. pag. 147.

(l) Kirkpatrick of inoculation, pag. 86.

toms of the disorder have shewed themselves, on the fifth, sixth, or seventh day, but never later, unless when the contagion had been kept a long time; for then it took three or four days more to produce them (*m*). But these periods of eruptions are by no means so general, as not to admit of exceptions. Now and then, the eruption of the pimples has not happened till the fourteenth day, or even the seventeenth; nay, and the twenty third, in a boy of seven, who had the pock very thick, was very ill, but escaped notwithstanding; whereas a brother of his was inoculated with the same matter, was taken ill at the usual time, and had the disorder very slight. Hence it appears, that the peculiar idiosyncrasy of the body which has received the contagion is capable of accelerating or retarding its effects (*n*). Nay, we have an account of its having taken up no less than seven weeks to come out on a girl inoculated for it, but may we not lawfully suspect, that, during that long interval, she caught the contagion in the natural way, after that, which she had received by inoculation, had lost its virtue? On the other hand, as, during the whole of this time, she enjoyed neither her appetite, nor her rest, as she before used to do, when in perfect health, there is still reason, if not to conclude, at least to suspect, that the contagion, received by inoculation, lurked in the body the whole time, and was what at length produced the disorder (*o*).

From what has been said, we may, it should seem, conclude, that the variolous contagion is not always immediately followed by sensible effects, but that it sometimes remains inactive for a considerable

(*m*) Academ. de Chirurg. Tom. II. pag. 559.

(*n*) Kirkpatrick of Inoculation, pag. 87.

(*o*) Kirkpatrick of Inoculation, pag. 87.

derable time, without losing, however, its power to produce the disorder at some distant period.

We are now to consider the changes observable in the spot, to which the contagion has been applied, especially at the time of its becoming active. A very small wound is made in the skin, and to this wound the contagion is applied. If the person, on whom the operation is performed, has had the disorder already, the wound will be quite healed in three days, and without any bad consequences. There is a very remarkable case with regard to this business (*p*). A girl of seven, after the symptoms usually attending the incipient small-pox, put out, however, but one pustule, which her physician pronounced of the true and genuine sort. A year after, her parents, not thoroughly satisfied with the physician's opinion, had her inoculated; but it was all to no purpose; for, on the third day the little wound made on her skin was perfectly closed; yet the self-same contagious matter, applied, the same or the very next day, to six others, did its duty in all of them. But, where the contagion is applied to a body in a condition to receive the disorder, the wound will, in some patients, indeed, look as if closed, on the third or fourth day; but, on the fifth day, there will appear on the same spot a white line, bordered all round by a slight redness; and, on the sixth day, the whole wound is dilated in all; the hard and high lips of it contract a whiteness bordered by an inflammatory or ærysipelatous redness, sometimes of a greater and sometimes of a less breadth; and now the lips of the wound open in proportion as the disorder encreases; the inflammation and suppuration of the wound keep pace with the inflammation and suppuration of the pimples; and a

slight

slight wound, seldom exceeding a scratch, sometimes degenerates into an ulcer half an inch broad, and deep enough to penetrate into the *tunica adiposa* (q). Now, when that white line on the lips of the wound begins to open, it is deemed by persons well skilled in inoculation an infallible sign, that the contagion is now become active, and the disorder will soon follow (r). In general, the first sign of it is a slight itching about the wound, and sometimes a certain disagreeable sensation from the wound to the fingers. A stout youth, who had been inoculated for the small-pox, was seized the third day after the operation with a quick and violent contraction in his arm; and gave a sudden start, not without wondering what could be the occasion of it; he compared the shock he felt to that given by a well charged electrical body. The appearances I have been mentioning are now followed by all the symptoms which usually attend the incipient small-pox; and of which I am presently to speak.

Such are the effects of the contagion applied to a wound made to receive it; but I took notice in the preceding paragraph, that the contagion applied to a whole and sound skin has likewise been known to produce the disorder, though perhaps but seldom, and with some difficulty. But, there are parts of the body not covered with any thick skin, and lined, at the same time, with a mucous humour, into which the contagion may be more easily received along with the air, and, being arrested afterwards, becomes active. Now, it seems probable, that the contagion affects the spot on which it has fastened, before it disturbs the rest of the body, and assimilates to itself the healthy humours: But, if it does in such spot the same mischief

(q) *Academ. de Chirurg. Tom. II. pag. 558.*

(r) *Kirkpatrick, on Inoculation, pag. 169.*

chief, we know it does, when applied to a wound made on the exterior surface of the body, it must most certainly produce different symptoms, suitable to the different nature of the parts, to which it adheres; and the disorder itself must be more or less dangerous, in proportion to such difference. And, perhaps, it is to the inflammation and exulceration being excited in a part, which can be inflamed and exulcerated without any danger, that the happy issue, generally attending the small-pox produced by inoculation, is to be attributed. I have attended great numbers ill of this disorder, and that, too, with the greatest diligence and attention; nay, I have sometimes enjoyed the opportunity of bestowing all my time and thoughts on a single patient, without any thing to distract me; so as to be able to spend whole days in observing the course of the disorder, and ruminating upon every thing I observed; all the while sedulously examining, and comparing with my own observations, those already made by several great physicians; and it was upon these occasions it struck me, that there must be a difference in the disorder suitable to the difference between the parts, on which the contagion, originally producing it, fastened. Now, by carefully considering the symptoms, we may come to know what that part is; nay, it appears pretty probable, that the contagion may adhere to several parts at one and the same time, and so produce a numerous race of troublesome symptoms.

In the natural way, the contagion seems to be taken in along with the air we breathe or swallow; and, therefore, must have an opportunity of adhering to every part that element pervades; and all these parts, it is well known, besides not having any thick skin to cover them, are lined with a mucous humour. I remember to have

seen a case, in which it is my real belief the contagion had settled on the pendulous roof of the palate, as I could perceive a small degree of redness upon it, especially on the right side; for this redness did not extend entirely over the left; but, notwithstanding this symptom, the patient had a pretty slight fever, without being too low. It is well known to practising a physicians, that such slight anginæ often occur, preceded by small fever of a few hours; that then the fauces begin to redden, and the pulse returns to its natural state. I had sometimes seen the same kind of angina in the same patient, and cured her of it. But, as, on the present occasion, the small fever continued, and yet the redness did not extend itself over the left part of the fauces, I began to suspect she might be breeding the small-pox, as it prevailed epidemically at that time, and she complained of a pain, though slight, in her back; nor was I mistaken. The small-pox made its appearance; but it proved quite mild and gentle, and she got over it with very little or no assistance from art.

But, when the contagion lights on the internal membrane of the nostrils, the disorder seems liable to be attended with many more, and these very disagreeable, symptoms, and a greater degree of danger. Whilst *Mead*, by order of the King of *England*, was trying the effects of inoculation on seven capital convicts, he ordered a feather, dipt in the variolous pus, to be put up the nose of one of them, a girl of about eighteen: the poor creature was seized with the disorder, and recovered, like her fellow sufferers; but all the symptoms attending it proved much worse; and immediately on her receiving the contagion, she was tormented with the most cruel pains in the head.

(s). The illustrious *Hoffman* seems to have observed the same thing, though, perhaps, he had no thoughts of any contagion adhering to the nostrils (t). For, in describing the signs of a malignant small-pox, he, amongst others, mentions the following: *Salivatio, et insolita mucie e naribus ejectione, malignam plane prodiderunt indolem, licet interdum nec dolor, nec calor notabilis, nec anxietas, nec sitis adessent.* “ A great spitting, and unusual discharge of mucus from the nose, plainly indicated the malignant quality of the disorder, though sometimes unattended with any pain, great heat, uneasiness, or thirst:” We meet with the same remark in *Huxham* (u), who likewise observed, that sneezing, and the running of a sharp serum from the mouth and nose, shewed, that the schneiderian membrane was affected; and he thence prognosticated, not only a very difficult, but a very dangerous disease. It is true, indeed, that he seems to have drawn this prognostic from the circumstance of that membrane’s being over-run, on this occasion, with the variolous pustules; and therefore endeavoured to call the matter of the disorder from these parts by blisters, and other medical contrivances. However, by perusing the whole of what this great man has written on the subject, it will appear, that sometimes these symptoms have been observed from the very beginning of the disorder, and therefore could not proceed from any pimples in that part. Besides, he takes notice, that it is chiefly about the end of the disorder that the greatest difficulties arise; nay, that sometimes suffocation ensues, unless prevented by perpetual gargarisms, and strenuous injections.

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(s) De Variol. et Morbil. cap. v. pag. 78, 79.

(t) Medic. System. Pract. Sect. i. cap. 7. Tom. IV. pag. 164.

(u) An Essay on Fevers, &c. pag. 140, 141.

It must, indeed, be allowed, that pimples are to be met with in these parts, but by all I could see, they ripen and fall off sooner than those, which come out on the external surface of the skin, and cannot, of course, create any great uneasiness towards the end of the disorder. But, should the contagion applied to these parts happen to produce a broad and deep ulcer, as is sometimes the case with regard to the arm after inoculation; and that ulcer happen to remain unhealed for several weeks, after the disorder itself, it is evident how ugly and disagreeable the consequence must be. It was once my misfortune to see the cartilages and septum of the nose, in a fine handsome youth, eaten away by such an ulcer, after a disorder, the beginning of which was attended with such symptoms, as shewed, that the internal membrane of the nose was affected.

Besides, we know that the olfactory nerves are spread over the inside of the nostrils, and that these nerves are endued with a most exquisite faculty of smelling and distinguishing things, which are not perceivable by any of our other senses. Such is the fragrance of odorous substances, which is discerned by the smell alone, and no other sense. Now, it is plain from numberless observations, that our whole frame is liable to be strangely disturbed, merely by the very subtil effluvia acting upon these nerves; and, on the other hand, that disturbances, raised in the body by particular substances, are to be allayed by others, which act on nothing but the olfactory nerves: How often does the penetrating fragrance of musk throw delicate girls into hysteric spasms, which are, yet, allayed by the power of Castor, and the heavy smell of Assafœtida? The swelled belly of a person, who has been drowned,

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shall, in discharging itself of wind by the anus, emit a stench sufficient to knock down the stoutest man, and rob him, in a moment, of all his strength; at the same time, that the fragrant smell of vinegar shall rouse people even out of a syncope. The baneful smell of opium, and the grateful odour of saffron, are both sufficient, when used too freely, to induce a sleep little better than an apoplexy. I might mention many other instances of the same kind; but these are enough to shew there is reason to suspect, that the nerves are affected, and the encephalous functions disturbed, and very often to a strange degree, by the variolous contagion adhering to the nostrils. It appears from several observations, that the nerves and the encephalon are affected, and sometimes pretty violently, even in the very beginning of the small-pox. A girl of six complains of a pain in her head and back; and then falls into a violent convulsion of a considerable continuance; on the convulsion's ceasing, she cannot speak without stammering; however, she gets the better of this complaint; but it is only to be convulsed again three several times, and again lose her speech, as she had already done, with the motion of her body; and, though the pimples came out distinct, and the disorder terminated favourably, it was three months before she began to recover the use of her limbs and her tongue; so that it was a long time before she saw herself restored to her pristine state of good health (w). We meet with other cases of the same nature in the same author, all tending to confirm the same doctrine. *Sydenham*, too, has observed, that the small-pox, when preceded by

(w) Kirkpatrick on Inoculation, pag. 75, &c.

comatous affections, proves very confluent (x). It is true indeed, that there is nothing in the cases I have recited, to make it quite certain, that the contagion affected the olfactory nerves; and it is pretty plain from what I have already said of the feverish delirium, melancholy, epilepsy, &c. that the nerves of the stomach and other parts, even such as lie at a great distance from the encephalon, are, when affected themselves, capable of disturbing the whole of the common sensory. Be that as it may, it cannot but appear a dangerous circumstance, that nerves so sensible, and so easy to be irritated, should be instantly affected by the variolous contagion.

To all this perhaps, the *Chinese* method of inoculation may be objected; it being the common practice with them, as we have already said, to give the small-pox by putting the dry scabs of the pustules up the nose. But this method of theirs does not seem to be attended with the same happy consequences with that, in which the contagion is applied to a fresh wound made in the arm. We are told, that the small-pox has so bad a character amongst them, that, in reckoning their children, they always leave out those who have not had that disorder (y). Besides, those who have described their method take notice, that the pimples which are the consequence of it, appear at different periods after the fever has been excited; if they come out the first day, scarce one in ten survives; if the second, five out of the same number stand but a bad chance for their lives; if the third day, eight or nine recover (z). Such is the strange difference, in the issue, between the

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(x) Dissert. Epist. pag. 462.

(y) Salmon Hedendaegse, Hist. Tom. I. pag. 95.

(z) Lettres Eidf. et curieuses. Tom. XX. pag. 319, &c.

Chinese method, and the method of inoculation, since those who practice the latter will scarce admit, that one patient in a hundred dies of the small-pox communicated that way (a). There is, therefore, sufficient reason to believe, from the observations of the Chinese themselves, that the method of producing the small-pox, by applying the contagion to the nostrils, is not a safe one.

Were the contagion, taken in with the inhaled air, to stick to the internal surface of the lungs, to every part of which that element has a free access, it would, no doubt, be a dangerous circumstance; but there is reason to think it rarely happens; it is very seldom, at least. I have met with any symptoms of a pcrepneumony in the beginning of this disorder; of which, the following seems to be the reason. The circulation in the lungs is exceedingly rapid, and the vapour is perpetually pouring with great violence, and in great plenty, from the exhaling vessels, at every point of the aerial surface of the lungs, so as immediately to brush off any foreign substance that might begin to adhere to them.

But, though the contagion floating in the air, and inhaled along with it, may adhere to a great number of parts, it is pretty probable, that it is much oftener entangled by the viscid saliva, and swallowed along with that humour; and so fastens upon the superior orifice of the stomach, near which the things we swallow make some stay; or even to the interior surface of the same organ, which is naturally lined with a mucus. Sydenham, that so accurate observer of this disorder, reckons amongst the signs of it, *doloris sensum in partibus quæ scrobiculo cordis subjacent, si manibus premantur;*

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(a) Mead de Variol. et Morbill. cap. v. page 79.

“ A sense of pain in the parts which lie under the
 “ cavity of the heart, when pressed with the
 “ hand (b).” And, in another place, he says, *Quod*
semper observaverit, in juvenibus immani vomitione,
ægritudine, et dolore, præter solitum vexatis, vario-
las insequentibus ultra modum confluisse; “ That he
 “ constantly found, that in young persons, who
 “ were troubled with an extraordinary vomiting,
 “ uneasiness, and pain, the pimples which fol-
 “ lowed proved exceedingly confluent (c).”
 Now, these symptoms (c) shew, that the stomach is
 terribly affected. Nay, *Helmont* scruples not to
 conclude from this circumstance, that the vario-
 lous virus is constantly hatched in the neighbour-
 hood of the stomach (d). I think I have some-
 where observed, that such as never have had the
 small-pox, are sure to take it merely by eating in
 a place, the air of which abounds with the vari-
 olous miasmata. It is, I know, a common prac-
 tice with many great physicians, when obliged to
 attend persons ill of contagious diseases, never to
 swallow their saliva, when with them: and this
 may be easily done, by just keeping some aro-
 matic substance in the mouth; for, in that case, we
 are sure to be constantly spitting, without ever so
 much as thinking on the just reason we may have
 to do it. *Diembroek*, when taken up in visiting
 patients afflicted with the plague, and that early
 in the morning, and fasting, made it a rule to
 keep constantly chewing the seeds of the lesser
 cardomomum, and smoke tobacco, as often as he
 could steal a moment for that purpose; a prac-
 tice, sufficient to create an almost perpetual habit
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(b) Sect. 3, cap. 2. pag. 162.

(c) Dissert. Epist. pag. 474.

(d) In capit. *Lunare Tributum*, pag. 584.

of spitting (*e*). But he confesses, that he ever considered tobacco as a first-rate preservative against the plague, and that he denied himself the use of it as soon as the plague was over, lest it should become too familiar to him to have its effect on any future occasion. For my part, I am disposed to think, that his constant spitting was of more service to him, than any of the medicinal powers of his tobacco. I have heard from a very worthy divine, that he often attended, and that for a considerable time together, not as physician of the body, but of the soul, persons dying of the plague, without ever taking it himself; and he attributed his immunity from this dreadful scourge, to the bean, called *St. Ignatius's bean*, a bit of which he kept constantly rolling in his mouth. But it must be considered, that this bean has a very bitter taste, which must effectually prevent the swallowing of any spittle infected with it.

But, as in the method of inoculation, the little wound, to which the contagion has been applied, sometimes degenerates into a pretty deep and broad ulcer, which sheds a great quantity of pus, and that too of a variolous quality; for we read of the contagion's having been propagated by the pus of such an ulcer (*f*); and as, moreover, such an ulcer has been known to withstand, for several weeks, all endeavours to cure it; we may hence account for the many symptoms, which sometimes occur, both during the course of the disorder contracted in the natural way, and after it, when the contagion, taken in with the air by inspiration or deglutition, fixes upon the internal parts of the body.

(*e*) De peste lib. 2. cap. 12. pag. 147.

(*f*) Kirckpatrick on Inoculation, pag. 133;

body. It has been observed, that whilst such an ulcer runs copiously with pus, the pimples rise but little (*g*). Physicians have often had the misfortune to lose patients, whom they thought in no danger, on account of the fewness of the pimples which came out upon them. Might not something, like what we have hinted, have been the occasion of their unexpected death? The symptoms of an eruption at the usual time, have been known to appear after inoculation, without being followed by a single pimple; but the pus, flowing from the part where the operation was performed, proved no less contagious, than that of the pustules themselves could have been (*b*). Is this then the case in the variolous fever, which is not followed by any pimples, and which *Sydenham* and others have observed at a time, that the small-pox epidemically prevailed? Nay, this kind of fever has proved, sometimes, not only dangerous, but even fatal. On these occasions, is the contagious pus produced in no other part of the body, but that to which the contagion was immediately applied, and so as not to communicate its poison to every other part. These and several other difficulties I must leave to the discussion of other physicians, who let nothing escape them in practice; all I meant by what I have thrown out, was to point out these things as worthy of their notice. However, I cannot help observing, that it would be of great service, scrupulously to examine, whether or no any certain conclusions may be drawn from the symptoms of the incipient small pox, sufficient to ascertain the spot, on which the contagion originally settled:

(*g*) *Academ. de Chirurg.* Tom. II. page 559.

(*b*) *Kirckpatrick on Inoculation*, page 133.

tled: for from thence we might derive very great advantages, with regard both to the prognosis of the distemper, and the method of curing it.

It is sufficiently apparent, from what has been said in the foregoing pages, that the symptoms, which accompany the small-pox in its incipient state, may differ greatly, according to the difference, in the violence of the disorder, in the epidemical constitution; as well as in the age and habit of the patient: here I mention none but the most common things, which *Sydenham* has already enumerated (*i*). There occurs likewise some difference in the symptoms, when the small-pox is produced by inoculation, as I shall hereafter explain. In this place I mean only to speak of the signs of this disorder in its incipient state, when the contagion has been received in the natural way, as it is called, agreeable to what I have already hinted in the preceding paragraph.

An horripilatio and rigor are, in a manner, the common symptoms of all acute diseases in their incipient state, and are followed by a fever. I have already taken notice, that sometimes the small-pox begins in a mild and gentle manner, without any fever; but I am presently to take notice, that the worst kind, too, is sometimes preceded by a great pain in the back, without any fever. That I have this moment mentioned, as attending most acute diseases in their incipient state, not only sticks by the patient, as a continued fever, but sometimes grows higher and higher, till the pimples appear: the whole body, even to the extremities, becomes pretty hot, often with a slight sensation of prickling all over the skin, and a great propensity to sweat; I mean in
adults;

(*i*) Sect. 3. cap. 2. pag. 161. 162.

adults ; for *Sydenham* expressly tells us, that he never observed this circumstance in children (*k*). The eyes glisten, sometimes the vessels of the adnata become redder than usual ; but weeping eyes are more common in the measles than in the small-pox. The patient is almost always troubled with a pain in the head, and often a delirium ; which, however, is no very bad omen in this stage of the disorder, and generally ceases on the coming out of the pimples. In the beginning of the disease, the patient generally feels a great spontaneous lassitude, and a dull pain in all his limbs, a symptom, which the small-pox has in common with many other disorders ; but, it sometimes happens, as *Sydenham* has taken notice, that there arises *Acutissimus dolor, nunc in regione lumborum, paroxysmi nephritici æmulus, nunc in latere, qualis pleuriticis vexat, nunc in artubus, ut in rheumatismo, nunc denique in ventriculo cum ingenti ægritudine et vomitu enormi :*

“ A very sharp pain, now in the region of the
 “ loins, like that felt in a nephritic fit ; now in
 “ the side, like a pleuritic stitch ; now in the
 “ limbs, like that in a fit of the rheumatism ;
 “ now in the stomach, with a great uneasiness,
 “ and most violent vomiting (*l*).” Now, he observed, that the eruption of the pimples was greatly retarded by such sharp pains, and that, when they made their appearance, they proved of the most confluent and dangerous sort. In the course of my practice, I have ever been greatly concerned to find the small-pox begin with such a violent lumbago, that the patient could not move his body, on account of the great pain he felt in
 his

(*k*) Ibidem.

(*l*) Ibidem, pag. 166.

his doing it. Sometimes this pain ceases now and then, but it is only to come on again in a manner to make the patient quake in every limb of him. At this period, there is but little fever; nay, sometimes the pulse is small and weak, and scarce any swiftness to be perceived in it; yet then the subsequent eruption has proved so malignant, that I could never rescue patients thus affected, though I tried every thing I could think of for their relief: now and then, indeed, I have found means to spin out their lives, along with their misery, however, to the twentieth day, and longer; but they sunk at last, under the cruel disease, after suffering the greatest torments, all their humours turning to a putrilago of the worst kind. I have known physicians, of the greatest reputation for their treatment of the small-pox, make the same remark. Thus *Morton* tells us: *Coma profundum usque ad crisin protensum, unde æger jaceat quasi attonitus aut inebriatus, et vix lumen aspicere, vel interrogatis respondere, potis sit, vel atrox, fixus, et spasmodicus, lumborum dolor, vel intestinorum (colici scilicet vel nephretici affectus æmulus) aut quidem totius corporis; præsertim, si cum ἀπυρεξία conjunctus fuerit, pessime ominatur. Siquidem, extremam esse spirituum veneno irretitorum prostrationem, aut saltem inanem eorundem conatum, concludere licet (m).* “ An heavy coma conti-
 “ nuing to the crisis; such a coma, as to make the
 “ patient lie down as if thunder-struck, or over-
 “ taken with liquor, and unable to bear the
 “ light, or give an answer; or a severe, fixed,
 “ and spasmodic pain in the loins or intestines
 “ (not unlike, for example, a cholic or nephritic
 “ complaint) or, indeed, of the whole body, ef-
 “ pecially

“pecially if attended with an ἀπυρεξία, are
 “very bad omens; for we may thence infer a def-
 “perate prostration of the spirits, entangled by
 “the poison, or at least the useflessness of their
 “endeavours to extricate themselves from it.”
 He afterwards confirms the justness of this fatal
 prognosis by practical observations (*n*). *Hillary*
 has likewise condemned an intolerable pain of
 the back and loins, in the very beginning of the
 disorder, as the sign of a small-pox of the worst
 kind, from which it was morally impossible the
 patient should recover (*o*): for such pains are
 generally followed by malignant spots, and
 hemorrhages that end in death.

Now, it is no small argument in favour of
 inoculation, that none of that violent lumbago,
 which is wont to precede the worst kind of small-
 pox, taken in the natural way, is ever observed
 after that operation, though followed by swarms
 of pimples (*p*). No doubt, the inoculated pa-
 tients are now and then troubled with pains about
 the shoulders, breast, &c. but these pains are
 dull and flying, and never very sharp or fixed.
 It is likewise to be noted, that a painful weariness
 of the whole body, and particularly of the back
 and loins, which the justly celebrated *Violante* has
 laid down, as a peculiar and proper sign of the
 small-pox, does not always give a mortal prog-
 nosis, but then only, when it is sharp, fixed, and
 almost intolerable (*q*).

Hippocrates himself seems to have entertained no
 good opinion of a pain in the back, in other dis-
 orders;

(*n*) De Febr. inflamm. universal. pag. 180. & seq.

(*o*) An Essay on the Small-pox. pag. 164.

(*p*) Kirkpatrick on Inoculation, pag. 257.

(*q*) De Variol. & Morbil. pag. 13.

orders; he says, *ex dorſi dolore morborum principia, difficilia*: “ Disorders beginning with a pain in the loins are then of difficult treatment (r).” And, lower, *Lumborum dolor, ſine cauſa manifeſta celeriter invadens, maligni morbi ſignum*: “ A sudden pain in the loins, without any manifeſt cauſe, is the ſign of a malignant diſorder.” And in his book of epidemics, he gives us the names of thoſe patients, who, in the beginning of their illneſs, had been ſeized with ſuch a pain, and had the greateſt difficulty to recover.

But it is chiefly, when the contagion of the ſmall-pox has ſettled on the ſuperior orifice of the ſtomach, or on the ſtomach itſelf, that a pain about the region of the heart, a vomiting, and a nauſea ſeem, as we have already obſerved, to accompany the ſmall-pox in its incipient ſtate. Theſe ſymptoms, however, do not always happen; for I have known many have no vomiting, nor any pain about the cardia, when ſeized with the ſmall-pox, even of the confluent kind. But a great uneaſineſs, indicated by the patients conſtantly wanting to change their ſituation, is a bad ſign in ſickneſs; as I took notice at large, in the chapter on the uneaſineſs attending fevers, ſect. 739, where I treated of the worſt ſymptoms of a burning fever. But a ſtupor and drowzineſs indicate an oppreſſion of the encephalon; and it has been already remarked, that they are bad kinds of ſmall-pox, which are preceded by theſe ſigns.

Epileptic fits often happen in children, nor is it any way ſurpriſing, ſince at this age the nervous ſyſtem is ſo irritable as to be diſturbed, in
every

(r) Coacar Praenot. num. 313. Charter. tom. VIII. pag. 869.

every part of it, by the slightest causes. A great and unusual noise, the paining of the gums at the time of dentition, any violent irritation in the stomach or intestines, shall throw such subjects into convulsions. We sometimes see children convulsed in the very beginning of the disorder, whilst the contagious matter, applied to their bodies, keeps close to its quarters, and waits to be brought into action. I have already taken notice, that a stout youth, who had been inoculated for the small-pox, felt a sudden convulsion in his arm, on the contagion applied to it beginning to become active, and that he afterwards had the small-pox very thick, but recovered notwithstanding. For this reason, convulsions in children, early in the beginning of the disorder, are no very happy omen. But, when the convulsions in them happen but a little before the eruption, in that case Sydenham observed that the pustules which followed, *magnitudinis conspicuæ, mites, boni moris, et rarissime confluere*; “proved
 “ of an extraordinary size, mild, and gentle;
 “ and very seldom confluent (s)”. Nay, when the convulsions happened in children past dentition, he always judged the small-pox was at hand; for he, in another place, lays it down as a rule; that *in hoc casu cogitandum est, convulsionem illam fortassis a naturæ conatu, quo variolas, scorlatinam febrim, aut morbillos, in corporis habitum protrudere satagit, pendere, licet huc usque lateant subcutis tegmine (t)*. “ In this case we may attribute such
 “ convulsions to the efforts of nature to throw
 “ out the small-pox, scarlet fever, or measles,
 “ though they yet lie hid under the skin.” For, there are many observations, which seem to prove,

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(s) Sect. 3. cap. 2. p. 162.

(t) Dissert. Epistol. pag. 459.

as I have already taken notice urged on another occasion, in my commentary on *Sect.* 1075. 4. that convulsions happen in the body, when it is urged or irritated by some unusual stimulus; and that by these convulsions, whatever it is that presses or irritates, is expelled the body, or deposited in those parts of it, in which it can do least mischief; of this I there gave several examples. I likewise took notice, *Sect.* 1077. 4. that, in an epileptic fit, the cutaneous vessels are dilated, and more forcibly urged by the impelled humours, whereby the noxious miasma is often, after such a fit, happily deposited near the skin. Hence, too, it appears, why the prognosis is different according to the different stage of the disorder, in which such convulsion happens: for, if it comes on early in the beginning of the disorder, it denotes a violent irritation caused by the morbid stimulus; but, if it happens a little before the eruption of the pimples, then it generally indicates a salutary effort of nature, by which the matter of the disorder is driven towards the skin:

S E C T. MCCCCLXXXIV.

IN the beginning of this state (1383), the blood taken from the veins looks very well, and perfectly resembles the healthiest; on the second, third, or fourth day, it appears, as if pleuritic and inflamed (384); and that in proportion to the duration and violence of the disorder.

Physicians intent upon exploring the nature of any disease, ever make it a rule diligently to attend to the changes, which happen in the humours

during the course of it ; for, from the knowledge of these changes, they from time to time derive very useful rules for their future government with regard to it. Now, they do not find the blood, in the beginning of the small-pox, remarkably altered from what it ought to be, when the body is in best health. *Sydenham* found the blood taken from a man of a sanguine complexion, and in the prime of life, on the third day of the disorder, and that a pretty violent one, perfectly found and florid (*u*): whereas that taken from him, when convalescent, on the twenty first day of the disorder, *pleuriticorum sanguinem æmulabatur, & puris fere instar erat*; “ looked like that of a person in the pleurisy, and seemed little better than mere pus (*w*).” Now, what kind of blood that is, I mean the blood of pleuritick patients, the red part of which coagulates, and is covered with a hard and thick coat, I have already taken notice in my commentary on *Sect.* 384, and 890. It seems pretty certain from practical observations, that, in the course of the small-pox, the blood acquires that kind of inflammatory sifiness, now earlier, now later. I remember to have sometimes seen, in cases attended with such pressing symptoms as required repeated bleeding, such a thick crust on the blood, so early as the second day of the disorder. *Baglivi* looked upon this appearance as a sign that the pimples would come out very thick, and the disorder prove extremely dangerous (*x*).

However, it is far from being certain, that this sifiness in the blood is produced by the immediate action of the variolous contagion; it seems more probable,

(*u*) *Deffert. Epist.* pag. 475.

(*w*) *Ibidem.* pag. 477.

(*x*) *Oper. Omn.* pag. 61.

bable, that it is occasioned by an acute hot fever raised by the contagious stimulus. I have already made it appear, in my commentary on *Sect.* 587, in which I spoke of the effects of the fever, and likewise in that on *Sect.* 689, in which I treated of the mischiefs of the febrile heat, that, the thinnest parts of the humours being dispersed by the violence of the fever, and the increased degree of the heat, the blood becomes of a greater sizziness, and acquires a greater tendency to concretion. Now, as an acute fever and a great heat usually attend the first stage of the small-pox, as has been shewn in the preceding paragraph, it is with greater reason such inflammatory lentor is attributed to the violence of the fever, and the increase of heat, than to the contagion itself, from which the fever itself took its rise.

Nay, it has been the opinion of some famous Physicians, that the variolous virus tends rather to thin the humours than thicken them. The cough, a disorder which may justly be attributed to a lentor created by cold, and an obstructed perspiration, has been observed by an excellent author to leave the patient when inoculated, within forty hours after the operation was performed (y). A man, who had been ailing for two or three years, began at length to congratulate himself on the recovery of his health, the very eve of his being seized with a violent pain in his back, which was followed by a small-pox, which carried him off the eighth day. *Mead* has observed, that the small-pox proved of service to persons, whose blood was bad by nature, or impaired by improper food, and the sizziness of whose lymph had produced tumours in their glands (*). There are many o-

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(y) Kirkpatrick on Inoculation, pag. 62, 63.

(*) De variol. & morb. pag. 71, 72.

ther observations which render it probable, that the variolous contagion thins the humours: *Lifter* observed, in the worst kind of small-pox, that which proved mortal, *sanguinem refrigeratum tenerrimum fuisse, ut ejus crassamentum rubrum vel molliori pennæ pluma percussum facile dividi potuerit*; “ That the blood, when grown cold, was “ exceedingly tender, so that the red coagulum “ of it could be easily divided by the slightest “ stroke of a small feather (z).” He then adds; *In aliis autem multis, quibus urina cruenta mota est, sanguinem a brachio missum adeo aquatum putridumque esse vidi, ut fluctuaret crassamentum in vase, non aliter quam ipsum serum*: “ But in many others, seized with a bloody urine, I found the “ blood taken from their arms so watery and putrid, that the coagulated part of it moved about in the cup as freely as the serum itself (a).” *Hoffman* says as much; he assures us, that he had found in the bodies of persons who had died of a malignant small-pox, the whole mass of blood so perfectly fluid, as not to separate into a serum and coagulum. It is to this solution of the blood that we are, in all probability, to ascribe those hæmorrhages in the small pox, which have proved mortal; *dum non ex ore tantum, naribus, & oculis, sanguis emanat, sed per cunctos etiam corporis meatus, maximeque urinæ itinere, perfluit*; “ the blood flowing, not only from the “ mouth, nose, and eyes; but from every other “ outlet of the body; and particularly with the “ urine (b).” I have already taken notice, in my comment upon *Sect.* 730, in which I treated of the continued putrid fever, that the morbid stimulus,

(z) De variol. pag. 30.

(a) Med. ration System. Tom. IV. pag. 146.

(b) Mead de variol. & morbil. pag. 22.

stimulus, either applied to the body, or produced by the humours themselves corrupted in it, is sometimes indeed sufficient to produce an inflammatory siveness in such humours; but that sometimes, too, the humours, instead of being thickened, are so thinned, as to slip, different ways, out of the body, not without a sudden and violent prostration of its strength; and this I confirmed by a number of practical observations. The same thing, it is certain, has been seen to happen in the small-pox. For, generally speaking, the first attacks of this disorder are attended with a pretty violent fever, and a great and continual heat; and, in this, case, all the signs concur to make us dread an inflammatory siveness, in consequence of the exertions of nature to shake off the contagion, by means of that very fever; and, by a critical metastasis, set it down somewhere near the surface of the body. No doubt, a disorder of this kind may prove very violent, but at the same time the vital powers act powerfully upon it, and we may therefore hope for an happy issue, though no small danger is to be apprehended from a great plenty of pustules, want of rest, resorption of the pus, and secondary fever, &c. But it sometimes happens, that the variolous virus does more harm than good, by overcoming the vital powers; in this case, indeed, there can be no grounds for dreading a dangerous inflammation, or excessive encrease of heat; for, there is scarce any ferment in the blood; nay, the body rather grows cold, the pulse becomes very weak, though quick; and sometimes it is not only weak and small, but without any quickness. Still the poor patient will be very uneasy; and signs of a putrid solution of the humours soon follow; these are succeeded by excessive hemorrhages, thin, brown, weakening stools,

stools, of a cadaverous smell; as likewise livid spots, and several other terrible symptoms; which plainly shew that the poor patient has not long to live. The physicians of greatest experience in the treatment of the small-pox, confirm this doctrine by their own observations. The pock came out on a girl of five, without being preceded by any great fever, uneasiness, or pain; nor were the pustules numerous; but they were of a blackish hue, distilled a great quantity of blood, and were accompanied with black and blue spots; she was besides troubled with frequent, though slight faintings; during the intervals of which the poor thing returned to her play things. On the ninth day, after a plentiful evacuation of blood by stool, intermixed with some grumæ of coagulated blood, she went off very quietly (c). In another girl, who, immediately before the small-pox seized her, had taken some violent exercise, and that in very hot weather, there came out, on the third day of the disorder, some black and blue spots all over the body, with a great number of eruptions; her legs and thighs turned to a purple colour; a great hæmorrhage from the gums and nostrils followed; and the menses flowed in great abundance six days before their usual period: this patient sunk likewise under the disorder, on the ninth day. From the time she was taken ill, to that of her death, she complained of a great uneasiness, and a very heavy load about her chest; and was troubled with frequent faintings; her pulse, besides, was very quick and small (d). Though, in this case, the violent exercise of the body, in very hot weather, favoured the production of an inflammatory siveness in the blood, yet there

(c) Huxham on fevers, pag. 52, 53.

(d) Huxham on fevers, pag. 52, 53.

there ensued a very great solution of it, as evidently appears by the profuse hæmorrhages. *Morton* once saw the small-pox suddenly seize a girl of two and twenty, with a cephalagia, and intolerable lumbago, but without any heat, nay, rather with a sense of cold; nevertheless, she kept walking about the house, nay, attended another patient, and even sat up with him at nights; being bled in the arm on the third day, the blood did not by any means concrete; on the fourth day, there came out black spots on her breast, attended with a bloody urine, a perpetual tossing and tumbling, a languour, a tremulous and irregular pulse: towards the end of the fifth day, she was seized with a sudden hæmoptoe, which suffocated her. When dead, her skin grew quite black: and, the day following, this blackness turned to a blue; as did all the linen fouled with her blood, when put into a soap lie for the purpose of washing it. In this case, the disorder terminated in death, without any encrease of heat, or any signs of an inflammatory sizziness; the blood being so thinned by the variolous contagion, that its vessels could no longer retain it (*e*).

Mead, considering the great variety of the symptoms accompanying this disorder, though known only by one name, struck out that very convenient division of the small-pox, into simple and malignant (*f*); he calls that, the simple small-pox, in which the pimples come out with a simple fever, and of short continuance; easily ripen, contain a good pus, quickly dry and fall off. This kind of small-pox is attended, in the beginning, with an inflammatory fever, which ceases on the eruption of the pimples; the malignant

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(*e*) Pyretolog. pag. 183.(*f*) De variol et Morbill. pag. 19.

malignant small-pox, he calls that, which is attended with a malignant fever, uneasiness, a sudden prostration of strength, and in which the pimples never suppurate, but rather become gangrenous; the disorder often terminating in death, through a putrid solution of the humours, before the period at which the pimples could have attained their due degree of maturity, even had the disorder been of a better kind. The reason why our ingenious author relished this division of the small-pox, better than that into distinct and confluent, was, that sometimes, even in the distinct kind, there prevails such a degree of malignity, as to be attended with unexpected death, though the pimples are far from being numerous, and the disorder appears quite mild and gentle to the unskilful, as I have just now proved from the medical observations of other writers; to which I may add, that I myself have sometimes observed the same thing in the course of my practice; as I shall hereafter relate.

It must likewise be evident, that it cannot but be of the utmost consequence, in treating the small-pox, to attend properly to this division of it into mild and malignant: for, the small-pox of the inflammatory kind, requires a very different course of remedies from that, in which the blood is dissolved by the malignant virus, with a sudden prostration of strength. The learned *Huxham* has likewise, in his treatise on fevers, taken notice of this division of the small-pox (g).

S E C T.

(g) Essay on Fevers, &c. page 127, 128.

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THE duration of this stage is longer or shorter, according to the nature of the epidemy, the violence of the disorder, the habit of the patient, and the season: the longer or shorter this stage is, in its own nature, the more mild or malignant the disorder is likely to be throughout the whole course of it.

I am now to consider that interval of the small-pox, between the very first symptoms (§ 1383) of its seizing the body, and the eruption of the pimples; as likewise the prognosis, which may be drawn from the earliness or lateness of such eruption, for it is evident from practical observations, that this interval is not always the same.

To the nature of the epidemy]. From what has been already said, it appears, that the variolous contagion, though of the smallest bulk, is capable, however, when applied to the body, of entirely destroying the health, lighting up a fever, inflaming and irritating the parts on which it fastens, in case the body, to which it is applied, happens to be qualified to breed the small-pox; and further, that this contagion is possessed of the faculty of assimilating to its own nature the good humours, even of the healthiest body, in a greater or less quantity; and that, this done, such assimilated humours are set down by a metastasis, near the exterior, and sometimes even the interior, surface of the body, with an abatement of the symptoms, and now and then a
total

total cessation of every complaint; so that the patient, on the breaking out of the pimples, shall look upon himself as perfectly recovered. But this assimilating of the good humours to the nature of the contagion received, and then setting them down, in such tainted condition, on the surface of the body, does not always happen at the same period of time. *Sydenham*, in describing the small-pox, which prevailed epidemically in the years 1667, and 1668, and part of the year 1669, takes notice, that the pimples came out, generally on the fourth day, from the first attack of the disorder; sometimes a little later; but scarce ever any sooner (*b*). But, in the years 1670, 1671, 1672, he observed the pimples, in the distinct small-pox, make their appearance on the third day; and likewise, that the disorder at this time proved more dangerous, and had more of the confluent kind in it (*i*). Besides, the epidemic constitution sometimes happens to be such, that as many, as take the small-pox, shall have it of the confluent kind, in which the pimples generally come out the third day, nay, and sometimes the second (*b*). When the disorder is produced by inoculation, the same stage of it usually takes up the same space of time; that is, the pimples shew themselves the third or fourth day, after the patient's being taken ill (*l*). For, we are not to date the beginning of the disorder, from the time of applying the contagion to the body, but only from the time of the patient's beginning to find himself out of order. It is only on the eighth

(*b*) Sect. 3, cap. 2. page 162.

(*i*) *Idem* Sect. 4. cap 6. page 251.

(*k*) *Idem* *ibid.* p. 252. & Sect. 3. cap. 2. page 165.

(*l*) *Mead de variol. & morb.* page 23. *Kirckpatrick on Inoculation*, page 87. *Acad. de Chirurg.* tom. 2. page 557.

eighth or ninth day, from that of inoculation, that the pimples usually appear. The patients are quite hearty during the first days after the operation, and perceive no kind of alteration in their health. For, by what has been already said, it appears, that this variolous contagion can lurk a long time in the body, before it becomes active, and produces the small-pox.

The violence of the disorder.] The confluent small-pox is usually attended with a more violent fever, and a greater number of symptoms, and those fiercer, than the distinct and mild small-pox; but then the pimples come out sooner: and in the distinct small-pox, stiled anomalous by *Sydenham*, the pimples came out likewise on the third day; but then the disorder proved of a much worse nature, as I have just now taken notice. *Violante* assures us, that, to the time of his writing, he had never seen the small-pox, in which the pimples appeared on the seventh day of the fever, turn out otherwise than regular, mild, and benign (*m*); an interval from the beginning of the disorder, which I must own I never saw in any of the places in which I practised; that is, when the succeeding pimples proved of a good and mild nature; sometimes, indeed, I have known the pustules to come out equally late; but then the patients had lost their strength from the very beginning of the disorder; the pimples, when they came out, were black, with purple spots; and death soon followed. However, I am very far from doubting this great and good man's word; no doubt, the duration of the first stage of the small-pox is different in different places; thus, the court physician *Erndtelius*, in his description

scription of the reigning disorders of *Warsaw*, tells us : *Variolæ, periodis consuetis longe solent esse lentiores ac segniores, neque quinario facile absoluntur dierum numero ter repetito, sed septenario potius, ita ut tres vel quatuor septimanæ transeant communiter, antequam totaliter earum virus deservescat, ac de purgatione cogitare possit medicus :*

“ As to the small-pox, it is apt to be much more
 “ slow and dilatory than usual ; nor is it often
 “ that this disorder happens to be over by the
 “ fifteenth day ; it oftener takes up one-and-
 “ twenty ; so that it is commonly three or four
 “ weeks before the ferment occasioned by its
 “ virus has entirely subsided, and the physician
 “ can think of purging his patient (n).” Now,
 as the first stage of the small-pox terminates at the eruption of the pimples ; the second, at their maturation ; and the third, at their drying up ; it appears pretty probable, that *Erndtelius* saw the pimples come out at the end of the first week. Nay, we read, in *Diembroeck*, of a woman of thirty, who never had the small pox ; but who, at a time when it prevailed, grew feverish and drowsy, complained of a cardialgia, with a heaviness in her head, and was now and then affected with a slight delirium. This made *Diembroeck* suspect she was breeding the small-pox ; and, accordingly, on the twentieth day of her illness, when he began to think himself mistaken in his prognosis, the pimples made their appearance (o). This is a very rare example ; and, accordingly, *Diembroeck* himself owns, he never before, or after, saw the pimples keep back so long.

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(n) *Warsav. Physic. Illustrat. cap. v. page 169.*

(o) *De Variol. & Morb. Histor. 3. page 293.*

The habit of the patient.] It is a general observation with physicians, that persons of a sanguine habit, in the prime of life, and who have lived luxuriously, generally have the small-pox very dangerous; and, on the other hand, every thing else being equal, that those have it lightest, who have not as yet attained the age of puberty, or are of a loose habit; and whose vessels, previous to the disorder, have been eased by copious evacuations, as I have already taken notice in my commentary on Sect. 1382. This is confirmed by the observations of *Violante*, who says: *Cæterum pluries retardatum variolarum exortum a copia sanguinis per nares effluxi, vel diarrhæa, observavi, & variolæ, ut tardiores, sic rariores, & interstinctæ, fuerunt, minoremque secum malignitatem, & vitæ periculum, ob ante actas evacuationes, attulerunt.*

“ After all, I have seen the appearance of the
 “ pimples greatly retarded by copious bleedings
 “ at the nose, or a diarrhæa; and the longer
 “ time they have taken to come out, the thinner
 “ and more distinct they have been, as well as
 “ attended with less malignity and danger, on
 “ account of the evacuations which had preceded them (*p*).” But here he means those evacuations, which are attended with a salutary energy of the vital powers; not those occasioned by the malignant nature of the disease itself, and accompanied with a sudden prostration of strength; circumstances, of which I spoke in the preceding paragraph. But in persons, in whose humours any remarkable acrimony prevails, such as those of a bilious, scorbutic, atrabilarious habit, the small-pox generally proves of the worst kind.

The

The longer or shorter this stage is.] Physicians, on seeing, that the fever, and all the other symptoms abated, nay, sometimes entirely ceased, on the first appearance of the pimples, began to think, that the best treatment of the small-pox must be that, which would forward and accelerate their eruption. And, as warm and sudoriferous medicines have a tendency to bring the humours, in great plenty, and with great violence, towards the periphery of the body, they thought proper to prescribe them, and that, too, with a very liberal hand. Poor mothers, therefore, anxious for the lives of their children, and nurses pretending to great skill and experience, contracted the habit of extorting, right or wrong, such remedies from the Physicians they had to do with; and sometimes privately administered these remedies of their own accord, not only without their advice, but contrary to their express injunctions. Not content with this imposition and deceit, they stewed the poor patients in hot rooms, and almost pressed them to death, by covering them, in bed, with an extraordinary load of blankets, even in the hottest seasons; placing all their hopes, forsooth, in plentiful sweats, and a speedy breaking out of the pimples. This method prevailed almost universally during the last age; but the issue proved fatal. Very few of the rich patients escaped; whilst the children of the poor, whose circumstances would not admit of such cookery, happily recovered. I well remember to have seen a manuscript volume, preserved amongst the papers of a noble family, in which there was an account, that a sensible lady, greatly concerned at the loss of some of her children by the small-pox, whilst those of the poor peasants in her neighbourhood,

bourhood, ill of the same disorder, and who had little or no care bestowed upon them, happily escaped, took the same method with the rest of her children, the next time her house was visited with the small-pox; that is, she had no physician to them; she gave them no drugs; nothing to drink but plain milk and water; or to eat, but boiled butter-milk and barley, with very ripe apples, baked. She kept the cold air from them, without, however, making any alteration in their dress, or adding to their bed cloathes. Finding this method to answer, she left it as a legacy to her family, in which it has ever since been used, yet without being copied by others, from a persuasion that it was only that particular family it suited, and might prove hurtful in others. So hard it is to conquer the prejudices of mankind.

Sydenham, who made the small-pox his particular study, observing that it was always attended with a greater number of pimples, and proved more difficult of cure, in proportion to the forwardness of the eruption, boldly opposed this torrent, and condemned the hot regimen, and all powerful sudorifics. He even laid it down as a maxim in practice: *Quanto magis quartum diem præverterint Variolæ, tanto etiam confluent magis.* “The sooner the pimples appear before the fourth day, the more confluent will they prove (*q*);” and the soundness of this maxim has been confirmed by the observations of all the physicians who have lived since. Nay, we read, that the Chinese began very early to look upon such hasty appearance of the pimples, as a bad omen (*r*).

But

(*q*) Sydenham. sect. 3. cap. 2. page 165, 166.

(*r*) Lettres edif. & curieuses. Tom. XX. page 326, & 335.

But it is added in the text, *ex sua natura* ; “ in its own nature,” because it sometimes happens, that, in a small pox of a very bad kind; the pimples come out later, though, in their own nature, they should have come out on the second day. That this happens, though seldom, *Sydenham* tells us, is owing to some very atrocious symptoms attending the disorder ; such as these already mentioned, on another occasion, *viz.* when; for instance, the patient is worried and tormented, before the breaking out of the pimples, with a very sharp pain, now in the region of the loins; like that felt in a nephretic fit ; now in the side, like a pleuritic stitch ; now in the limbs, like that in a fit of the rheumatism ; now in the stomach, with a great uneasiness, and most violent vomiting (*s*).

The same dilatoriness in the eruption of the pimples, sometimes occurs, when the first appearance of the disorder has always been attended with a sudden prostration of the patient’s strength, a quick, weak, irregular pulse. But skilful physicians, as I have already observed, always look for a dangerous small-pox, nay, generally a mortal one, when such symptoms shew themselves.

S E C T. MCCCLXXXVI.

HENCE the disorder, in this stage (1380 to 1386); seems to consist in an increase of the velocity of the liquids, produced by an inflammatory stimulus, thoroughly mixed with the blood.

If we consider the symptoms of inflammation recited sect. 382, and compare them with what has

(*s*) Loco supra citato.

has been already said of the small-pox, it will apparently appear, that the stimulus of the contagion, mixed with the blood, generally increases the velocity of the liquids, and produces an inflammation.

When the small-pox is produced by inoculation, the first sign of the contagion's having taken place, is a tension and redness in the lips of the little wound, to which it has been applied. This is followed by a suppuration in the same spot, as the natural consequence of the inflammation (see sect. 387). I have already taken notice, in my commentary on the 1384th aphorism, that the blood, drawn in the beginning of the small-pox, perfectly resembles the best; but, as the disease advances, it acquires an inflammatory sizziness. The pimples, when coming out, are red, turgid, and hot; and then suppurate; and, during the time of their suppuration, the skin lying between them grows likewise red, tense, and hot. Whilst the pimples are coming out in the confluent small-pox, in which they are always exceedingly numerous, the whole of the face appears erysipelatous, with a troublesome heat in the skin; nay, the disorder sometimes leaves behind it inflammatory ophthalmiæ, furunculi, anginæ; and the blood, obtained by venæsection, greatly resembles that of persons in a pleurisy. The nurses, who constantly administer to persons ill of the small-pox, though they are not liable to take the disorder itself, if they have had it already, are, nevertheless, often seized with ophthalmiæ, and inflammatory anginæ. Besides, the same treatment, which is generally used in inflammatory diseases, has as often proved of service in this, as I shall hereafter take notice, when I come to

ſpeak profeſſedly of the treatment of the ſmall-pox.

Sydenham, after duly conſidering all theſe circumſtances, laid it down as a maxim, that the ſmall-pox *eſſe Inflammationem (a cæteris tamen inflammationibus ſpecie diverſam) tum ſanguinis tum reliquorum humorum, in qua amolienda per dies priores duos treſve id agit natura, ut particulas inflammatas digerat, coquatque, quas poſtea in corporis habitum ablegatas maturat ad huc, & ſub abſceſſulorum forma demum ſuis finibus expellit*; “ is an
 “ inflammation (of a different ſpecies, however,
 “ from other inflammations) of the blood and
 “ other humours, to remove which, nature em-
 “ ploys the firſt two or three days in digeſting,
 “ and concocting the inflamed particles, which
 “ ſhe afterwards ſtill further matures after driv-
 “ ing them to the ſurface of the body; and, at
 “ laſt, under the form of little abſceſſes, baniſh-
 “ es her domains (t).” In another place, after ſpeaking to the ſame purport, he adds: *Et ſicuti natura non alia quidam methodo, quam accenſa febre, materiem in ſanguine peccantem novit amoliri, ita etiam non niſi facto apoſtemate maſſam carneam a re qualibet externa liberat: ut ſi forte ſentis, vel quidpiam ejuſmodi, carni in hæſerit, partes circumjacentes mox apoſtemate obſidentur, niſi id, quidquid eſt, moleſti protinus extrahatur.* “ And, as nature
 “ knows no other method of getting rid of any
 “ peccant matter in the blood, but by lighting
 “ up a fever; ſo neither does ſhe free the fleſh
 “ from any foreign body, but by means of an
 “ impoſthume: ſo that, when a thorn, or any
 “ thing like it, gets into the fleſh, the adjacent
 “ parts are preſently ſeized with an impoſthume,
 “ unleſs

(t) Sect. 3. cap. 2. pag. 175.

“ unless such troublesome foreign matter is immediately extracted (*u*).” And the different ultimate consequences of an inflammation, of which I treated in the history of an inflammation, Sect. 386, and the following pages, are likewise observed in the small-pox.

For, as an inflammation may be resolved without any subsequent suppuration, when the humours happen to be of a good kind; their motion, gentle; the obstruction to them, inconsiderable; their channels, pliable; and a dilating vehicle, at hand; so the same thing is sometimes observed to happen with regard to the small-pox; when the inflammatory matter, already impacted in the vessels of the skin, or on the point of being arrested in its desiles, is sufficiently attenuated to slip through the exhaling vessels, and so fly off; it may likewise happen, if the vessels are in their own nature, or can be rendered by art, so lax, as easily to give way to the impelled fluids, and suffer themselves to be dilated by them. I shall hereafter make it appear, in the commentary on the 1393d aphorism, that the small-pox is not always attended with pimples; and, when this happens, it seems to be in consequence of all obstruction in the vessels being prevented; or, if begun, happily checked; by relaxing the vessels themselves, or attenuating their contents; or both. The small-pox, every thing else being equal, proves less dangerous to the lax bodies of young people, than such as are hard by nature or exercise. It is on this account, that bathing is so useful at the beginning of this disorder; for, by means of it, most, if not all, the obstacles in the skin, are often removed, and the pimples come out few in number, and mild in their nature, so as to dry up quickly, after a gentle suppuration.

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Now,

(*u*) In dissertat. Epistol. pag. 448.

Now, as an inflammation is never either resolved, nor yet terminated by a kindly suppuration, when the humours happen to be sharp, the febrile motion violent, and the obstruction considerable, but tends to a gangrene; so the same thing is evidently seen to happen in the small pox. For, in this disorder, a very violent fever is generally followed by confluent pustules of the worst kind, and truly gangrenous, as *Sydenham* has very well observed; and there will be still much more reason to apprehend the same dreadful consequences, when a great acrimony has prevailed in the humours previous to the disorder, or has been actually bred in the body by the contagion itself, as I have already taken notice. *Sydenham* observed, that in the worst kind of confluent small-pox, *interspergi, in femoribus præcipue, vesiculas ambustorum instar, sero limpidiore distentas; quod quidem disrupta subinde pellicula copiosè effluebat, subjectâ carne nigredine & sphacelo quasi affecta;* “there
 “ were to be found here and there between the
 “ pustules, but especially on the thighs, blisters,
 “ like those occasioned by a burn, full of a very
 “ limpid serum, which, on the blisters happening
 “ to burst, flowed in great quantity, leaving the
 “ skin under it of a blackish colour, and as if
 “ actually attacked by a sphacelus (*w*).” It has been sometimes likewise my misfortune, to meet with such melancholy cases in the course of my practice; and, agreeable to *Sydenham*’s observation, they always ended in death.

The last stage of an inflammation, described Sect. 392. *viz.* that, in which it terminates in a schirrus, does not, properly speaking, occur in the small-pox: but, then, this effect never follows

w) Sect. IV. cap. vi. p. 252.

lows in an inflammation, but when the inflamed part happens to be of a glandulous nature. There is, however, a species of the small-pox, as will be seen hereafter, in which the pimples never suppurate, but harden, and grow very like callous warts; and thus, in some degree, at least, assume the nature of a schirrus.

All these circumstances seem sufficiently to demonstrate, that the small-pox may be classed amongst inflammatory disorders, though it has some peculiarities, by which it may be distinguished from every other disorder of that kind.

We are, however, to observe, that this inflammatory disposition of the small-pox never obtains, but when the contagion taken into the body has kindled in it an acute hot fever; and, by no means, when it has immediately destroyed or abolished the vital powers, with a quick pulse indeed, but weak; and a sense of cold rather than additional heat; a circumstance already spoken of, Sect. 1384.

S E C T. MCCCLXXXVII.

THIS disorder, therefore, (1386) akin to every inflammatory disorder, is not, in the present stage of it, to be easily distinguished from any; a knowledge of its being then the reigning epidemic (1380), of the patient's disposition to take it (1381), of the preceding contagion (1382), and of the symptoms that may be naturally expected to follow it (1383), are sufficient to shew, that the small-pox is the disorder the patient is breed

ing ; and that the pimples themselves will make their appearance, in the next stage of it, which I shall presently describe.

It will, I believe, be readily acknowledged by every physician of any practice, that it is not so easy a matter to distinguish the small-pox, in the very beginning of it, from any other acute inflammatory disorder : hence it is usual with physicians of any discretion, seldom or never, whatever their private thoughts may be, to pronounce a patient ill of the small-pox, till the pimples themselves have proved it ; they content themselves with saying, that they suspect it to be the disorder, in case he has not already had it. And, seeing the treatment of the small-pox, in its incipient state, will sufficiently suit any other acute disorder, no mischief can follow from using these things, which we know well must be of service, should an eruption of pimples actually follow. Now and then, when the small-pox prevails epidemically, every physician is taken up with the thoughts of it, and has the symptoms of it constantly before his eyes ; for which reason, it is, at such times, no easy matter for the small-pox to steal unawares upon any one. But, as I have already taken notice, it is but now and then, it entirely ceases in great and populous towns ; in such places, it generally seizes somebody here and there, sporadically, and is apt to be so mild, that it is seldom the families visited with it, especially those in low circumstances, send for a physician. Hence it has happened, that physicians of some practice have sometimes lost sight of this disorder, and have taken the first symptoms of it for those of a continued acute fever, not without great hazard to their reputation, especially when
- the

the mistake happened to be made with regard to a family of distinction. For this reason, it is now a rule with physicians, rendered wise at their own or their neighbour's expence, to be always thinking of the small-pox, unless they happen to know, for certain, that the patient they are called to, if ill of a continued acute fever, has already had that disorder. Nor ought they, on such occasions, to be too ready to trust to the stories of the sick person's friends, as it is not unusual with people of little skill, to confound the genuine with the spurious kinds of small-pox.

There will be the more reason to suspect, that the patient is breeding the small-pox, if it prevails epidemically, if the patient has not already had it, if he has been evidently exposed to the contagion; but, above all, if, whilst labouring under a dread of the disorder, he has had the misfortune suddenly to see somebody actually ill of it; or somebody but lately recovered from it, with the red spots left by it still upon him; and has been immediately struck with horror at the sight. In this case, should a continued fever quickly follow, with the symptoms enumerated, *See*. 1383, I should not be afraid of pronouncing the small-pox at hand: nor do I remember that I was ever mistaken in this prognosis. Indeed, there are too many observations in medical history, to leave the least room to doubt of its being a safe one.

In other circumstances, I have always had my doubts; I have, indeed, taken every step I thought could be of service, were the disorder to prove the small-pox; but I never let slip from me an absolute prognosis with regard to it. I once, in the course of my practice, met with a case, which has put me greatly upon my guard. A boy, and a

girl, within three hours after they had been made too much of at dinner by a grandmother of theirs, began to shiver and grow chilly together; and then grew hot. The poor lady, frightened out of her wits, laid them down on the same bed, but that a very large one; and, thinking their illness might be owing to their not being able to digest the good things with which she had crammed them, plied them with warm watery liquors, which gave them some ease. Being called to them in the evening, I found them both pretty feverish. As, at this time, the small-pox prevailed epidemically, and the fever, by sticking to them till the day following, proved itself a continued one, and was besides attended with most of the symptoms which usually accompany the small-pox, I made no scruple of declaring, that I thought they were both breeding that disorder. On the beginning of the fourth day, the fever left them both; and, at the same time, the pimples came out on the boy, in great numbers indeed, but distinct; and he happily recovered; but the girl got up quite well, and went home to her parents; and, though she often returned to visit her brother during the rest of his illness, never complained of any thing. Two drops of water could not be more like each other, than the fever in these two children; it began and ended, in both, at the same time; and, yet, in both, took a quite different turn.

Thus, I myself experienced the truth of what Sydenham has advanced, that there is a variolous fever unattended with pimples. His words, are *cum Variolæ, eo tempore latissime depopulantur, febris toto anno sparsim oberrans ejusdem plane inflammationis est particeps, quæ variolas parit. Uterque enim morbus ad eandem fere normam adoritur,*

tur, maximaque inter maxime propria utriusque symptomata intercedit cognatio, excepta variolarum eruptione, & reliquis, quæ ab illa pendent, &c. “As, “at this time, the small-pox prevailed far and “near, and proved very mortal, it is evident that “the fever, which shewed itself here and there “during the whole year, must be of the same “inflammatory nature with that, which breeds “the small-pox. For, there is scarce any difference in the manner, in which both disorders “begin; and there is the greatest resemblance between the most peculiar symptoms of them, all to “the eruption of the pimples themselves, and “the other circumstances, which depend upon “that, &c. (x)” The same thing has been since observed by other physicians, duly attentive to what passed in the course of their practice; nor is it the only phenomenon worthy of notice, a most accurate observer of diseases thinks he has discovered; he thinks he has often seen the epidemic fever coincide, in the same patient, with the small-pox (y). For whilst, in the years 1740, 1741 and 1745, an epidemic malignant fever raged, especially in the fleets, armies, and prisons of his country, he observed the pimples of a most fatal kind of small-pox break out, with the symptoms of such malignant fever; at the same time that several persons in the neighbourhood, who had no communication with those ill of this malignant fever, had a small-pox of the most gentle nature (y). It has been already taken notice, in the commentary on the 1382d aphorism, that the measles have been known to follow an inoculation for the small-pox; and that, then, a new fever

(x) Sect. i. cap. 2. pag. 50.

(y) Huxham, Essay on Fevers. page 130.

ver arising, the small-pox has likewise made its appearance. Now, it is clear, that a great variety of symptoms must have been observed on this occasion, before the eruption of the pimples. From all which we are to conclude, that a certain and sure prognosis of the small-pox is not so easy to be had; and that those physicians shew most discretion, who are not too bold and hasty in pronouncing on the occasion.

S E C T. MCCCLXXXVIII.

THE first indication that offers, when this stage of the disorder (1380 to 1387) has been ascertained (1387), seems to be the healing of it in its present state, and the preventing of its further progress, by removing the inflammatory stimulus (1386); and then taking the proper precautions against any future suppuration, gangrene, &c.

No one, who has attentively considered, and impartially weighed, what has been already said concerning the small-pox, can entertain the least doubt of its being produced by a contagious stimulus, or of the variolous contagion's possessing the property of assimilating to itself the hitherto healthy parts of the body. For this reason, the first curatory indication that offers, is the getting such contagion, as soon as possible, out of the body; or, at least, enervating it beyond the power of doing any mischief. But, as it is so very small, in point of bulk, as to escape all the senses, and, besides, can enter the body by a
great

great number of different passages, it must be no easy matter to distinguish the solid part on which it fastens, or the fluid with which it mixes, before it comes into action, and betrays itself by its effects. It is not without reason, *Helmont* says, *quod venenorum interna essentia non sit demonstrabilis a priori: adeoque per effectus proprietatem veneni metimur*; “that the internal essence of poisons is “not demonstrable *a priori*; for which reason “we can only judge of the powers of them, “by their effects (z):” Now, it is the variolous poison that he is treating of in this place; and he is condemning the schools, who had charged the menstrual blood with all the subsequent mischief, as being the parent of that poison: afterwards he says: *Ergo venenum fit in homine, non autem illi connatum ex menstruo. Quale autem illud fit, describi nomine nequit, quia proprium nomen extra effectus non habet*: “The poison, therefore, is “engendered in the human body, and not along “with it from the menstrual blood. But then, “there is no describing what it is, by name, “since it has no proper name distinct from its “effects.” Hence it is plain, that it must ever continue a task of the greatest difficulty to remove the contagion, when it has stolen into the body, since it does not, in any wise, shew itself but by the effects it produces, when it begins to act; and, then, the disorder has an existence; so that all art can do, is to prevent its further progress.

There is greater reason to hope, that the poison, when it has made its way into the body, may be so enervated, as to be no longer able to produce the small-pox; or that, if this cannot be done, it may be insensibly driven out of the body, before it can do any great mischief; or deprived, in
part,

(z) In cap. *Lunare Tributum*, pag. 584, col. I.

part, if not entirely, of that strange power, by which it communicates to all the parts of the body its own poisonous quality. Were art acquainted with any antidote for this poison, it might be immediately rendered inert; but, as this is not the case, all we can do is to see, whether the body may not be so well fortified and guarded, as not to be expugnable by the variolous contagion, though in full possession of all its powers. It appears from many observations, that some persons are never, during the whole course of their lives, affected by this contagion, though frequently, and for a long time together, exposed to it: besides, those, who have but once been affected by it, are no longer liable to its sting. Wherefore, could medicine bestow on an healthy body the same disposition, that every body which has once had the small-pox enjoys on that account; and some bodies, who have never had it, through a peculiar idiosyncrasy, and that to such a degree, that even the variolous contagion actually taken in by them shall have no effect; the consequence would be the same; that is, such healthy bodies would thereby become proof against the contagion, though it had lost nothing of its efficacy. But no physician, that I know of, has as yet been able to determine the nature of that change in bodies past the small-pox, which renders them ever after proof against it; or what is that peculiar idiosyncrasy, in consequence of which, a body shall never take it. Now, art can never be expected to imitate what it knows nothing of.

For this reason, all we can reasonably endeavour to do, is to drive the contagion out of the body, the moment we can perceive it has begun, with its stimulus, to cause any disturbance there; or at least destroy, or greatly weaken, that power of the contagion,

contagion, by which it converts the healthy parts of the body into its own nature. For, though this contagion, when once taken into the body, disturbs all its functions, and then excites a violent fever, all these effects might be dispensed with, and endured, for it is seldom any one dies of the small-pox, till the pimples come out; and, when they come out, the symptoms generally abate, nay, sometimes totally cease. But the mischief is, that, whenever this poison happens to assimilate to itself many parts of the body, then the pimples break out in great numbers; and, whilst they inflame and suppurate, kindle a new fever, which often proves fatal; or is, at least, followed by a putrid fever lighted up by the re-sorbed pus, and to a greater degree by the gangrenous tabes, when the disorder happens to be of the worst kind; and this putrid fever takes off numbers, especially when the internal parts have the misfortune of being as much over-run with pustules as the external skin; as will be hereafter explained. If, therefore, the cutaneous vessels could be so disposed as to transmit the matter assimilated by the contagion, and which is, by a critical metastasis, set down near them; or, if this morbid matter could be so attenuated, as to evaporate entirely from the body, by the exhaling vessels; then few, if any, pimples would come out; and the body might perform the whole course of the disorder without any great danger. Besides, though the matter of the disorder, already stuffed into the vessels of the skin, should have actually produced inflamed pimples, yet we might still hope to be able to resolve the incipient inflammation by proper remedies, so as to prevent a suppuration. I shall make it appear hereafter, when I come to
treat

treat expressly of the cure of the small-pox, that such a resolution of the inflamed pimples is not always impossible; and that some pimples, which had already begun to project beyond the surface of the skin, have happily yielded to perpetual fomentations and other remedies. And this alone is an advantage, by which the danger of the disorder is not a little diminished.

S E C T. MCCCLXXXIX.

IT is probable that the stimulus may be removed by the correction of specifics, so called, or the universal antiphlogistic method.

We call those specific remedies, which render the morbose cause inhering in, or applied to, the body, so inert, that it shall no longer do any mischief; and yet perform this kind office, without causing any sensible alteration in the body so benefitted by them. For cures of the intermitting fever, performed by means of vomits, purges, or sudorifics, are not to be dignified with the name of specific cures. But the Jesuits bark is justly stiled a specific remedy for intermitting fevers, as it cures them without any sensible evacuation. By adding a grain of the purest silver to the highly centered spirit of nitre, we may prepare so corrosive a drug, that it shall, even in the twinkling of the eye, destroy any part of the body to which it is applied. Yet, nothing like this power is to be found in either of these bodies in their separate state; it is produced merely by the combining of them. Whatever, then, can destroy such union, will be the true antidote of this

this poison. Now, this is done by all the alkaline salts, as they immediately shake off the inert calx of the silver, to take possession, themselves, and unite with, the spirit of nitre, and constitute together with it a mild neutral salt. As soon, therefore, as it shall please providence to bestow on us any remedy of this kind, capable of carrying off the morbose stimulus of the small-pox, or rendering it inert without disturbing the body, of which it has taken possession, then the cure of the small-pox, by such happy remedy, may be justly stiled specific.

Now, we know by the history of poisons, that some are so actively deleterious, as to produce death instantly, without any previous sickness. The fumes of sulphur, the vapours of liquids in a state of fermentation, the close air of places long shut up, shall instantly kill the stoutest man; but the variolous contagion does not belong to this class of poisons; for, we have no proof by any observation or experiment, that it ever deprived the body of life, without first disturbing the health of it. We may justly, however, rank it with those poisons, which, before they kill, produce morbose effects, capable of hurting the human frame, as has been observed in some well known diseases; upon which account, it becomes necessary we should, in every disorder, have recourse to those remedies, which have proved of service in the treatment of others, distinguished by similar effects (a).

Now, as the fever excited by this stimulus is followed by pimples, which inflame, suppurate, nay, and sometimes become gangrenous, that method must certainly be good in the small-pox, which is generally employed with success,
in

(a) Herman Boerh. Institut. Med. Sect. 1125.

in the cure of these complaints. The antiphlogistic method of treatment must, therefore, be used in the small-pox; and our view in using it should be, to allay the present inflammation by a mild resolution; and guard, as much as art will enable us, against all the more disagreeable consequences of an inflammation, such as suppuration, and mortification. For, if we can but prevent all the effects, which depend on the morbose cause, we may flatter ourselves with having removed the cause itself, or at least having rendered it so inert, that it shall no longer be able to give the body any uneasiness. Now, these two intentions, as far as they regard the curing of the small-pox, perfectly coincide.

But since, as I have already taken notice, the variolous contagion sometimes proves very hurtful, even at its first attack, by prostrating the vital powers, instead of producing an inflammatory fever, in that case, it would no doubt be madness to use the antiphlogistic method. We must have recourse to that which suits diseases that are truly malignant, as I shall hereafter take notice more at large, when I come to speak professedly of the cure of the small-pox.

S E C T. MCCXC.

THE specific correction ought to be founded on the discovery of some remedy contrary to such contagious poison, which taken into the body, in so small a quantity, produces all the subsequent complaints, as so many effects (1382, 1383)

It plainly appears, by what has been already said, that the contagious stimulus of the small-pox is extremely minute, in point of bulk; and that, notwithstanding, it is capable of effecting the strangest alterations in the human body; it is, therefore, to be piously hoped, that, one day or another, we may light on a remedy of the same nature; that is, a remedy of such efficacy, that the smallest particle of it shall be sufficient to enervate this variolous poison. Now, as the contagious pus is, at this time, preserved in several parts of Europe, for the purpose of communicating the small pox by inoculation; and it is certain, that such pus continues, for several months, in a condition to do the business for which it is kept; further, as the well dried pustules of the small-pox, if put up in a well closed box, in the *Chinese* method, are known to retain the same faculty; what should hinder a critical examination of this poison? Various experiments may be made upon it; and something, perhaps, may be the result of these experiments, which shall have the specific virtue of subduing it, and thus stifling, in its cradle, this cruel and insatiable monster.

S E C T. MCCCXCI.

AND, that such a remedy (1390) may be discovered, we are encouraged to hope, by comparing together the accounts of those antidotes we are already acquainted with, and considering the nature of the disorder itself; and, surely, the great benefit such an antidote must be to mankind, is a sufficient motive to make us search for it.

It is sufficiently clear, that the small-pox takes its rise from a contagion, which, when applied to the body, acts upon it in the nature of a poison. Now, the history of poisons makes it pretty probable, that every poison has its own antidote, by which it may be either totally destroyed, or so enervated, as no longer to do any mischief; and which, notwithstanding, either taken inwardly, or applied outwardly, shall not, of itself, do any new injury to the body. No doubt; as we cannot know the nature of poisons *a priori*, so neither can we that of antidotes, which are, in general, of the utmost simplicity, and so mild in appearance, that one would hardly think they could possess such great powers. Sugar, that gentle sweet substance, powdered, and instantly swallowed, is an antidote for that terrible poison, with which the Indians infect their arrows. Accordingly, a hen, after this powerful poison had been applied to a little wound made in her, was rescued from the jaws of death, by immediately stuffing a quantity of pure pounded sugar down her throat; whereas, another creature of the same kind, and treated in the same manner, all to the
sugar's

sugar's not being administered to her, died instantly. Spirits of wine, drawn by distillation from the leaves of the laurocerasus, have been found, in England, to produce instant death; yet, in my younger days, I have very often drank, with my fellow students in Physick, the infusion of the same leaves, made with water and milk, and sweetened with sugar, without ever feeling in myself, or observing in others, the least bad effects from it. *William Piso*, who had made it his business to search into the nature of several such antidotes, speaks of them as follows: *Quamobrem multa, partim propria experientia, partim pretio & precibus a barbaris extorquere necesse fuit; qui sicut tenebriones sunt in porrigendis venenis, & pertinacissimi in revelandis ejusmodi secretis, ita officiosi in exhibendis antidotis; di&toque citius, ubi de natura veneni constiterit, in silvis efficacissimas herbas colligunt, quas contusas instar potionis ægris subministrant, animasque pene extinctas suscitant.* "There
 " was, therefore, a necessity for wringing many
 " things out of the Barbarians, partly by watch-
 " ing them, and partly by payment and pray-
 " ers; for, as they are exceedingly crafty, in
 " administering their poisons, and most tenacious
 " of such secrets, so are they equally officious in
 " giving their antidotes. The moment they
 " know what the poison is, away with them
 " into the woods, where they are sure imme-
 " diately to find herbs of the utmost efficacy,
 " which they pound, and exhibit the juice of,
 " in the way of potion, thus rescuing their poor
 " patients from the very jaws of death (b)." Now, these antidotes must have been discovered, either by mere accident, or a variety of trials,

(b) *Histor. Natur. & Med. Ind. Lib. V. cap. 1. pag. 272.*

by these barbarians; and, by no means, by any course of reasoning. Hence *Celsus* justly concludes, that the healing art is to be found in every part of the globe; *Siquidem etiam imperitissimæ gentes herbas, aliaque, promptum in auxilium vulnerum morborumque, noverunt*: “ Since even
 “ the most ignorant nations are acquainted with
 “ herbs, and other things, which are speedy
 “ cures for both internal and external com-
 “ plaints (c).” If, therefore, such rude uncultivated nations have been so happy as to discover certain and specific remedies for the cure of diseases, and the conquering of poisons, what may we not hope from those excellent physicians, blessed with such an extraordinary acuteness of understanding, and extent of knowledge, if, laying all hypothesis aside, they would apply themselves feriously to discover the nature of the variolous poison, and try various things for the purpose of subduing its malignity? But, as long as the medical schools think of nothing else but bandying backwards and forwards, in the way of mere subtle disputation, this, and other matters like it, we shall be obliged to own, to our shame, *verba superesse, deesse medendi scientiam*; “ that words are not wanting, but only medical knowledge (d).” In this case, the field of experiment is so much the wider, as the small-pox may be produced, at will, by inoculation, and remedies used before the contagion is applied to the human body; and criminals, guilty of capital crimes, might thus enjoy, by public authority, the opportunity of easily commuting their punishment for a submission to these trials, whilst the hopes of being serviceable
 to

(c) In Præfat. pag. 1:

(d) Ibid. page 3.

to mankind must, with every good man, prove a sufficient motive for taking the trouble to make them. And if in any case, it is certainly in one like this, that the mere doing of the thing must prove its reward.

We are now to consider the trials that have been already made for this purpose, and, it must be allowed, with some success; that from thence we may form some guess concerning other trials, which may, perhaps, be attended with a still more fortunate event.

S E C T. MCCCXCII.

THE success, such as it was, which has been sometimes known to attend the use of stibium, and mercury, reduced by art to a great degree of penetrability, nor yet rendered too corrosive by their saline acrimony, but well united, is a further inducement to look for such an antidote:

That mercury is possessed of great medicinal powers, several physicians and chemists have sufficiently proved; at the same time that they have observed a great variety, with regard to the effects of the different preparations of it. No doubt, the ancient physicians no sooner got the better of that too great fear, under which they seem once to have laboured, with regard to that metal, than they found it to succeed in the most difficult disorders. It is not, indeed, to be denied, that the indiscretion and rashness of some men, have often brought this medicine into great disrepute, by using too freely the most powerful preparations of it; or by exhibiting the safer

preparations in too large a dose; or by repeating the exhibition of such remedies too often; or, in fine, by giving them to patients ill of disorders, in which mercury has been discovered, by certain experiments, to do mischief. But candid judges never imputed these misfortunes to mercury itself, but merely to the ignorance and wickedness of those abominable men, who handle the mysteries of medicine with impure hands, and make a drum, as it were, of the human body, and that almost always with impunity; a circumstance, every man of common humanity must be greatly shocked at.

Nothing can be surer, than that the most difficult ulcerations, and many cutaneous diseases, proof against all other remedies, nay, the venereal virus itself, have yielded to mercury, discreetly administered. It is, therefore, no way surprising, that an antidote should have been looked for, in mercury, against the variolous virus, especially as certain particular observations seemed to suggest, that some good might be expected from it. I observed, Sect. 1146, that mercury has been used, with success, against that shocking poison, which is the parent of canine madness; a poison capable of lurking a long while in the body, and producing, at length, when brought into action, the most frightful evils, and death; nay, and assimilating to its own contagious nature the humours of the healthiest body; and likewise sticking to our clothes, and even the threads they are composed of, like the infectious pus of the small-pox, and thereby alone propagating destruction and death.

But, we have the testimony of some physicians, that mercurius dulcis has so far proved of service in the small-pox itself, as to make the pimples come out more kindly; nay, and prevent

vent their coming out at all ; or, at least, in any great number (e). We have an account of a physician's having administered, to his own child, a little girl of seven, with all the signs of an incipient small-pox upon her, a pretty large dose of mercurius dulcis, viz. twenty grains, with four grains of sulphurated scammony. She had three stools upon it ; and, towards evening, vomited prodigiously ; after this, she slept very soundly ; and the pimples never came out, though the small-pox not only prevailed epidemically at that time, but her brother was actually ill of it, and loaded with pimples. The same gentleman afterwards administered the same remedy to a girl of eight ; but not in the very beginning of the disorder ; the consequence, however, was, that she had but very few pimples (f). A woman, who had been cured of the venereal disease, but wore, on the os sacrum, a plaister *de ranis Vigonis cum quadruplici portione argenti vivi addita*, on account of a tumour in that part, being seized with the small-pox, immediately took it off ; still, the spot, on which it lay, did never break out, though all the rest of her body was covered with pimples (g). From these, and many other experiments and observations, it appears highly probable, that no harm can attend a discreet trial of mercury in the small-pox ; such a trial, as may be made without employing any of the rougher preparations of it, least they should add to the disturbance in that human frame, which the small-pox is often, in its own nature, sufficiently violent to produce ; not but that such powerful pre-

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parations

(e) Miscell. curios. dec. 1. an. 3. pag. 13.

(f) Ibid. pag. 93.

(g) Malouin Chemic Medic. tom. II. pag. 133.

parations may be safely used by proportionably reducing the dose. I am convinced, from a great number of trials, that even corrosive sublimate mercury, though deservedly classed amongst the very roughest preparations of that metal, when given in so small a dose as not to be able to irritate the stomach or intestines, has conquered many stubborn disorders; of which I shall say more in the *Chapter on the Venereal Disease*.

And, that stibium, likewise, is possessed of admirable virtues, appears particularly from chemistry. As long as the metallic reguline part of it continues combined with the sulphureous part, it is a pretty inert body; but, the moment you free such reguline part from its sulphureous fetters, it acquires a wonderful efficacy; such, indeed, as, without any sensible diminution of its weight, to communicate to wine, into which it is poured, a most violent emetic quality; nor is it an easy matter, as every body knows, to exhaust that quality by repeated affusions of pure wine. But physicians of experience know how to dilute that emetic antimonial wine, and other preparations of stibium, or reduce the dose of them, to such a degree, as to prevent their acting on the primæ viæ; yet leave them power enough to encrease the diaphoresis, and, in many disorders, promote expectoration by spitting; both, with the most surprising success, as will hereafter appear. We know, for certain, that *Sydenham*, when he dreaded a confluent pock, used to give an emetic, after first bleeding his patient; and it was customary with him to make use of antimonial emetics (*b*). Nay, as often as he thought such of his small-pox patients, as had it confluent, in great danger, on the eleventh day, in consequence of their ceasing to spit, he gave them the emetic wine mixed

ed with the infusion of the saffron of metals; and that, too, in a pretty large dose; and it seems, that, in this doubtful stage of the small-pox, he placed all his hopes in this remedy, as it sometimes answered, though not always.

Be that as it will, the milder medical preparations of stibium, such as do not greatly disturb the body, have been chiefly cried up; viz. the stibium, called diaphoretic, especially when left with the fixing nitre; and which diaphoretic stibium generally goes, in the shops, by the name of *stibium diaphoreticum non ablutum*, or unwashed diaphoretic stibium. It is prepared by burning pure antimony, with three times its weight of nitre, into a calx. For the same reason, we likewise use the nitre, which is washed, with warm water, from this diaphoretic antimony, and which is sold, in the shops, under the name of antimoniated nitre.

But these remedies have been chiefly extolled, in which mercury, or the milder preparations of it, are combined with antimony. Hence, the cinabar of antimony, which consists of the sulphureous part of antimony combined with the purest mercury, has obtained no small reputation in the treatment of the small-pox. This remedy, we know, is prepared, by first reducing the purest antimony into a fine powder; then grinding it, for a long time, with corrosive sublimate mercury; and afterwards distilling the mixture, in a retort, in a pretty strong sand heat. By this means, the purest spirit of the marine salt, which made part of the corrosive sublimate, deserts the mercury, unites with the reguline part of the antimony, and passes, along with it, over into the recipient; and then it is called the butter or oil of antimony; a corrosive remedy of the roughest kind: but the mercury,

mercury, freed from the fetters of the spirit of the marine salt, unites with the sulphureous part of the antimony, and is sublimated into the neck of the retort, exhibiting a true cinnabar, which is generally known by the name of antimoniated cinnabar.

But, as many chemists are of opinion, that there is no great difference between the sulphur of antimony and the common pure sulphur, hence they have used the cinnabar, called artificial cinnabar, for the same purposes; as, likewise, that found in mines, which is called native cinnabar, and which consists, too, of sulphur and mercury. We read, that cinnabar has, for a long time past, been cried up by the Chinese, as a prophylactic of the small-pox (*i*). Certain it is, that sulphur itself has a surprising virtue in correcting, and even destroying, the contagious miasmata which float in the air; as also in subduing poisons, as I have already said, on another occasion, in my commentary on the fourth number of the 605th aphorism. It likewise proves of the greatest use in many cutaneous disorders. It is not, therefore, any way surprising, that physicians should have thought of sulphur, when in search of a prophylactic remedy for the small-pox; especially, as sulphur and mercury, well united, afford a mild remedy, which scarce disturbs the body, and yet is of great efficacy in curing several diseases. Such is that substance, called æthiops mineral, which is prepared by dropping pure mercury into sulphur melted over a slow fire, when they unite instantly, and form a very black mass. The same compound may be obtained by grinding both together, for a long time, in a mortar; but,

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(*i*) Lettres Edif. &c. Cur. Tom. XX. pag. 342, 343.

in this way, the process is a great deal more tedious. Now, it is well known, that, if æthiops mineral, being placed in a close vessel, over a strong fire, is sublimated into cinnabar, for which reason it is usual with physicians to expect similar effects from æthiops mineral and cinnabar. An eminent physician gives us the cases of some persons, who, though they never had had the small-pox, kept, for a long time, with patients ill of that disorder, nay, partly lay in the same bed with them, without catching it, as long as they took æthiops mineral, twice a day, in the quantity of dr. *B*, with a small addition of sulphur (*k*). He sometimes mixed with these ingredients myrrh, camphor, and other things; but he seems to have relied chiefly on the æthiops mineral, the sulphur, and cinnabar, which he administered, not only as to prophylactic remedies, to keep off the disorder; but, likewise, for the purpose of reducing the strength of it, when it had already seized the body; and he administered them in a pretty large dose (*l*). It must, however, be owned, that these trials have not always had the desired success; for, we read, that, whilst the small-pox prevailed epidemically at *Edinburgh*, in the year 1733, some persons died of the confluent kind, though they had first undergone the mercurial treatment, and had afterwards constantly used, and for a considerable time, the æthiops mineral, by way of prophylactic (*m*).

It looks, therefore, as if no certain antidote for the variolous contagion has been as yet discovered. But it is certainly well worth the while of all good men to think of one, and make such discreet trials,

(*k*) Lobb. of the small-pox Preface pag. 33. 39.

(*l*) Ibid. page. 173. 175.

(*m*) Medical Essays, Tom. 3. pag. 30.

trials, as a serious study of the small-pox may induce them to expect any success from.

Besides, there are, in the annexed *Materia Medica*, under the same number by which the present aphorism is distinguished, some formulæ, in which the mercurial and antimoniate preparations are united; and other things of the same nature may be easily prepared in imitation of them.

S E C T. MCCCCXIII.

THE universal method may, it is probable, be used in this case, and ought to be perfected by experiments; that method, I mean, which has been found of service in every inflammatory disorder, to prevent the inflammation's turning to a suppuration, or a gangrene: as it succeeds in every other case, what should hinder its succeeding in this, and often procuring us a small-pox, exempt from pimples?

As we are not yet possessed of any certain antidote for the variolous contagion, Medicine cannot oppose it with any better remedies, than those which are found to be of service in other disorders attended with the same symptoms. Now, it has been observed in the commentary on the 1386th aphorism, that the variolous contagion exhibits, when it begins to take effect, the usual symptoms of an inflammation; and that it has sometimes deceived even skilful physicians, by its near resemblance to other acute inflammatory diseases; so that no certain and absolute diagnosis can be expected, till the pimples make
their

their appearance on the very surface of the body, where they grow inflamed, then suppurate, nay, sometimes become quite gangrenous. It is, therefore, plain, that nothing can be more agreeable to reason, than to use the general antiphlogistic method, even in the beginning of this disorder, from the very moment the symptoms of inflammation appear. No discreet physician will, if he can possibly help it, suffer the phrenitis, angina, pleurisy, and such other disorders, to get to a suppuration, though *Helmont* has made very free with the rest of the faculty, for opposing the pleurisy, by bleeding, and that, repeatedly, when they thought there was occasion for it. He kept perpetually crying out to them, to draw the pleuritic thorn out of the side; that they need not give themselves any other trouble; that the doing of this alone was sufficient to exterminate the disease; and he boasted he could do it, with the blood of an he-goat, the flowers of the rhoeados poppy, and other remedies in the same stile: but these mighty promises were belied by the event; and *Helmont* himself, in a fair trial, on his own body, of what he had been endeavouring to make others use, found himself grievously mistaken, as has been already related in the chapter on the pleurisy.

This method, notwithstanding, has been every where greatly opposed; especially as it was almost every where customary, during the last age, and the beginning of the present, to throw oil on the flames, by using warm alexipharmics, warm beds, warm bed clothes, and great fires, even in the height of summer. Much as *Sydenham* suffered in England, by opposing himself, almost singly, to this torrent, the illustrious *Boerhaave* had as much to suffer in *Holland*, by daring to deviate,

deviate, in his treatment of the small-pox, and other diseases, from the beaten track of those who went before him. When the violence of the disorder happened to elude all the assistance of art; then, every patient, who could not be cured, was said to be killed; whilst cures, however numerous, by the new method, were only considered as so many exceptions to the general course of nature. The old physicians found it but too easy to persuade the credulous vulgar, that it was a downright sacrilege, to try any new methods in the practice of their art; hence, private whispers, and public calumnies, without end, of all which I myself have been a witness. But this great man bore every thing without ever betraying the least resentment or uneasiness. The only vengeance he took of his enemies, was, to treat them, as if they were not worth his notice. After all, it was a mistaken notion, that the antiphlogistic method was a new one, since it plainly appears, that it was, even in pretty distant times, much in vogue. The illustrious *Mead*, to whom the Belles Lettres and Physic are so much indebted, had the treatise written by *Rhazes*, on the small-pox, and measles, in the Arabic language, and, the first we know of, in which these disorders are particularly mentioned, translated into Latin (*n*). Now, *Rhazes*, not only recommends bleeding, as a prophylactic remedy, from the beginning to the end of this work of his; and, likewise, keeping cool the bed-chamber of the patients (*o*); but he orders copious bleeding in the beginning of the disorder, even enough to make the patient faint, when there occur signs of a phletora, and too

(*n*) Friend, Hist. of Physic. tom. 2. pag. 190.

(*o*) Mead de Variol. et Morbill. pag. 124.

great a hurry in the humours ; both indicated by signs, which he thus enumerates, *corporis distensionem, nimiamque jaetationem, dolorem dorsi, ruborem coloris et oculorum, cephalalgiam vehementem admodum, pulsum magnum et plenum, itemque respirationem angustam, et urinam turbidam rubram, nec non tactum corporis calidum, &c.* ; “ A distension of the body, an excessive tossing and tumbling, a pain in the back, a redness in the skin and eyes, a very violent cephalalgia, a great and full pulse, a difficulty of breathing, a turbid red urine, and likewise a hot feel in the body, &c. (p)” Nevertheless, he cautiously adds, that, though these signs should be manifest, yet, if they are not very violent, less blood must be drawn ; and but very little, in case they should be but moderate. Nay, he was for bleeding after all the pimples were come out, provided the patient had strength enough left to bear it ; *quando cum variolarum signis aliis adsuerit raucedo vocis, angustia in respiratione, et in faucibus, dolor in gutture* : “ when an hoarseness, difficulty of breathing, and swelling and pain in the throat, accompanied the other signs of the small-pox (q).” He dreaded suffocation, it seems, in the subsequent course of the disorder. But he was so much more afraid of too great a degree of heat in the small-pox, that he made no scruple of giving water cooled with snow, in large quantities, to the patient, and at short intervals, *ita ut eo prematur, et frigiditatem ejus sentiat in intestinis suis, aegrotus* : “ So as to load him with it, and make him feel the coldness
“ of

(p) Ibid. pag. 138, 139, 140.

(q) Ibid. pag. 157.

“ of it in his very bowels(*r*).” He recommended the acid serum of butter-milk, and the acid juice of citrons (*s*), hoping, by giving these things, in great plenty, to be able to mitigate the too intense heat and fever in the first stage of the disorder. But, when the time of eruption approached, he did all that lay in his power to promote it by rubbing the body, and wrapping it up well; he gave cold water to sup, often, but little at a time; whilst he exposed the whole of the external surface of the body, the face excepted, to the steam of boiling water (*t*). In this treatment, his principal view seems to have been, to prevent, by the giving of cold water inwardly, the eruption of the pimples on the internal surface of the body; and, at the same time, relax, by the vapour bath, the whole of the external skin, and thereby render it the fitter to receive the morbose matter. For, in order to keep the eyes free from pimples, he bathed the face with cold water several times in the four and twenty hours, and even sprinkled it into them (*u*). In like manner, in order to prevent the pimples breaking out in the mouth and throat, he gave austere acid gargarisms, or, if nothing else could be had, plain cold water: *idque multis vicibus, ne quid nimium prorumpat in guttur et os: at potius loca ista bene conofrtentur ne multum erumpant; aut saltem, ut id quod eruperit, nullam creet suffocationem*: “ And that often, not only to prevent
 “ too great an eruption in the mouth and throat;
 “ but chiefly, to strengthen these parts, and
 “ thereby enable them to combat, or bear such
 eruption,

(*r*) Ibid. pag. 141.

(*s*) Ibid. pag. 130.

(*t*) Ibid. pag. 143.

(*u*) Ibid. pag. 144.

“ eruption, or at least hinder any eruption in
 “ them, of whatever kind it might be, from
 “ causing a suffocation (*w*).” Moreover, he
 condemned such fires, nay, and baths, which could
 heat the patient too much (*x*).

It is, indeed, true, that *Rhazes* lived in *Persia*,
 a warm climate, and, therefore, could safely
 make use of pretty cooling remedies, such as,
 possibly, might not prove equally serviceable in
 other countries much nearer the pole. But it
 must have appeared to the attentive reader, that
Rhazes did not always use them, but only when
 the intense heat of the body, and violence of the
 disorder, rendered them necessary. The same
 methods, therefore, may be employed by every
 discreet physician, due regard being had to the
 nature of the climate, the constitution of the
 patient, the season of the year, and the violence
 of the disease. One thing, at least, is plain
 from the practice of *Rhazes*, that the antiphlo-
 gistic method, and the regimen, called the cool
 regimen, were used, ages ago, in the treatment
 of the small-pox. Nor does it appear, that the
 doctrine of the *Arabs* was totally forgotten in
 subsequent times, and only, at length, renewed
 by *Sydenham* : *Forestus*, it is well known, who
 flourished about the middle of the sixteenth cen-
 tury, had received the healing art, as an inheri-
 tance in a manner, from his forefathers, and was
 looked upon as one of the ablest physicians of his
 time, both preached and practised this method of
 treatment; the antiphlogistic I mean (*y*). His
 way was to bleed his patients in the beginning of
 the disorder, in order to allay the heat of their
 Vol. XV. L bodies.

(*w*) Ibid. pag. 157.

(*x*) Ibid. pag. 144.

(*y*) Tom. I, Lib. VI. observat. 44. pag. 245.

bodies. *Ubi autem erumpebat, omnibus modis studuimus, ne naturæ motus impediretur, adeoque, ut aerem frigidum evitarent, imperavimus, inquit, quoniam cutim densat, et harum pustularum eruptionem prohibet. Ideo in aere mediocriter calido eos versari jussimus, et ut corpus vestibus, stragulisque, ita tamen, munirent, ne calorem febrilem auferent; ut vulgus facere solet, supra modum calidissimum utitur hypocaustis (ut in Germania fieri assolet), aut nimis tegumentis ac stragulis, ut sæpe syncope accedat atque ægrotantes suffocent &c :*

“ But when the pimples came to break out, I
 “ tried every method I could think of to prevent the efforts of nature from being checked ;
 “ for which reason, (says he) I made them avoid
 “ the cold air, as it hardens the skin, and prevents the eruption of these pimples. Nay, I
 “ made them keep in an air that was tolerably
 “ warm, and cover their bodies with clothes
 “ and blankets, in such manner, however, as not
 “ to add to the heat of the fever; a common
 “ practice with the lower sort of people, who,
 “ like the *Germans*, so strew their poor patients
 “ in very hot stoves, or so load them with
 “ clothes and blankets, as to throw them into
 “ a syncope, and even suffocate them, &c.

Hence, therefore, it appears, that there can be no difficulty in putting an end to these disputes, which have hitherto divided the faculty, whilst some will have it that bleeding is absolutely requisite in the small-pox; and others as strenuously condemn that operation. as useless, if not hurtful; or at least prescribe it with a trembling hand, as if they always dreaded some mischief from it. Bleeding, no doubt, is not, always and indispensably, requisite in the small-pox, since, properly speaking, it cannot be said to answer the purpose of exterminating the disorder, but only that

that of easing the vessels, when too full, and reducing the motion of the blood, hurried on by the fever, to its proper standard; concerning which, I must refer the reader to my commentary on the 610th aphorism, where I treated of the method of slackening the febrile motion of the blood. *Sydenham*, it is said, whilst he opposed, with all his might, the warm regimen in treating the small-pox, gave into the opposite extreme, in the first edition of his works (z); but that he corrected himself in the subsequent editions, by recommending the moderate regimen, as most consistent with reason, and best suited to the climate of Great Britain. Be that as it will, *Sydenham* fully declares, what his views were in treating the small-pox as he did, in the following words; *ut æquabilis ille tenor ebullitionis in sanguine conservetur, qui neque nimis propere separationem nimia sua vi perficiat, neque nimis motu eandem remoretur, vel non satis idoneam præstet.*

“ To keep the ebullition of the blood in such an
 “ equable tenor, as shall not hurry the separation
 “ by its too great violence, nor yet delay it by
 “ its too great sluggishness, or prevent its
 “ attaining the requisite degree of perfection (a).”

As often as the disorder proceeded, without being attended with any but moderate symptoms, he contented himself with making his patients abstain from the too open air, wine, and animal food; and confining them to a slender diet; all he condemned was the hot regimen, and the use of cordials, without being very scrupulous with regard to other matters (b). But, when he hap-
 L 2 pened

(z) Friend. Hist. of physic, tom. II. pag. 202.

(a) Sect. 3, cap. 2. pag. 176.

(b) Sect. 3, cap. 2. pag. 182.

pened to be sent for to patients, in the prime of life, and who had made too free an use of wine, or other strong liquors; then, indeed, he prescribed bleeding; and, if the patients suffered themselves to be so far swayed by vulgar prejudice, as not to submit to the operation, he took his leave of them, rather than be an idle spectator of the ensuing atrocious symptoms, which he knew the great commotions, excited by the disorder, must infallibly produce, almost always to end in death; or, at least, the greatest danger (*c*); for, he held it as a general rule: *curationis exitum, sive lætum, sive funestum, ab ea potissimum, si non in solidum, ratione pendere, qua æger primis morbi diebus tractatur*: “that the
 “disorder’s having an happy or unhappy issue,
 “depended chiefly, if not entirely, on the man-
 “ner of treating the patient, during the first days
 “of it (*d*).” Nor did he rely entirely on bleeding for the purpose of moderating the febrile impetus; for, as often as he found that any new conflagration was kindled by hot cordials and a too warm bed, he gave up all his hopes of seeing any good follow it. Still, he solemnly assures us, that he never saw a confluent small-pox of a worse kind, than in a young woman, who was seized with the disorder, after she had been cured of the rheumatism by copious and repeated bleedings; and, accordingly, she died of it on the eleventh day (*e*). This is confirmed by the illustrious *Huxham* (*f*). For my part, therefore, as often as I met with an excessive repletion, a
 great

(*c*) Ibid.

(*d*) Dissertat. Epistolar. pag. 462.

(*e*) Ibid. pag. 451.

(*f*) An Essay on Fevers pag. 104.

great heat, and a violent fever, in the beginning of the small-pox, I never scrupled to bleed the patient, though ever so young. For it is on these occasions, our antiphlogistic method of treatment takes place. But, when, in the beginning of the small-pox, all the symptoms attending it happen to prove mild and gentle, there can be no good grounds for any great cookery with the patient; we may safely leave the disorder to itself, and let it take its own course, all to the prescribing of a light and spare diet.

But, though all the symptoms generally keep increasing till the eruption of the pimples, and then abate, or even totally cease, still this is not always the case. It sometimes happens, that, about the time of the eruption, nay, and whilst some stigmas are making their appearance here and there on the skin, there will exist a most violent fever, with a great heat, a difficulty of respiration, and unusual uneasiness. Many famous physicians are of opinion, that we are not, by any means, to let blood at this juncture; and *Diembroeck* tells us, that he most earnestly advised his scholars to forbear bleeding, when the least signs of an eruption began to shew themselves on the skin (*g*): he was afraid, it seems, of this operation's disturbing the critical metastasis, by which the matter of the disorder is set down near the skin. For my part, I can affirm with the greatest truth, that I have now and then tried bleeding, when some red specks already began to appear, without being ever able to perceive, that it, in any shape, disturbed the eruption. The same thing has been done with success by some great physicians, with whose names Friend has

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favoured

favoured us (*b*). Nay, the great *Mead* himself expressly declares, that, when, in the beginning of an illness, very small and crowded exanthemata threatened a small-pox of the worst kind, things have taken so happy a turn, in consequence of a couple of bleedings, that the pimples came out pretty large, and few in number (*i*). The illustrious *Violante*, likewise, has established, by a number of arguments, the usefulness of bleeding in this very self-same stage of the small-pox (*k*). It appears from these two authors, that all the pimples, which come out, do not always suppurate; but that several of them, already visible on the skin, are sometimes resolved; this is confirmed by the observations of *Mead* in particular; I myself have often seen it happen, in the course of my practice. I already took notice, in my commentary on the 1382d aphorism, that pimples, already very conspicuous on the skin, have vanished on the patient's happening to bleed, copiously, at the nose; and that, without any ill consequence.

Now, as it is a rule with physicians to first attempt the cause of all acute inflammatory disorders, in the way of resolution, and employ every method art can suggest, to guard against the bad effects of an inflammation, what reason can be assigned, why the same course should not be taken with the Small-Pox? It is true, indeed, that, in other inflammatory diseases, the chief reason for dreading a suppuration so much, is their having their seat in the internal parts of the body; and it is not always, that the pus ingenerated by them, when

(*b*) De purgant in second. variolar. confluent. fibre, pag. 14, &c.

(*i*) De Variol. et Morbill, pag. 92 et seq.

(*k*) De Variol. et Morbill. pag. 92 et seq.

when they terminate in a suppuration, can be safely let out; whereas the pimples of the small-pox generally shew themselves on the external surface of the body: but it will hereafter be made to appear, that the internal parts of the body are sometimes over-run with them; besides, a great number of suppurating pimples, let them lie where they will, is apt to kindle a bad kind of fever, which is often attended with the most dangerous symptoms; this pus, too, is sometimes reformed, putrefies, corrupts every thing; or, being set down in some part or another of the body, produces new evils, and those of the most shocking nature, as I shall hereafter set forth at large in my commentary on the 1400th aphorism. It must, therefore, be very well worth while, freely and boldly to employ, in the small-pox, every method generally used, with success, to resolve inflammations in other disorders; either entirely to prevent a suppuration, or greatly lessen the number of the suppurating pimples; for, we are not to be under any apprehensions, least the matter of the disease should continue to lurk in the other humours, in consequence of our having, by any such means, reduced the number of the suppurating pimples; it is sufficiently plain, from observation, that this matter can find its way, and fly off, by the pores of the skin; nay, and that, after it has been already lodged in the cutaneous vessels, it is sometimes resolved, in so perfect a degree, that the pimples, which have already shewed themselves, shall disapperr, without any suppuration. If such resolution happens to be complete, then we shall have a variolous fever without pustules, of which the reader may remember a remarkable instance, Sect. 1387. *Sydenham*, as I observed in the same place, expressly tells us, that such fevers may be

observed at such times as the small-pox prevails ; namely, fevers attended with the very indentical symptoms of that disorder, yet without producing any pimples. I myself have sometimes observed the same phænomenon ; and I know it has been observed by other physicians, men of great note, with whom I have kept up a correspondence, as well as by *Sydenham*.

But, in other inflammatory disorders, too, if not attended with many, severe, or suspicious, symptoms, a gentle resolution may be expected, without any great efforts of art : hence, even whilst I was treating of the pleurisy, in my commentary on the 887th aphorism, I took notice, that the best thing a physician can do in such cases, is to do nothing ; it being sufficient to keep up the strength of the patient with light food, and administer liberally, to the blood, with diluent attenuating liquors. The same rule must, certainly, hold good with regard to the small-pox. For, if it happens to come on, attended with nothing but a slight fever, without any great heat, any signs of a too great fullness, or any other suspicious symptoms, such, for instance, as a severe head-ach, a delirium, a cruel pain in the back, or limbs, &c. then the patient may safely use the same things, especially if the vessels are lax enough easily to transmit the meable humours, as is usually the case with young people, and persons of a lax habit. For, the antiphlogistic method of cure can then only take place, when a violent fever, an intense heat, and other severe symptoms, sufficiently portend a dangerous small-pox,

But, though the fever, raised in the small-pox by the stimulus of the disorder, generally produces an inflammatory sizziness in the humours ; nevertheless, it sometimes happens, as I took notice

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tice in my commentary on the 1384th aphorism, that the disorder is attended, in its progress, with very different symptoms, depressing the vital powers, and dissolving the blood; hence violent hæmorrhages; purple spots, of so bad an omen; an intolerable anxiety; which almost always terminate in death. Certainly, in this malignant kind of small-pox, the antiphlogistic method can be of no service; we are, in such circumstances, to fly to the most powerful remedies, to prevent the sudden putrefaction, that is, in this case, so much to be dreaded; such remedies as are capable of correcting the too great fluidity of the humours; and, with their gentle stimulus, raising the depressed vital powers. And it is a great matter, that there is a sufficiently evident diagnosis, by which these two kinds of small-pox may be distinguished, one from the other, so that a physician of any skill cannot possibly be mistaken with regard to them. It must, therefore, appear very odd, that *Boerhaave* should have taken no notice of this matter, when treating of the small-pox; but just recommend the universal antiphlogistic method, in the beginning of that disorder, when it happens to be attended with very severe symptoms.

The reason seems to be this: *Boerhaave* had laid down *Sydenham's* description of the small-pox, as a basis for the method of treating it, as appears from his 1379th aphorism; and we do not meet, in *Sydenham*, with the description of any cases, but such as carry along with them manifest signs of a violent inflammation; so that *Boerhaave* could not, considering the light in which he treated the disorder, at the time he wrote his *Aphorisms concerning the knowledge and cure of diseases*, well recommend any but the

antiphlogistic method, especially as the method of treating the small-pox with alexipharmics, and the warm regimen, had universally prevailed. A celebrated author has well observed, that all the small-pox cases, given us by *Sydenham*, are such, as were attended with the symptoms of a most violent inflammation (l); whereas *Morton*, on the other hand, who was cotemporary with *Sydenham*, scarce takes notice of any patients but these, in whom a prostration of the vital powers, in this first stage of the disorder, required another kind of treatment; for which reason he concluded, *licere sibi, veritatis ergo, renitenti licet animo, a magni Sydenhami regimine in hoc morbo, discedere*: “that it was lawful for him, for the sake of truth, to differ from the great *Sydenham* with regard to the treatment of the small-pox, though it was with reluctance he did it (m).” But, then, *Friend* has very well observed, that *Mortonus totam medendi rationem ad hypothesin istam, de spiritum nescio quo miasmate, a semet ipso confictam, fere semper detorquere*; “*Morton* is almost always for making the whole method of curing the diseases of the human body, bend to that hypothesis of I know not what miasma of the spirits, of his own invention (n).” A discreet physician, therefore, will always carefully watch the symptoms, which attend the small-pox in its incipient state, and by them form his judgment concerning the mode of treatment he ought to adopt.

But, that the illustrious *Boerhaave* himself acknowledged,

(l) Holland, A short view of the small-pox.

(m) Morton de Variol, cap. 7, pag. 57.

(n) De Purgant in Secunda Variol. Confluent, Febre, pag. 24.

knowledged, that the antiphlogistic method is not always requisite in the small-pox; nay, that alexipharmics are sometimes necessary to rouse the drooping vital powers, every physician must know, who ever had the happiness to be his scholar. It is true, indeed, that, on account of the shortness of the academic year, he was wont to run over, rather too rapidly, the last of those disorders he has described in these aphorisms; whereas he allowed himself some time extraordinary, to inculcate the principles of medical practice; and hence it is, that he so often referred his auditors to what he had already said, in the 608th, and following aphorisms, in which he treats of the methods of governing the febrile heat, so as to prevent its growing too violent, on the one hand; or, on the other, subsiding too low to be able to digest the matter of the disorder. For my part, who have so often had occasion to call upon this great man for his advice, with regard to the treatment of the small-pox, I was directed by him to carry always, about me, the richest tincture of saffron that could be procured, (for which reason I prepared myself some (*o*), by a method of my own), in order to exhibit it, when I saw occasion for rousing the depressed vital powers; and the following is a proof of the excellence of this caution: being once called to a youth of eighteen, of a bilious habit, on the third day of his illness, when the pimples, after a very violent pain in the head and back, were beginning to come out here and there. I found his pulse weak and small, yet quick and intermittent; his respiration was pretty good; but he complained of an almost intolerable uneasiness
 about

(*o*) H. Boerhaave Chem. Tom. 11. pag. 244.

about his heart. In consequence of my giving him an agreeable cordial, composed of Rhenish wine cinnamon and cittron peels; and making him wash it down with a decoction of the roots of scorzonera sarsaparilla and gramen, I found his pulse grown stronger about night fall, and more pimples coming out; but, at eleven at night, being sent for suddenly, I found his pulse fluttering, small, scarce perceivable, in short; and attended with an intolerable uneasiness, so that those about him concluded he was dying. Upon this, I immediately gave him twenty drops of my strong tincture of saffron, which I had brought along with me; and, behold, in little less than an hour, his pulse began to rise, his anxiety to abate, the pimples to come out in plenty, at the same time that the pain in the head and back entirely left him. And, though he was covered all over with pimples, and his throat itself was so over-run with them, as to create no small trouble; yet, he happily recovered. His friends, however, were not ashamed to accuse me of rashness; and, unless they themselves had given him over, would never have permitted me to pour such a strong aromatic, as the most highly concentrated tincture of saffron must be, and that in a pretty large dose, into a youthful body, labouring under so grievous a disorder. I myself was, indeed, fully aware, that I risked my reputation by it; but even this, a physician, conscious of the rectitude of his intentions, will submit to, when the life of his patient happens to be at stake.

But the most incredulous may be convinced, by what follows, that the illustrious *Boerhaave* himself used very different methods of treatment, in different kinds of the small-pox.

Joannes Baptista Bassandus, who, with great honour

nour formerly filled the post of first physician to the Duke of Lorraine, at this present time Emperor of Germany, kept up a correspondence with the illustrious Boerhaave; and, being anxious for the health of so great a prince, desired to know from him, what course he had best take, should his illustrious patient happen to be seized with the small-pox. Boerhaave, upon this, freely communicated, as it was usual with him, every thing he thought could be of service on the occasion, to his dear friend; and this very worthy man, such was his candour, owned to the Duke, when recovered, by his care, from the small-pox, that it was Boerhaave's method he had followed in prescribing for him. It is no wonder, therefore, if they conversed so much afterwards upon this subject. Knowing, that my most friendly colleague, D. de Lebzelttern, R. I. E. was possessed of Boerhaave's letters to Bassandus, I applied to him for the perusal of them; and he not only granted me that favour, with the greatest cheerfulness, but gave me leave to make the following extracts from one of them, dated at Leyden, the 30th of April, 1736. This gentleman has since made a present of all these letters to the Imperial Library, where they will be always piously preserved amongst its most valuable treasures, in perpetual memory of the writer and the donor. These extracts are as follows.

Juvenis viginti duos annos natus in India, robustus, dives, luxui perditus, vino, electis inde spiritibus, opiparis mensis, pergræcationibus, exercitiis immoderatis, uti suetus, media æstate, debacchatus solito jam immanius, hinc, febre ardente, dolore capitis summo, vomitu assiduo, angore terribili, inquietudine perpetua, somno turbulentissimo, pressus,
Amstelædamo

Amstelædamo Leydam uebitur velociter, ut consilia petat.

Nilil de variolis suspicans, mitto sanguinem largiter, ocysime. Statim purgans de cremore tartari, nitro, pulpa tamarindorum, rheo, exhibeo dosi larga: id rite purgavit: potum exhibeo ex radicibus acetosæ pratensis, graminis, scorzonerae, una cum tamarindis incoctis, nitro addito, & succo inspissato baccharum sambuci liberaliter admisto; unde multum ille & assidue bibit. Ad sitim vero, quæ insatiabilis illi erat, utebatur aqua cum succo recenti presso limoniorum, cum pauxillo succi ribesiorum, & syrupo violaceo; addebatur subinde & pauxillum vini Mosellani. Decumbebat in lectica aperta, corio Russico obducta, in cubiculo temperate frigido, apertis semper portis. Contra omnia hæc insurgebat atrocior morbus: urina flammea, aestus exurens, profusus sudor, somnus fere furibundus, lingua sordide fusca, taurini oculi, igne & sanguine suffusi. Itaque die sequenti, nondum apparentibus indiciis variolarum, eadam omnia æque libere repeto: neque prohibebatur adscensio increpentes per omnia mali. Sed paulo post omnis conspicua totius capitis pars, ubique, minutissimis punctulis rubris, proximè junctis, fæda, oculi lacrymantes, rubri, sternutatio, tussis: unde videbam variolarum confluentium teterrimam speciem. Serio, diu, meditatus, gaudeo acta, quæ inflammationi aduersa; metuo suppurationis, & gangrænæ, dira ventura effecta; his cavendis invigilo: mane & vesperi pediluvia ex aqua & vigesima parte aceti, cavis pedum & poplitum fermentum panis acidum, aceto & nitro permixtis, noctes diesque applico. Temporibus placentas rosaceas, aceto rosaceo & sambucino irroratus, appono, sæpe renovandas. Jubeo, sedeat erectus, quantum ferre potest. Decubitum in lectica, loco obscurissimo, modice frigido, silentia muta ministrantium, impero. Decoctum avenæ in aqua, cum succo limoniorum gratum,

tum, lac ebutyratum coctum cum avena, cerasa nigra acidula (morelles) contusis cum suis nucleis in sero lactis cocta, per setaceum pressa, pauco saccharo grata, cum intrito pulvisculo pauco panis biscocti, pro cibo exhibeo, nec aliud dari passus sum. Potus erat Caffè cum $\frac{1}{4}$ lactis, The Boubi cum $\frac{1}{3}$ lactis, cerevisia Mol, serum lactis, aqua pura cum pauxillo succi limonum. Decocto tamarindorum supra descripto utebatur toto morbi decursu ea quotidie copia, ut semper quater interdiu alvum laxaret, usque ad quartum decimam morbi diem. Post meridiem, hora tertia, quotidie, sumebat haustum soporatum, ex aq. stillatit. flor. rhoeados unc. iij. opii puri gr. ij, sp. sulph. per Camp. gtt. vj, syr. violar. dr. iv. Accessere interim deliria, furores, convulsiones diræ, obmutescentiæ: perrexi semper eodem modo. Post diem quintum morbi semper ad decimum quartum sumsi omni quadriborio pulvisculum ex Cinnab. nativ. hungar. gr. vj, flor. sulph. dr. ij, stibii diaphoretici non abluti a nitro fixante dr. β. m. f. pulv. tenuis divid. in xij. dof. æq. Sæpe utebatur ad asperitatem dolentis gutturis emulsis ex iv. sem. frigid. maj. & amygdalis cum syr. althææ fornel, gargarismata assidua ex decocto ficuum: erant enim omnia obsessa & ulcerata eo usque, ut omnis corporis cutis una tantum foret exulcerata crusta; quam post diem undecimam, jam penitus aridam, quater interdiu oleo recens presso de amygdalis opime inungendam curavi. Sensim tunc vino rhenano, jure carri-um, refocillans vires, omnia superavi mala. Vivit usque. Legati Gallorum uxor, sex menses gravida, correpta virulentissimis variolis, secunda statim die effusissime erumpentibus, cum pessimis symptomatibus, maxime in cerebro, missu sanguinis liberali statim facto, decoctis similibus utens, ut bis quotidie alvum deponeret, opiato vesperi ad gr. j, similibus pulveribus, omnique alio regimine ut prius, trahebatur. Huic tamen pultes avenaceæ, jura vitulina leviora cum

diu incocta oriza, cerasa recentia cocta in lacte ebutyrato cum paucis pane biscocto, largius oblata, respectu fetus. In illa tanta variolarum vis, ut prorsus incredibile. Sanata integrè. Tempestive pulchrum enixa filium, non passum variolas in utero. An balneum vitale amnii prohibuit? vivit bene sana illa, & ille robustus vivit.

Interim monendum, accidere quandoquè in hoc morbo, ut venenum variolarum plus noceat, spiritus projiciendo penitus, quam inflammando corpus. Tum æstus haud adeo magnus, pulsus creber, debilis prorsus, deliria levia, virium projectio, Variolæ lentæ, planæ, parvæ, depressæ, non adsurgentes, interstitia pustularum languida, pallida, certa mortis indicia: tum fæces alvi solutæ, cadaveroso fætore, colore fusco, debilitantes: delirium, vox clangosa. His casibus methodus dicta obest: morbus ex se lethalis. Tum rad. contrajerv. dr. j, Serp. virgin. dr. ß, rutæ recent. uncia semissis, infundantur cum aq. stillatit. rutæ lb. j, vini rhenani unc. vj, adde sacchari dr. iv. bibat unc. j. omni hora fervidè, superbibendo decoctum scorzonæ, ut excitentur vires. Dein pro re nata instituat regimen.

“ A young man, of two and twenty, born in
 “ India, robust, rich, and sunk in luxury; im-
 “ moderately given to wine, dram drinking, high
 “ living, late hours, violent exercise, happening,
 “ in the height of summer, to indulge himself
 “ more than usual, and being, thereupon, seized
 “ with a burning fever, a violent head-ach, a con-
 “ tinual vomiting, a terrible languor, a perpetual
 “ uneasiness, a most troubled sleep, was hurried,
 “ immediately, to *Leyden* for advice.

“ Not dreaming of the small-pox, I bled him
 “ copiously, instantly; then, by way of purge, I
 “ gave him a large dose of cream of tartar, ni-
 “ tre, the pulp of tamarinds, and rhubarb; which
 did

“ did its business well; for his drink I ordered
“ the roots of field sorrel, gramen, and scor-
“ zonera, with tamarinds boiled upon it; with
“ the addition of some nitre, and a liberal por-
“ tion of the rob of elder-berries; of which he
“ drank a great deal, and assiduouſly. With
“ regard to his thirst, which could scarce be sa-
“ tisfied, I ordered water, seasoned with fresh
“ squeezed lemon juice, a little currant juice,
“ and syrup of violets; adding to it, now and
“ then, a small matter of *Moselle* wine. He lay
“ in a field-bed, covered with *Russia* leather, in
“ a cool room, with the doors always open.
“ But the cruel disorder seemed to mock all my
“ endeavours: a flame coloured urine, a burn-
“ ing heat, a profuse sweat, a sleep little better
“ than madness, a dirty brown tongue, swollen
“ fiery and blood-shot eyes; such were the
“ symptoms I had to deal with. Next day,
“ therefore, as there did not yet appear any
“ signs of the small-pox, I prescribed the same
“ things, and in the same quantity; still, I could
“ not prevent the disorder from gaining ground
“ upon me on all sides. But, soon after, every
“ part of his head, exposed to sight, appeared all
“ over, close covered with very minute red specks,
“ attended with weeping and blood-shot eyes a
“ sneezing, and a cough; from all which I
“ could now foresee a confluent small-pox, of the
“ very worst kind. After long and seriously
“ considering what I had done, I congratulated
“ myself on having done every thing requisite to
“ prevent an inflammation; still I dreaded the
“ terrible consequences of a suppuration and a
“ gangrene; and, therefore, exerted myself to pre-
“ vent them. I ordered his feet to be bathed,
“ morning and evening, in water mixed with

“ one twentieth part of its quantity of vinegar ;
 “ the soles of his feet, and the hollows of his
 “ knees, to be kept, day and night, constantly
 “ poulticed with the acid leaven of bread, made
 “ up with vinegar and nitre ; and his temples,
 “ likewise, to be covered with rose-cakes, sprink-
 “ led with rose and elder-berry vinegar ; and
 “ these I caused to be often renewed. I made him
 “ sit up as much as possible ; and ordered his
 “ bed to be removed to a very dark corner, in a
 “ pretty cool place ; and, withal, enjoined the
 “ most perfect silence, and stillness to those about
 “ him. I allowed him, for his food, a decoction
 “ of oats in water, made palatable with
 “ lemon juice ; boiled butter milk and oats ; aci-
 “ dulous black cherries (morelles) with their
 “ kernels, boiled in milk, passed through
 “ a sieve, sweetened with a little sugar, and
 “ thickened with a small quantity of finely
 “ powdered biscuit ; and this, indeed, was
 “ the only nourishment I could venture to allow
 “ him. His drink was coffee, with one fourth
 “ its quantity of milk ; bohea tea, with one third
 “ its quantity of milk, garlick-beer (*cerevisia*
 “ *mol*) ; milk-whey, pure water with a little
 “ lemon juice in it. He used the decoction of
 “ tamarinds already described, every day
 “ during the whole course of his illness, till the
 “ fourteenth day ; and in a quantity sufficient to
 “ give him four stools in the four-and-twenty
 “ hours. Every day, at three in the afternoon,
 “ he took a soporific draught *ex aq. stillatit. flor.*
 “ *rhocados unc. iij, opii puri gr. ij, sp. sulph. per*
 “ *cam. gtt. vj, syr. violar dr. iv.* Now and then
 “ I had to deal with deliriums, dire convulsions,
 “ and fits of fury or fullen silence ; but I still
 “ kept on as I had begun. After the fifth day
 “ of

“ of the disorder, he took, every fourth hour,
 “ without any intermission till the fourteenth day,
 “ *ex cinnab. nativ. Hungar. gr. vj, flor. sulph. dr.*
 “ *ij, stibii diaphoretici non abluti a nitro fixante dr.*
 “ *β. m. f. pulv. tenuis divid. in. xij. dos. æq.*
 “ He often used to smooth the painful rough-
 “ ness of his throat, *emulsis ex iv. sem. frigid.*
 “ *maj. et amygdalis cum syr. altheæ fernel;* and
 “ very frequent gargarisms of a decoction of
 “ figs. Every inch of him was so over run with
 “ pimples, and ulcered to such a degree, that
 “ the whole of his skin formed but one ulcerous
 “ scab, which, after the eleventh day, it being
 “ then perfectly dried up, I ordered to be co-
 “ piously anointed, four times a day, with the
 “ new squeezed oil of almonds. Then, restoring
 “ his strength with rhenish wine, and flesh
 “ broths, I, at length, though by degrees, got
 “ the better of all his complaints; and he is still
 “ living. The lady of the French Ambassador
 “ happening, likewise, and that in the seventh
 “ month of her pregnancy, to be seized with a
 “ most virulent small-pox, the pimples breaking
 “ out in great numbers the second day, with the
 “ worst of symptoms, especially in the brain, I
 “ had her immediately bled, and that copiously;
 “ ordered her the same decoctions with
 “ the foregoing to procure her two stools a day;
 “ the opiate in the evening *ad gr. j;* the same
 “ powders; in a word, I treated her, in every
 “ other respect, like my other patient; all to my
 “ allowing her, out of regard to the child in her
 “ womb, plenty of oaten gruels, light veal broth,
 “ with rice long boiled in it, fresh cherries boiled
 “ in butter-milk, with a little biscuit. It is in-
 “ credible, what a number of pimples came out
 “ upon her. Yet, she perfectly recovered; and,

“ in due time, was brought to bed of a fine boy,
 “ who never partook of the disorder. Are we,
 “ then, to conclude, that it was the vital bath
 “ of the amnios which prevented it? be that as
 “ it will; both mother and child are still living;
 “ she, an hale healthy woman; and he, a sturdy
 “ boy.

“ I must, however, take notice, that it some-
 “ times happens in the small-pox, that the va-
 “ riolous virus does more harm, by entirely
 “ prostrating the spirits, than by inflaming the
 “ body. In this case, the heat and hurry is
 “ little; the pulse quick, but exceedingly
 “ weak; the deliriums slight; the strength prof-
 “ trate; the pimples sluggish, flat, small, depref-
 “ sed, without any tendency to rise; the skin be-
 “ tween them dull and pale; certain signs of death:
 “ then, too, the stools are thin and dark, with a
 “ cadaverous smell; and add to the weakness
 “ of the patient; the head is delirious, the
 “ voice hoarse. In cases like this, the foregoing
 “ method would do harm: the disorder is in
 “ itself mortal. All that can be done for such a
 “ patient is to give him *rad. contrajerv. dr. j,*
 “ *serp. virgin. dr. β, rutæ recent. uncia semissis,*
 “ *infundantur cum aq. stillatit. rutæ lb. j, vini*
 “ *rhenani unc. vj, adde sacchari dr. iv.; bibat*
 “ *unc. j. omni hora fervidè,* and making him
 “ drink after it the decoction of scorzonera, to
 “ give him, if possible, some strength. After
 “ this, let the regimen be such, as exigences
 “ may require.”

S E C T. MCCCXCIV.

THIS method (1293) is as follows:
 1. Let the patient be bled, as (854, No. 1, 890, No. 1, &c.) 2. Let the whole of his skin, mouth, œsophagus, intestines, be often relaxed with fomentations, and clysters; let him take of the nitre of stibium, or sal polychrest, and a gentle hydrogala. 4. Let his diet be light; let the air he breaths be cool; let his body be well covered, and kept in a proper state of perspiration.

1st. I have already proved, in my commentary on the 395th aphorism, concerning the general method of treating inflammations, of what consequence it is to reduce the quantity, and lessen the impetus, of the blood, by venæsection, in order to bring the inflammation to a resolution; and I have since again spoken of this matter, in my commentaries upon the particular treatment of inflammatory diseases, under the numbers here mentioned. As to the signs, by which it may be known, in what cases the cure of the small-pox is to be attempted by the antiphlogistic method, and in what by some other; the reader will find them in the preceding paragraph.

2dly. I have made it appear in the foregoing pages, that the matter of the small-pox is set down, by means of a critical metastasis, near the surface, not only of the external, but likewise the internal skin, of the body; and took

particular notice, that the inside of the mouth, the throat, the œsophagus, the stomach, and the intestines themselves, are all, without exception, liable to be overrun with pimples, to the great distress, and danger of the patient. Now, if the vessels of these parts, and of the external skin, can be so disposed by any contrivance of the healing art, as to yield more easily to the liquids impelled against them, they may thereby be enabled to transmit great quantities of matter, which otherwise would remain shut up in their narrowest parts; and, wherever that happened, produce an inflammation, with all its terrible consequences. Now, this desirable end may be obtained, by relaxing the vessels to a proper degree beyond their natural state; and this salutary relaxation may be effected different ways; but no way better, than by keeping the parts in danger constantly bathed with warm water, or the steam of it: for, if, by these or any other means, we can reduce the bulk of the impacted immeable liquid, or increase the capacity of the obstructed vessels containing it, the same good consequences must follow: viz. a free passage to the imprisoned liquid. As often, therefore, as the matter of the small-pox, which is driven against the skin, happens to find the vessels of it very pervious, the whole, or at least the greatest part, of such obnoxious matter must escape and fly off; and thus, either no pimples at all will come out, or much fewer, than if this precaution had not been taken to lessen their number. Nay, I have seen a great many pimples, already prominent above the skin, resolve kindly by means of a perpetual fomentation, and entirely disappear, without ever suppurating. This I particularly observed at a time, when I happened to have but one patient, a woman,

man, to attend. I took care to have her skin constantly fomented, both by day and night, with sponges dipt in warm water; and the consequence was, that most of the pimples on her resolved, and very few of them suppurated. That a portion of the morbose matter of the small-pox may be, and is actually, exhaled by the vessels of the skin, appears from the peculiar smell diffused by those ill of that disorder; a smell, which persons skilful in the nature and treatment of it, know so well how to distinguish from every other. This is further confirmed by the many unquestionable accounts we have of persons, who had never yet had the small-pox, being infected by the mere exhalations from the bodies of others actually ill of it. The more perspirable, therefore, the skin is of itself, or can be rendered, the better, every thing else being equal; and the less it is so, or can be rendered, the worse. Hence it appears, how it comes to pass, that the small-pox is apt to prove so favourable to young people, and persons of a lax habit; and the reverse to robust bodies, and those hardened by much exercise.

It has been observed of the Indians, who inhabit the woods, go naked, and are besides perpetually painting their skins, on daubing them with some nasty thick grease or another, that they seldom or never recover from the small-pox; whereas, of those, who have had the good fortune to be born in the Portuguese settlements, or at least live in them and use cloathes, several escape; and the same holds good of the blacks transported from Africa into America; they generally have the small-pox more favourable than their countrymen in their own country. But there is one thing very strange and surprising, with regard to the effects of the small-pox upon

these poor creatures; *viz.* as many of them, as happened to be inoculated for this disorder, got the better of it (*p*). But, then, it is evident from many observations, that the variolous contagion, when applied, in the way of inoculation, to the human body, seldom assimilates to itself as many humours, as it does, when it fastens upon us in the natural way. Hence, the still unobstructed vessels of the skin, in these subjects, proved sufficient to transmit, or at least receive the morbose matter, and so prevent its over-running the internal parts of the body, as, without such a seasonable diversion, it must have infallibly done.

I took notice, in my commentary on the last aphorism but one, that it was usual with *Rhazes*, about the time of the eruption, to expose the whole surface of the body, except the head, to the steam of boiling water; and, in times nearer our own, other great physicians, considering, that a dry and hard skin did not seem so well disposed to give an easy admittance to the morbose matter, prescribed bathing for the same purpose. This method, we are told, though looked upon as a strange, and even rash, attempt, was tried, in particular, by the famous *Lemmerly* (*q*); as likewise by *Doctor Martin*, a Swiss physician (*r*); and by both, with the greatest success. The latter ordered the patient's body to be wrapt up, every four hours, in a soft linen cloth, dipt in luke-warm water, till the pimples came out; and thus contrived, not only to allay the violent symptoms of the disorder, but
make

(*p*) *Condamine*, Relation dun Voyage dans L'Amerique, &c. pag. 183, &c.

(*q*) *Academ. des Sciences l'an 1711. Hist. pag. 38.*

(*r*) *Academ, des Sciences l'an 1737. Hist. pag. 67.*

make the pimples come out early, and scarce leave any marks behind them.

But, what seems, more than any thing else, to prove the usefulness of bathing in the small-pox, is the practice of the no very polished peasants of the very cold *Carpathian* mountains, in *Hungary*. They very seldom employ any other remedy; and they find it to answer their most sanguine expectations. This method, handed down to them by a very old tradition, they have practised for many ages past, and hold it in the light of an immediate gift from heaven. When, at any time the small-pox happens to prevail amongst them, they find any person, complaining of his being out of order, grow ever so little hotter than ordinary, they place him in a bath of fresh water, moderately warm; and, after keeping them there for half an hour, wrap him up in napkins, warmed before the fire, and put him to bed. They bathe him, twice a day, till the pimples begin to ripen, which generally happens the third day after the eruption; after this they have recourse to a bath of another kind, *viz.* one made of whey; or, if whey cannot be had, new milk, diluted with its own quantity of water. By these means, the pimples are made to ripen very speedily; and as speedily fall off, without leaving any marks behind them, or being followed by any other disagreeable consequences; in a word, the disorder, when treated in this simple manner, performs its course with the utmost gentleness, and without any troublesome symptoms, which might require internal medicines (*s*). An eminent physician, after observing,
with

(*s*) Fischerus de Remedio Rustico Variol, per balneum. &c curandi, in prefat, &c. pag. 8, et seq.

with wonder, the extraordinary success, as well as simplicity, of this method, even when used for the cure of tender infants, tried it himself; and, finding it answer his expectations, was not satisfied till he had written a treatise upon it, in which he extols it to the skies; he went so far as to flatter himself, that he had now light upon the remedy so anxiously sought after by *Boerhaave*, viz. a remedy, which should, by its specific power, destroy the very stimulus of the contagion (see the 1389th, and following aphorisms, with the commentaries upon them). But I must, with all due deference to this illustrious physician, make bold to observe, that he did not take the meaning of that great man. The thing, *Boerhaave* wanted, was a remedy, which should so enervate, if not destroy, the contagion, which produced the small-pox, as to disable it ever after from producing the same effect. Now, the use of the bath does not extirpate the disorder, but only makes it perform its usual course without any bad symptoms, or much danger; and these are effects, which differ widely from one another. After all, we cannot too much admire and praise that method, by which it is evident, the disagreeable and dangerous circumstances, otherwise attending the small-pox, are so much diminished.

The illustrious *Boerhaave* was, for ever, inculcating into his hearers, the usefulness of perpetually fomenting and relaxing the inferior parts of the body, on such of their patients, as they had the least reason to suspect were breeding the small-pox, either by bathing these parts, or constantly applying to them woollen cloths, dipt in some warm emollient decoction; such a decoction, as the reader will find a recipe for in his *Materia Medica*, under the same number with the Aphorism I am
 now

now commenting upon. Another reason, for *Boerhaave's* insisting so much upon this practice, was his expecting, that, by it, the greatest part of the morbose matter would be diverted from the superior, to the inferior parts of the body ; a precaution, of which I shall speak again hereafter, in my commentary on the 1399th aphorism. He likewise ordered the mouth, throat, and nostrils, to be frequently washed with the same emollient decoction.

But, on his ordering an emollient decoction of the same kind, to be thrown, every twelfth hour, into the body, by the anus, he met with many opponents, who not only considered such a pumping of the bowels as pregnant with danger, but big with actual mischief. There were, indeed, those, who owned, that it might be of some use to bring off the alvine fæces, by a gentle clyster, in the beginning of the disorder ; but they strictly forbid the doing of it, during any future period. Nay, they scrupled not to express the greatest joy, as often as any of their patients happened not to have the benefit of nature this way, till he was quite recovered ; betraying, on the other hand, the most terrible apprehensions, when they happened to have any stool, however gentle and natural, unless it was likewise of some form and consistence. For, as it seems a law of nature, in this disorder, for the morbose matter to be set down, by a critical metastasis, in the neighbourhood of the skin, they were afraid lest that salutary process might be disturbed by a lax. *Cutis raritas, alvi densitas* ; “ A skin, and a hard stool,” was an expression of *Hippocrates* (t) ; and hence they concluded,

(t) Epidem vi. Charter. Tom. ix. pag. 433.

concluded, that costiveness must always be useful, and the contrary disposition of the bowels, equally hurtful, in the small-pox; and they were unfortunately confirmed in this opinion of theirs, by seeing all the powers of the body prostrated, in the small-pox of the malignant and worst kind, whilst the liquid stools of the patient exhaled a cadaverous stench. No doubt, a patient in such circumstances may be justly deemed in great danger; but, then, it is not on account of the thinness of his stools, but on account of the terrible state of his inside, sufficiently indicated by the horrid stench of them. Nor is it to be doubted, that these highly putrid fæces, were they to remain in the body, would hasten its destruction.

Morton was so much a slave to this opinion, concerning the good effects of a costiveness during the small-pox, as to leave it upon record, that, to the day of his writing, he had never known any evil consequences attend its continuing from the first day, even to the twentieth, unless it was the uneasiness and difficulty the patient might afterwards experience in getting rid of the too hardened fæces towards the end of the disorder (*u*). But this he owns, in another place, to be such, as must demand our most serious attention. His words are, *Novi mulierem, (cui alvus per octodecim dies constipata fuerat), quam nisi egerendi pene confectam nec clisteris, glandis, vel fatus, ope, a fæcibus induratis liberare potui, donec sphincter ani speculo sensim dilateretur, et stercora forcipibus confracta vi extracta fuerint*: “ I knew a
 “ woman, who, after being bound, for eighteen
 “ days

(*u*) *Pyretologiæ* cap. 8. pag. 81, 82.

“ days together, was so exhausted with useleſs ef-
 “ forts to get rid of her indurated ſœces, that,
 “ not being able to procure her any relief by
 “ clyſters, peſſaries, or fomentations, I was at
 “ laſt obliged to have the ſphincter of her anus
 “ opened, by degrees, with a ſpeculum, and the
 “ contents of her inteſtines broken, and then ex-
 “ tracted piece-meal, and by mere force, with
 “ the forceps (w).” I cannot prevail upon my-
 ſelf to think, that any phyſician, of common ſenſe
 and humanity, would wantonly expoſe a patient
 to the diſtreſs and danger which muſt attend ſuch
 a violent operation ; not to ſpeak of the evils
 which may follow it. On the other hand, *Morton*
 dreaded a diarrhœa ſo much, eſpecially a tormi-
 nous one, in any ſtage of the ſmall-pox ; but
 eſpecially about the time of the eruption, that he
 thought it incumbent on him to ſtop it directly,
 as ſymptomatic, and highly deleterious, *illa pare-*
gorici quantitate, quæcunque fuerit, qua ſcopus attingi
potest : “ by any quantity of paregorics, let it be
 “ ever ſo great, by which the intention may be
 “ answered (x).” In this, no doubt, *Morton* has
 had many followers ; and it is not without the
 utmoſt concern I recollect, that I could not, by
 any means, perſuade the phyſicians of a lady of
 diſtinction, who happened to be ſeized, in the
 prime of life, with the confluent ſmall-pox, of
 which ſhe died on the eleventh day, to let her take
 the gentleſt clyſter, though ſhe had not had the
 benefit of a ſingle ſtool during the whole time of
 her illneſs. It is ſome comfort to me, indeed, to
 find, that many are ſince come to be of a better
 way

(w) *Ibidem*, cap. 10. pag. 126.(x) *Ibid.*, pag. 82.

way of thinking, by seeing gentle clysters repeatedly used without doing the least harm. *Hippocrates*, certainly, takes notice, that a costiveness of any duration is liable to be followed by a fever, or a diarrhæa (*y*); and *Galen* tells us, that the diseases of the brain are always encreased and aggravated by the same cause (*z*).

But several famous physicians, who have had great success, as well as experience, in the treatment of the small-pox, are of another opinion. *Sydenham*, it is true, looked upon that diarrhæa as hurtful, which arose from a retropulsion of the variolous matter, and a subsidence of the pimples, when caused by the patient's happening to be injured by a too intense degree of cold, or have his strength so exhausted by a too free and copious use of venæsection or cathartics, as not to have enough left to set down the morbose matter near the skin (*a*): but, in another place, he seriously takes notice, that many thousands of poor children had lost their lives by the confluent small-pox, in consequence of the silly women about them stopping the diarrhæas, which came to their assistance during the disorder; and which must have been of as much service to them, as a spitting could be to adults, in the same circumstances (*b*). The famous *Hoffman* apprehended no mischief from a lax, even a copious one, in the small-pox; nay, he assures us, that he had seen a patient have it during the whole course of the disease, without
any

(*y*) Prædict. lib. 11. cap. 4. Charter. Tom. viii. pag. 837.

(*z*) Comment in Porrhetic. lib. 1. Charter. Tom. viii. pag. 756.

(*a*) Sect. 3. cap. 2. pag. 174.

(*b*) Ibid. pag. 192.

any the least danger (c); and he confirms his sentiments in favour of this evacuation, by the observations of *Amatus Lusitanus*, who, out of one hundred and fifty children, ill of the small-pox and measles, whom he had attended within the course of one single summer, saved all those whom he was permitted to evacuate, and lost all those, whose parents would not allow him to give them that relief; or, if he saved them, notwithstanding, it was only to have the mortification of seeing them labour under the most difficult ulcers, which required being closely looked after to prevent their becoming gangrenous. Nay, he seriously admonishes his brethren, never to suffer the belly to continue bound so long as eight or ten days; for he thinks *vel suffocativum debere sequi catarrhum, vel purpuram variolas, aut erumpentes comitari, aut, suppuratis iisdem, non sine insigni virium jactura, et symptomatum vehementia, excipere*: “either a suffocating catarrh must follow; “or, the purples must accompany the pimples “at their eruption; or succeed them, when sup- “purated, not without a notable diminution of “the patient’s strength, and aggravation of his “symptoms (d).” At the very time of eruption, indeed, he is for our abstaining from the use of every thing capable of moving the body, clysters themselves not excepted. We meet with the same thoughts in other authors (e). Nay, it has been observed, that even sixty stools, within four-and-twenty hours, have not been able to prevent the eruption of the pimples, but rather for-
warded

(c) *Medic. Ration. System. Tom. IV. Sect. 1. cap. 7, pag. 148, 149.*

(d) *Ibid. pag. 156.*

(e) *Violante de Variol, et Morbill pag. 101.*

warded it (*f*). This heteroclite author censures the illustrious *Boerhaave*, as if he had indiscriminately condemned the use of purging medicines in the small-pox. But, surely, the letter I gave of his in my commentary on the last aphorism but one, sufficiently evinces the contrary. I remember perfectly well, that I, myself, have very often, by my master's advice, procured an artificial diarrhæa, and kept it up for several days together, with a decoction of tamarinds, sweetened with the syrup of succory, and made up with rhubarb; especially when my patients proved delirious, or complained of constrictions about their throats now over-run with pimples; and it was always, indeed, with the greatest success. Besides, this great man expressly recommends purging in the treatment of an inflammation, in the second number of his 396th aphorism: and there are, in his *Materia Medica*, under this very number, other things of a similar nature, which he employed in that very difficult case, so elegantly described in the same letter. For, he always had recourse to such things, as loosen the belly without encreasing the motion of the humours; of which kind are likewise those recommended in the following number.

3dly, It is well known, that sal polychrest, and likewise the nitre of stibium which resembles it, will, if taken copiously, gently move the body. There is, indeed, in the *Materia Medica* a decoction, under this number, made of oats, elder berry flowers, and wild poppies, (*papav. errat*) with half an ounce of stibiated nitre dissolved in every twenty ounces of it, for the patient to drink

(*f*) Ouvrage de Penelope, on Machiavel en Medecine, Tom. II. pag. 192, in notis.

drink as much of as they please; but, as this mixture has a very sharp taste, I generally ordered it to be diluted with a large quantity of water; for, it is plain, that from this substance, even when diluted, if copiously taken, an evacuation of the fæces may be fairly expected.

In the preceding number of this paragraph, I spoke of those things, which have the quality of so disposing the vessels of the human body, as to make them both easily admit and transmit the humours, with a view of thus opening a passage for a great deal of the morbose matter by the cutaneous vessels; and help the solution, by perpetual fomentations, of the more sivey parts, which began to stagnate; and thus, instead of a suppuration, a gentle resolution of them. To obtain this desirable end, it will likewise be of great service, to temper and dilute the humours (see the 398th, and 399th sections) by plenty of thin watery drinks, in which oats, barley, or other mild mealy substances have been boiled, in order to make them yield a light nourishment, at the same time, that, by their bland emollient powers, they relax the fibres of the vessels. But, as a continued acute fever is apt to give the humours a tendency to putrefaction, acids are to be added to these mixtures, to counteract that disposition: now, the reason for recommending acids so strenuously in the small-pox, is drawn from the dreadful cadaverous stench generally observed at the end of it, especially when the pimples have been numerous and confluent. Milk-whey, milk diluted with three times its quantity of water; and even a decoction of barley or oats, with the fourth part of its quantity of new sweet milk, make, all of them, so many equally agreeable and salutary beverages for patients in the small-pox. I

never denied the use of tea or coffee, with a little milk in them, to such as made a practice of drinking these things, when in good health; nor could I ever observe the least harm from them.

Fourthly, In the 599th, and following sections, the reader will find the diet proper for persons in a fever, and all the cautions to be observed in treating them; now, every thing said on that occasion will suit the present; for, in the small-pox, the food must be of the fluid kind, of easy digestion, contrary to putrefaction; yet, withal, tolerably agreeable to the patient's palate, and it is to be taken, by little at a time, but often. *Sydenham* forbid his patients the use of flesh meat and wine; but allowed them small-beer warmed a little for their ordinary drink (g), nor have I, myself, ever observed the least mischief from good clear small-beer, provided it was the drink the patients used when in good health. Oat and barley gruels; boiled, roasted, or baked apples; are likewise good things. But, as we must always make some allowances for habit, in ordering the diet of sick persons, I allow flesh meat broth to such of my patients, as use it when well; but, then, it is chicken or veal broth, made very weak, and without any manner of addition, except a little citron or orange juice, and barley or rice cream. I likewise allow them soups (*panatellæ*) made of the same broths, but still very weak. For, all we should aim at is to maintain the patient's strength by light foods; and by no means overload his body with solid substances; and it is no hard matter to prevail on the sick, in this case, to confine themselves to such kind of diet; for, fortunately, people in a fever, at the same time that they abhor rich and
substantial

substantial foods, are extremely fond of small and acidulated liquors.

But, as it is usual in the small-pox for the symptoms to abate greatly, or entirely cease, when the pimples come out, the morbose matter being then set down near the skin; hence, not only silly ignorant nurses, but even many physicians, concluded, that the best thing they could do for persons in such circumstances, was to keep them constantly and copiously sweating at every pore; for, thus, forsooth, the cutaneous vessels were kept open and pervious, and in a condition to transmit even the more sizely humours. For this purpose, therefore, they loaded them with blankets; and, dreading the least breath of fresh air, worse than the plague itself, not only kept the doors and windows perpetually shut, but heated them with perpetual fires; not content with this, they condemned the poor wretches to their beds, and there made them stew, with the curtains as close drawn as possible, in a warm atmosphere, contaminated with their own exhalations, and those of their attendants. I shall never forget, that, when formerly I was obliged to visit such places, I used in a few minutes to be ready to faint away, with the heat and stench of them; yet, I, by no means, think myself delicate enough to be affected by trifling inconveniences. But it has been already noticed, Sect. 611, that the febrile impetus of the blood is liable to be increased by heat; and, on the other hand, Sect. 610, that such febrile impetus, if exorbitant, may, by cool air, be reduced to its just standard. By comparing what has been already said, Sect. 689, of the effects produced by an increase of heat, with what was further said on the same subject, Sect. 698, it will evidently appear, how

hurtful it must be, to treat the sick in the manner just now described. *Sydenham* opposed this truly vulgar prejudice; and he expressly tells us, he found the admission of fresh air answer the purpose of bringing the feverish blood back to its just degree, better than even bleeding itself, however seasonably employed (*b*). But the good man bitterly complains, that he was forced to submit to the vilest calumnies, merely in consequence of his advising this kind of refrigeration, though he had found it extremely useful in the case of his own children, and his nearest and dearest relations, whom he had happily brought through the small-pox. Upon this, he tells us; *Qua de causa, accedente insuperabili τῶν πολλῶν prejudicio, bene mecum agi putarem, si nunquam deinceps ad variolis laborantes acciirer*: “For which reason, especially on account of the prejudices of the multitude, I thought it would be doing me a kindness, never more to call upon me to patients ill of the small-pox (*i*).” Nor must *Boerhaave* himself have had fewer reproaches to endure, when it was reported of him, that he used to make his small-pox patients lie on the cold marble pavement, in summer; and exposed them, in winter, in a cold bed-chamber, with all the windows open, to the sharpest frost. False, and even foolish, as these charges must appear, they found credit with some. But, in what manner he really treated his small-pox patients, is evident from the letter I have already given of his. He just took care, that they should not be loaded with blankets; and kept the

(*b*) *Dissertat. Epistol. pag. 451.*

(*i*) *Dissertat. Epistol. pag. 455.*

the air they breathed of such a just temperature, as persons in good health would wish to have it. In winter, he corrected the coldness of the atmosphere with a moderate fire; and its sultriness, in summer, by the contrivances enumerated in the second number of the 605th aphorism, by or windows; taking care, however, not to let it ever get at the patient's body, whilst it was cold; a thing easily compassed by keeping the curtains drawn for some time, or by placing a screen between the patient and the open door or window. He always kept the body well covered, and in a state of perspiration; and defended the hands with gloves; it was only from getting into the lungs that he endeavoured to prevent the too warm air. The inferior parts of the body were those he took most pains to keep from the cold; the head and breast he was less solicitous about in this respect; he contented himself with preventing these, and the other higher parts from being injured by the cold. His view in all this was to keep the eruption of the pimples at as great a distance as possible from the head, as I shall hereafter take notice, in my commentary on his 399th aphorism. *Hoffman* likewise advises the same necessary renewal of the air, by opening the windows; and tells us, that, for want of this precaution, as well as on account of the warm regimen, with which they were treated, he had seen great numbers of the lower class die of the small-pox, though their disorder was not of the worst kind; especially when several of them happened to lie together, and in low places (*k*). He likewise takes notice

N 3 tice

(*k*) Med. System. Practic. Tom. IV. Sect. I. cap. 7, pag. 158.

tice, that profuse sweats of any considerable continuance are never without danger. Though I should be far from advising any one ill of the small-pox, to expose himself to the cold air, yet I am satisfied, from a great number of observations, that the doing of it is not so prejudicial, as is generally imagined. Numbers have called on me for advice at my own house, with the small-pox pimples already on their faces, as they did not know it was that disorder they had; yet I could never find that any of them died of it. I have very often seen the children of the poor peasants running about in the open air, on their getting some respite by the eruption of the pimples, and that without finding themselves any thing the worse for it. I myself am an example of the innoxiousness of cold air. When past fifteen, I was seized with a violent fever, attended with a delirium, which held me three days; however, I neither sent for a physician, nor took any thing for these three days, but some baked apples, a little bread, and some small liquors, to support nature. When I awoke the morning of the fourth day, I thought myself perfectly recovered; sat down to some broiled fish, made a very hearty meal of it; and then, dressing myself, and putting on my cloak, sallied out in the middle of December, and during a pretty heavy fall of snow, to see a friend. But candles being brought in, after I had heated myself pretty well by the fire, the company took notice to me, that my face and neck, and even my hands, appeared pretty full of pimples, and thence concluded, that I had the small-pox. Upon this, I returned home; and having sent for a physician, he confirmed their diagnosis, not without scolding me heartily, for having so indiscreetly exposed myself

self in such snowy weather. However, I got over the disorder very easily and happily, and without any dangerous symptom; though I had it very thick; but then, indeed, it was of the distinct kind. I have met with many other cases like this; but I flatter myself, that these I have given will be sufficient to prove, that the coldness of the air is not so prejudicial, as it is generally imagined. Hence, I never scrupled removing from one place to another, just taking care to have their bodies well covered, such of my small-pox patients, as the masters and mistresses of the houses, in which they happened to be seized with the disorder, did not think proper to keep among them, for fear of the contagion; and I can solemnly avow, that I could never perceive, that the patients thus treated ever found themselves the worse for it.

S E C T. MCCCLXCV.

FOR, though physicians seldom think of this indication (1388), in the small-pox; and seldomer of this method (1393, 1394); providence, nevertheless, has often bestowed upon the latter, even in that case, sufficient success to prove the goodness of it.

When the small-pox happens to prevail epidemically, there is no physician, but what suspects it, when called to any one labouring under a continued fever, who has not already had that disorder. But, when it only attacks one person or another, here and there, sporadically, in large

towns a thing which often happens, in consequence of strangers bringing along with them the contagion they had picked up in other places; then, physicians, those especially, whose thoughts are all taken up by their extensive practice, are apt to lose sight of that disorder, and treat it as an acute inflammatory fever. The great *Boerhaave* himself candidly confesses, in the letter of his I have given in my commentary upon his 1393d aphorism, that this happened, even himself, when called to the young man mentioned in that letter, though seized with a small-pox of the very worst kind. For, as the patient's very disorderly and debauched way of life, particularly in the height of summer, might very well be suspected of having laid the foundations of an acute inflammatory fever, he did not, in the beginning of the disorder, dream of the small-pox, but boldly used the antiphlogistic method; nor had he, as he himself tells us, any reason to repent it when, he afterwards saw the pimples break out. I have known the same thing happen to many others, who could not with any degree of patience hear of the antiphlogistic method; and, accordingly, they never failed expressing their surprize at the happy issue of it; nay, they made no scruple of affirming, with the utmost indignation, that these patients could not have escaped, but that the predestined time of their death was not as yet arrived; they, therefore, never made the least alteration in the treatment of their other small-pox patients, but strenuously persisted in their old practice of prescribing the warm regimen, and alexipharmic remedies. *Ballonius* candidly tells us: *Imo inopinato venam secuimus, et medicamentum purgans dedimus, quibus die sequente aut postridie apparerent*

Variolæ,

Variolæ, et melius multo habuerunt, quam quibus non ausi frimus idem exhibere : sic parum probabile, quod dicitur, minus affatim erumpere pustulas, si corpus ante purgaveris. Dominus de insula de summa difficultate deglutiondi (quæ erat tantum morbillorum latentium soboles, nos autem nil tale suspicibamur) conquerabatur ; insignis febris. Eluimus abum clysmate, venam metu synanches secuimus ; sequenti die exanthemata apparent ; et brevi tamen convaluit. “ Nay, I have unadvisedly bled, and
 “ purged some of my patients, on whom
 “ the small-pox broke out the next day, or the
 “ day after ; and yet they found themselves
 “ much the better for it ; much better than those,
 “ whom I could not prevail on myself to treat
 “ in the same manner : it is not, therefore, probable,
 “ as it is imagined, that the pimples will
 “ not come out so copiously, when the body has
 “ been previously purged. A gentleman happening
 “ to complain of a very great difficulty
 “ in swallowing, (which proceeded entirely from
 “ the meazles still lurking in him, without my
 “ suspecting any thing of the matter), attended
 “ with an high fever, I prescribed him a clyster,
 “ and bled him to prevent a synanches ; next
 “ day, the pimples appeared ; but, notwithstanding
 “ this treatment, he speedily recovered (1).” This great physician was neither afraid nor ashamed to change his opinion, on finding the antiphlogistic method succeed so well in these disorders. The first precepts of the healing art were derived from an attentive observation of those things, which do good or harm
 in

(1) Epidem. et ephimer. Lib. I. Constitut. 4, Tom I. pag. 24.

in the several disorders of the human body; and physic still stands in need of the same helps, as it is impossible to deduce every thing relating to these disorders, *a priori*. The reader may consult what I have already said on this occasion, in my commentary on the second number of the 602d aphorism, in which I spoke of this excellent rule of our art. *Sydenham*, so universally esteemed for his great sagacity in investigating the nature of diseases, and his candour in communicating his discoveries, was ever careful to observe, whether the method he took with any disorder, succeeded or not; and by this means he owns he immediately contrived to detect his own mistakes, and correct them successfully, when any new epidemical disorder happened to break out.

Seeing, therefore, the method of treating the small-pox with the same remedies, that are found to answer in inflammatory diseases, has been so often crowned with success, we may safely recommend it in the first stage of that disorder, when attended with the symptoms the reader may see enumerated in the 1382d aphorism. For, by this means, we may rationally hope to hinder all, or at least, most of the pimples from ever coming to suppurate; or, in case the disorder should, in its own nature, prove so bad, as to forbid all hopes of a gentle resolution of the pimples, this method may still prove of service by taming the disorder, allaying the fury of the worst symptoms usually attending it, such as deliriums, stupors, suffocations, burning heats, &c. and so, not only enable the patient to withstand these evils the longer, but, at length, perhaps, happily get over them, as from several observations, to which entire credit may be given, we have reason to conclude.

S E C T. MCCCXCVI.

THIS disorder, when it has gone through its first stage, which I call the stage of contagion, enters upon its second, the course of which is as follows. First, the skin of the head and the face; then, presently, that of the hands and arms; and, next, the trunk and inferior parts, are covered over with small red specks, like those of flea-bites; upon which the symptoms immediately become milder (1383). These specks, turning to very red pimples, encrease, from one moment to another, in point of number and size, and elevation above the skin; they grow inflamed; the skin becomes tense, painful, and hot; there ensues an obstruction of the circulation; an obstruction of the perspiration; hence arises a greater repulsion of the humours to the internal parts; a fever; an uneasiness; a dyspnœa; a soreness in the throat; an angina; a diarrhœa; a dysentery; a discharge of blood from the bladder; an hæmoptoe; a red, hot, and painful, inflammation of the skin between the pimples, which, in four, five, or six days after the coming out, are perfectly suppurated, and become so many imposthumes. This stage, viz. that from the appearance

pearance of the pimples to their imposthuration, I call the stage of inflammation. Its duration is generally of four or five days, according to the nature of the epidemy, weather, regimen, season, &c. so as to make the day of suppuration coincide with the eighth day from the beginning of the disorder; at this period the blood is greatly inflamed.

It is now become customary with physicians to divide the course of the small-pox into three stages: the first is from the beginning of the disorder to the eruption of the pimples; the second, from the eruption of the pimples, to their turning to so many abscesses; the third, which is called the last, from this perfect maturation of the pimples, to the disorder's terminating in death, health, or some other disorder (see sect. 591). This is a very useful, as well as just, division of the course of the small-pox, as not only the disorder is attended with different symptoms at these different periods, but often requires a very different kind of treatment.

Now, it is usual to date the beginning of the small pox from the first sensation of illness, which is generally an horripilation and stiffness, which are immediately followed by a fever; for which reason, this stage is termed by some, the feverish stage (*m*). It may, notwithstanding, be properly enough called the stage of contagion; since it is in this period of the disorder, the contagion applied to the body becomes active; and,
by

(*m*) Lobb of the Small-Pox, pag. 3.

by disturbing its hitherto orderly functions, causes sickness, and assimilates to itself a portion of the hitherto healthy humours. Afterwards, this vitiated part of the humours comes to be set down, by a critical metastasis, upon the external surface of the body; the pimples begin to rise; and the second stage of the disorder commences, which is not, however, always attended with a fever.

The first stage, or stage of contagion, is apt to be pretty short, when the pimples come out in great numbers, and flow into each other; but long, when they are few, with some distance between them; in which case, therefore, the disorder is called a distinct small-pox.

The second stage of the small-pox is computed from the time of the first pimples beginning to appear; and it is then, principally, a certain diagnosis may be had; as, during the state of contagion, there will ever remain some doubts concerning the nature of the disorder the patient is breeding, as I have already observed.

It is generally on the face the little specks first shew themselves; and then they are sometimes so very small, as *Sydenham* observes (*n*), as not to exceed in bigness the punctures made by the finest needles; soon after, they become broader, and pretty like marks left by fleas, which we call flea-bites; from which, however, they may be distinguished by not having in their center any mark like that left by the proboscis of the flea, in its endeavours to come at the blood. But, if it is on the face and neck, the pimples are first to be seen, it is only because these parts are more exposed;

(*n*) Sect. 3. cap. 2, pag. 163.

exposed; for I have seen them as early on the hairy part of the head, as on the face, of those persons whose heads happened to be close shaved at that time. Soon after, nay, sometimes, almost at the same time, the pimples appear here and there, on the arms and hands; and generally later on the trunk of the body; on which, however, when the small-pox happens to be of a distinct and mild nature, very few if any pimples ever come out. The inferior parts of the body are usually the last visited by them.

As soon as the pimples begin to appear, the symptoms, which accompanied the disorder in its first stage, immediately abate; nay, sometimes totally cease, or to such a degree as to make the patient think himself well again, as *Sydenham* has very justly remarked (*o*); and as I have experienced in myself, and since observed in others, especially in those who happened to know nothing of the pimples being come out, or did not much fear the disorder, as is generally the case with young persons; accordingly, the poor children in the country, when ill of the small-pox, immediately get out of bed, at this period, if the disorder happens to be of the distinct kind; nay, it is with much difficulty they can be kept within doors. In grown-up persons, however, let them find themselves ever so well in other respects, there still remains, even though they should be but lightly cloathed, a propensity to sweat, till the pimples have attained their maturity; for then this propensity to sweat generally goes off, of its own accord. Sometimes, however, even grown up persons, particularly girls of delicate constitutions,

(*o*) Ibid.

constitutions, and fine nerves, suffer themselves, through want of courage, to be again disordered by the very dread of what may yet happen, let the small-pox, which has visited them, be ever so mild and gentle. For this reason, a physician should never visit such patients, but with a cheerful, pleasant countenance; and, in order to raise their spirits, never leave them, without promising them, not only the recovery of their health, but the preservation of their beauty. I once saw a physician form the most frightful conjectures, on observing, in a beautiful girl, whilst the small-pox was coming out upon her, a great uneasiness, a fluttering pulse, a difficulty of breathing, and a pale face. For my part, as the disorder had proved mild during the whole of the first stage, and these new symptoms arose, on her viewing her face, defiled with a few spots, in a looking glass, I boldly bid her be in no pain for either her health or her beauty; and made myself answerable for the safety of both; at the same time putting her in mind of a lady of her acquaintance, who had likewise had the small-pox, and of whom it might now justly be said:

*Morborem pigmenta abeunt, faciesque renitet,
Purior, et speculo lævior ipsa suo.*

A cessation of the symptoms, which had given the other physician so much uneasiness, was the consequence; and the disorder performed its subsequent stages with the utmost gentleness.

The pimples, which as yet looked like so many flat spots, level with the skin, now begin to rise; and new ones like them make their appearance successively, on different parts of the body; for, they do not all come out together and at once, unless

unless in the worst kind of the confluent small-pox; in which an immense quantity of the morbose matter furiously rushes on every part of the external and internal skin, producing every where swarms of very small pimples. Otherwise, the eruption of the pimples generally takes up three days, especially in the distinct and gentle kind of small-pox, in which they begin to appear on the fourth day, and are seldom or never all out till the seventh, as has been very well observed by a celebrated author, who is of opinion *hac arte cautum esse, ut natura vim morbi, in partes sibi invicem continuatas divisam, facilius perferat et sustineat*: “that things were thus contrived, in
 “order that nature might the more easily en-
 “dure and conquer the violence of the disorder,
 “by its being thus divided into different stages,
 “though all immediately succeeding each
 “other (p).” It is, likewise, a fact, that all the pimples do not suppurate together; for, those on the inferior members shall still continue turgid with pus, whilst those on the face are drying up, and even falling off. This, too, however, I have frequently observed, that, though some of the pimples on the face came out later than others, yet all of them, if distinct, were full of ripe pus, on the eighth day. The same thing happens with regard to the inferior members; viz. that the pimples on these parts come out likewise at different times; and, though they ripen later than those on the face, yet they all ripen together, as those on the face do. Another circumstance, which perhaps may be thought worth notice, is, that all the pimples do not attain the same size;
 I have

(p) Nichols de anima Medica, pag. 20. 21.

I have very often seen some very small pimples peep out amongst other very large ones, when distinct, and fill at the same time, and with the same kind of pus. I have sometimes, too, observed these small pimples come out much later than the large ones, namely, on the sixth or seventh day of the disease, and yet ripen and dry up together with them. This, indeed, I must own, has not been the case with all my small-pox patients; but an author of undoubted credit, assures us, that the first eruption of the pimples is always succeeded by another, on the seventh day, from the first commencement of the disease; but that this second swarm ripens at the same time with the first (*q*). Are we hence to conclude, that, on this occasion, the morbose matter sooner acquires its proper degree of maturity, in consequence of its having been better subdued by longer flowing in the vessels along with the healthy humours? It looks, as if *Rhazes* had observed something like this, though he does not seem to affirm, that it is always the case, but only when the quantity of the morbose matter happens to be any way considerable. His words are: *Variolæ duplicatæ copiam materiæ indicunt: quod si sint de genere sanabili, id salutem portendit, si vero sint de genere lethali, interitum:*

“ A second swarm of pimples indicates a copiousness of matter; which, if the disorder is curable, may be considered as a sign of recovery; otherwise, of death (*r*).”

These pimples grow pretty fast; and, unless the inflammation can be resolved by perpetual fomentations, and suitable remedies; a subject which

(*q*) *Violante de Variol. et Morbill. pag. 60.*

(*r*) *Mead de Variol. et Morbil. pag. 193.*

has been spoken of already, and will be spoken of again in the 1399th Sect. they all turn, about the eight day, into so many little abscesses. Now, I have already observed, in my commentary on the 386th aphorism, which treats of an inflammation, that we can then alone reasonably expect to be able to cure an inflammation in the way of resolution, when the humours are mild, their motions gentle, and the obstructing cause not too settled; for which reason, unless the disorder is of a mild nature, or the too great impetuosity of the humours has been happily checked, by the antiphlogistic method, during the stage of contagion; their too great siziness sufficiently corrected; and their channels, withal, rendered more pliable and permeable; we are not to look for any resolution of the inflamed pimples: a suppuration must infallibly follow; and, in the worst kind of the disorder, a gangrene; an evil which we should, by every means our art can suggest, endeavour to prevent; and for this reason, could no other be assigned, when there is no avoiding a suppuration, we should exert ourselves to obtain a mild and kindly one, by which the obstructed vessels may be separated, along with the matter obstructing them, from the unobstructed living ones, and both converted into pus.

But, while this is doing, all the symptoms of the inflammation are upon the encrease, as I have already observed in my commentary on the 387th aphorism; namely, the pain, heat, pulse, fever, &c. Nay, the inflammation of the pimples spreads to the contiguous parts; and, therefore, when the pimples happen to be numerous, the whole skin becomes tense, painful, and hot; the circulation through the cutaneous vessels is obstructed;

fructed; and, of course, the perspiration; the small vessels being unnaturally dilated to admit the thicker humours; and, at the same time, as unnaturally compressed from without by the contiguous large ones.

It must, therefore, be obvious, that the symptoms, enumerated in the aphorism now under consideration, can never obtain, but when the pimples are in great numbers; for, when that is not the case, it is but a small portion of the whole skin, that can be inflamed; the rest must continue free from complaint, and the subsequent suppuration of the pimples probably proceed without giving the patient any great uneasiness. I say, probably, as, let the pimples be ever so few, they may prove very troublesome, if they happen to light on such parts of the body, as cannot conveniently endure the symptoms usually attending a suppuration. Thus, I have seen a single pimple in the præputium of a child, cause a very troublesome phymosis, the tunica cellulosa of the parts being thereby swelled to such a strange degree, as to render the discharge of urine very difficult. Every one knows, that the smallest matter is sufficient to make the eye lids swell enormously; and that they are generally swelled, more or less, after sleep, even in persons who ail nothing. Now, should only a few pimples happen to beset the eye-lids, or that spot under the inferior eye-lid, where the skin is very loose, the eye-lids must swell to such a degree, while these pimples are suppurating, that it will be impossible to part them, till the suppuration is over, the pimples begin to dry up, and the swelling occasioned by them comes, of course, to subside. But this is often attended with very disagreeable consequences, especially in children, whom it is so

hard to keep from perpetually rubbing their eye-lids, in order to remove the obstacle by which they think they are kept from seeing; instead of which they only encrease the irritation already caused in the eyes by the disorder, often inflame the bulb of it, and give occasion to the stagnation of sharp tears within the closed eye-lids; which tears, being rendered still sharper by such stagnation, corrode every thing near them, and sometimes induce an incurable blindness, by rendering the whole of the cornea perfectly opaque; for, we have no instance of the pimples having ever occupied the tunica adnata, or the cornea, but only the eye-lids; but, then, they attack, not only the exterior surface of those parts; but likewise their interior surface, which is so closely interwoven with blood vessels, as scarce to shew any thing else; and these vessels must, when inflamed, very easily communicate their inflammation to the bulb of the eye. The illustrious *Hoffman* has made the same remark (s). Unless, therefore, the eye-lids are defended by perpetual fomentations, and now and then gently injected with some pure lukewarm water, through the slit of the eyebrows, with a fine siphon, in order to wash away the sharp tears accumulated under them; not only the sight may be injured, but totally destroyed. In like manner, I have, in some patients, seen a few pimples, that lay hid under the callous epidermis of the soles of the feet, cause such an intolerable itching, as could scarce be eased by the perpetual application of a warm decoction of the most emollient herbs.

In

(s) Med. Rat. Systemat. Tom. IV, Sect. 1. cap. 7. pag. 165.

In other patients, however, I have observed a great number of pimples in the same place, without their causing any great uneasiness. Some times a troublesome itching is felt in other parts of the body, while the pimples are coming out; and this itching may be eased in the same manner (*t*).

Now, by supposing those symptoms, which take place on the external parts of the body, during the suppuration of the inflamed pimples, to hold good of the internal parts, when these happen to be affected in the same way, as it will appear in the 1403d sect. they sometimes are, we cannot be any longer at a loss to account for the great danger, with which the small-pox is attended, and the very different symptoms which sometimes occur, during the course of it, and afford a proportionably different prognosis. It would be a troublesome and tedious task, to investigate the injuries, which every one of the viscera in particular must suffer, when beset with pimples; and, perhaps, there can be no great necessity for it, as we have already treated of the inflammatory disorders of the viscera. One instance, at least, will be sufficient, as it may be easily applied to every other case.

In the stage of contagion, when the fever happens to be violent, the patients are often troubled with a delirium; yet physicians of any skill do not always look upon this, as a fatal omen. But, should this delirium continue during the eruption of the pimples, when all the other symptoms have ceased; or should it only remit for a time, to return with greater fury, whilst the

Q 3

pimples

(*t*) Lobb of the small-pox, pag. 134,

pimples on the skin grow more inflamed and begin to suppurate; then, indeed, there is but too just reason to fear, that the meninges of the brain are affected in the same manner with the external skin of the body; that is, that they are inflamed, and thereby of course rendered liable to all the consequences of an inflammation, which are apt to prove so fatal when this part of the head happens to be the seat of them, and of which I have already treated in the history of the *Phrenitis*, given in the 775th Sect. The celebrated *Friend* considered furious delirium as one of the worst signs, when it happened to seize the patient after the eruption; and no wonder, since, as he himself expressly tells us, he never saw any patient afflicted with it during that period of the small-pox, get the better of the disorder (*u*). He, then, by way of specimen, gives us the case of a person, who, though his pimples were not only distinct, but few, began to grow sleepless, and rave, on the fourth day after the eruption; this restlessness and alienation of mind was followed by a perpetual garrulity; sparkling eyes, perpetually rolling in their sockets, and suffused with tumified blood vessels; a total want of sleep; trembling; and, at length, death. On opening his head, all the vessels of the brain were found so full of blood, as to be ready to burst with it. Now, on the fourth day after the eruption, all the pimples, and even the intervening skin, are inflamed to a very great degree; so that, supposing it to fare no better with the brain, it is impossible all the symptoms of a *phrenitis* should

(*u*) Ad Richard. Mead de quibusd. Variol, Gen. Epist. 2. pag. 18.

should not follow (*w*). These observations of *Friend's* are all confirmed by *Hillary*, who moreover takes notice, that, in cases like this, the physician, on examining the pupil of the patient's eye, will be sure to find the bottom of it of a glittering flame-red colour; which he likewise looks upon as a very bad sign (*x*).

As often as I happened to meet with cases like these, in the course of my practice, I made no scruple of boldly prescribing every thing recommended, in the 781st Sect. for the cure of a *phrenitis*; and it is with the greatest pleasure I recollect my having saved many a patient, who was but just not entirely given over. The reader may remember, that the two cases described in the letter of the very illustrious *Boerhaave*, given in the commentary on his 1393d aphorism, are of the same kind with the foregoing; and we may learn from that great man's treatment of them, the great benefit which may be expected from that I am now recommending. Hence, therefore, we may conclude, that deliriums in the small-pox arise from the excessive febrile impetuosity, intense heat, and rarefaction, of the blood, as likewise the too great fullness of the blood-vessels; and that they must of course, generally cease, on correcting the above bad qualities in the blood, and easing the blood vessels; nay, these deliriums usually cease of themselves, at the time of the eruption, when all the other symptoms likewise disappear. But when these deliriums do not cease at that period; or when, if they do cease, it is only to return with greater fury, at the time when

O 4 the

(*w*) Ibid. pag. 10, et seq.

(*x*) *Essays on the small-pox*, pag. 85.

the pimples on the skin are highly inflamed, and are on the point of suppurating, then there is just reason to apprehend, that the maninges of the brain are beset with pimples, especially if those on the external skin happen to be distinct and not very numerous; and, of course, not qualified, in their own nature, to produce such considerable symptoms; *Lobb* has very judiciously distinguished these two kinds of delirium, in the small-pox (*y*). Nor can it appear any way singular, that, even in case, in which but a few pimples have taken possession of the meninges, the delirium, with a coma vigil, and other terrible complaints, should last the whole time of the inflammation and suppuration of the pimples; and that, afterwards, on the rest of the pimples coming to dry up, in consequence of their suppuration having been compleated, every thing should become quiet again; and the patient recover, the pus of such pimples being again resorbed into the vessels; as in that case the pimples cannot, on account of their fewness, leave any bad impressions behind them on that important part. We read of another case like this, in the same author, namely that of a grown up woman ill of a distinct small-pox, whose delirium began with the disorder, and held her till the end of it, and who recovered, notwithstanding, though she could hardly be prevailed upon to take any remedies, or much nourishment. But then, it is to be observed, that her menses broke out the third day of the disorder, and continued to flow seasonably during the following days (*z*); for this evacuation

(*y*) Of the Small-Pox, pag. 56.

(*z*) Of the Small-Pox, pag. 254. and seq.

tion may very well be supposed to have been of great service, by lessening the fullness of the vessels, and diverting the impetus of the blood from the head. Be that as it will, there is no denying, that a delirium ought to be deemed exceedingly dangerous at the time of the eruption of the pimples, when there is no room for attributing it to the violence of the fever, or the too great rarefaction of the humours. Hence *Baglivi*, to guard against such an evil, tells us : *Si circa quartum, cum jam erumpunt, caput impetunt cum magno calore, anxietate, motibus tendinum subsultoriis, &c. statim impero cucurbitulas scarificatis scapulis, et momento fere, facta quasi furentis sanguinis revulsione, omnia prædicta symptomata velut in ovo suffocantur, et paulo post feliciter erumpunt variolæ, ut sæpius vidimus*: If, about the fourth day, “ when the pimples begin to come out, they “ make at the head, attended with a great anxiety, subsultory motions of the tendons, &c. I “ immediately order the shoulders to be scarified “ and cupped ; and, in an instant almost, all the “ foregoing symptoms are stilled, if I may use the “ expression, in the very cradle, by a revulsion, “ as it were, of the furious blood ; and soon “ after the pimples come out kindly ; as I have “ very often experienced (a).”

But, independent of the evils occasioned by the inflamed pimples occupying some of the internal parts of the body, and thus being put in a condition to disturb their functions, there will arise other symptoms, if those on the external skin happen to be in any great number. For, in this case, almost every part of the skin will become

(a) Prax. Med. Lib. I. pag. 61.

become inflamed, and the repulsion of the humours to the internal parts must be proportionably encreased. But, it is when the face, and the skin of the head, happen to be covered with numerous swarms of pimples, that the greatest mischief is to be dreaded; as, in that case, the numberless little arterious branches of the external carotid will be rendered impervious; and the rest, of course, though they still continue pervious, will be proportionably compressed; as likewise the branches of the internal carotid, which pervade every part of the encephalon. Hence often ensues a swelling in the internal membrane of the nostrils, and in that which lines the inside of the mouth and throat; attended with a copious discharge of a liquid matter, which sometimes proves of a pretty tenacious quality. It is upon this account *Sydenham* has observed, that, in the confluent small-pox, there sometimes ensues a spitting, at the first coming out of the pimples, and sometimes not till a day or two after (*b*). Children, in the same kind of small-pox, are apt to be troubled with a diarrhæa, owing perhaps, to their swallowing a great quantity of thir own very sharp saliva; for, some famous authors think, that part of the morbose matter goes off that way, especially when the quantity happens to be too great, to be all exhausted by the eruption of the pimples. Thus, *Morton*, with a great deal of reason, is for our considering salivation as an infallible *symptoma veneni per glandulas cutis in parte tantum protrusi*; “symptom of the poison being eliminated only in part by the glands of the skin (*c*).”

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And,

(*b*) Sect. 3, cap. 2 pag. 169.

(*c*) Pyretolog. cap. 8, pag. 71.

And hence, too, it is, that, as, he says in another place: *Ptyalismus, eruptionem comitans malus est, quia venenum per regiam viam non satis eliminari significat*: “Spitting, when it accompanies the eruption, is an unwelcome circumstance, as it shews that the poison does not pass off, in sufficient quantity, by the high road (*d*).” No doubt, it appears from several observations, that it is only the small-pox of the worst kind, that is attended with any salivation; and that, therefore, considered merely as a sign, it cannot be deemed a good one; still there is great reason to think, that, as a discharge, it must prove useful in such a small-pox, since all the other symptoms have been known to be aggravated by the suppression of it, as it will hereafter appear. Certain it is, that *Baglivi*, when collecting practical rules from the most approved authors, as well as his own observations, has not scrupled to affirm: *Qui in variolis maxime sputant, raro moriuntur, nullumque in variolis sputatorem mortuum vidi*: “Such as spit to a great degree in the small-pox, seldom die; for my part, I never saw any one die, who spitted in that disorder (*).” But, whether it is a portion of the morbose matter, that is thus eliminated by salivation or a diarrhæa, even the great *Sydenham* did not chuse to determine, owning, like himself, that all he meant was to write the history of the disorder, and not solve the problems which related to it (*e*). This opinion, however, does not appear improbable; and we might come at the truth, by trying to communicate the small-pox, in the way of inoculation,

(*d*) Ibid.

(*) Prax. Med. Lib. I. pag. 62.

(*e*) Sect. III. cap. 2. pag. 169.

culatation, by means of threads imbued with that kind of saliva; but, then, it might appear somewhat cruel, to apply to an healthy body, a contagion taken from one ill of the confluent small-pox, before we knew, for certain, whether or no the virulence of the disorder depended on the idiosyncrasy of the patient, or the preposterous method of treating him; or both together; and that the contagion is always of the same nature, in all subjects.

It seldom happens, that the face has many pimples, that the nostrils, mouth, and throat, are not likewise evidently over-run with great numbers of them, which, when they come to be inflamed, may very well be supposed, by their irritating stimulus, to produce a copious excretion of a viscid and mucous saliva. It is well known, what great quantities of saliva and mucus are daily discharged by persons in an angina. Be that as it will, it is plain, that, when the external skin of the face comes to be entirely inflamed, the unobstructed vessels must be the more strained and dilated for it; and, of course, a greater quantity of humours must be both secerned and excerned. I have already observed, in my commentary on the 988th aphorism, of which the aphthæ were the subject, that, when the little mouths of the vessels have continued a long time shut up by the aphthose scabs, the secretory branches are so dilated, that, when these scabs come to fall off, there now and then follows a copious and constant discharge of the saliva; and that this discharge sometimes proves sufficient to exhaust the strength of the poor patient, already impaired by the severity of the preceding disease. Now, a similar excessive dilatation of the vessels may be sometimes observed in the small-pox, and prove sufficient to make the spitting out-

last the disorder itself; but, when this happens to be the case, it may be safely checked, when the disorder is over, with mild astringents; whereas, it would not have been safe to attempt it sooner. *Morton* could not help regretting a young maiden lady of distinction, who died on the twentieth day of the disorder, through mere exhaustion by an excessive spitting, unattended with any fever or delirium, but only frequent fainting fits; yet, there was no checking this discharge, as, on its ceasing, a suffocation would have probably ensued (*f*).

It sometimes happens, that the pimples come out, in great numbers, on the hairy part of the head; and that without being much attended to, as being little seen on account of the thick hair with which they are covered. In such cases, I have observed pretty violent deliriums, and intense pains in the head. I once saw, in a girl of eight, after a violent fever, a delirium, and a sleepy coma, during the stage of contagion, and a very liberal use of blood letting, clysters, pediluvia, epispastics, and antiphlogistic remedies, the pimples begin to break out on the fourth day, both distinct, and pretty few in number, but small. Still, however, though the fever, intense heat, and other symptoms, abated greatly on the pimples beginning to appear, the delirium and severe pain in the head continued: about the end of the fifth day, the delirium, indeed, entirely ceased, but the pain in the head, not before the disorder itself, from which, notwithstanding, the patient happily recovered. But, when, on the drying up of the pimples on her face, the mother would
have

(*f*) Pyretolog. cap. 11. pag. 191.

have combed her head, she found great numbers of them in possession of that part of it, which was covered with hair, though her face, as I have already said, and all the other parts of the body had but few of them.

Sometimes, when the cutaneous vessels become impervious in consequence of the skin being inflamed, there ensues a diarrhæa, occasioned by the repulsion of the humours to the interior parts; or even a dysentery, produced by sharp humours; or an abrasion of the mucous coat of the intestines. But, as, in general, the morbose matter is set down near the external skin, it was customary with several physicians, to draw the worst of omens from the body's being more open than usual during any stage of the small-pox: hence, on the first appearance of a diarrhæa, they did all in their power to check it with astringent medicines. In fact, there is no denying, that a diarrhæa, occasioned by exposing the body indiscreetly to the cold air, or any notable mistake with regard to diet, cannot but prove very prejudicial in the small-pox; but, otherwise, there does not appear much reason to apprehend any mischief from it. That such discharge has been of use in the first stage of the small-pox; that called the stage of contagion has already been proved in the commentary on the 1382d section; and, in the commentary on the 1394th, it was shewn, that unless, when it proved excessive, it did no harm in the other stages; nay, an artificial diarrhæa has been found to give ease, especially when a delirium, coma, and other symptoms gave just reason to conclude that the head was affected; as I have already taken notice. *Sydenham* found, that, in the confluent small-pox, a diarrhæa has proved

ed of service to children (*g*); and, therefore, never gave such patients any pæregorics, for fear of stopping that discharge, as the doing so, he thought, might be attended with fatal consequences (*b*). But, when the diarrhæa proceeded from a cold, or ill-timed evacuations, and was accompanied by a subsidence of the pimples, in that case he administered both cordials and opiates. *Violante*, too, admonishes us to be very cautious what methods we use to check a diarrhæa, which he seems to have dreaded most in children of four or five years; viz. when it seized them about the fourteenth day of the disorder; as it sometimes sticks to them, and becomes bloody, or even turns to a real dysentery (*i*): in this case, however, he used no astringents, but just endeavoured, by means of rhubarb, to clear the bowels of the sharp humours lodged in them; at the same time that he employed clysters of milk and deers suet, and other things of that kind, to sooth the parts eroded by such humours (*k*).

But, hæmorrhages, too, are apt to supervene in this very stage of the small-pox; and these hæmorrhages have different effects. Those by the nose are frequently observed to happen in all acute diseases, and almost always prove beneficial. It is on this account *Galen* tells us (see sect. 741), that, when the word hæmorrhage occurs, by itself, in *Hippocrates*, it always signifies that eruption of blood, which has its seat in the nose. I have more than once taken notice, in the history

(*g*) Sect. 3. cap. 2. pag. 190.

(*b*) Ibid. pag. 192.

(*i*) De Variol. et Morbil. pag. 113. 106.

(*k*) Ibid. pag. 114.

tory of inflammatory diseases, of the great benefits which may be expected in them from discharges of this last kind; and physicians are almost unanimously agreed, that they are likewise of service, in the first stage of the small-pox. There are those, indeed, who apprehend some sinister consequence from these discharges, when the pimples have already made their appearance; and particularly, if they not only turn palish, but entirely disappear, as it sometime happens; for, in this case, they dread a retropulsion of the morbose matter towards the internal parts; and even judge that the disorder will have a fatal issue. For my part, I can safely and solemnly affirm, that I never saw any evil ensue from a bleeding at the nose, in this second stage of the small-pox; but, on the contrary, a great deal of good. *Violante* is of opinion, that we may look upon all as safe when an hæmorrhage of the nose immediately follows the eruption and rising of the pimples (1). All he feared, was an excessive flow of blood, in which case he advised venæsection and paregorics: however, it was not always he observed, even a profuse bleeding at the nose, prove so detrimental; but that, on the other hand, he sometimes saw the disorder stifled by it, in the very cradle. Accordingly, he gives us the following admonition: *Si vero, ratione enormis hæmorrhagiæ, Variolæ jam eruptæ dissipentur, evanescent, a conspectu se auferant, et febris cæteraque pariter abeant, nihil temendum; naturam enim morbosam materiam hacce via ejecisse compertum est.*

“ But should the pimples, which are already come
 “ out, happen to disperse, vanish, and disappear,
 “ and the fever and every other symptom cease,

(1) De Variol. et Morbil. pag. 114, 115.

“ in consequence of an excessive hæmorrhage, we
 “ ought to make ourselves easy ; as it is then
 “ plain, that nature has expelled the morbose
 “ matter that way.” In like manner, an hæmorrhage of the nose has been attended with happy consequences in the small-pox excited by inoculation, if it did not happen till the pimples had already made their appearance (*m*).

Nor could I ever observe, that the flowing of the menses did any harm to persons ill of the small-pox, even though it happened at the very time of the eruption ; I never found it to check that process ever so little. *Diembroeck*, indeed, observed, that, when, in the small-pox, the menses happened to flow before their usual time, the disorder ended in death. It does not, however, appear altogether sure, that this is to be attributed to the menstrual discharge. For his words are : *Idque in hoc morbo etiam alias multoties a nobis observatum, cum valida sit sanguinis abullitio, et copiosissima variolæ prosiliunt, sine febris et symptomatum imminutione, tunc pessimum, imo lethale, signum esse, si menstrua extra periodi tempus erumpant.* “ I have,
 “ likewise, often observed, on other occasions,
 “ that, when, in the small-pox, the ebullition of
 “ the blood happens to be violent, and the pim-
 “ ples come out in very great numbers, without
 “ any diminution of the fever and symptoms,
 “ then the flowing of the menses, out of their
 “ usual time, is a very bad, nay, a fatal sign (*n*).”
 Now, there is not a single physician, who does not look upon it as a very bad sign, if the symptoms do not abate on the coming out of the pimples ;

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(*m*) *Academ, de Chirurg. Tom. II, pag. 563.*

(*n*) *De Variol. et Morbill, pag. 296.*

^fo that, in the case given by *Diemberbroeck*, there needed no menstrual discharge to constitute a bad prognosis; besides, by the very manner of his describing this case, it appears, that not only this so much censured flow of the menses was preceded by fatal signs, but that a great mistake had been made in the method of cure. The patient, a strong phletoric maiden of three and twenty, had taken a dose of Venice treacle and wine, which brought on a profuse sweat, during which the pimples came out; and her fever and uneasiness, instead of abating thereupon, became more violent; besides, her strength was so impaired, that *Diembroeck* was afraid to give her any thing but crab's eyes, a little boiled barley, and a pleasant julep. Hence it appears, that we have no very just grounds for ascribing the fatal issue of the disorder, to the flowing of the menses before their usual period. It looks, however, as if *Diembroeck* did not think well of the menses flowing, in the small-pox, even at their usual time; though it is a general rule in practice, that the more functions remain entire and unhurt in any disorder, the better hopes may be entertained of its having a favourable issue; and, indeed, when the small-pox is to be communicated by inoculation, those, who take upon them the direction of this process, generally chuse such a particular period, for the performance of it, as to be pretty sure that the menses shall not flow, till the disorder has performed all its stages; and this must be allowed a very discreet method, as, in some subjects, this benefit of nature is often attended with pains in the head and loins, and other disagreeable circumstances, capable of adding to the already sufficiently distressing symptoms of the disorder itself. It has sometimes, however, happened, that women, inoculated for the
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the small-pox, have had their menses before the usual time, and after the pimples were come out, without suffering any thing by it (*o*). Nay, *Violante* assures us, that he often knew the menses to flow in the natural small-pox, and that, during the first days of the disorder, and continue, withal, to the ripening of the pimples, without any injury to the patient; provided there was nothing improper in the method of treatment, and the menstruation proceeded in its natural order, without degenerating into an hæmorrhage of the uterus (*p*). What may appear still more surprising, this great physician never made himself uneasy on account of any natural delivery, or even abortion, whilst his patients had the small-pox, provided the hæmorrhage of the uterus, and the flow of the lochia, turned out placid, regular, and natural, without either excess or defect. He saw many, in these circumstances, happily recover; but he owns, that the pimples, in those patients, were neither so large, nor so prominent, as they generally were in others; and that, besides, they sooner turned to scabs.

The illustrious *Merd* is of the same opinion, with regard to the flow of the menses, during the small-pox; for, speaking of the menstrual blood, he says, *Sive consueto naturæ tempore, sive effervescente ultra modum sanguine, extra ordinem emanet, utroque in casu levamen magis quam periculum adfert.* “ Whether this evacuation happens at
 “ the usual time appointed by nature; or other-
 “ wise, through an immoderate effervescence of
 “ the blood, it, in both cases, brings relief, ra-
 P 2 “ ther

(*o*) *Academ, de Chirurg.* Tom. II. pag. 565.

(*p*) *De Variol. et Morbill,* pag. 52, 53.

“ther than danger, along with it (*q*)”. Nay, he has observed blood to flow from the womb, during the whole course of the small-pox, without loss of strength, or any other disagreeable circumstance, Still, he always greatly dreaded abortions, and even natural deliveries, during any stage of the small-pox, though he saw a woman bring forth a boy, in due time, indeed, during the disorder; and both mother and child did well; but it was *eventu non minus raro, quam felici*; “by “ a stroke of fortune not less singular than “ happy (*r*).” I once had under my hands a woman, who was taken ill of the small-pox in the fourth month of her pregnancy; she complained of violent pains in her head, loins, thighs, and abdomen: the pimples came out on the fourth day; they were neither confluent, nor very numerous, but flat and set. The day following, apthæ began to shew themselves on the inside of her mouth and throat, and beset the pharynx to such a degree, as to prevent her swallowing; on the ninth, she was seized with a copious and very troublesome spitting; and then a violent diarrhæa, for three days together; the spitting held her to the twentieth day; on the twenty-second, the blood began to flow from her womb, stopt the next day, flowed again the twenty-fourth, and then ceased. Notwithstanding all these disagreeable circumstances, this patient happily recovered, and, when her time was out, was delivered of an healthy and pretty stout boy, though she herself was of a delicate constitution. But I must put this amongst the rare cases; for, I must own, I have seen several pregnant women miscarry, and die, during the small-pox.

(*q*) De Variol, et Morbill, pag. 68.

(*r*) Ibid. pag. 62. 63.

small-pox. Hence, I readily agree with those illustrious physicians, who look upon it as a very dangerous thing, for women, with child, to be seized with the small pox (*s*). After all, the hæmorrhages, we have been speaking of, serve to allay the heat and fever, and most of the symptoms of the small-pox, by lessening the impetus, as well as the quantity, of the humours flowing through the arteries and larger veins; and hence it is, that physicians are in no pain about them. However, as I already took notice in my commentary on the 1384th section, it is not always that the blood acquires an inflammatory sizziness in the small-pox; it is sometimes rather dissolved, so as to flow from the vessels at every pore; from whence proceed very bad hæmorrhages, which, if not fatal, are always, at least, extremely dangerous. I spoke, at the same time, of the signs, by which we may distinguish that very bad kind of the small-pox, which, let the pimples in it be ever so few, is always dangerous. It is plain, that, when the blood issues profusely by the nose or womb, in consequence of its being dissolved by the power of the disorder, no good can be expected from it. *Mead* calls this kind of small-pox, the *bloody small-pox*; meaning, as well that in which the extravasated blood forms black spots, a deadly omen, under the skin; as that, in which it makes its way at all the pores of the body (*t*). Hence he, with great reason, compares the circumstances of it with the dreadful complaints of persons bitten by the Hæmorrhoids, a most poisonous

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(*s*) Hofm. Med. System, Tom. 4, pag. 193. Manningham Art. Obstet. Compend. pag. 82.

(*t*) De Variol. et Morbil. pag. 27.

nous serpent of *Africa*; and which *Lucan* has so accurately described (*u*). *Hoffman* saw the left eye of a child, who died of the disorder on the fifth day, swell to a prodigious size, and then run with blood (*w*); and, in others, the blood trickling from the pimples themselves (*x*). I have said enough, in my commentary on the 1384th section, to shew, that, in the small-pox, the blood has been known to issue by vomit and urine, as well as by stool.

Now, as the vessels of the reins, which serve to secern the urine, are naturally of such a precise diameter, that, in case of their being ever so little dilated, or the blood ever so little dissolved, they still readily let it escape unsecerned, as is evident from many practical observations; and, as I have already taken notice, in my commentary on the 994th aphorism. Hence, in such a solution of the blood, the urine will be bloody; and this is deservedly reckoned a bad sign; nay, it is considered by some, as an almost always mortal one (*y*). *Mead*, indeed, saw some recover, though blood had flowed from them, in no small quantity, during the eruption of the pimples, by the urinary passages (*z*); but, then, he takes notice, that, if they escaped, it was with great difficulty; and to be afflicted, towards the conclusion of the disorder, with some very disagreeable complaint

(*u*) Lib. 9.

(*w*) Med. Rat. System. Tom. iv. pag. 165.

(*x*) Ibid. pag. 167.

(*y*) Sydenham, Sect. 3. cap. 2. pag. 173. and Dissertat. Epistol. pag. 443. Drelincourt, pag. 660 Huxham on Fevers, page 151, 152, Diembroeck de Variol, et Morbill, pag 291.

(*z*) De Variol et Morbill, pag. 46.

plaints or another, such as frequent furunculi ; tumours in the subaxillary or parotid glands, which it proved no easy matter to bring to suppuration ; and gangrenous ulcers in the tonsils, very hard to be cured. *Sydenham*, indeed, attributed the purple spots, and bloody urine, *laxatæ sanguinis compagi*, “ to the texture of the blood’s being dissolved (a)” ; but, he would have this solution to be the effect of the inflammation ; whereas, to own the truth, it is the fizefness of the blood we are to blame, in an inflammation, and not the solution of it. For, though *omnem spem salutis reponat in paucitate exanthematum, et discrimen in eorum multitudine, ut, prout plura vel pauciora sint hæc, aut moriatur, aut vivat, æger*. “ All his hopes of the patient’s recovery, are founded on the fewness of his pimples, and all his fears arise from the number of them, so that, as the pimples happen to be either more or less in number, the patient shall either die or recover ;” nevertheless he owns, that bloody urine, and purple spots, are sometimes to be met with, where few or no pimples appear ; but this he ascribed, in such cases, to the patient’s dying before the pimples were all come out. It must be owned, that a great number of pimples cannot but be attended with great danger, at the time of suppuration ; but, it has likewise appeared from several observations I have already given, that sometimes, too, the danger is very great, though the number of pimples be very small, *viz.* as often as that dreadful solution of the blood happens to produce any dangerous hæmorrhages.

P 4

Nor

(a) Sect. 3. cap. 2, pag. 173. *Dissertat. Epistol.* pag. 442, 443.

Nor will any one doubt the danger's being much greater, should the blood, issuing from the lungs, cause an hæmoptoe; for which reason *Sydenham* considered it, when violent, as a certain sign of death (*b*).

That, in cases like this, scarce any remedies can be too powerful, to prevent or correct that truly terrible solution of the blood, is too obvious to be insisted on. *Mead* used for this purpose the bark, alum; but, above all, the spirit or oil of vitriol, mixed, to the quantity of some drops, with all the common drink used by the patient; with, now and then, some spoonfuls of the tincture of red roses, which is generally prepared with oil of vitriol; and he tells us he saved some of his patients by this method; and, likewise, that he learned by experience, that blisters may be safely used, though the urine should prove bloody, in case a delirium rendered them necessary (*c*). It likewise appears, that *Sydenham* recommended a liberal use of the spirit of vitriol, mixed with small liquors, even till the pimples were completely come out, as often as saw just grounds to apprehend the evils we are speaking of (*d*): nay, he not only recommends spirit of vitriol to correct these evils, when actually present, but every thing else, from which any incrassation of the much liquified blood may be reasonably expected, such as *terra lemnia, bolus armena, lap. hematit. sang, draconis, &c.* (*e*).

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(*b*) *Dissertat. Epistol. pag. 197.*

(*c*) *De Variol. et Morbil. pag. 45.*

(*d*) *Dissertat. Epistol. pag. 463.*

(*e*) *De Febre Putrida-Variol. &c. pag. 697, 698.*

In an orderly small-pox, the pimples rise and grow inflamed by degrees; then, their points begin to turn white, the bottoms still remaining red; and, at the same time, this redness of their bottoms extends to the adjacent skin; hence, if the pimples happen to be in great number, the whole of the skin between them becomes inflamed, and of a florid colour, very like that of the damas rose (*f*). No doubt, this poor patients, on this occasion, experience a troublesome heat, and painful tension, in the skin; yet this redness of it is an happy omen; and it is on this account Sydenham says: *Quo mitiores sunt variolæ, et genuinæ magis, eo etiam magis, tum ipsæ pustulæ, tum et cutis in earum interstitiis, dictum colorem ad vivum exprimunt*: “The more mild
 “ and genuine the small-pox, the more lively
 “ will the pimples themselves, and the skin be-
 “ tween them, express that colour (*g*)”. But, when the disorder begins to take a turn for the worse, then the skin between the pimples begins to grow pale, as I shall hereafter take notice, in my commentary on the 1398th aphorism. When the pimples happen to be neither numerous, nor lie very near each other, then the whole of the intermediate skin does not grow red; but only the bottom of every pimple is terminated by a ruddy, circular, border. This redness and tension of the skin are always attended with some degree of swelling, and hold till every pimple becomes a little imposthume; for, as soon as this comes to pass, the redness abates, the swelling subsides, and the sensations arising

(*f*) Sydenham, sect. III. cap. 2, pag. 164.

(*g*) Ibid.

arising from it become less painful. When the face happens to be much covered with pimples, it swells greatly; the eye-lids especially become so inflated, that there is no opening them; and sometimes the lips puff up to a surprising degree. Hence we may easily guess, what mischief must attend the settling of the pimples on the internal parts of the throat, and of course making the neighbouring parts swell, in this stage of the disorder; the deglutition is sometimes entirely obstructed; and then suffocation is greatly to be feared. Hence, too, it appears, that, in this case, the inflammation, not being resolved, is succeeded by a regular generation of pus; in this perfectly agreeing with the axiom of *Hippocrates*, already mentioned in the commentary on the 387th aphorism: *Circa puris generationes dolores et febres magis accidunt, quam pure facto.* “Pains
“ and fevers happen oftener during the genera-
“ tion of the pus, than after it.” For, as soon as the pimples turn to so many abscesses, all the symptoms, produced by the inflammation, begin to abate.

This is called the second stage of the small-pox; that stage, which begins with the eruption, and terminates with the suppuration, of the pimples. But, as the stage of contagion is not of the same duration in every patient, so neither is this second stage; for, sometimes the small-pox, though it prevails epidemically, is of a mild and kindly nature; and then the pimples quickly suppurate, dry up, and fall off: at other times, when the disorder happens to be of a bad nature, it is quite the reverse. For, if the pimples happen to be small, numerous, and confluent, then the face swells and becomes inflamed much sooner, than in the distinct and mild sort; and the pimples

pimples themselves take up more time to suppurate. But I have already spoken, in my commentary on the 1381st and 1385th aphorisms, of the great variety which may arise, in the small-pox, from varieties in the habit of the patients, and in them the method of treating. In the distinct small-pox, the suppuration generally falls on the eighth day, from the very beginning of the disorder; for which reason *Sydenham* used to look upon it as the most troublesome and dangerous day of the whole disorder (*b*). Hence an opinion has prevailed with the common people, that no patient has any thing to fear, who has got over that day, and reached the ninth; a maxim, which, though it sufficiently corresponds with observations, in the distinct and mild sort of small-pox, is very false with regard to the confluent kind, in which there is just reason, as will hereafter appear, to apprehend a fatal issue for several days after that period.

It has been already sufficiently shewn, in the 1384th, 1386th, and 1387th sections, that the small-pox is an inflammatory disorder. I spoke at the same time of the malignant kind of small-pox, which does not appear possessed of any tendency to impart an inflammatory siveness of the blood. But, as this kind of small-pox is not often to be met with, we may safely, I should imagine, lay it down as a general rule; that the blood becomes more and more inflamed, in proportion to the duration of the disorder; and that, of course, in this second stage of the disorder, and especially toward the end of it, that fluid must be highly inflamed; as has evidently appeared, as often as
any

(*b*) *Sydenham*, *ibid.* pag. 171.

any alarming symptoms made it necessary to bleed. On these occasions, the blood so obtained put on as thick and bacon-like a crust, as it could do in the most violent pleurisy. This is likewise proved by the ophthalmiæ, anginæ, rheumatisms, and other inflammatory disorders, which often succeed the small-pox (*i*).

S E C T. MCCCXCVII.

WHEN the small-pox proves very heavy in the stage of contagion; (1383 to 1386) the pimples numerous, close to each other, and, as it were, intermixed; all the signs of an inflammation great; and that in a subject of a salino oleose habit, in the prime of life, and a very high liver. When, besides, the regimen and remedies have been such as must greatly encrease the velocity of the blood, and the weather, withal, very warm; then, towards the end of the inflammation, there will arise vesicles full of a reddish lymph, betokening a gangrenous disposition (427 No 5): hence the skin becomes unfit for circulation and exhalation; hence arises a repulsion of the humours to the interior parts; hence, an excessive flow of the saliva, with a great swelling in the hands and feet.

The symptoms, which generally attend the first stage of the small-pox, the stage of contagion,

(*i*) Huxham, an Essay on fevers, &c. page 158.

gion, have been already enumerated in the 1383d aphorism; when these symptoms happen to be very violent, the pimples come out, sometimes on the second, but oftener on the third day; but they differ widely from those peculiar to the mild kind of small-pox. Sydenham has very well remarked, *Quod, nunc erysipelatis ritu, nunc morbillorum, erumpunt, a quibus nonnisi a medico in his morbis versatissimo distinguuntur, saltem quoad faciam externam*: “ that, at one time they break
 “ out in the manner of an erysipelas; another,
 “ in that of the meazles, from which he must be
 “ a physician well acquainted with the small-
 “ pox that can distinguish them, at least with re-
 “ gard to outward appearances (k).” I have more than once seen the worst kind of small-pox pimples mistaken for those of the meazles, and that too by physicians; particularly, when both disorders happened to prevail at one and the same time; which is now and then the case; but it is generally in the face that such deceitful pimples appear; those, which occupy the hands and feet, are almost always larger, than those of the meazles, and may be easily distinguished from them; whereas those on the face scarce surpass in size, the minutest grains of sand; but then they are so exceedingly numerous, as to appear not only barely contiguous, but interwoven, as it were, one with another; whence the whole face becomes of an almost equal redness, and immediately begins to swell. In this case, all distinction between the pimples vanishes by degrees, till at length the face comes to be one entire scab, in consequence of all those on it running into one another; the thing
 from

(k) Sect. III, cap. 2, pag. 166.

from which this kind of small-pox has had its name of the confluent small-pox; that being called the distinct kind, in which some interval may be always perceived between the pimples.

This seems to have been the reason, why, when the Queen of England happened to be seized with a small pox of the very worst kind, her physicians could not agree about the nature of it: some said it was the small-pox she was breeding; others, the meazles. *Harris* was of opinion, that the two disorders had attacked her with their combined forces, affirming, that he had often known it to be the case; at the same time, however, he acknowledged, that there was no such case upon record, and that, perhaps, no other physician had ever observed it (*l*). But, if we consider all the circumstances attending this illness of his royal patient, it will appear pretty evident, that her small-pox, by being of the confluent and worst kind, led her physicians astray, during the eruption. The Queen, it seems, by the advice of *Lower*, who was now no more, had made a practice of taking the treacle of *Andromachus*, and that very freely, to promote sweating, as often as she found herself any way indisposed. Accordingly, on the evening of the very day on which she was taken ill, she took a dose of it; and, this not having the desired effect, she next morning took a double dose, before she sent for her physicians; on the third day, there appeared those pimples, which her physicians were so much at a loss what disorder to refer to, the small-pox or the meazles; on the fourth day, they shewed themselves in their own proper distinct

(*l*) Observat. de Morbis aliquot. gravior. pag. 15.

tinct form, as small-pox pimples, on the face, and every part of the body (*m*); by the sixth day, that kind of erysipelas, called *Rosa*, had made her face swell, the pimples which first broke out giving way to it, (but we know for certain, that, in the worst kind of confluent small-pox, the pimples are apt to look so, as *Sydenham* has well observed): These were succeeded by petechiæ, an hæmoptysis, bloody urine, all deadly symptoms of the worst kind of small-pox; and accordingly, her majesty died on the eighth day.

Every one, I believe, who reads the description of this fatal illness, must agree, that our very celebrated author has given the symptoms of it a little turn, to make them suit his hypothesis concerning the simultaneous concurrence of the small-pox and meazles. This might have had its use in apologizing for the mistake of the physicians with regard to the diagnosis of the disorder; but it does not by any means prove the truth of the thing itself.

Diembroeck has a case, in which he imagined the small-pox and meazles took possession of the body, at one and the same time (*n*). But, on considering attentively the whole of his account, there will appear, I fancy, some reason to suspect, that they were only miliary pimples, and not those of the meazles, which broke out on the skin, between the genuine pimples of the small-pox. The patient was a stout young man; the disorder began with a quick, small, unequal pulse, a great anxiety, sleepiness, &c. symptoms, which sufficiently indicated the malignity of the disorder

(*m*) Ibid. pag. 16.

(*n*) De Variol. et Morbil. pag. 302.

disorder he was breeding. Accordingly, though the pimples came out all over him, in great abundance, his fever and anxiety still continued; on the seventh day of the disorder, every part of his skin between the small-pox pimples appeared full of others; and at the same time the fever and other symptoms abated. Now, it is well known, that, in the meazles, when the pimples come out, the symptoms neither totally cease, nor even abate considerably, as it happens when the pimples come out in the small-pox; but that the fever rather encreases, as *Sydenham* has very justly remarked (*o*). If, therefore, this young man had both the small-pox and the meazles together, his fever, instead of decreasing, should have encreased, on the pimples peculiar to the latter making their appearance. Besides, it appears from observation, that, in the small-pox, especially when attended with any bad symptoms, the body is, on the seventh day, often covered with miliary exanthæmata; a thing which likewise happens in several other diseases.

Were the meazles ever to accompany the small-pox, it must certainly have been in the case mentioned in the 1382d section, in which, on the seventh day after the patient had been inoculated for the small-pox, the meazle pimples came out without any small-pox pimples; and, after the meazles, a new fever kindled in the body, and the small-pox made its appearance, and favourably performed its usual course. These circumstances, I must own, have made me suspect, that some physicians, however great in other respects, have been mistaken in the diagnosis of this disorder.

(*o*) Sect. IV. cap. 5, pag. 245.

disorder. *Friend*, who had seen such things happen, had the caution to call these pimples, *papulas rubras, morbillorum instar, fere intra cutim hærentes: aliquæ tamen ita exstabant, ut tuberculi alicujus speciem referrent*: “Red pimples, resembling
 “ those of the measles, almost buried under the
 “ skin: some of them, however, projecting
 “ enough, to look a little like warts (*n*).” It likewise looks, as if these miliary exanthemata were red; and this appears so much the more probable, as he tells us he had met with miliary pimples full of a white lymph, as well as those juiceless dry ones, which sometimes occur; for he says, *Nonnumquam pustulis, tum varucosis, tum cbyrstillinis, aliquando et corneis, reperiuntur interstinctæ, Sed hic fere naturæ lusus humorum cruditatem arguit, graviolemque morbum significat*:
 “ Sometime they are found intermixed with pim-
 “ ples, as well of the wart as the transparent kind,
 “ and now and then with some of a horny nature.
 “ But this, which is little better than a *lusus*
 “ *naturæ*, is no more than a proof of the crudity
 “ of the humours, and the dangerousness of the
 “ disorder (*q*).”

Hence it appears, how circumspect a physician must be, not to be mistaken in the diagnosis of the worst kind of small-pox.

From what I said in my commentary on the 1386th aphorism, it must sufficiently appear, that the small-pox pimples are inflammatory; and that, therefore, this disorder may be attended with all the different consequences of an inflammation. In my commentary on the 388th aphorism, I

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pointed

(*p*) De Purgant. in secund. variol. febre, &c. pag. 49.

(*q*) Idid. pag. 50.

pointed out the circumstances which usually attend an inflammation, which terminates in a gangrene; and they resemble those, enumerated in this place. For, should the humours happen to be of a sharp nature in themselves; and be, besides, hurried about by a very violent fever, aggravated by a warm regimen, warm remedies, and sultry weather, it is impossible the inflammation should not terminate in a gangrene. I have spoken already, in my commentary on the 1385th and 1386th aphorisms, of those vesicles which betoken that terrible state. *Rhazes* had already taken notice, that, in lean bilious warm and dry habits, the small pox pimples prove *pravas admodum, enormes fallaces, siccas, cum putrefactione, et absque maturatione*: “of very bad kind, exceedingly large, dry, and treacherous; that they always putrify, and never ripen (r).” Hence it appears, why the physicians, most celebrated for their success in the treatment of the small-pox, have so much dreaded a scarlet colour in the skin, as the fore-runner of an universal inflammation in this disorder (s).

Now, as, in this kind of small-pox, the whole skin, especially that of the face, is over-run with pimples, without number, and these very close to each other, hence, all the cutaneous vessels come to be obstructed; the consequence of which must be a greater impetus in the humours through all the vessels under the skin, which still remain unobstructed: it is to this circumstance, and not without great shew of reason, that physicians

(r) Mead de Variol. et Morbill. pag. 116.

(s) Lobb of the small-pox, page 110. Hillary's Essay on the small-pox, page 164.

ficians generally attribute the copious excretion of saliva, and great swellings in the hands and feet, at a certain period of the small-pox. Still, it must be owned, that the spitting sometimes begins along with the eruption of the pimples, and, of course, before it can be supposed, that all the cutaneous vessels are stuffed up (*t*); a circumstance, I myself have often met with in the course of my practice. Besides, *Sydenham* has observed, with regard to the small-pox which he calls anomalous on that account, *quod nonnunquam, licet rarius, ægrum, etiam paucissimis notatum pustulis, ptyalismus baud secus atque in confluentibus, exerceret*: "That sometimes, though seldom, persons ill of the distinct small-pox, spitted as much as others, who had it confluent (*u*)."
I have seen, myself, some cases of the same kind; but then the disorder proved more troublesome than there was reason to expect, considering the fewness of the pimples; and the pimples grew black as they dried up, and left pretty deep pits behind them; a thing which seldom occurs, when the pimples happen to be both few and distinct.

Sydenham likewise takes notice, that, at those times when the small-pox prevails most, there is to be met with, here and there, a flying fever, which, all to the eruption of pimples, and the natural consequences of it, is attended with the very same symptoms as the small-pox, the copious exertion of saliva not excepted; for which reason he called this kind of disorder, a small-pox

Q 2

fever

(*t*) Lobb of the small-pox, page 8;

(*u*) Sect. IV. cap 6, page 251.

fever without eruptions (*w*), being that I have already taken notice of in my commentary on the 1387th aphorism. It is not, therefore, so very probable, that the spitting, which sometimes attends the small-pox, is always owing to the repulsion of the humours to the interior parts of the body, in consequence of an obstruction in the cutaneous vessels; it is nothing more, perhaps, than a partial evacuation of the morbose matter by the excretory ducts of the salival glands; for, it appears from observation, that spitting is generally attended with great relief to the sick; and that, on the other hand, the suppressing of it usually proves very detrimental to them.

For, it must have sufficiently appeared from what has been already said of several other diseases, that nature affects different methods in driving the morbid matter, in part, or in whole, out of the human body; and that physicians, the ministers of nature, must assist these her endeavours, if they wish to succeed in the practice of their profession. Spitting, therefore, and swellings in the hands and feet, ought, it seems, to be numbered amongst those salutary efforts of indignant nature, the observation of which may be of great use, though no clear reason can be assigned, *a priori*, why she should expel from the body, what is not fit to be left in it, by this, or that way in particular, rather than any other.

S E C T.

(*w*) Sect. I. cap. 2, pag. 50.

S E C T. MCCCXCVIII.

FROM these circumstances the diagnosis and prognosis of the second state is known; and the nature of the disorder and all its symptoms may be guessed at, as almost confined to the following rules.

The milder the state of contagion has been the more gentle will that of inflammation be.

From what has been already said concerning the diagnosis of the small-pox, when actually present, and of its degree of violence, as well as concerning its prognosis, as far as such prognosis teaches us what we are to fear during the remaining stages of the disorder, are to be deduced certain rules, which I shall now, separately, consider.

We call sickness, that state of a living body, in which it is deprived of the power of exercising any action whatsoever (*x*). The more functions, therefore, are hurt by any disorder, and the greater the hurt, the worse must that disorder be thought of by the physician, especially if any of the vital functions happen to be much disturbed. In my commentary on the 1382d aphorism, I enumerated the effects which may be observed, on the variolous contagion beginning to disturb an hitherto healthy body: now, the lighter all these symptoms of the incipient small-pox, the happier prognosis may be formed of it. It has been observed, that in some,

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though

(*x*) H. B. Institut. Med. Sect. 696.

though indeed very few patients, their functions have been so little disturbed, that they knew nothing of their having it, till the pimples came out to inform them; but, in such cases, all the remaining course of the disorder is generally very gentle. I have, however, taken notice in the preceding pages, that sometimes the stage of contagion, though not attended with any violent fever, or intense heat, is yet very far from being free from danger; the disorder in that case, not exerting itself to inflame the body, but immediately prostrate the vital powers; but no physician of any skill will suffer himself to be deceived by such a fallacious appearance of gentleness, when he finds it attended by a small, quick, unequal pulse, a perpetual uneasiness about the præcordia, and a chilliness in the extremities; in this case, though every thing else may look well, he will be able to prognosticate a very dangerous small-pox.

The slower the pimples are in appearing, and the longer, of course, the stage of contagion, the lighter the disorder.

This lesson cannot be too much inculcated, as the contrary opinion does so much mischief by making the ignorant and unthinking hurry as much as possible the eruption of the pimples, by using a warm regimen and alexipharmic remedies; loading the poor patients with blankets, and stifling them in close and hot rooms; for it is evident, from daily observation, that, in the small-pox, the sooner the pimples come out, the more numerous and confluent they are likely to prove: concerning which, I must refer the reader to what I have already said on the subject, in my commentary on the 1385th aphorism.

The fewer, the better parted, the larger, the more remote from the face, the whiter, and then yellower, the pimples are, and the slower their progress, the better.

As many mischiefs may arise, even from the pus of the suppurated pimples, when it happens to be in any great quantity, as I shall hereafter shew in my commentary on the 1400th aphorism, it evidently follows, that the smaller the number of pimples, the less reason there must be to dread any evil consequences from them. Now, if they are but few, and scattered over different parts of the body, they cannot but be at a distance one from the other. The small-pox, therefore, attended with such pimples, *Sydenham* called the distinct or interdistinct small-pox, on account of the considerable space left between the pimples, when placed in that manner (y). Moreover, all the symptoms, which usually attend the inflammation of the pimples and the adjacent skin, and which have been already treated of in the 1346th section, are milder, when the number of pimples happens to be small. Now, in this distinct and mild small-pox, the pimples generally grow to a considerable size, in so much that *Sydenham* assures us he has sometimes seen them of the size of a pretty big pea (z); and I myself have seen the same thing, when there happened not to be above thirty of them on the whole body; but then, they were all of them remarkably large. In this case, all the symptoms of the disorder are very mild, and the functions of the body but little disturbed; a thing, which

Q 4

cannot

(y) Sect. III, cap. 2, pag. 161.

(z) Ibid. pag. 146.

cannot be too much attended to in the prognosis. For, if the small-pox, notwithstanding the fewness and distinctness of the pimples, is attended with bad symptoms, it will be only the more dangerous; especially if the patient complains of an intolerable anxiety, and a prostration of the vital powers. *Morton* had two girls under his care in one house, both ill of a distinct small-pox, and that, too, unattended with any violent symptoms, except a perpetual want of sleep. This alone, however, he looked upon as a sufficient sign, that the disorder would prove dangerous; as it accordingly did; for, after the appearance of miliary pimples, and livid spots in the interstices of the pimples, both died before the pimples, peculiar to the disorder itself, came to be ripe (*a*). This doctrine is confirmed by the observations of *Huxham* (*b*), as I have already taken notice in my commentary on the 1387th aphorism. I myself have seen livid spots, interspersed, in a distinct small-pox, between the genuine pimples of the disorder; and in that case death soon followed. Hence it appears, that the fewness of the pimples then only portends a happy issue of the small-pox, when it is not attended with any bad symptoms.

It is likewise a happy circumstance in the prognosis, if the pimples lie at a distance from the face, because the face is the part in which they give most trouble, and are aptest to leave pits behind them; which, however, are seldom many or deep in the distinct and mild kind of small-pox. I shall presently speak of the evils that are

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(*a*) *Pyretolog.* cap. 2, pag. 171.

(*b*) *An Essay on Fevers*, page 131.

to be dreaded, when the face happens to be much covered with pimples.

When the pimples on the face begin to grow ripe, from being smooth to the touch, they become rough; grow white; and then, by degrees, turn yellow: but the pimples on the hands and feet seldom turn yellow, but retain their original whiteness to the last (c).

A leisurely eruption of the pimples is looked upon as an happy circumstance, as I have already taken notice; but it is not so with regard to their ripening; for the less crudity the morbose matter has in it, the sooner and more easily will it turn to a concocted pus. *Sydenham*, in his remarks on the bad kind of small-pox, which prevailed epidemically in London, in the years 1674, and 1675, which he styles anomalous, as differing greatly from the regular small-pox, which he had seen a few years before, and most exactly described, takes particular notice, that the pimples in it not only were possessed of a greater degree of putrefaction, besides emitting a very offensive smell, but took a much longer time to perform their course, and stuck longer to the body (d). Hence he concluded: *Quod quanto minor est morbi species, tanto citius pustulae ad maturitatem, atque morbus ad finem perducitur*: “That the slighter the nature of the disorder, “the sooner will the pimples come to maturity, “and the disorder itself to an end.” This is confirmed by *Morton* (e), though he differs widely,

(c) *Sydenham*, Sect. III. cap 2, pag. 164.

(d) Sect. V. cap. 4, pag. 294, 295.

(e) *Pyretolog.* cap. 9, pag. 95.

widely, in many things, from *Sydenham*, with regard to the small-pox. Nay, he declares he has known pimples in the small-pox, after a long struggle between nature and the disorder, not to ripen till the seventeenth or eighteenth day. For my part, I have very often seen, in a very mild kind of small-pox, all the pimples ripened, dried up, nay, and fallen off, by the ninth.

The more numerous and intermixed the pimples are; the smaller every pimple in itself; the longer they stick on the face; and the browner or blacker their colour; and the quicker their course; the worse the disorder.

The more numerous the pimples are, the more troublesome the symptoms attending the inflammation and suppuratin must be, and the nearer, likewise, must they be to each other; for which reason the surface of the skin will be entirely inflamed, as has been already set forth in the preceding paragraph; and all the evils there enumerated are to be dreaded. Hence it was, that *Sydenham* ever looked upon a great number of pimples as a bad sign of the disorder's ending well (*f*). Now, when the pimples are not only in great numbers, but lie contiguous to each other, it is impossible they should long continue distinct; the intervals between them must vanish, as they come to spread, especially in the face, which will then look as if it was covered with a red hide; then turn white; next, brown; and often, at length, black, when the disorder happens to prove of a very bad kind. This kind of small-pox *Sydenham* stiled the *Confluent* small-

(*f*) *Dissertat. Epistol. pag. 444.*

small-pox (*g*): and, in his opinion, it as much exceeds, in point of danger, the distinct small-pox, as it is, itself, exceeded by the plague; not but that he acknowledges different degrees of malignity in this confluent small-pox, and that in proportion to the time the pimples take to ripen. It sometimes happens, that, though they come out in great numbers, it is only here and there they run into each other, there still remaining every where else, some, though small, intervals, between them. Some physicians, it seems, have doubted, whether a small-pox of this kind ought to be stiled confluent or not? *Friend* chose to call it the *cobærent* small-pox (*b*); still, he acknowledges, that *a confluentium natura ita parum abhorreant, ut eadem fere sui signa præbeant, eandemque plane, maturescendi tempore, febrim accendant*: “in its nature, it differs so little from the
 “confluent kind of small-pox, as to be attended
 “with almost the same signs; and, on the
 “pimples becoming ripe, kindle exactly the
 “same kind of fever in the body.” *Lobb* was for calling it the confluent small-pox, though the pimples ran into each other but here and there, in a few places (*i*). Be that as it will, I have sometimes seen the pimples, in a distinct and mild small-pox, so perfectly united in some few parts of the body, as not to leave the least intermediate space between them; so that this, by the same rule, might be stiled a confluent small-pox, though it differed so widely from the confluent kind of *Sydenham*; but this seems rather

(*g*) Sect. III. cap. 2, pag. 188. Dissertat. Epistol. pag. 444.

(*b*) In Epistola præfixa tractata. de purgant. in secunda. Variol. Conf. specie, &c.

(*i*) Of the small-pox in præfat. p. 14.

ther absurd. Seeing, however, as *Friend* has very judiciously observed, that both the coherent and confluent kinds of small-pox, though very different from each other in other respects, require the self same method of treatment, we must allow, that it is not without a great shew of reason he concludes, *Quod periculi imminet, non tam ab ipso pustularum genere, quam a numero, prorsus oritur: qui quidem si ingens fuerit, idem de rei exitu timor subesse debet, sive confluxerint sive non:* “ The danger, in this case, does not by any
 “ means rise so much from the nature of the
 “ pimples, as the number of them; for, when
 “ this happens to be very considerable, let them
 “ run into each other or not, there is equal reason
 “ to dread the issue (*k*).”

It was, perhaps, for this reason, [as I have already taken notice in my commentary on the 1384th aphorism, that *Mead* chose to divide the small-pox into simple and malignant, rather than into distinct and confluent; in consequence of his having sometimes seen the distinct kind prove very dangerous, even when not attended with many pimples (*l*); as I have just now hinted.

But, it is pretty constantly observed, that, in the mild kind of small-pox, the pimples grow to a pretty large size; and that, on the other hand, they are rather small, when the disorder, though distinct, happens to be of a malignant nature. Hence, small pimples are generally looked upon as no good omen by physicians, especially when, besides being small, they appear flat and set, and rise but a little way above the skin; and, notwithstanding

(*k*) In Epistola modo citata.

(*l*) De Variol. et Morbil. pag. 19.

withstanding this last circumstance, do not terminate in points, but are sunk a little at their tops. As often as this happened to be the case with any of my patients, I found the disorder prove pretty dangerous; and observed, on its taking a turn for the better, that the pimples grew higher, and the little pits in them disappeared.

What *Friend* says (*m*), is, no doubt, true; *viz.* that, to draw a presage with any certainty, in the small-pox, we are not to depend so much on the number of the pimples on the face, as to overlook those on the other parts of the body. Nevertheless, it cannot be denied, that there is reason to apprehend more trouble, and even greater danger, when the pimples lie thick on the face, than when they lie thick on other parts of the body. The want of rest, pains in the head, and deliriums, are apt to be more violent, when the whole face is inflamed and swelled; and, of course, the blood bears harder against the internal vessels of the head, on account of the external ones being become less pervious to it. Besides, it seldom happens that the face is covered with any great number of pimples, without the inside of the nose and throat being likewise overrun with them. Add, that the sight is sometimes injured by their fastening on the eye-lids, especially the inside of these tender parts. Nor, does there appear any improbability in the opinion, that the sharpest and most volatile parts of every kind of morbose matter tend to the upper parts of the human body (*n*). The running ulcers in
the

(*m*) In *Epistol. modo citata.*

(*n*) *Kirkpatrick of Inoculation, page 154.*

the heads of infants, the pimples which come out on the lips and nose in vernal intermittent fevers, and many other things of the same nature, seem sufficient to prove it. I know several persons, who are constantly troubled, every spring, with a fever, an oppression of the chest, and a wheezing; and then with pimples on the face, shedding a sharp lymph, which quickly dries up into yellow scabs; upon which the fever ceases, and the chest grows easy. There are still further reasons to prove, that this is likewise the case with regard to the small-pox, as it is apt to leave ugly pits and scars on the face, when scarce any traces of it can be found elsewhere; and, as when the pimples come out on the face, all the symptoms grow lighter, though several more pimples afterwards break out on the other parts. All these circumstances, taken together, seem to prove, that, when the pimples happen to be in great numbers on the face, it denotes an abundance of the sharpest part of the morbose matter, and a more dangerous disorder. *Sydenham* found, by an attentive study of the small-pox, that the principal prognosis of the issue of the disorder is to be deduced from the greater or smaller number of the the pimples in the face; *quæ si his tanquam injecta arena ubique contegatur, ut paucæ et discretæ sint eæ, quæ in reliquo corpore cernuntur, haud minus periclitatur æger quam si membra omnia denso agmine pervaserint; atque ex adverso, quantum libet spisse truncum, et artus, occupaverint, si in facie variores comparuerint, magis in vado res est.* “ For, when the face happens to be all over covered with pimples, as if small sand had been thrown into it, the patient is to be deemed in as dangerous a way, as if all his limbs were loaded with them: whereas, on the other hand,

“ hand, if the face happens to have but few
 “ pimples on it, it little matters how many the
 “ trunk and members have; we may then entertain
 “ much better hopes of the patient’s doing
 “ well (o).” And the longer this great man
 lived, the better he thought of this his doctrine ;
 for, he, after this, writes ; *Quanto magis medicus,*
ubi, primis morbi diebus ægrum invisens, faciem
adinstar pulveris e limatura acicularum undique
respersam contemplabitur, mortem prædicet, &c.
ut ut belle se habere æger, et sibi videatur, et adstan-
tibus : “ The more a physician shall, in the
 “ first days of the disorder, find his patient’s face
 “ covered, as it were, with the dust produced
 “ by the filing of small needles, the more reason
 “ will he have to despair of his recovery, let the
 “ patient himself, as well as those about him,
 “ think ever so well of the matter (p).” I have
 often experienced the truth of this observation in
 the course of my practice.

In the mild and distinct small-pox, as I have
 already taken notice, the pimples, which were at
 first red, grow white as they suppurate ; and,
 when they begin to dry up, turn to a brown co-
 lour ; after which, they immediately fall off. In
 the confluent small-pox, the whole face is, on the
 eleventh day, covered, as it were, with a piece
 of white leather, which turns browner and browner
 by degrees, and at last dries up.

But sometimes the epidemical constitution of
 the small-pox happens to be such, as to make the
 disorder prove, in general, of a much worse na-
 ture : *Mead*, as I have already taken notice,
 called this kind of small-pox *malignant* ; *Sydenham*
 styled

(o) Sect. III. cap. 2. pag. 168.

(p) *Dissertat. Epistol.* pag. 445.

stiled it *anomalous*, as it did not tally exactly with the small-pox of the preceding constitution, which he has so exactly described (*q*); for, the pimples came out on the third day; were of a smaller size; and, towards the last days of the disorder, when they had attained their maturity, put on a black colour; whereas, in the confluent small-pox, the whole face appeared, on the eleventh day, covered with a white pellicle, which cracked, and discharged an humour, not unlike concremented blood; and this humour grew blacker from day to day, till, at last, the face became a most shocking sight, looking, as if covered with very black soot; and emitted, besides, a most intolerable stench; nor could the patients be pronounced out of danger, even after reaching the twentieth day. This species of small-pox carried off numbers; few got over it; those who did, had to struggle with the very troublesome relicks of it for a long time; such as pains in the limbs, imposthumes, &c. I myself have sometimes had the misfortune to be a witness to their sufferings. These very black scabs might be said to stick in the skin, rather than to it; and, when they at length separated from it, left very ugly scars behind them. Nay, I have seen the same blackness and horrid stench attend the distinct small-pox; and several died of the disorder, their bodies becoming one entire uniform pool of putrefaction. Hence that blackness may with great reason be considered as an unhappy omen.

In this kind of small-pox, the pimples come out quicker, than in the mild kind; but they are
are

(*q*) Sect. IV. cap. 6, pag. 250. and Sect. V. cap. 4. pag. 294.

are slower in performing the rest of their course; and the poor patient continues much longer in danger, as I have already observed.

The more the matter of the pimples resembles a gangrenous ichor, the worse.

The small-pox pimples, as I have already observed, are so many inflamed pimples; and, if they cannot be resolved, then, all the consequences of an unresolved inflammation are to be expected. But since, as has been already said, in the *History of an Inflammation*, the most desirable turn an inflammation can take, next to a resolution, is a supuration; and the worst, by far, a gangrene; the same, it is obvious, must be true of the small-pox, with this accession of danger; that, if the pimples happen to be numerous, some part of the matter contained in them must be resorbed by the veins, and light up a fever, as will be explained in the 1400th section; and this circumstance will be so much the more dangerous, as the matter thus resorbed resembles the gangrenous ichor.

Besides, several eminent physicians have observed, that the danger attending this resorption will be always greater or less in proportion to the greater or less difference between the matter resorbed and perfect pus, even though that matter should bear no resemblance to the ichor of a gangrene. *Habnius* tells us, he has seen the pimples, in the small-pox, turgid with a scarlet coloured humour, scattered all over the body, and shedding a florid blood, instead of pus (*r*). *Mead* observed the same thing, as I have already taken notice in my commentary on the 1384th aphorism; but it

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was

(*r*) Variol. Antiquit. cap. 5, pag. 65.

was always attended with very great danger. *Friend* tells us, that the small-pox generally proves dangerous, when the pimples are either chryftalline, or filiquous, or warthy (*s*). Now, he called those pimples chryftalline, which, instead of a thick concocted pus, contained nothing but a thin, pale, pellucid humour; such as *Mead* likewise saw, both in the distinct and confluent small-pox (*t*). I have myself sometimes seen, in the latter, along with pimples full of good pus, some, which contained a transparent lymph. *Friend* met with some filiquous ones, which had no humour at all in them, and looked like so many soft, round, hollow vesicles (*u*). These *Mead* was for classing with the chryftalline ones, from an opinion, that their emptiness was owing to the already extruded lymph immediately escaping them; partly, by transudation through the skin; and partly, by resorption into the vessels, which circulate the lymph (*w*). *Lobb* has seen these filiquous and empty pimples fill afterwards with a laudable pus, on the disorder's taking a turn for the better (*x*). The warthy pimples, so called from their resembling warts in hardness and prominency, have been likewise long since observed, and condemned as deadly signs, by *Rhazes*, especially if the patient, instead of mending, grows worse after the eruption of the pimples (*y*). Pimples of this kind are seldom to be met with; however, I have seen them twice; and they were, both times, attended with very bad symptoms, which proved the fore-runners of death: still, they

(*s*) Epist. de quibusd. Variol. Gener. pag. 65.

(*t*) De Variol. et Morbil. pag. 21.

(*u*) In Epist. modo citata.

(*w*) De Variol. et Morbil. page 23.

(*x*) Of the Small-Pox, pag. 292.

(*y*) Mead de Variol. et Morbil. pag. 162.

they were distinct, and came out later than usual; for, in one of the patients, they did not come out till the fifth day; and, in the other, not till the seventh.

It is, therefore, evident, that, in every small-pox of a good kind, the pimples contain a matter resembling pus; and that there is always danger, when it does not.

The redder and hotter, the more tense and tumefied, the intervals between the pimples, about the time of the abscess, the better hopes we may entertain of the patient's doing well, in consequence of the circulation's still continuing unobstructed in these parts.

Of these circumstances I have spoken already, in my commentary on the 1396th aphorism. For, a suppuration now ensues; and, while this suppuration lasts, all the symptoms of an inflammation will be on the increase; and, when it is once perfect, they all abate. Hence this redness of the skin between the pimples was deemed a good omen by *Sydenham*, as I have already observed.

The paler or browner these intervals turn out, the worse; a mortal angina, or peripneumonia, follows, unless prevented by a discharge of thin saliva, or a great swelling in the hands and feet; the reason is: the circulation of the humours, here obstructed, is, of course, increased towards the interior parts of the body.

I already took notice, in the 388th and 427th sections, in which I treated of gangrenes consequent to inflammations, that the redness in the parts inflamed is succeeded by a pale or ash colour; and that these parts, which were till now tense

hard, become flabby and soft. I likewise took notice, that this pale colour, on the parts inflamed growing worse, changes to a brown, or even black. Now, this is a gangrene (see Sect. 419), or that affection of a soft part, which, in consequence of the influx of the vital humours into the arteries, and their efflux by the veins being abolished, tends to death. It is, therefore, no way surprising, that *Sydenham* should consider the intervals between the pimples growing pale in the very height of the disorder, as a very deadly omen (z). When this happens, it is generally on the eighth day, in the distinct small-pox; and, on the eleventh, in the confluent. The sweating, to which grown up persons are pretty prone in the distinct small-pox, suddenly goes off; there ensues a great anxiety, a delirium, a spare but frequent urine; and, within a few hours, death; though the patient's friends, and even his physicians, should look for a quite contrary turn. In the confluent small-pox, the same things happen on the eleventh day; the spitting suddenly ceases; the face, before enormously swelled, suddenly subsides; the saliva, which was heretofore thin, and could be easily spit out, becomes thick and viscid, sticks in the throat, and hinders deglutition; the voice becomes hoarse; sometimes, the patient grows very furious; sometimes, only stupid; till death puts an end to his misery. These sudden and unhappy catastrophes are most to be dreaded, when copious sweats, wrung out of the body by hot remedies, and heaped blankets, have robbed the blood of its diluting vehicle. The vulgar, on these

(z) Sect. I. cap. 5, pag. 126, 127, et Sect. III. cap. 2. pag. 170.

these occasions, will have it, that, if the pimples disappear, it is only on account of their sinking back into the flesh; and hence pretend to account for the patient's death; to which, however, they often add another cause; viz. the cold air having been indiscreetly suffered to get at him. But Sydenham, has very well observed, that *albescant interstitia, licet interim rubescant pustulæ atque eleventur, etiam post ægri mortem*: "The intervals between the pimples may be white, though the pimples themselves are high and red, even after the patient's death (a)." This happens chiefly in the distinct small-pox; for, in the confluent small-pox, there is no seeing the face, on account of its being all over but one scab; it is merely because the face, hitherto enormously swelled, suddenly subsides, they are led to believe, that the pimples are gone in. We are, however, to observe, that, in the confluent small-pox, the face begins to subside after the eleventh day, but not suddenly; and then, too, a watry spitting is apt to succeed, or great swellings in the hands, and, sometimes, likewise in the feet. Sydenham deemed those in the hands, if considerable, of so much consequence, as to think that by them alone several have been snatched from the very jaws of death (b). But, as the face is then most swelled, when the suppurating pimples upon it have attained their perfect maturity; and, as the pimples on the limbs suppurate much later, viz. not till those on the face begin to dry up; hence we may gather, why the swelling of the hands and feet is to be deemed so happy an omen; for, of itself, it shews, that the vital powers have strength enough left to convert the morbose matter into laudable pus;

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convert

(a) Ibid et pag. 194 & 689.

(b) Ibid. 190, & 172.

and, along with the tension, that these parts are still free from any gangrene. As to the repulsion of the humours towards the interior parts of the body being the cause of these spittings and swellings, I have already spoken of that matter in the preceding paragraph.

When purple spots appear on the parts of the skin between the pimples, it is a sign of a mortal gangrene.

What a bad omen purple spots are to be held, in feverish disorders, has been already explained in the Commentary on the 723d Aphorism. Hence *Sydenham* condemned them, *tamquam mortis fere prænuuncias*; “as almost always the forerunners of death (*c*);” as they betoken a gangrenous disposition in the blood, and have never been found to accompany any small-pox but such as proved, in the event, of the worst kind. He has however known them to vanish, when they proceeded merely from the excessive feverish hurry of the blood, as soon as that hurry was checked (*d*). We have another case, in which a patient, who had these spots upon him, recovered, notwithstanding (*e*). After all, it is the general opinion amongst physicians, that these spots indicate a very dangerous disorder; and, in the variolous fever, such spots have been observed, even before the small-pox pimples themselves made their appearance; and the issue was a speedy death (*f*).

There sometimes break out, intermixed with the small-pox pimples, miliary exanthemata, both red and white. Though no eruptions of this kind can

(*c*) Sect. III, cap. 2, pag. 173.

(*d*) Ibid. pag. 197.

(*e*) Lobb, of the Small-pox, page 262.

(*f*) Ibid. page 373, 380.

worth attending to, still, means should be used to render the suppuration as slight and as late, and keep it at as great a distance from the head, as possible; which is effected, First, by a very spare diet, and that consisting of such things as resist putrefaction: Secondly, mild, diluting, subacidulous drinks; Thirdly, a free and constant use of antipytic, aperient, diluting medicines: Fourthly, bathing the feet twice a day, keeping lukewarm fomentations constantly to them, and applying epispastics to the hollow of the feet and knees: Fifthly, a cool regimen, and, above all, the admission of pure and cool air, but without letting any cold get to the inferior parts of the body: and all these things are to be done, and all these precautions used, immediately from the very beginning of the disorder: Sixthly, should the symptoms prove very fierce, opiates will be of service on the fifth evening, when all the foregoing directions have been complied with.

We are now to treat of the method of cure proper in the present stage of the small-pox, viz. that stage, which is comprehended between the coming out of the pimples, and their beginning to suppurate. It is obvious, that this method must vary with the duration of the disorder; for, while the inflammation is still in its infancy, we may expect to see it terminate in a gentle resolution; but, that term once past, the resolution will be difficult; and that in proportion to the continuance of the inflammation;

inflammation; till, at last, no room is left to expect any thing but a suppuration, by which the irresoluble inflammatory matter, being converted into pus, may be separated from the still healthy parts of the body. In the first beginning, therefore, of this stage of the small-pox, we may try those things recommended in the 1393d, and 1094th sections. But, if a suppuration cannot be avoided, then our principal care must be to render it as slight as possible, contrive that the face and the rest of the head be not loaded with pimples, and prevent the disorder's hurrying on with too great violence. The reason of all this must appear obvious, from what the reader may remember to have read in the preceding paragraph, in which, likewise, I took notice, what we are to think of a tardy suppuration. Now, what follows will conduce to this end.

First. I have already spoken, Sec. 1394, of the usefulness, or rather necessity, of a spare diet, in the stage of the small-pox there treated of; and the same diet, for the same reasons, is requisite in the present stage of that disorder. But, since it is likewise certain, that the small-pox has a tendency, when any way violent, to make every part of the body putrify, as sufficiently appears from the odid sweats, sharp urines, very foetid stools, in every kind of small-pox; and the great proneness of the whole body to putrefaction, in the confluent kind, in particular; hence the diet of persons, in every kind of it, should consist of such things, as are not only least subject to putrify, but which resist all manner of putrefaction, by their spontaneous propensity to become acid. It was for this reason *Sydenham* made all his patients (as I have already taken notice in my Commentary on the 1394th Aphorism) refrain from
 animal

animal food, eggs, and even broth made of animal flesh; whilst, on the other hand, he allowed them apples, roasted or otherwise prepared with fire, and strong decoctions of barley or oats. *Rhazes*, indeed, allowed his patients animal food, and veal jellies; but then, these things were to be mixed with the juice of unripe or sour grapes; and four pomegranates, and the like, were frequently to be used with them. To patients of a warm and dry constitution, he recommended porflane, beets, mallows, gourds cucumbers, &c. new milk he condemned, as containing butter, a substance so apt to turn rancid, and a portion of caseous matter, equally prone, not only to become rancid, but putrify; but he recommended thin butter-milk, and whey seasoned with orange juice (*b*).

Secondly. I have already and often taken notice, of the great advantage of perpetually supplying the blood, in inflammations and acute disorders, with a diluting vehicle. Now, as, in the small-pox, the suppuration of the pimples is always attended with a fever, hence, on the same principle, it becomes requisite, that the drink of the patients, in that stage of the disorder, should be as mild as possible, lest it should add, by its stimulus, to the febrile hurry. The reason for recommending, in this case, a subacidulous beverage is that kind of beverage being, for the reasons just now given, an enemy to all putrefaction. But of this kind of beverage I have already taken sufficient notice, in my Commentary on No. 3 of the 1394th aphorism; for, every thing recommended in the circumstances there mentioned, will be useful in the present.

But, when there is any reason to apprehend, lest the putrid stimulus should dissolve the blood, and the solution of that capital fluid should be attended

with

(*b*) Mead de Variol. et Morbil. page 124, &c.

with dangerous hæmorrhages; in this case *Sydenham*, and after him several other eminent Physicians, have placed great confidence in the use of spirit of vitriol mixed with some thin drinks, as I have already taken notice, in my Commentary on the 1396th Aphorism. But, when there is no reason to apprehend any such solution of the blood, then we should rather have recourse to acid vegetables, considering how much the small-pox is a-kin to disorders of the acute inflammatory kind, as has been already noticed in the 1387th section.

Children at the breast, and such as use a milk diet, are not to be allowed acids, especially of the stronger kind, lest the milk in their stomach and intestines should be thereby too much coagulated; for this might be productive of many mischiefs (*i*).

Thirdly. All these rules have the same scope with those given in the preceding numbers; and the Reader may remember, I recommended the same things in my Commentary on the third number of the 1394th Aphorism. There are prescriptions, of this kind, under this number in the *Materia Medica*; and several others may be drawn up in the same stile. Now, these things, but plentifully diluted with water, are to be very frequently administered, and in great quantities, that thereby the vessels may be kept open, the humours diluted, and all their sharper parts supplied with a proper vehicle to carry them off by the pores of the skin, and along with the urine.

Fourthly. Whilst we are endeavouring, by a plentiful and perpetual exhibition of these things, to attenuate, as much as possible, the morbose matter, forward its expulsion from the body, and thereby lessen the number of the pimples which
may

(*i*) Lobb of the Small-pox, page 432.

may require suppuration ; it will be proper, at the same time, to do all we can, to make them come out on those parts of the body, in which they may perform their course with least inconvenience and danger to the patient. I took notice, in the preceding paragraph, that the crowding of the pimples into the face was ever, and with great reason, deemed a bad omen. It is for this reason, that, from the very dawn of the disorder, the inferior parts of the body are to be fomented or bathed ; and that, after being softened by such treatment, they are to be lightly stimulated by gentler epispastics, (some formulæ of which may be seen, under this number, in the *Materia Medica*) in order to give the morbose matter a turn that way rather than any other. I must refer to my Commentaries on the 134th and 135th Aphorisms, for what already concerns derivative, attractive, and propulsive remedies.

The advantage of this method is confirmed by practical observations. There are many instances of the pimples, in persons ill of the small-pox, and who happened, at the same time, to have issues in any part of their bodies, having crowded, in great numbers, into the adjoining parts ; nay, and of there coming out of the issue itself a much larger quantity of humours than before. I took notice, in my Commentary on the 1383d Aphorism, that the little wounds, usually made in the arm for the purpose of inoculation, sometimes degenerate into broad ulcers, and weep abundance of variolous matter ; and that, on such occasions, the pimples, scattered over the rest of the body, scarce rise ; and that the patients, notwithstanding, suffer but very little from the disorder. Nay, an eminent Physician tells us, he has seen most of the genuine small-pox pimples, which had already broken out upon

upon the face, and in great numbers, disappear again, on bathing the inferior members, and applying epispastics to them; and others, immediately after, crowd out upon these parts, some of them of a monstrous size, which, for two or three weeks together, shed vast quantities of sharp pus, after all the rest of the pimples had dried up and fallen off (*k*). Hence it appears, that it was not merely the pus contained in the pimples, that came from these so long ulcerated places; but likewise that, which had been already re-sorbed into the blood; and which, had it not made its escape at these issues, might have been set down near other parts of the body, and produced the most cruel evils; as will appear in the following paragraph. The usefulness of this method of treatment must, therefore, be obvious; and I have had frequent opportunities of seeing it in the course of my own practice.

I must not, however, dissemble an observation of the illustrious *Hoffman*, that an erect situation, such as we generally use when bathing our feet, has been found very prejudicial to persons ill of the small-pox (*l*): but, then, it is, likewise, to be noted, that, in the two cases he has given us, for the purpose of proving the justness of this observation, the ill-effects of an erect situation manifested themselves on the eighth and ninth days, when the pimples were at the height of their supuration. But, it is plain, that, at this period, the morbose matter will no longer admit of any derivation towards the inferior parts of the body. It will then, therefore, be sufficient, by keeping mild epispastics constantly applied to the feet,
gently

(*k*) Hillary, Essay on the Small-pox, page 100, 101.

(*l*) Opusc. Patholog. Pract. Dissert. IX. page 244, Medic. System. Rat. tom. IV. 149, 165.

gently to irritate these parts, in hopes that the pus, resorbed into the blood, may be thereby disposed to make its way by them, as I have already taken notice. Besides, it is chiefly in the beginning of the disorder, and at the time of eruption, bathings and fomentations are to be tried. And, should the weakness of the patient, which, in this first stage of the small-pox, is the sure fore-runner of a malignant one, oblige us to take more than usual precautions, still, his feet may be safely bathed, by letting them hang out of the bed, without obliging him to sit up in it; or else, they may be kept constantly fomented with woollen cloths dipt in some warm emollient decoction. Besides, if we will but consider a little more attentively these two cases given by *Hoffman*, it will appear, that the patients were of that age, at which the small-pox generally proves most dangerous; and that it was, besides, attended, in them, with pretty bad signs; the first of them was in the prime of life, and rather gross. His small-pox had, first, manifested itself by a great pain in the back and head, and some degree of delirium; the pimples came out upon him, in very great numbers; on the ninth day, he complained of a great pain and heat in his hands; and was so uneasy, that he requested those about him to take him out of bed. The other patient, a youth likewise, but of a delicate constitution, complained of a weakness and lassitude throughout the whole course of the disorder; his pulse low, but a little quick; after being bound for six days, he took a clyster, on the eighth day of his illness; and, on the same day, began to complain of a little inflammation in his throat; then, after sitting up pretty long out of bed, to wait for the third stool, he began to grow livid and faint; and, in ten hours after, died in convulsions.

Now,

Now, by carefully weighing all these circumstances, and comparing them with what has been already said concerning the prognosis of the small-pox, it will appear perfectly evident, that the sitting up of this last patient could not have been, either the only, or the principal, cause of his death. It must however be allowed, that, about this stage of the disorder, the sick should keep constantly in bed; it would be the height of imprudence to suffer them to get up. Sydenham himself, who considered the constantly lying a-bed, in the small-pox, as one of the worst things a patient could do, had made, however, the same remark; and, in consequence of it, gives the following advice: *Hic itaque serio monendum est, ægrum nullo pacto se lectulo interdium debere committere, nisi sexto die jam advesperascente, unde se plurimum usque refocillari sentiet: a quo tempore vix se continebit a jugi in lecto decubitus, si insignior fuerit pustularum συδερσις, tum ob acriorem jam pustularum molestiam, tum quod ab ipso sessionis habitu in animi deliquium sit propensior; quod cum sæpenumero animadverterem, in mentem mihi venit, ex communi hujus morbi lege naturam ipsam quasi digito mihi monstrasse, quo primum morbi tempore æger lectulo continuo adjudicandus est.* “ Here, therefore, I must seriously give notice, that the patient should by no means confine himself to his bed in the day time, till a little before nightfall of the seventh day; and from that time forwards he may expect to receive great comfort from it; he must, therefore, sit up very little for the future, if the *συδερσις* of the pimples happens to be any way considerable, as well to avoid, as much as possible, the pain and trouble the pimples now begin to give; as because, when sitting up, he must, on account

“ of the erect posture of his body, be more liable
 “ to faint ; a thing I have so often seen happen,
 “ that I cannot help thinking, that, from the
 “ common laws of this disorder, nature herself has,
 “ it were, pointed out to me the very moment,
 “ at which those ill of it should be condemned
 “ to keep constantly a bed. (m).”

Diembroeck condemned bathing the feet, as useless ; nay, he thought it dangerous, considering how easily the cold air may get at the patient, during the operation (n). This doctrine he endeavours to establish, by telling us, that a young maiden lady of distinction, whose feet, in the beginning of the small-pox, had been bathed in warm new milk, had no where more pimples than in her face. But, then, we are to observe, that she kept her bed all the time she was ill, with every part of her close covered except her feet, which hang out, as far as the calves, for the purpose of bathing them ; that this operation was spun out, the whole day ; and that, after it, she took a sudorific, was well covered up, and thereby kept in a perpetual and copious sweat. Now, as the only parts of her, uncovered, were her feet, up to the calves ; and, as they were kept in the bath from morning to night ; it was scarcely possible, that, whilst her attendants were renewing it, they should not have been less warm than the other parts of her body, close covered as the latter were with blankets, and reeking with warm sweat. It is, therefore, no way surprising, that this attempt, to divert the morbose matter towards the lower parts of the body, had not the desired effect ; it being requisite, for this purpose, as I shall presently

(m) *Dissertat. Epistol. pag. 446. 447.*

(n) *De Variol. et Morbil. Hist. XV. pag. 300.*

sently take notice, to keep the lower parts of the body well guarded from the cold; and the upper parts less warm, by letting the cool and pure air get at them.

Besides, it was *Diembroeck's* misfortune, it seems, to depend entirely, in his treatment of the small-pox, upon the hot regimen and the use of sudorific remedies; nay, it gave him pleasure to find the febrile motion very violent (o): hence, he looked upon acids, when they allayed the excessive heat caused by the fever, as the very worst things his patients could take; whereas we are, now, but too well convinced of the contrary, by innumerable observations.

I sufficiently enlarged, in my commentary on the fourth number of the 1394th aphorism, on the great advantages attending the admission of cool and pure air in the treatment of the small-pox; as, likewise, on the cautions, with which it should be admitted. No doubt, the whole body should be kept covered, and in a state of perspiration, as if in good of health; but, still, the lower parts ought to be better covered than the upper, as it is of consequence to make as many of the pimples, as possible, come out on the former; for the cool air, admitted to the latter, will affect them so, as to render them less liable to be visited by the morbose matter, when, the time of eruption drawing nigh, it begins to take possession of the surface of the body. Nor is this a new contrivance: for Rhazes, to prevent the pimples from occupying the eyes, not only ordered the face to be bathed, several times in the four-and-twenty hours, with cold water, but the eyes themselves to be sprinkled with it. Nay, he went so

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far,

(o) Ibid. 264.

far, as to apply, for the same purpose, astringent collyriums to these delicate organs (p).

Sixthly, I have already taken notice, in my commentary on the 610th aphorism, of the great benefit that may be expected from anodynes, and opiates, towards checking the too great violence of a fever. But, then, they are not to be used, except when the disorder rages to such a degree, as to create a great deal of uneasiness, and, therefore, may be justly deemed to require restraint. For, sometimes, the small-pox performs its course in so gentle a manner, as scarce to stand in need of any medicinal assistance. As often, therefore, as the fever, in this disorder, happens to be moderate, the uneasiness little, and the patient's rest good, these things had better be omitted. It is, likewise, obvious, that, in that species of the small-pox, in which all the vital powers are immediately cast down and languish, opiates and anodynes are, by no means, to be employed: for, in this case, the disorder, by thus prostrating the vital powers, instead of increasing the hurry and heat of the humours, shews, that nature requires some assistance of another kind, as I have already observed. I must not, however, dissemble, that very eminent physicians have been strangely divided with regard to the propriety of using anodynes and opiates in the small-pox. *Sydenham*, it is well known, is a great champion for them, and affirms, that, by means of them, he had known many patients snatched from the jaws of death; whereas the celebrated *Hoffman*, whose authority in medical matters, no one, I suppose, will pretend to slight, not only prescribes the
letting

(p) Mead de Variol. et Morbil. pag. 152, and seq.

letting of blood in the small-pox; but tells us, expressly, that, made wise by the misfortunes of others, who had used opiates and soporifics in this disorder, he always avoided them (q). He will hear of nothing but the gentlest papaveraceous preparations, but these he extols as very beneficial; namely, water and syrup made up with the *rhæas poppy*; and the emulsion of the seeds of the *white poppy*. But there is no physician of any practice, that does not know the little anodyne virtue there is in the flowers of the *rhæas poppy*; and, as to the seeds of the *white poppy*, there is not the least soporific power in them; I know it by my own experience; having eaten, before now, a whole pound of these seeds without experiencing the least inconveniency from them; and it is, moreover, notorious, that, in many places, they make no scruple of mixing them with their other meats. Such innocent things, therefore, can never be thought of sufficient efficacy to sooth the atrocious symptoms of so cruel a disease; for, whilst the skin, as it sometimes happens at the time of suppuration, swarms all over with pimples, and thereby, withal, becomes so tense and inflamed, as to create considerable pain and uneasiness, and obstinately deprive the patient of his rest, it is by no means from such slight lenients we are to expect sufficient assistance. *Rhazes*, no doubt, has recommended the use of poppies in the cure of the small-pox. His words are: *Quod si insuper vigil et insomnis sit ægrotus, adjicito aquæ bordei partem aliquam ex papavere. Quod si venter admodum sit solutus, addito aquæ bordei granorum mali punici acidi siccorum partem*

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partem

(q) Med. Rat. System. Tom IV. pag. 173.

partem unam, et papaveris partem unam. “ But, “ should the patient, besides, prove so restless as “ not to be able to get any sleep, mix a small “ matter of poppies with his barley water ; and, “ should his body prove too loose, mix with his “ barley water one part of the dried kernels of “ sower pomegranates, and one part of pop- “ pies (*r*).” After all, *Sydenham* was not the first to use opiates in the small-pox ; several other physicians did it before him, as it is proved by the celebrated *Werlboff* (*s*) ; and *Morton* used opium as freely as *Sydenham*, nay more so, though, in his treatment of the small-pox, he differed widely from *Sydenham* in every other respect. He orders us, *ita nullam opiatorum dosim formidare, quousque sensim progrediendo ad eam demum devenimus, quæ somnum conciliet, et efferatum eorum motum quadantenus cobibeat ; et sensim opiati dosim diminuere pro gradu quietis redintegrata :* “ Not to- “ be alarmed at any dose of opiates, till, by de- “ grees, we reach that, which shall be found “ sufficient to make the patient sleep, and check, “ in some measure, the fury of his fever ; when “ we are to lessen the dose, by degrees, likewise, “ in proportion as the patient recovers his “ rest (*t*).” Nay, he owns, that, when any obstinate restlessness seemed to require it, he made no scruple of giving the patient a grain of laudanum, every fourth hour.

Sydenham, however, never gave opiates to any of his patients, but such as were past the years of puberty (*u*) : he thought it best to do without them

(*r*) Mead de Variol. et Morbil. page 176.

(*s*) De Variol. et Anthrac. page 95, & seq.

(*t*) Pyretolog. cap. 8, pag. 77, 78.

(*u*) Sec. III. cap. 1, page 190, Diss. Epif. page 471.

them in the earlier stages of life, in which sleep is more natural to us, our humours are less heated, and diarrhæas, so useful to young people in the small-pox, might be stopt by such opiates, to their no small danger and detriment. Nevertheless, he is firmly of opinion, that, when children rave, or the pimples prove of a bad kind, we should, by all means, have recourse to anodynes. Now, *Sydenham's* way was to give opiates, from the time of the eruption's being compleat, till the end of the disease (*w*). It has been already observed, that, when the pimples are once come out, all the symptoms, which accompanied the stage of contagion, entirely cease, or are considerably diminished; and that, therefore, there can be no great occasion for opiates during that period. But, soon after the pimples make their appearance, they begin to swell, and, with the contiguous skin, grow inflamed and tense; and it is then these remedies must prove of use. It was liquid laudanum that *Sydenham* used; and, in several shops, it still goes by his name. He, likewise, used a syrup prepared with the European poppy, which is to be found in the shops, under the name of *Syrupus papaveris* or *de Meconio*; this he preferred to the liquid laudanum, as safer, because less heating (*x*). The method of preparing the liquid laudanum, given by *Sydenham*, is, as follows: to a pound of Spanish wine, add two ounces of opium, one of saffron, and a drachm of cinnamon and cloves in powder; and set the mixture to digest, for two or three days, in a *balneum marie*; by which means you will obtain a

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medicine,

(*w*) Ibid. pag. 191.

(*x*) Idem in Dissertat. Epistol. pag. 464.

medicine sufficiently warm and aromatic. But the medicinal powers of opium may be safely enough applied to the human body without the use of any aromatics; the only reason for adding them to it, as was formerly the practice, being, to correct the opium, which our predecessors were pleased to stile cold in the fourth degree. But the truth is, that opium is, in its own nature, sufficiently warm and bitter, and stands in no need of any such auxiliaries. This, *Sydenham* himself, with his usual candour, freely acknowledges, saying: *mirandos illos (opii) effectus, quos edit, nativæ ipsius plantæ bonitati atque excellentiæ, non vero artificis polydædali solertiæ, deberi*: “ That these wonderful effects observable in opium are owing more to the natural goodness and excellency of the plant itself, than to any skill or industry in the more than dædalian preparer of it (z)” Hence, it is obvious, that a very safe and powerful liquid laudanum may be obtained without adding any aromatics to it, such as is to be had in several shops, under the title of *laudanum liquidum simplex*; and, that it may be used, with as much safety, as the syrup prepared with the European poppy, which does not always agree with hysteric women, and is apt to bring on them vertigos and reachings; whereas the liquid laudanum is found to be very beneficial to them: and *Sydenham* tells us, he observed the same thing in a youth of quality, ill of the small-pox (a).

Now, his usual dose of liquid laudanum, and the syrup of meconium, was, he tells us, sixteen drops of the former, or an ounce of the latter, for

(y) Sect. III. cap. 3, page 230.

(z) Ibid. pag. 231.

(a) Dissertat. Epistol. pag. 515, 516.

for adults; and less, in proportion to their age, for younger persons. But he, at the same time, gives us the following practical advice: *Si prima dosis metam non attingat, alia atque alia debito tempore assumatur, donec tandem medicamentum medici votis respondeat, non tam ad injustam anodyni quantitatem, quam ad effectum, quod in ægro producendum erat, respectu habito; quod ubi primum successerit, nec citius, a paregorici usu ita copioso et frequenti cessandum est; interposito tamen semper inter singulas doses spatium aliquo, ut pernoscere valeamus, utrum dosis ultima id, quod quærimus, præstiterit, antequam nova ingeratur.* “ If the first dose does not answer
 “ expectation, we must give another, and another
 “ still, at proper times, till the medicine has the
 “ desired effect, without paying regard so much
 “ to the quantity given, as to its effects upon the
 “ patient: when we find it answer, and by no
 “ means sooner, we are to lessen the dose, and
 “ give it seldomer, always observing to leave a
 “ proper space of time between the doses, in or-
 “ der to be sure that the last dose has not done its
 “ duty, before we give a new one.”

But, as there is a great variety, in the different shops, with regard to the formulæ of liquid laudanum, and the syrup of white poppies, a physician should consult the Dispensatory of the place, in which he is prescribe, and see how far its formulæ agree with those of *Sydenham*. There are, in the *Materia Medica*, under the same number with this aphorism, some formulæ, which, though exceedingly simple, are yet sufficiently efficacious.

As from a diligent observation of the small-pox it appears, that all the bad symptoms attending it, and especially that most afflicting uneasiness of body and mind, are apt to encrease towards night-fall, it will be proper, about the fifth even-

ing, to administer some remedy of this kind, in order to prevent the evils that might otherwise follow; nay, I have often given it so early as three in the afternoon, when I found the symptoms encrease sooner, than they had done the preceding day. When the strength of the remedy begins to decline, which generally happens in six or eight hours after taking, it may be safely taken again, if the symptoms come on again with the same fury. *Sydenham* owns, that, in the last days of a very confluent small pox, he has found it necessary to give a narcotic every eighth hour. Hence, he is for its being always at hand, in order to be given directly, the moment any sudden aggravation of the symptoms may require it (*b*). Nay, he scruples not to affirm, that numbers have died of the small-pox, who might have escaped, had a narcotic remedy been at hand to give them.

I can, for my own part, safely aver, that, in my own extensive practice, I have known opiates have the finest effects in curing the small-pox: and I have known them to succeed equally well, in the hands of some other physicians, now living, and of very successful practice, with whom I have often conversed on the subject. Narcotics, no doubt, are apt to lock up the body, but this is an inconveniency, which I always found it an easy matter to remove by clysters, milk-whey boiled with tamarinds, and things of that nature; for, I am altogether of opinion with the very famous *Simpson*, that a perpetual costiveness is hurtful in the small-pox (*c*), as I have already taken notice, upon another occasion, in my commentary on the 1394th aphorism.

(*b*) *Dissertat. Epistol. pag. 469.*

(*c*) *Medical Essays, Vol. V. part. 2, page 579, and seq.*

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THIS stage (1396) is followed by the third stage, namely that of suppuration, during which that process of nature, now commenced, is carried on and perfected: in this stage, the already purulent pimples grows bigger and bigger from day to day, then ripen, whiten, become yellow, till, at length, they burst, on the third, or fourth day, that is of the stage we are speaking of. Then, the whole of the fat and skin abounds with a moveable pus, dries up externally, and becomes inflamed in those places where there are no pimples. Hence ensues as very bad kind of fever, and attended with very bad symptoms, through the irritation of the membranous and nervous systems, and the absorption of the pus into the veins, to the great hindrance of perspiration and circulation: if this purulent matter keeps moving, in and along with the blood, for any considerable length of time, (82. 100. 406.) it putrefies; hence, as it happens to light upon this or that part of the body, it produces the most dire effects, and such as it is almost impossible to master; deliriums; phrenitides; anginæ; peripneumonix; pleurifies; vomitings; dysenteries; the hepates; imposthumes; boils; swellings in the joints; abscesses; stiffnesses in the joints; decays; phtisics; and numberless other disorders of the same kind.

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We spoke, in the preceding paragraph, of that stage of the small-pox; in which the inflamed pimples begin to suppurate; in this, we are to treat of the increasing suppuration, pursue it to its perfection, and say something of the mischiefs it may occasion, when the pimples happen to be in any great number.

The first sign of the pimples beginning to suppurate is to be looked for in their heads, which then begin to grow white, the bottom and adjacent skin still continuing red. This whiteness soon diffuses itself through every part of them, so as to make them look every where perfectly white and plump, like so many pearls; that is, I mean, when they happen to be distinct, in which case this change in them may be finely observed; within twenty-four hours, this whiteness of the suppurated pimples begins to turn to a yellowish colour; and then the redness of the circumjacent skin begins greatly to abate; after this, the new acquired colour of the pimples grows browner and browner by degrees, till it becomes perfectly brown; when they compleatly dry up, and soon fall from the face, unless they happen to burst, or be broken by rubbing; the latter is generally the case with those on the hands and the lower members.

The whiteness above spoken of does not shew itself so soon in the distinct, as in the confluent small-pox; in which, besides, the whole face, being entirely over-run, with an almost infinite number of small pimples, looks, on their beginning to suppurate, as if covered with a white pellicle; then, this pellicle quickly changes to a brown colour; and, at length, often grows black; and, when dried up, splits, and so scales off. But, in the worst kind of the confluent small-pox, the pim-
ples

ples fill with a gangrenous ichor, instead of a purulent matter; and then the face becomes all over of a brown, or rather blackish colour, without any previous whiteness.

Then the whole of the fat and skin, &c.] This, it is plain, can never be the case, but when the pimples, though distinct, happen to be very numerous; or when, being confluent, they, in a manner, occupy the whole of the body's surface; for, when they happen to be but few; then, as soon as the suppuration is over, all the symptoms cease; and the patient, in a short time, finds himself as well as ever. But, when every part of the body happens to swarm with pimples; then, what little portion of the skin has escaped them, will be inflamed, and, of course, become tense, and painful; and these circumstances alone are sufficient to light up a fever in the body, according to what I have already observed in the history of an inflammation, in my commentary upon the eighth number of the 382d aphorism. This fever is troublesome, no doubt; but, were it to have no other cause but the foregoing, it might soon be got over; for, the moment the pimples begin to dry up, the tension and inflammation of the skin immediately abate; but the mischief is, there is another cause sufficient to keep up this fever; it is this: the whole skin, in a manner, becomes imperspirable; a thing, which could not but greatly affect a person, who was otherwise in the best health; and cannot, of course, but prove extremely disagreeable and dangerous to one labouring under such a disorder as the small-pox, considering that thereby a stop is put to the usual excretion, by the exhaling vessels, of those humours, which, if left in the body, may do so much harm. Now, if we only consider,

der, that the effluvia detained, in this case, are much sharper, as is evident from the stench of the place where such patients are laid up; and from the spreading of the contagion by means of these effluvia; it must be obvious, that far greater evils are to be feared. Besides, the matter collected in the pimples is a genuine pus; and, unless it can make its way out, will be resorbed by the bibulous veins, and mix with the circulating humours; it may even affect the blood with a purulent cacochymia, and bring on many evils, as I shall presently shew. Now, it is demonstrable, that the pus contained in the variolous pimples, notwithstanding all its thickness, and its forming thick scales, when dry, may, however, be resorbed. When I myself had the small-pox, I had a great number of pimples on the soles of my feet, which, in suppurating, raised, indeed, the hard epidermis of these parts, but did not, however, burst it; so that no part of the pus contained in them could escape. But, some weeks after my getting the better of the disorder, the whole of this hard covering came off from the soles of my feet, with the flat orbicular scabs, which were the remains of the dried-up pimples. The whole, therefore, of the pus, which had accumulated in these pimples, must have been resorbed into the blood, since it was impossible it should pass off by the callous horny epidermis. Something like this happens now and then, with regard to the palms of the hands, where, likewise, the epidermis is pretty thick and callous, especially in grown up persons. But, where the quantity of the variolous pus resorbed into the blood is but inconsiderable, it gets out of the body by stool, or urine; or by these parts of the skin, which are beginning to get rid of the pimples; and that,

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without leaving the seeds of any mischief behind it, as I once experienced in myself; and very often, in others. No doubt, every body recovering from the small-pox, continues to breathe, for a long time after, the contagion of the disorder, and may give it to others, who have not already had it, as I have already observed; but this contagion is harmless enough, with regard to the person past the small-pox, from whom it proceeds. Still, there is some reason to be in pain concerning the effects of the resorbed pus, if it happens to be in any great quantity. Let us but just consider, that, in the distinct small-pox, when the pimples are very numerous, but particularly in confluent small-pox, the whole skin becomes little better than a kind of dry hide, under which the pus gathers and stagnates, and is by its stay there, and the febrile heat it endures, rendered sharper and thinner (see Sect. 406); and, of course, more easy to be resorbed; and we shall see the reason, why, a new fever of a very bad and dangerous nature is now kindled up; a fever, by which numbers of poor patients have miserably perished. As often as this happens, it may truly be said, that the small-pox does not end either in death, or health; but in another disorder (see Sect. 591). This is that fever, called *secondary* by the physicians, which they all dread so much, and with so much reason. It comes after the last stage of the small-pox, and is always to be suspected. It is of this fever, that so many persons, ill of the confluent small-pox, die on the twenty-fourth day of the disease, or later, after a total corruption of all their humours, and often a mutilation, even before death, of different parts of their body, according

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ing to the spot in which the sharp matter resorbed has been set down by a fatal metastasis. I have seen the two eyes destroyed by it, within a few hours; the nose, suddenly eat away; and other evils of the same nature; before death had put an end to the patient's misery. The sharper this pus has been; the longer it has flowed, when resorbed, with the humours through the vessels; the more violent the fever, by which it has been agitated; the worse evils may be expected to ensue. Now, the difference between these evils depends, chiefly, on the difference between the parts, to which that purulent matter is ultimately derived: if it is the brain, then, after sudden and very outrageous deliriums, it brings on certain death; if to the breast, it sometimes produces sudden suffocation; or, in consequence of its eroding the lungs, a decay, which is hardly ever possible to cure; if the stomach and intestines, a vomiting; and, by eroding the intestines, a very troublesome dysentery. I have seen an hepatitis, and an icterus succeed a confluent small-pox of the worst kind; it was indeed removed by a free discharge of very stinking stuff by stool; but this was only to make room for a dropsy, from which, too, the patient escaped; but it was with the utmost difficulty; and never to be the same person again.

Sometimes, no doubt, the metastasis of the resorbed pus proves much less dangerous; namely, when it happens near the surface of the body, or on the hands or feet; but, even in this case, the poor patients may be said to purchase life at a most extravagant rate. I have seen an incurable ankylosis produced by it, in both the elbows of a stout youth; I have seen the same misfortune happen to the knees. I have very often seen sinuous ulcers, which proved extremely difficult to cure,

in the fleshy parts of the upper and lower limbs. The numerous and painful boils, produced by the same cause, prove, no doubt, very troublesome to those afflicted with them; but, when cured, leave less matter of complaint behind them. There is no Physician of any great practice, who has not been a witness to things of this kind; and hence it is, that we have so many medical observations to confirm the doctrine laid down in this aphorism, with regard to the dreadful consequences of the Small-pox. Sydenham expresses great concern, at seeing the few patients of his, who had the good fortune to escape confluent small-poxes of the worst kind, afflicted with most cruel pains in their limbs, the parts pained swelling into tumours, which scarce ever suppurated, but terminated in large sinuses, not without danger to the patient's life (*d*). Hence, *Morton* has with great reason remarked, that, in the malignant Small-pox, the last stage of the disorder, namely, that of its going off, is of some extraordinary continuance, and that, too, not to be defined by any set number of days (*e*). For, though the Small-pox itself performs its course pretty regularly, as appears from what has been already said on the subject; yet this cannot be said of any other disorder, in which it may terminate. He, therefore, and with reason, ever looked upon it as a very suspicious sign, if, on the falling off of the pimples, the patients did not find their appetite return, and their bodies free from any hectic fever (*f*); for, in this case, some of the foregoing

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evils

(*d*) Sect. V. cap. 4, pag 29; Hoffman Med. Rat. System. tom IV. sect. 1, cap. 7, pag. 147.

(*e*) Pyretolog. cap. X, pag. 113.

(*f*) Ibid. pag. 114.

evils always follow, though not always at the same period.

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But, should the matter, in these circumstances, prove thinner, and sharper, and the disorder more violent, the skin, fat, and flesh, are eaten into ; there ensue spreading ulcers, broad and deep, and sometimes penetrating to the very bones ; and ugly scars.

If such evils ensue, even after a small-pox, in which the variolous matter wore all the marks of good pus, what are we to expect in the worst kind of confluent small-pox, in which, instead of such pus, we have nothing but a gangrenous ichor ? In this case, certainly, it is impossible the skin should not be entirely eaten away ; and the poor patients, should they happen to survive these evils, must ever after be content to carry about with them the most ugly scars, as the memorials of their misfortune.

In the worst kind of confluent small-pox, the whole face is covered, as it were, with one entire hide ; this hide, on its beginning to dry up, grows black, and most obstinately sticks to the skin, which, in the mean time, is perpetually corroded by the ichor lying upon it ; and, even while this scab is falling off, in consequence of the fomentations applied to it, the eroded skin still sheds a tenacious humour, which, soon coming to thicken in its turn, forms a new crust, under which a still deeper erosion of the skin takes place. Add, that this ichor, resorbed by the veins, sometimes makes

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its way through the vessels of the skin, which have been thus eroded; and, though the interior parts of the body are by this means freed from the afflux of this sharp matter, the whole skin is destroyed by it, so as to exhibit nothing but a frightful collection of the most ugly scars. I remember, but not without the greatest pain, to have seen, in a very handsome youth, who, after struggling for eight weeks together with the small-pox, had at length got the better of it, the wings of the nose so eroded, the lips so disturbed by the scars of the neighbouring skin, the eyelids so inverted with a perpetual lippitude; in a word, the whole of his fine face so spoiled, that his own parents scarce knew him again, when he recovered. Though, from this case I learned, what medicine can do in the worst; yet I could scarce forbear repenting, that I had preserved the subject of it, to be so shocking a sight.

There is sometimes bred in this matter, when resorbed into the blood, so great a malignity, as to produce a fatal sphacelus in the part, upon which it settles (g). *Morton* tells us, that he had two or three times seen *ex veneni adeo deleterii reliquiis hujusmodi ægrotantes vel ad quadragesimum usque diem appetitu privari, elumbes reddi, atque calore hæctico affici, et, post solennes humorum et sanguinis evacuationes peractas, tandem funesta clavicularæ, maxillæ, vel tibiæ, sphacelo inexpectato suborto interimi.* “ Persons, labouring under such
 “ relicks of this so deleterious a poison, continue
 “ without any appetite, even to the fortieth day,
 “ lose the use of their loins, and troubled with
 “ an hæctic heat; and, even after the usual eva-
 “ cuations of the humours and blood, at last,
 VOL. XV. T sudden

(g) Pyretolog. cap. 1. p. 114.

“ suddenly taken off by a fatal sphecclus of the
“ clavicle, maxilla, or tibiæ (b).”

Hence, the bones are often eaten away with a caries. *Parré* has seen this happen with regard to the os sternum, the bones of the arms and legs, nay, and these bones broken, in persons who had had the small-pox. He, likewise, had the mortification to see the heels, the fingers and toes, the nose, the eyes, and other parts destroyed in the same manner. The very celebrated *Trillerus* saw the uvula eaten away, part of the palate of the mouth disappear, and the nose sink in, in a beautiful girl who had had a most malignant confluent small-pox; a girl of such exemplary behaviour, as not to leave the least room to suspect the intervention of any venereal taint on the occasion; and, at length, a quiet and much-wished-for death put an end to all her calamities (i).

If such a firm and solid substance, as that of the bones, can be thus eroded by this sharp matter, the soft parts of the body must, certainly, much more easily and readily, for the very same reasons, fester and putrify; especially, when a perpetual access of cold air and moisture to the place affected happens to concur with the original evil. It is not, therefore, surprising, that such terrible consequences should have been sometimes observed in the inside of the mouth and throat. It is to this purpose *Jacotius* says: *Vidimus in puella, febriente, cum variolis, mortem inde sequutam, cum febris remissa videretur. A gingivis inceperunt ulcuscula, deinde palatum, totumque os, occuparunt, tum ad uvam faucisque descenderunt: quibus obsessis,*
“ in

(b) Lib. 20. cap. 1. p. 468. Morton Pyretolog. cap. 11. p. 195.

(i) Epist. 2. ad Jo. Gothofr. Hahn. p. 18.

in cancrum desierunt, ex quo, excitata dysenteria; mors est insecuta. “ I saw a girl die of the small-pox, at a time the fever seemed to have left her. “ Some little ulcers began by taking possession of her gums; then spread to her palate; and, “ at length, over-ran the whole of her mouth; “ from whence they descended to the uvula and “ the throat; and, after over-running these likewise, ended in a cancer, which, on a dysentery’s coming to its assistance, put an end to her “ life (k)”. It is for this reason, physicians of any practice, whose misfortune it has been to be witnesses to these shocking effects of the small-pox, are always apprehensive of the worst consequences; if, after a small-pox of a bad character, they can discover any thing like an ulcer in the inside of the mouth: for, unless the gangrene, which may be expected speedily to follow, can be checked by the spirit of sea-salt (see Sect. 432), it will be sure speedily to prey upon every thing about it.

Now, by stopping a moment to consider, that this sharp matter may be set down near all and singular the parts of the body, we shall be convinced, that it may produce the greatest variety of desperate diseases. To prove this, I shall bring but one instance; but then it is a most striking one. A girl of eight, labouring under a confluent small pox of the worst kind, was, on the sixth day of the disorder, seized with a difficulty of breathing, which greatly increased on the eight; at the same time, a tumour took possession of her throat, and suddenly swelled to a great size; when compressed by the hand, it subsided considerably; but, on the hand’s being taken away, returned to its former size; and, at length, pursued

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(k) Holler in Coac. Hippoc. p. 571.

out the flexible skin of the neck to such a degree, as to make it project beyond the chin, and resemble the puffed up maw of a pigeon. On the patient's dying about the end of the tenth day, the tumor subsided. The great man who attended her, on examining the dead body in order to discover the cause of so extraordinary an appearance, found, that the interstice between the seventh and eighth cartilaginous ring of the aspera arteria had been eaten away; from whence it was an easy matter to infer, in what manner the inspired air had made its way into the cellulous membrane of the neck, so as to produce this strange emphysema (*l*).

S E C T. MCCCCII.

IN this stage (1400) we are to endeavour to drive out the pus from the internal to the external parts; and, by these, entirely out of the body, which may be effected by relaxing the skin with a constant and strenuous succession of relaxing lukewarm fomentations; constantly washing and gargarizing the mouth and throat; a very liberal use of warm, cordial, detergent, aperient liquors of the kind which resist putrefaction; daily using, and keeping a considerable time in the body, mild, diluent, emollient, relaxing glysters; living on flesh meat broths seasoned with salt and acids; with, now and then, a little of the purest wine; without neglecting opium, should any

(*l*) Act. Helvet. vol. II. page 159.

any symptoms fiercer than ordinary require it.

Those very melancholy effects, of which we have been treating in the two preceding numbers, are owing to the variolous pus, when resorbed into the blood, and carried about with it through the vessels of the human body, growing constantly sharper and sharper, and often acquiring such a degree of malignity, as to destroy the parts, near which it is set down. Now, the more violent the febrile hurry of the blood, the more speedy and malignant must be the corruption of the pus; hence arises a fourfold curatory indication. First, The procuring to the pus an easy issue towards the exterior parts. Secondly, The expelling from the body that already resorbed into it. Thirdly, The preventing the, in this case, so much to be dreaded degeneration of the humours to a state of putrefaction; or correcting them, as much as possible, if already putrefied. Fourthly, The keeping of the febrile hurry within proper bounds.

Now, to answer the first of these indications, nothing can be better than keeping the skin lax and soft. I have already taken notice, in my Commentary on the 1394th Aphorism, how prejudicial a thick skin is in the small-pox; and that it is on account of the extraordinary thickness of their skins, this disorder must have proved so fatal to the natives of America. I likewise spoke, at the same time, of the great efficacy of bathing for this purpose; and bathing, no doubt, might likewise be of singular service in this stage of the small-pox; especially vapour-bathing, which is known to relax and soften the parts more than any other kind. But, as we are now treating of the

worst kinds of small-pox, it is necessary that we should take notice, that, during the present stage of the disorder, the patients seldom have strength enough left to endure bathing: besides, it is in the face, that the swarming of the pimples proves most troublesome, as has been already observed, and the head should always be out of the bath. For this reason, it has been a practice with physicians to keep the face and hands, nay, and the feet, constantly fomented with woollen cloths or sponges, dipt in some warm emollient decoction, in order to humect and relax these parts, and thereby procure a freer egress to the variolous matter; this, no doubt, cannot be done without putting the patient's attendants to a great deal of trouble; but that will be sufficiently compensated by the usefulness of it. *Sydenham* has observed, that, in the worst species of the confluent small-pox, the scabs dry up to a surprising degree, especially on the face, where they often stick as fast as if they had been nailed to it, so that there is no taking them off (*m*). When this happens to be the case, it must be impossible for the pus to make its way through the skin, now become almost as hard and dry as a piece of tanned leather; it must, therefore, prey upon the parts under it; be resorbed, in great quantities; and thus add to the evils, which we had already too much reason to dread. Now, the perpetual humectation I have been recommending prevents the scabs hardening in that manner; or, at least, softens them, if already hardened. I have, therefore, often ordered such scabs to be anointed with fresh cream, and then fomented with a warm emollient decoction,

(*m*) De Febre Putrida Variol. Conf. Superveniente, page 690.

tion, till, by being thoroughly humected, they rotted, as it were, and fell off; and then I could see the pus ouzing very copiously and constantly from the skin thus freed from its troublesome covering; and hence I could likewise gather, that it was not merely the pus heretofore collected under these scabs, that thus ouzed from the skin; but that part of that, which had been already re-sorbed, took advantage of the same channels to make its escape, to the manifest abatement of the symptoms. I can safely aver, that I have seen some patients saved in this manner, after I myself and every body else about them had given them over. We have a remarkable instance of the efficacy of this method of treatment in a very robust young man, labouring under a very bad confluent small-pox, the whole of whose face, at the time of the ripening of the pimples, grew black and dry, and even gangrened (*n*). When there seemed to be no hopes left of his doing well, the great man, in whose hands he was, ordered the skin to be flased, in several places, with a scalpel, quite down to the sound flesh, and then fomented with a decoction of emollient herbs, adding the camphorated spirit of wine, on account of the putridity of the pus that flowed through the cuts, it being so great, that none of his servants could withstand the abominable stench of it. By this means, however, the patient escaped the jaws of death, without any relicks of the disorder but a parcel of ugly scars on his face. When these scabs fall off, the parts they covered are raw and painful; and will, if it is not prevented, be soon covered again with other scabs of the same kind. In this case, therefore, it will be of service, to cover

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(*n*) Mead De Variol. et Morbil. pag. 49.

the whole face with some soft plaister, such as diampompholygos, or the like, and have the assistance of a surgeon, as in the case of an open ulcer. I have known a mask of this ugly and troublesome kind come off, in one piece, from the face of a youth, and the ulcerous skin of his face so happily treated by a skilful surgeon, that, after shedding for some days a very large quantity of pus, it acquired its pristine appearance in a much greater degree than any one expected: the whole skin, indeed, retained numberless pits; but then it was evenly; and they were, besides, so minute, that no ugly scars could be perceived, as is generally the case, in consequence of the untouched skin rising in margins about the deep holes left by the pimples.

But, as the perpetual application of emollient fomentations may keep the patient awake, or awaken him when composed, it perhaps might be of service, after using them constantly in the day-time, to apply plaisters at night, at least in those places, in which the pimples swarm so as to form a thick scab. Indeed, I could never discover the least mischief to arise from the discreet use of plaisters in this case, nay, I have seen the pimples ripen the sooner, in consequence of my having the feet and part of the calves covered, after they had been bathed, with a melilot plaister, which, on account of its agreeable smell, must prove less offensive to delicate patients. It is well known, that the pimples occupying the lower limbs do not ripen compleatly as soon as those on the face; so that the former shall still be full of matter, when the latter are dried up, and even falling off; now, the former may be made to suppurate much sooner by this melilot plaister. It is a well-known fact in surgery, that the skin may be greatly softened, by

applying plaisters to it; of course, therefore, any inflammatory tension in it must be greatly eased by the same treatment. I was, some years ago, greatly confirmed in this opinion of mine, concerning the usefulness of plaisters in the small-pox, by reading a little treatise written by an eminent physician, in which he recommends the use of the melilot plaister, as soon as the suppuration begins; nay, he advises us to wrap up the whole body in such plaisters, and proves the advantage of this method, by two practical examples (*o*). In one, in which the pimples, on the seventh day after the eruption, were flat and wrinkled, so flat as scarce to project beyond the skin; the interstices between them, of a palish hue; the pulse, weak; a case, in which the vital powers should have been roused and cherished, from the beginning to the end of the disorder, by blisters, alexipharmics, and the pretty free use of wine; the whole body was wrapped up in a melilot plaister: in seven hours after, the pulse was more full and equal than it had been during any former part of the disease; the face began to swell; the pain, occasioned by the tension in every part of the body, abated; the pimples on the extremities of the body, heretofore small, hard, and red, became bigger, and plumped up with ripe pus; a troublesome hick-cup, under which the patient had till now laboured, left him; and he perfectly, as well as unexpectedly, recovered. In the other case, the goodness of the same method was proved by the same success; but the sick woman's nurse, not being able to endure the stench of the pus collected under the plaister, took it off; two days after, the patient was seized with a violent pleuripneumony,

(*o*) Alexander Sutherland, a Medical Essay, &c page 17, & seq.

ripneumony, attended with a very hard pulse: these complaints were conquered by repeated bleedings, fomentations, glysters, blisters, &c. but she still complained of a little cough, and entirely lost her appetite. Upon this, the plaister was again applied to her head and thorax, when the cough immediately ceased, and her appetite returned; and thus, she not only escaped, though big with child, but was delivered, in due time, of an healthy boy.

Considering, therefore, how natural, as well as beneficial, it appears, in the small-pox, that the pus should make its way by the external surface of the body, might it not be proper to open the pimples, when quite ripe, and turgid with concocted pus? From what has been said, in the Commentary on the 1396th aphorism, it is sufficiently clear, that the small-pox pimples turn to so many little imposthumes; and I have made it appear, in my Commentary on the 402d aphorism, where I treated of the abscesses by which inflammations are followed, that openings ought to be made to let out the concocted pus, lest, by being resorbed, or even stagnating too long, it should produce a number of complaints; from all which one might be apt to conclude, that, in the small-pox, the pimples, when perfectly ripe, ought to be opened. But physicians are divided with regard to this treatment of them. The Arabian physicians commended it. Avicenna says: *Quando egrediuntur variolæ cum complimento, et pertransit septima, et apparet in eo maturatio tunc necesse est ut rumpantur cum facilitate cum acubus de auro, et auferatur humiditas cum cotto.*
 “ When the pimples come out with their proper
 “ cargo of pus, and the seventh day is over, and
 “ they then appear ripe, they ought to be gently
 “ opened

“ opened with a golden needle, and wiped dry
 “ with cotton (p).” *Rhazes*, alarmed for the safety of the joints, when beset with a great number of pimples, says : *Quod si pustulæ in iis magna eruptione prodierint, cito recurrito ad perforandas illas et aperiendas, educandamque materiam, immisso scalpello : neque hanc rem diu procrastines : nam ingens adest periculum* : “ But should the pimples
 “ come out upon these parts in great numbers,
 “ you must immediately set about pricking and
 “ opening them, and getting out their contents,
 “ without fearing to use the knife for that purpose : nor will this business admit of any delay ;
 “ for it is a dangerous case (q).” He was afraid, it seems, least the pus, if pent up in the neighbourhood of these parts, should eat so deep into them, *adeo ut inde ossa et musculi, tendines et nervi, patefiant* ; “ as to lay bare the bones and muscles,
 “ the tendons and nerves.” In another place, where he speaks of removing the crusts left by the disorder ; he orders the dry ones to be softened by dropping oil into them, till they fall off ; with regard to the others, he says, *quæ autem ex illis escharis similes sunt, habentque aliquam magnitudinem, si videris iis subesse humorem, auferto eas excorians, et præcidendo caute, nullo oleo adhibito* ; “ but,
 “ should any of them resemble eschars, and be
 “ pretty large, in that case, if you can perceive
 “ any moisture under them, you must peel them
 “ off, or cut them away gently, without using
 “ any oil (r).” *Parée* adopted this method of the *Arabs*, ordering the pimples to be opened with a gold or silver needle; nay, and cut off with a pair
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(p) Hahn Variol. Antiquit. &c. p. 106. Avicen. tom. 11. lib. iv. Fen. 1. cap. 10. p. 75.

(q) Mead de Variol. et Morbil. p. 159.

(r) Ibid. p. 167.

of sciffars, lest the contents should corrode the skin, and thus leave pits behind them (*s*). It is, indeed, chiefly with a view of preserving the beauty of the face, that he seems to have given this advice. Be that as it will, this treatment of the pimples fell afterwards into disuse; nay, and was expressly disapproved of by many. If I remember right, *Sydenham* takes no notice of this operation. *Morton* condemned it, to all intents and purposes, lest a constant discharge of sharp lymph from the pimples thus treated should do the face more mischief, than what the imprisoned pus could do (*t*). *Diembroeck* likewise censures a trick among the people of fashion in his country to have the small-pox pimples opened with a needle; and tells us, that, to his certain knowledge, very deep and ugly pits were generally produced by it (*u*). He likewise takes notice, that, as the pimples cannot be opened, but when they contain a well concocted pus: and that, as a white and concocted pus has not the least acrimony in it, we need not apprehend any corrosion from it: *Diembroeck*, moreover, observes, that the surface of the hollows left in the pimples, by letting out their contents, is apt to be so dried up and hardened by the succeeding air, that the subjacent flesh cannot grow and fill them up again. In another place, he gives us the case of a girl, who, on recovering from the small-pox, proved a mere fright, though she had taken the precaution to have her pimples opened with a golden needle, and had squeezed the pus out of them (*w*): but, if we consider, that she was twenty-six; that

(*s*) Lib. xx. cap. 3. p. 470.

(*t*) Pyretolog cap. x. p. 131, 132.

(*u*) De Variol. et Morbil. cap. xxii. p. 287.

(*w*) Idem Histor. xiv. p. 299.

that it was in the month of *August* she had the disorder ; that her whole head swelled with it to a prodigious size ; and that the pimples broke out in great numbers all over her body, and particularly her face ; if we, I say, consider all these circumstances, we must conclude, that her small-pox was of the confluent kind, which seldom leaves the natural form of the face unimpaired. Many other physicians, however, have been of the same opinion ; namely, that the opening of the ripe pimples must be hurtful (*x*) : but there can be no occasion to give a lift of them.

Persons ill of the small-pox, children especially, are very apt, when the pimples come to suppurate, to rub their faces with their hands, and even tear off the pimples before they are ripe, for want of patience to endure the pain then occasioned by them. Hence, the maturation of them is obstructed ; scabs are formed ; and the new pus engendered under these scabs makes deeper pits, than the primitive pus could have done. In some, these pimples are attended with an itching, in which case it is almost impossible to hinder children from scratching their faces to pieces ; or, at least, rubbing them against their bolsters and pillows, when their hands are tied. That this must do harm, no body can deny. But, when the pimples are but few, the whole business may be safely left to nature herself, as no great mischief can be done by a moderate quantity of pus. Still, I must own, that I cannot comprehend the reason, why the pits should be rendered deeper by opening the pimples ; should there be any just reason to be alarmed at the admission of fresh air into

(*x*) Andry Orthopedic, tom. 11. p. 156.

into them; why may they not be covered with a mild plaister? Besides, the pimples dry up of their own accord, and that quickly enough; when the disorder is of a good kind; yet, when the scabs fall off, we can see no pits left by them: But, then, we are to take notice, that almost all the pimples which occupy the back, buttocks, and the hinder parts of the thighs and legs, are broken, when ripe, in consequence of the patients' lying chiefly, and turning, when in bed; on these parts; yet, they are much seldomer pitted than the face. But, it has been already observed, that it seems to be the sharpest and most subtle portion of the variolous matter, every thing else being equal, that takes possession of the face; and from this circumstance alone we may account for that part being more eroded, in the small-pox, than any other. Considering, therefore, how many and great mischiefs are to be apprehended from the resorbed pus; that the most ancient physicians, the *Arabs*, who wrote upon the small-pox, have recommended this method of opening the pimples, when ripe, and letting out or drying up the contents; that several very eminent physicians amongst the moderns are of opinion, that it may be done with safety and to great advantage (y); and what fine effects are experienced from the slitting of the thick scabs, under which, in the confluent small-pox, the putrid ichor of the pimples has been collected; considering, I say, all these things, I cannot help approving this method; and I approve it the more readily, as I have had occasion to experience, in my own person, that the letting out of the pus will hinder the face from being marked.

(y) Hillary of the small-pox, p. 151. Wintringham. Comment. Nosolog. p. 65.

marked. I perfectly remember, that, when my nose was covered all over with a thick crust, with a great deal of matter under it, in consequence of the pimples, which had settled there in great numbers, beginning to dry up, my nurse, taught by experience, as she afterwards informed me, struck it all off, when I least expected it, with a sudden stroke of her finger; and then, after wiping my nose gently, covered it with a soft plaister; and, on my expressing the greatest indignation at this her rude usage, appeased my resentment by assuring me, that what she had done, she did it from experience; and that I need not be under the least apprehensions of any deformity from it; nor did the event give her assurances the lie. For, scarce two pits could be found on my nose, though the rest of my face had a great many; they were not, indeed, very deep, and have filled up since to such a degree, as not to be discernible, but on a close and attentive examination. Though my small-pox was of the distinct kind, the pimples were very numerous, and projected greatly above the surface of the skin: now, I have very often observed, that the largest and most prominent pimples leave much smaller and shallower pits on the skin, than the flat and set ones, which, though they rise less above the surface of the skin, run deeper into its very substance, which they erode in proportion as they suppurate. Nay, I have often seen, in patients ill of the milder kind of small-pox, the skin, tho' raised and red, but very little eroded, after the dried up scabs had fallen from it: and this redness and rising wore off entirely in a few weeks, and even sooner, when the patients kept within doors, and did not expose themselves to the cold air.

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Though I have not myself, on account of the many reigning vulgar prejudices, been able to try experiments enough with regard to the opening of the ripe pimples, in the small-pox, to be willing to determine the dispute concerning the propriety of the operation from my own experience; yet this I can affirm, that I have known a very famous physician, and an old friend of mine, practise it very often, to the great advantage of his patients.

But as, when the pimples happen to be numerous, the inside of the mouth and throat is likewise occupied by them, it will, in that case, be of great service to wash the mouth and gargarize the throat with emollient decoctions, in order to make them ripen the sooner in these parts, and fall off; nay, it will be of the greatest service to snuff such substances up the nose; or, at least, humect the dry and swollen internal surface of it, with the steam of warm water.

We are now to treat of the second curatory indication in this present stage of the small-pox; and examine in what manner, and by what channels, the resorbed pus may be safely got out of the body.

This resorbed pus can never again acquire the nature and qualities, by which the sound humours are distinguished; and, therefore, must be eliminated the body, before it can be said to enjoy perfect health. Besides, this pus, in travelling through the vessels with the other humours, often corrupts a considerable portion of the healthy fluids; and, in that case, these likewise must be expelled. Now, as it is the duty of every physician, as I have very often already taken notice, accurately to observe, by what channels, and in what manner, nature usually succeeds in driving
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any morbose matter out of the body, in order to be able to copy her; and then clear these channels, to facilitate the discharge of such matter; hence we are carefully to examine every circumstance, that can be gathered by faithful observations concerning this expulsion. We know, for certain, that, in the small-pox, the morbose matter naturally tends to the surface of the body; for which reason physicians have usually, and with great reason, taken, as far as in them lay, the same course with it. It has been often observed, that the relics of the morbose matter have been expelled by furunculi and parotides (z). Sometimes, after the first pimples are dried up, other smaller ones come out, during the last days of the disorder, which quickly suppurate, and considerably lessen the morbose matter, nay sometimes entirely exhaust it (a). I have, myself, often seen such pimples; they differ widely from the first and genuine pimples, and very quickly suppurate. This I observed chiefly, when, in the confluent small-pox, the pimples had left thick and dry eschars behind them; and it was on the softening and removing of these eschars, these secondary pimples generally broke out in great numbers. When the Physicians perceived this effort of nature, they did every thing they could think of to forward the flowing of the morbose matter the same way, by wine and other cordial medicines. Nay, *Sydenham* himself, though on other occasions a sworn enemy to all warm and cordial remedies in the small pox, prescribed things of this kind, on the pimples turning to dry scabs: *ne scilicet halitus illi putridi in sanguinis massam postlimino*

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limino

(z) Morton. Pyretolog. cap. x. p. 119.

(a) Hoffman. Medic. Ration. Systemat. tom. iv. p. 161.

liminio revertantur; “ least these putrid steams
 “ should again make their way into the mass of
 “ blood (b).” This, however, it seems is not to
 be done without some caution, especially when, in
 the confluent small-pox, the surface of the body is
 almost entirely covered with a dry scab; and the
 few spots, that happen to be free from it, are so
 inflamed, as to let nothing escape by them. For,
 should this sharp matter come, whilst unable to
 make its way through the skin, to be briskly agi-
 tated in consequence of the additional heat and
 motion communicated by these cordials to the
 humours, the worst of evils might follow, unless it
 can, in that case, be driven out by some other pas-
 sages of the body, or set down in those parts, in
 which it can do least mischief. *Sydenham* found
 spitting so constantly attend the confluent small-
 pox, that he never saw but one patient who had
 not that benefit (c). This spitting sometimes
 accompanies the eruption; and sometimes comes
 a day or two after it. In the beginning of the
 disorder, the saliva is watery, and flows in great
 quantities; but it afterwards thickens to such a
 degree, as to be, by the eleventh day, quite viscid,
 and very hard to discharge. But, though one
 might naturally imagine, that the secretion of the
 saliva should be more copious in the beginning of
 the disorder, than in any subsequent period of it,
 considering that then the skin of the whole face
 is entirely inflamed, and thereby disabled from
 letting any thing pass through it; and, of course,
 even such of the secreting vessels of these glands,
 as still remain open, must be more than usually
 compressed; yet, it is very probable, that part of
 the

(b) Sect. III. cap. 2. p. 186. 187.

(c) Ibid. 169.

the morbose matter makes its escape by them, in the subsequent periods of the disorder, considering how much all the symptoms are checked by that excretion; and, on the other hand, how much they encrease, in number and fierceness, when that excretion happens to be obstructed. *Lobb* observed a very large quantity of saliva, and that as thin as water, come from one in the small-pox, on the tenth day of the disorder; but, in a short time, it thickened, to such a degree, as to look like weak hartshorn jelly (*d*); from whence we may conclude, that it was not mere saliva, but a mixture of different humours, that was thus discharged; *Sydenham* observing, that, in the confluent small-pox, the spitting abated about the eleventh day, ordered a large and pretty sharp blistering plaister to be applied to the nucha, time enough for it to do its business, by that day, *in quo de summa rerum agitur*, “on which every thing is at stake,” in order *materiæ peccanti detur exitus*, “to open a way for the peccant matter,” by the time the spitting might be expected to abate, or entirely cease (*e*). It is obvious, that *Sydenham*’s aim, in making use of this large and pretty sharp blistering plaister, was to make a new road for the morbose matter, before the spitting should cease, from a consideration, that it was to this discharge the patient was hitherto indebted for his life; as he has before observed in another place (*f*): it is owing to this, that, in the confluent small-pox, the patients are so very often carried off on the eleventh day, as it is about that day the spitting usually ceases, or at least considerably abates. He likewise takes notice,

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that

(*d*) Of the small-pox, p. 333.

(*e*) Dissertat. Epistol. p. 472.

(*f*) Sect. III. cap. 2. p. 171, 172. Dissertat. Epistol.

that there will be the less danger of the patient's dying on that day, if the swelling in his face does not entirely subside, and the hands begin to swell considerably, in consequence of a temporary stay, in those parts, of the morbose matter, which heretofore was wont to be discharged at the mouth. *Sydenham*, indeed, relied so much on this swelling of the hands, that he made no scruple of giving the patient over, when it did not happen, or went off before its time; and, on the other hand, he thought he could not have any more infallible sign of the patient's recovery, than the swelling of the face subsiding a little, though not entirely, and the hands swelling considerably, when the spitting ceased. Sometimes the feet swell likewise, with advantage to the patient: nay, *Sydenham* observed, that, in patients who were already recovered from the confluent small-pox, and got up every day, there broke out in the legs *tumorem ferum ac molestum, qui tamen post venaë sectionem et catharsin sponte evanescit, vel usu emollientium et discutientium facile fugatur*: “an
 “angry and troublesome swelling, which how-
 “ever subsides, of itself, after bleeding and a
 “catharsis; or is easily conquered with the as-
 “sistance of emollient and discutient remedies
 “(g).” Hence it is evident, that, in this disorder, the metastasis of the morbose matter often happens towards the limbs, and almost always to the great advantage of the patient. It is, however, the general opinion of physicians, that it is much better to evacuate the morbose matter, if it can be safely done, than leave the discharging of it to a metastasis, as from thence there may arise new complaints in the parts, upon which the mor-
 bose

(g) Sect. III. cap. 2. in fine, p. 199.

bose matter is set down; and there is always, besides, too much room to fear, lest it should be set down in such parts of the body, as cannot bear it without the greatest danger. Physicians have often had the mortification to see, on the spitting of their small-pox patients beginning to abate, their fever suddenly encrease to an enormous degree, attended with raving or a profound sleep, quickly ending in death; whereas, but a few hours before, they had all the reason in the world to hope that the disorder would take a very different turn: in others the lungs are suddenly stuffed up; they fall a snoring, and so die. In these cases, there is the greatest reason to think, that the morbose matter has made its way into the head or lungs. But, though a swelling in the hands is justly looked upon as a good sign, it is, nevertheless, obvious, that sometimes the quantity of the morbose matter may happen to be so very great, that, let the hands and feet swell ever so much, they shall not be able to contain it all; and that, of course, a great deal of it must still continue mixed with the humours, to be deposited, perhaps, in parts of the body, where it cannot lodge without the greatest danger; nay, there is reason to fear, lest the whole mass of humours should be corrupted by it, as it so often happens in the worst kind of small-pox, and that to such a degree, that, even before the poor patient dies, his body shall be no better than one entire pool of putrified matter; and that attended with a most intolerable stench.

It cannot, therefore, appear surprising, that so many great physicians have been so solicitous to discover some other method of evacuating the morbose matter, still however in imitation of nature,

ture, who has so often, of herself, conquered the small-pox in that manner.

The high roads, by which nature ofteneft drives uselefs and noxious things out of the body, are those of stool and urine. *Sydenham* tells us, that he found a diarrhæa as constantly attend the confluent small-pox, in infants, as a spitting does that in grown up persons (*b*): but, then, he takes notice, that many thousand children have perished of the disorder, in consequence of the silly women about them suppressing that discharge, as a thing that might prove prejudicial to them. I must refer the reader to what I have already said on this subject, in my commentaries on the 1394th and 1396th aphorisms. *Sydenham*, in another place, whilst describing the small-pox, which he thought proper to stile anomalous, and which reigned at *London*, in the years 1674 and 1675, takes notice, that, in that dangerous period of the disorder, in which the saliva becomes so viscid as almost to choak the patient, a seasonable diarrhæa succeeded, which either went off of itself; or, if it did not, might be easily stopt, when the patient had no longer any thing to fear from the small-pox (*i*). Several other physicians have since commended a diarrhæa, as useful in this period of the disorder. Thus, *Lobb* has taken notice, that, when the small-pox has covered both the inside and outside of the body with a great number of pimples, great relief might be expected from the coming on of a diarrhæa about the twelfth day; but he attributed this relief chiefly to the diarrhæa's carrying off the dregs of the pimples, which had over-run the whole length
of

(*b*) *Ibid.* cap. 2. p. 161.

(*i*) Sect. V. cap. 4. p. 300.

of the primæ viæ (*k*): he, at the same time, takes notice, that this diarrhæa is not to be stopt, but rather promoted; nay, he, in another place, gives us a case, in which this salutary diarrhæa, after easing all the symptoms, was indiscreetly stopt by art; upon which every thing immediately took a bad turn; and the catastrophe terminated in a sudden death (*l*). It cannot be doubted, but that the morbose relicks left on the whole tract of the bowels, from the æsophagus quite down to the anus, must be carried off by such diarrhæa; but it likewise seems highly probable, that the morbose matter, which had taken possession of the body, and, being afterwards re-forbed, had travelled, with the humours, through the vessels of it, escapes this way too, out of the body; for, the quantity of very stinking fæces, which come away, by stool, in a natural or artificial diarrhæa, is too great to be ascribed to the relicks of the pimples, which had broken out in the tract of the primæ viæ. *Sydenham*, therefore, who, as it appears by several passages in different parts of his works, always endeavoured to make art walk in the happy paths chalked out to her by nature, on the falling off of the pimples, and the patient's beginning to recover, used to prescribe three or four purges, in order thereby to get out of the body the dregs of the morbose matter, which, if left in it, might produce many and serious complaints (*m*); and, in that little treatise, which he wrote a short time before his death, he recommends purging, and even repeatedly, if requisite, in that secondary fever of the small-pox,

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which

(*k*) Of the small-pox, p. 6. 10. 78.

(*l*) Ibid. p. 365. Histor. XXXV.

(*m*) Sydenham, Sect. III. cap. 2. p. 193.

which he justly stiled a putrid fever (*n*); still, however, true to himself, he always used his best endeavours to appease, by an anodyne, and that the very evening of the day he purged, the commotions it might have created in the body. He never, however, prescribed purging in this case, but when the body happened to be exceedingly bound, and the fever so intense, that the patient might be thought at death's door; in these circumstances, indeed, he ordered, *ut duro huic nodo durus aptaretur cuneus*: "The using of an hard wedge, as the fittest to conquer so hard a knot." Thus, then, it seems, that *Sydenham* never purged his small-pox patients, but when he almost despaired of being able to save them by any other means: in the same spirit, in which, on another occasion, he prescribed a strong dose of emetic wine, as often as he thought his patients in imminent danger, on account of their spitting's happening to stop about the eleventh day (*o*).

But, no physician I know of has recommended purging in this stage of the small-pox, so strenuously as the illustrious *Friend* (*p*); and he has demonstrated, by several practical cases, the great advantage of it, in circumstances, in which several angry symptoms threatened almost immediate death. But his purges were of the mild kind, prepared with the leaves of fenna, manna, and other things of the same nature; besides, he gave them in small doses, lest the strength of the patient should suffer too much from a too sudden and impetuous discharge by stool; but, then, on the other hand, he gave them repeatedly, and persisted

(*n*) De Febre Putrida Variol. Confluent, pag. 695.

(*o*) Sect. III. cap. 2. pag. 197.

(*p*) De Purgantibus in Secunda Variol. Confluent. Febre, pag. 1. ad pag. 75.

sisted in the use of them, till he could perceive, that all the dangerous symptoms were considerably eased; and the consequence was, that, after some very foetid stools, every complaint abated sooner than there seemed to be any reason to expect. But, as, at this time, not only the bulk of the ignorant part of mankind, but even several of the faculty, were possessed of a notion, that the body's being open during the small-pox was a dangerous circumstance, hence this practice was condemned by many as a bold and unheard-of innovation. *Friend*, however, has proved, that it had been already used by the Arabs (*q*); that afterwards, indeed, no mention had been made of it for several ages, till, in process of time, *Fernelius* and several others, whose names he gives us, recommended purges as useful to carry off the morbose matter, the principal cause of the secondary variolous fever (*r*). This celebrated author likewise tells us, in the places I have cited, that he made no distinction of days in purging his patients, after the drying up of the pimples, in case any angry symptoms required immediate opposition; provided, always, the pulse and breath were yet tolerable. For, when, in this disorder, the vital functions come to be greatly impaired, we can scarce look for any thing but death; and the physician would be thought to have murdered the patient, whose life it was impossible for him to save.

Morton, himself, who looked upon a diarrhæa in the small-pox, when preceded by a spitting, as an almost infallible sign of death, unless it could
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(*q*) De Purgantibus in Secunda Variol. Confluent. Febre, pag. 98.

(*r*) Ibid, pag. 99, & seq.

be immediately checked (*s*); in another place, however, admits, with some restrictions, the use of gentle purges (*t*).

Friend had inscribed his little treatise on purging, in the second fever of the small-pox, to the illustrious Mead; and Mead, in treating of the same disorder, praises the very same method, but confining it to the use of gentle cathartics (*u*). Besides, he is for refraining from purges, when the belly happens to be pretty loose, through the natural smoothness of the intestines, or flows of itself, in consequence of the frequent use of clysters during the preceding stages of the disorder. In these cases, indeed, he justly considers the use of purges as unnecessary, or at least would have them postponed for some days, for fear of weakening the patient too much. At the same time, he wisely recommends the examining every part of the patient's body with great attention, to see if any pus continues lurking under the dried up scabs; for, in this case, there is no necessity for purging, but just giving the collected pus a free passage, and an opportunity of escaping; a precaution I have just now spoken of.

This method has been since approved of by several other famous physicians, especially as useful to drive the relicks of the small-pox out of the body, after the drying up of the pimples, lest they should lay a foundation for new disorders (*w*). Nay, Huxham expressly tells us, that
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(*s*) Pyretolog. cap. 9, pag. 96.

(*t*) Ibid. cap. 10. pag. 127.

(*w*) Freder. Hoffman, tom. III, sect. I, cap. 10. pag. 243. Violante de Variol. et Morbil. pag. 137.

he found nothing succeed better against the secondary fever itself, than the repeated use of cathartics, now and then adding *calomel* and sometimes interposing peregories; and that he had tried this method, as well in the persons of his own children, as a great many others (*x*).

Now, if I may be allowed to add my own observations to the testimonies of so many great men, I can, with great safety, aver, that I have very often seen diarrhæas, which came on of their own accord, while the pimples were drying up, prove very serviceable; and have frequently observed a large quantity of the most foetid matter carried off by stool, with the assistance of mild purges, to the sudden and great ease of all the symptoms, and considerable diminution of the fever in particular; I repeated these my cathartics three or four times, with a day or two between every exhibition of them; nor had I ever reason to repent my having done so. Nay, I have very often observed, that many of the disorders, into which persons had fallen, after they had got the better of the small-pox, yielded, as well as I could wish, to a few doses of purging medicines. This salutary effect of purges *Morton* himself, however averse to the use of them in the small-pox, was obliged to confess (*y*). He likewise observed, that sometimes hebetude, attended with a melancholy delirium, succeeded the small-pox; and he ascribed these symptoms to the relicks of the variolous poison, and the free use of opiates, which the violence of the past disorder had rendered necessary: in this case he had recourse to gentle cathartics, which he
knew

(*x*) De Aere, pag. 37, and Essay on Fevers, page 164, & seq.

(*y*) Pyretolog. cap. 10. pag. 133.

knew would act by epicrasis without causing any tumult in the patient's body, or otherwise weakening him; and this he did with good success; which success, however, he thought proper to attribute to the bark, blisters, and corroborative remedies, which had been likewise administered (z). I remember a time, when the small-pox prevailed epidemically in a certain country town, and very few of those who had it troubled a physician; but the consequence was, that several, who recovered, continued to be afflicted with hebetude, stupidity, and obliviousness, though they had not taken any opium or opiates during any stage of the disease; some of them applied to me for advice, with regard to these complaints; and as many as did, I repeatedly purged with the greatest success.

It is well known, that many things, which, if left in the body, might prove very prejudicial to it, come off by the same passage with the urine; for which reason, it is no way surprising, that physicians have sometimes seen the morbose matter evacuated that way. *Morton* observed a copious and almost diabetic discharge of limpid urine succeed a spitting, that went off hastily; and that to such good purpose, that the fever, shortness of breath, stuffing in the chest, and other very threatening symptoms, were immediately assuaged by it to a surprising degree (a); *Lobb* likewise observed, that a copious excretion of urine did good (b); and, therefore, is for having patients, in the last stage of the small-pox, use mild diuretics on those days, on which they do not purge (c).

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I myself

(z) *Ibid.* pag. 134.(a) *Ibid.* pag. 41, 42.

(b) Of the small-pox, pag. 472.

(c) *Ibid.* pag. 52.

I myself have observed, in the distinct small-pox of a good kind, but attended with a great number of pimples, a copious discharge of urine from the eighth day to the eleventh, prove of service to the patient. On this occasion, I could not help being surpris'd at the periodical alterations in this excretion; for, from seven in the evening, till twelve, the urine came away in great abundance; and, but very sparingly, during the rest of the four and twenty hours. To second this effort of nature, nothing more is requisite, than that the patient should drink plentifully of some thin beverage, such as milk-whey, or milk diluted with three times its quantity of water; there seems to be no call, on this occasion, for any more powerful diuretics, since the discharge of urine has sometimes, of itself, proved so very copious, as to require being checked, lest it should exhaust the body too much.

The third curatory indication, as was said in the beginning of this paragraph, is to prevent the humours becoming putrid; a thing very much to be dreaded on the present occasion; or, to correct them as much as possible, if they have already taken a turn that way. It is but too well known by all those, who have attended persons ill of the small-pox, with what a nauseous smell this disorder is attended, especially the confluent kind of it. Hence it is, that *Sydenham* has here and there in several parts of his works, and with great reason, ordered no food to be given to patients in the small-pox, but such as in its own nature is qualified to resist putrefaction; and accordingly, on this principle, every where condemns all animal food, whether of the solid or liquid kind; and allows nothing but mild things, and in their own nature prone to acescence, such as oaten and barley gruels,

gruels, apples prepared with fire, milk, and small beer. We have already seen, that the Arabs had, a great while before him, recommended the same kind of diet. Cool air, kept fresh by the frequent admission of that abroad, lest the poor sick wretches should be obliged to breathe that contaminated by the putrid effluvia from their own bodies, suits, likewise, this indication; concerning this matter, the reader may consult what has been already said of it, in the Commentary on the 1394th Aphorism. Nothing, therefore, can be worse, than to pen up, as it is too much the custom, several persons ill of the small-pox in the same room: numbers of the poor, whose humble habitations will not admit of so much caution, perish merely for want of it. It is well known, that, when hospitals happen to be too much crowded, the disorders of the patients in them are sure to take a bad turn; that their wounds will not heal; that even those, who attend them, let their health be ever so good in other respects, are apt to be infected with a fever of the worst kind, which often spreads the contagion far and near; and all on account of the great quantity of putrid steams with which the air, in these places, is at such times loaded. It is for this reason, that the linen of persons in the small-pox should be changed, when it has imbibed from the pimples any considerable quantity of pus, or, what is still worse, of the ichor peculiar to the confluent kind; and must, of course, prove not only very uncomfortable to the poor patients, on account of its growing stiff about them, but likewise very detrimental, in consequence of the very fœtid smell it then exhales. No doubt, many have condemned this changing of linen in the small-pox, as a very bad practice. Thus, *Diembroeck* used to exhort his patients pa-

tiently to put up with this stench till the fourteenth day; nay, he is not afraid to say, that he has seen thousands bear this *aliqualem fetorem*, “slight stench,” without suffering by it, and others, on the contrary, more or less hurt by the changing of the linen about them before that period (*d*). Now, this strange notion has got such fast hold of some people, that it might be as much as a physician’s reputation is worth, to order, or even allow, this changing of linen, about any of his patients in the small-pox, in case he happened not to recover. I shall never forget my having sometimes found this “slight stench” of *Diembroeck’s*, so very strong, as to be ready to faint at it, though by no means, I think, delicate enough to be affected with trifles. When young children, who are perpetually fouling their linen with stool and urine, happen to have the small-pox, they would soon rot to the bone, were their linen to continue so long without changing. Hence it is, therefore, that the poor tender mothers are obliged to do that, even in spite of themselves, with regard to such little patients, which they would be afraid to attempt in grown up persons; and yet, when they do it with the proper precautions, no bad consequences are ever known to follow. Indeed, I have known poor patients revive again, as it were, on my ordering them to be rid of such nasty, loathsome, incumbrances. But the fresh linen that is given them ought to be warm and dry, and previously exposed to the vapour of amber, olibanum, or mastick, to take off the smell of the soap, which linen washed with it is apt to retain; and the change should be made with as much expedition

expedition as possible, lest the patients should, in consequence of being kept too long naked, begin to feel any cold, and shiver, which *Huxham*, with a great deal of reason, looked upon as a bad sign (*e*): for, in this case, the whole skin is contracted, the patients begin to grow pale and uneasy, so as to give but too just room to apprehend some disagreeable consequences. This I myself have seen happen, when the shirt proved too stiff with the pus it had imbibed to be readily taken off, and the clean one, which was to replace it, had in the mean time lost the warmth which had been given it. To prevent all these delays, I always did all I could to make those about my patients in the small-pox, strip them of their linen, by cutting it to pieces, without any further ceremony, as by that means it could be easily got off, before the warm clean linen has time to grow cold. I likewise took care to see the shirt thus cut away immediately committed to the flames, as, in washing alone, it might spread the contagion far and wide; of which I have already given an instance, in my commentary on the 1382d aphorism. Many are of opinion, that the best linen we can use on this occasion, is that which has been already worn by a person in good health, at least for some hours. A discreet physician will sometimes yield to vulgar prejudices in things of no great moment, in order to be allowed his own way in others, that are; like that of rescuing a poor small-pox patient from so much nastiness; for, I must confess myself of the same opinion with the celebrated *Huxham*, who did not think it necessary to use such precaution, of having
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(*e*) De Aere et Morbis Epidemicis, p. 37.

the clean linen, intended for a person in the small-pox, previously seasoned, as it were, on the back of one in health (*f*). It is enough, that it be perfectly dry and well aired: at least, it was all the precaution I took on this occasion with my own children, and as many more, as I could prevail upon; and I never had the least reason to repent it, provided the other, foregoing, precaution, with regard to the speedy changing of the patient, had been duly observed.

Sometimes, indeed, the malignity of the small-pox, especially of the confluent kind, happens to be so great, that it is impossible to hinder the humours from becoming putrid by any antiseptic diet, or any other of those means, which have been already recommended for that purpose. *Sydenham* bitterly complains, that this has been his own case in that kind of small-pox, which he calls anomalous, as well because it took up more time to perform its course, as because the pimples in it, when ripe, smelt to such a degree, that he could scarce approach the persons infected with the worst sort of it (*). The method which he had before tried, with success, in the confluent small-pox, he found of no service in this very worst kind of that disorder, to conquer the putrefaction attending it. On these occasions, therefore, he gave in the fifth or sixth day from the beginning of the disorder, *vitrioli spiritum*, “the spirit of vitriol,” dropt into small beer, of which the patient was to drink as much as he pleased; and he had the satisfaction of seeing it succeed, even to a miracle (*g*). For, the face swelled, both the

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earlier

(*f*) An Essay on Fevers, p. 162, 163.

(*) Sect. V. cap. 4. p. 294.

(*g*) *Ibid.* p. 299.

earlier and the better; the interstices of the pimples grew red; the pimples themselves encreased in size, filled with a yellow humour, and ripened the sooner; provided the patient drank freely of this salutary mixture: hence, when he found they did not, he mixed some drops of the spirit with distilled water; and, sweetening the mixture with syrup, gave it, in the form of a medicine, thereby to compensate the too sparing use of the spirit in their common drink. This spirit, it is certain, effectually resists putrefaction, and is, at the same time, of service to prevent the too great solution of the humours. He further, expressly, declares, that he never could observe any evil consequences attend even a copious use of this mineral preparation; or, even that the face was much marked, when, instead of a sharp corroding ichor, the pimples filled with a mild purulent matter (b). I have often, in my own practice, when the violence of the putrefaction gave me just room to apprehend great danger, used the same remedy with success; and I have known others have equal reason to speak well of it. *Hoffman*, indeed, tells us of his having observed, that such, as had made a free use of any acid mineral spirits, were very deeply pitted: *in his*, says he, *illud singulare fuit, quod vapulae sicciscentes magnam exercuerint corrosivitatem, profundius serpendo, et depascendo subjectam carnem, insigni cum dolore, ardore, et inquietudine:* “ in these, there occurred this remarkable circumstance, that the pimples, in drying up, proved extremely corrosive, sinking into and eating away the flesh under them to a greater depth, and not without causing extraordinary pain, heat,

(b) *Ibid.* p. 300, 301.

“ heat, and uneasiness (i).” But, then, we are to take notice, that these remedies were taken even before the disorder, and during the first days of it, and chiefly with a view to prevent any pimples coming out; or, at least, greatly lessen the numbers of them; from all which it is but reasonable to conclude, that they were taken for a longer time, and in larger quantities, than *Sydenham* thought they were proper. This appears by *Hoffman’s* telling us, *complures ex illustribus aliquo antivariolosi liquoris absumpsisse ante et post invasionem uncias*: “ that several persons of distinction
 “ had taken some ounces of the antivariolus li-
 “ quid both before and after their being seized
 “ with the disorder (k)”. Now, it was in these persons he observed the deep cutaneous erosions he speaks of. I have already related, on another occasion, in my commentary on the 1110th aphorisms, a case from *Vulpius*, in which the skin of a person, who had the misfortune to swallow a large quantity of oil of vitriol, broke out all over with very foul ulcers; and, surely, we need not be surpris- ed, that, when causes are the same, the same effects should follow. We are, likewise, to take notice, that *Sydenham* never dreamed of making the pimples come out in less numbers, by the use of the spirit of vitriol; it was in the confluent small- pox of the worst kind, and on the fifth or sixth day of the disorder, when all the pimples were al- ready come out, that he had recourse to the spirit of vitriol; and then, too, with no other view, than that of preventing the putrefaction of the humours, or correcting them, if already putrified.

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Besides,

(i) *Medic. Ration. Systemat.* tom. IV. Sect. I. cap. 7. p. 169.

(k) *Ibid.*

Besides, he made his patients take it in their common drink, and well diluted; so as to have nothing to fear from its too great acrimony. He sometimes, likewise, gave it in the state of contagion, by way of a cooler, as has been observed in the commentary on the 1396th and 1399th aphorisms. But, as we are by this time sufficiently acquainted with the great efficacy of the Jesuit's bark in restraining gangrenous putrefaction; and as, besides, the celebrated *Pringle* has experimentally demonstrated, that such is the antiseptic efficaciousness of this medicine, as not only to prevent putrefaction, but even correct it, when present (*l*),— it seems well worth while to make some discreet trials of its virtues in the small-pox.

Morton, who, it is well known, made a liberal use of Jesuit's bark in several disorders, both employed it himself, and recommended it to the notice of others, in the small-pox. But, being a stranger to its antiseptic virtues, he never gave it, but when he found the fever, kindled about the beginning of the maturation of the pimples, attended with daily exacerbations and remissions; a thing, he, however, observes, very seldom happens. He, on these occasions, gave the bark between the fits; and the consequence was, that, in two or three days, the fever took its leave of the patient, and the pimples ripened very quickly, almost in the same manner they might be expected to do in a mild small-pox (*m*). In this *Mead* agrees so far with *Morton* as to recommend the bark, when a simple or double tertian happens
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(*l*) Observations on the diseases of the army in append. p. 378, et seq.

(*m*) Pyretolog. cap. 9. p. 101. & cap. 10. p. 121, 122.

to be combined with the variolous fever (*n*). But, as *Mead* was no stranger to the efficacy of the bark in the gangrene, he administered it in the bloody small-pox, as he called it, viz. that kind, in which the blood, being dissolved, and likewise highly disposed to putrefaction, issues, various ways, from the body, and the most powerful antiseptics are indicated (*o*). The great *Monro* observing, that, in the cure of gangrenes the gangrenous sanies was converted by the use of the bark into a well digested pus, he imagined, that the same remedy must prove of service in the worst kind of small-pox; and he had the pleasure to see his conjecture verified to a surprising degree: for, the empty pimples filled with pus; the thin sanies changed to a thick white pus; the petechiæ gradually grew pale, and at length entirely disappeared; and, to crown all, the pimples dried up sooner than usual: the quantity he gave of this miraculous medicine was from ten to forty grains, in substance, but in such different forms, as he found most agreeable to the patient: to infants and others, who could not be brought to take it at the mouth, he administered it by the anus, in the quantity of half a drachm to two drachms, adding a small matter of warm milk, with syrup of poppies, or diascordium; but he, first, evacuated their intestines with a laxative clyster. He, however, candidly takes notice, that the bark did hurt, when the lungs happened to be greatly stuffed; and adds, that all he expected from the bark was a bland concoction of the morbose matter by a kindly suppuration (*p*). We find the

(*n*) De Variol. et Morbil. p. 69.

(*o*) Ibid. et p. 45.

(*p*) Medical Essays, tom. v. Part I. Article X. p. 102.

same councils and cautions concerning the use of the bark in *Huxham*, who, to the case in which *Monro* found it of disservice, adds that of a hard and swelled abdomen; in this state of things, he condemns the use of the bark, at least till the abdomen has grown soft and subsided (*q*).

The fourth indication was to keep the fever at such a just medium, as to prevent its growing too violent or too weak; for, *Lobb* has very justly remarked, that, in either of these cases, there is reason to be alarmed; especially about the eleventh day, in the confluent small pox, when the spitting begins to cease (*r*). In what manner, and by what means, this desirable medium may be obtained, has been already set forth in the commentaries on the 610th and 611th aphorisms. It is, indeed, a general maxim with physicians, to check the violence of the fever, when it happens to be too great; but, then, they are not agreed with regard to the method and medicines, by which it ought to be attempted.

It cannot be denied, that the violence of a fever may be greatly abated by opiates, when given with all the caution they ought to be. *Sydenham*, however, who was bold enough in the use of them, owns, that they had not always the success he could wish for in this case; so that he sometimes found himself under a necessity of bleeding his patients, and exposing them to the open air, especially when they happened to be seized with a phrenitis during the dangerous period of the disorder; and the propriety of this method he confirms by a pretty surprising case, of which I have already made mention, on another occasion, in my commentary

(*q*) *An Essay on Fevers*, p. 152, 153.

(*r*) *Of the small-pox*, p. 43, 44.

mentary on the 743d aphorism, but think I may now relate again. I was as follows. A young man, who happened to be ill of the small-pox in the height of summer, was seized with a phrensy; and, afterwards, being thought to be dead, laid out on a table, with nothing but a sheet upon him: in this condition, however, he came to himself again; and in some days was as well as ever (*s*). But, near the end of his life, this great man, confirmed still more in his opinion by several experiments, laid it down as an unquestionable maxim, that this secondary fever is a disorder quite different, not only from the small-pox, but from the fever which precedes the eruption of the small-pox pimples; and he thought nothing was fitter to allay the violence of this fever, than copious bleeding; nay, he candidly owns, that opiates alone were not sufficient for that purpose (*t*): several famous physicians have adopted *Sydenham's* method, and found the blood taken from the veins of such patients perfectly viscid, and of an inflammatory thickness and tenacity, which qualified it the better, when driven by the great violence of the fever into the narrow extremities of the arteries of the lungs, brain, &c. to be stopt and stagnate in these parts; and, in a short time, produce mortal inflammations (*u*). What further confirms this inflammatory disposition assumed by the blood in the course of the small-pox, is the ophthalmiæ, furunculi, &c. with which those who have got the better of that disorder, are so often troubled; of this the reader

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may

(*s*) Sect. III. cap. 3. p. 194.

(*t*) De Febre Putrida Variol. Conf. ibid. p. 693.

(*u*) Friend de Purgant. in Secund. Febre Variol. Passim. Huxham on Fevers, p. 158. Hillary on the small-pox, p. 121.

may see more in the commentary on the 1384th aphorism.

Some, indeed, there are, who have condemned bleeding; amongst whom, the celebrated *Lobb*, as having written exceedingly well on the small-pox, deserves to be particularly mentioned (*w*). He is absolute against bleeding, unless where a phletora requires it. But, then, he was of opinion, that this too great violence of the secondary fever might be allayed, with equal safety, by other remedies. But, strictly speaking, there can be no such thing as a phletora in this stage of the disorder; for what is a phletora, but too great a plenty of good blood (see Sect. 106)? whereas, in the case we are speaking of, the blood can by no means be entitled to that appellation. There may, however, be too great an abundance of the humours, which move in the vessels; and these vessels may be distended to such a degree, when the blood begins to stagnate in the very narrow extremities of them, as to give sufficient room to apprehend great and sudden evils on that account, especially in the brain and lungs. In the pleurisy, surely, and other inflammatory disorders, it is not the less necessary to bleed very often, because, before such disorder the patient was not phletoric; or, if he was, was cured of his phletora, by the first copious blood-letting. The same reason indicates blood-letting in this stage of the small-pox, when the pulse is hard, swift, and full; the carotid arteries beat very violently; the patient begins to rave, nay, and his lungs to swell, as is observed in peripneumonic patients. It appears, from several observations, that a violent bleeding at the nose, a discharge of the menses,

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(*w*) Of the Small-pox, pag. 140, &c.

or a flow of the lochiæ, has been sufficient immediately to check the justly alarming violence of the secondary fever, and snatch the patient, as it were, from the jaws of death. Now, why may not art endeavour to copy nature in these her salutary exertions? especially, when the danger happens to be so imminent, as in this case it often proves, that the poor patient shall go off in an hour or two. I have seen a young man copiously bled on the eleventh day, when both his arms were so covered with pimples, that the surgeon was obliged to force his lancet through an heap of them; yet, he happily recovered. I am not ignorant, however, that, on these occasions, it is as much as a physician's character is worth, to prescribe blood-letting. Most people look upon it as a great crime: and should the patient die, would be sure to say it was the physician's fault, and not the disorder's; but an honest physician will ever prefer his patient's welfare to his own reputation. We should, however, before we venture to go such lengths, inform the patient's friends of the very dangerous way he is in, and that it is impossible he should live, unless something is done directly to relieve him. I must own I never made any difficulty of prescribing bleeding in these pressing circumstances, though I cannot say I always found the patient's friends willing to consent to it: but, it was enough for me to point out what I thought must be of service to him.

There is no denying, however, that it is not in every case, we are to prescribe bleeding; for, it sometimes happens, that, in this very stage of the disorder, the patient is seized with a great uneasiness, though his pulse be weak and unequal; that his vital powers droop; his face grows

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pale,

pale; his extremities are covered with a cold sweat; now, it is plain, that we are not in these cases to think of allaying any feverish violence; we are rather to use our utmost efforts to raise the drooping vital powers. *Huxham* himself, who is for letting blood, directly, in the first of these cases, advises, in the second, when the symptoms I have been enumerating are to be observed, the application of numerous blisters to several parts of the body at the same time; and contends, that it is almost impossible to make our internal remedies too warm; nay, he expressly tells us, he has seen the free use of warm wine prove exceedingly useful on such critical occasions (*).

The efficacy of clysters in allaying the too great violence of a fever has been already set forth in the 610th section; and they are likewise useful in the small-pox, inasmuch as they promote the evacuation of the morbose matter by stool, and help the action of gentle purges; it is to this we are to attribute the great serviceableness of them. Now, as, in this stage of the small-pox, the patient's strength is sometimes impaired, not only by the disorder itself, but in consequence of the slender diet allowed him in it, it is customary to allow the use of flesh broths; that is, in case the fever be moderate; always taking care to season them with a little salt, and lemon or orange juice, to prevent the putrefaction, which, on this occasion, is so much to be dreaded. When the fever is very violent, the patient must be kept to his low diet; for, it is better to rescue him, with all his weakness about him, from the present danger of death, than load his body with too rich food,
such

(*) Essay on fevers, pag. 158.

such as his stomach is not strong enough to digest; as, when the storm is over, it will be no hard matter to restore him to his strength by a good nourishing diet and agreeable cordials.

Hence we may gather, at what time the moderate use of pure wine may be expected to do good; viz. at that time precisely, when the patient's strength is almost gone, and his pulse weak. But, as, when the disorder happens to be heavy, the fauces and œsophagus are often overrun with pimples, and their scabs, on account of the greater humidity of these internal parts, fall off sooner than those of the pimples on the external surface of the body, pure wine is apt to prove painful to them, on account of their extraordinary sensibility; it may, therefore, in such cases, be diluted with barley-water or bread-water; for, this mixture, with the addition of a little sugar, and a bit of fresh lemon-peel, makes a most agreeable draught, and very proper not only to restore the patient's strength, but effectually prevent or check the putrefaction of his humours. We may, likewise, like the English, prepare a very palatable vinous milk-whey, by pouring half a pint of wine on two quarts of boiling new milk, and then straining off the curds. Several other drinks of the same kind may be made of barley-water and cherries, straw-berries, or other very ripe fruits, by just adding to the mixture what wine the physician may think requisite safely to rouse the drooping strength of his patient.

The use of opiates has been already spoken of, in the commentary on the sixth number of the 1399th aphorism.

Having thus considered every particular relating to the cure of the small-pox, it may not perhaps

perhaps be amiss to say a word or two of certain symptoms, which sometimes attend it.

Convulsions, with which children and young people are pretty often troubled in the stage of contagion, especially about the time of the eruption, and generally without any bad consequences; nay, as I have already taken notice, *Sydenham* flattered himself with the hopes of seeing the disorder prove very mild in such patients, as often as their convulsions happened to precede the eruption. Be that as it will, these convulsions may be productive of very strange disorders in the body, especially when they happen to be violent and frequent, as has been proved in the chapter on the Epilepsy. I have known the making infants lie upon one side or the other, instead of placing them supine on their backs, prove of great service to them.

Sudden and very troublesome pains, I have sometimes likewise seen. Thus, in a girl of seventeen, ill of a distinct small-pox, and that, too, attended with very few pimples. I could not help admiring at her being suddenly taken, at the time of suppuration, with very cruel pains, about the soles of her feet, which in some time spread over her legs and thighs, so as to throw her into convulsions: and, afterwards, gained her arms. I had read in *Diembroeck*, that, about the time of eruption, or when the pimples begin to ripen, a great pain and itching is sometimes felt in the palms of the hands and the soles of the feet, in consequence of the skin being too thick in these parts to let the pimples make their way through it; for which reason, he advises us, in such cases, to foment them with warm milk and water, or some emollient

emollient decoction (y). I find, too, that *Rhazes* had observed something of the same kind. His words are: *Quaudo sub finem variolarum tumultus fit, et hinc ægrotum occupat dolor vebementissimus, vel in crure, vel in manu, vel in alio aliquo membro; aut pustulæ celeriter convertuntur in viridem et nigrum colorem; tum postea vires fiunt debiliores, quam erant antea, augetque frequens reditus doloris debilitatem, et varios colores capit hoc membrum; hæc sunt interitus signa, Quod si tamen nihilominus augeantur vires, incolumis evadet æger, et membrum illud sanabitur*: “When there happens to arise any tumult in the body towards the end of the small-pox, and the patient is, in consequence of it, afflicted with a very violent pain, either in a leg or a hand, or any other member; or the pimples suddenly turn green and black; and then, after the patient has grown weaker than he was before, the frequent returns of the pains still add to his weakness, and the pained member puts on various hues; these are signs of death. But, if, notwithstanding all these appearances, the patient encreases in strength, in that case he will recover, and the member get well again.” But, then, he orders great care to be taken not to let any thing cold get at such limb; recommending, at the same time, scarification, or immersion in warm water (z). I therefore took care to have the pained soles of the girl, whose case I have been speaking of, immediately fomented with the most emollient decoctions; but I could not perceive they gave her any ease. On the contrary, the same pains began to spread themselves over her legs and thighs,

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(y) De Variol. et Morbil. cap. xii. pag. 286.

(z) Mead de Variol. et Morbil. p. 195. 196.

and afterwards got even to her arms; nay, the violence of them was such, as to throw the poor creature into convulsions; upon this, therefore, I gave her liquid laudanum, and repeated the dose, till she found, with regard to her pains, all the ease I could wish; and then the disorder performed the rest of its course without giving her any further uneasiness; and in a short time she was perfectly well again.

A swelling in the inguinal glands. I once met with a sudden swelling of this kind, at the time of the maturation of the pimples, in a boy ill of a dangerous confluent small-pox; but he had the good fortune to recover, and the swelling went off with the disorder.

Suppression of Urine. This symptom was observed by *Sydenham*, especially in young people, during the state, or declination, of the small-pox of the distinct kind (*a*): but he owns, that, though he tried some diuretics on the occasion, he found nothing answer better than getting the patient out of bed, and making him take two or three turns about the room with the assistance of those about him; this little exercise being soon followed by a copious discharge of urine; and several physicians assured him, that they had tried the same method with the same success (*b*). In another place, in which he gives us the use of a young man ill of a confluent small-pox, he takes notice, that the patient, after complaining now and then of a suppression of urine, came at last to make water by placing himself on his knees, but without getting out of bed for that purpose (*c*). It looks, therefore,

(*a*) Sect. III. cap. 2. pag. 174.

(*b*) Sect. III. cap. 2. pag. 197.

(*c*) Dissert. Epistol. pag. 476.

fore, as if the stimulus requisite to give us that benefit of nature was encreased, by the urine's being made to press on the neck of the bladder, as it must do in an erect posture of the body; much more at least than in an horizontal one. I have likewise very often seen a clyster succeed on such occasions, and bring the patient to make water, while he sat upon the pan, with his body in an erect posture. *Mead*, too, has recommended this method, and advised the *sal mirabilis Glauberi* to be used on these occasions, as qualified to procure an evacuation by stool and urine, at one and the same time (*d*).

Bloody Urine. This complaint I have already taken notice of, in my commentary on the 1396th aphorism, where I said, that it was universally looked upon as a dangerous symptom. For, whether it is owing to the renal tubes being dilated by the violence of the fever, and, of course, letting the blood pass through them; or to the blood's being so dissolved by the putrid stimulus, as to be qualified to make its way into the more minute vessels, in which it is not naturally contained, it always forebodes great danger. This symptom, however, seems to arise ofteneft from a sharpness in, and too great a solution of, the blood; and this was the opinion of *Hoffman*, (*e*); but, he thought, that, in this case, simple milk-whey, and buttermilk, were of more service, than all the most elaborate medicines art could prepare. These things, no doubt, are good to correct acrimony and resist putrefaction; but, it must be allowed, that sometimes the solution of the blood is so great, as to require more powerful remedies. Of this
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(*d*) De Variol. et Morbil. p. 62.

(*e*) Medic. Ration. System. Sect. I. cap. 7. pag 159.

we have a very remarkable instance in a man ill of a confluent small-pox, who, on the tenth day from the eruption, was seized with a phrenzy, attended with an high fever; not only his urine was bloody, but the blood flowed from his mouth, nose, eyes, and ears, and even from the pimples themselves, all over his body. As neither blood letting, nor strong styptics and paregorics did him any service, he was made to take forty drops of oil of vitriol in a large vehicle; and the same quantity, half an hour after. The consequence was, all these hemorrhages immediately ceased; he fell asleep; and, when he awoke, it was without delirium or fever; and afterwards he mended by degrees, till he was perfectly well again; when he averred, however, that, on taking this powerful remedy, he had experienced, in his body, so great a tumult, such sharp pains, and so much uneasiness, that he could not help candidly confessing, that an easy death would be much more welcome to him, than life itself, were it to be purchased again upon such terms (*f*).

Besides, we cannot, I think, pay too great attention to that practical advice, which several eminent physicians have given, *viz.* that sometimes another disorder may happen to be combined with the small-pox; or, at least, that this last is often attended with symptoms, which do not owe their origin to the peculiar genius of it, but some other kind of epidemical miasma. The probability of this doctrine is founded on some scrupulous observations of the disorder. I have already taken notice, in my commentary on the 1382d aphorism, of a very singular case, in
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(*f*) Holland, Observations on the small-pox, page 92.

which a boy of three was inoculated for the small-pox, at a time the meazles epidemically prevailed. Four days after, there appeared a phyma in the little wound made for that purpose; on the seventh, the fever peculiar to the meazles appeared; and, on the eight and ninth, it produced the meazly pimples: the fever then abated by degrees, till the twelfth day, when it encreased again; on the fourteenth, a distinct small-pox shewed itself. In this patient's body, the morbillous and variolous contagions existed together; yet each produced, at different times, its own different disorder; nor does it appear, that the operation of the one interfered much with that of the other, as the variolous contagion did not begin to act, till the morbillous one had, in a manner, done acting. Still, certain famous physicians think, they have seen some other epidemic constitution produce anomalous symptoms in patients, who were, at the same time, ill of the small-pox. And have, therefore, recommended a suitable alteration in the method of cure (g). Huxham observed, as has been already taken notice, in the Commentary on the 1387th Aphorism, that, in the years 1740, 1741, and 1745, there raged a most malignant fever, especially in the armies, fleets, and prisons; and that all those had the small-pox very dangerous, who took it while they were exposed to the contagion of such fever; whilst, on the other hand, several had the small-pox very mild; who took it in places, which, though in the neighbourhood of the hospitals where the patients from the infected fleets and armies lay, had no communication with them (b).

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(g) Hillary on the Small-pox, page 119.

(b) An Essay on Fevers, pag. 131.

I have already taken notice, that *Morton* and *Mead* have sometimes seen an intermitting fever combined with the small pox; and that, in this case, they recommended the bark. *Sydenham*, as I have likewise already remarked, observed, at a time that the small-pox was very rife, an acute continued fever, which he called a variolous fever, because it was attended with all such symptoms, as usually attend the small-pox, except the eruption of pimples, and those which are the consequences of such eruption. All these circumstances, taken together, are, certainly, sufficient to make us suspect, that sometimes, perhaps, other epidemic morbose causes may concur with the variolous contagion, though this last is so true to itself; that, even when it happens to meet with the morbillous contagion in the same body, it shall not suffer itself to be brought into action by the morbillous fever; yet, when that fever has subsided, begin its course, to perform it after its own way. By duly attending to all these matters, skilful physicians may enable themselves to determine, what are the disorders which are fitted, by their nature, to join the small-pox. For my part, I must content myself with pointing out to their consideration a thing, which deserves it so much.

As the small-pox pimples sometimes leave pretty deep pits in the skin, and often utterly spoil that wonderful beauty, nature has bestowed on the human face, it is not without reason physicians have been solicitous to use every method art could dictate, to prevent or correct such disagreeable consequences.

I have already taken notice, in my commentary on the 1398th Aphorism; that, when few pimples came out on the face, it is looked upon

as a good sign; and the contrary, when they come out in great numbers; for which reason, in treating of the cure of the disorder, I recommended the use of bathing, friction, epispastics, &c. from the very beginning of it, in order to divert the violence and discharge of the morbose matter from the superior parts. Now, it is plain, that the doing of this must likewise help to preserve the beauty of the face; for, the fewer the pimples are which come out on that part, the fewer, *cæteris paribus*, must be the little scars left by them upon it.

Now, all these pits are owing to the pus, or ichor, contained in the pimples, corroding the skin itself. The milder, therefore, the matter contained in the pimple, the less the danger of deformity must be; and, of course, it must be less in the distinct, than in the confluent small-pox.

Moreover, the more the pimples project above the surface of the skin, the less the skin must be corroded by their contents; for which reason, when the pimples happen to be flat and set, and, as it were, buried in the very substance of the skin, then the pits must be in great number. I have often, as I just now observed, seen the pimples in drying up and falling off, after a mild and distinct small-pox, in which they happened to be very large, leave behind them, instead of pits, red prominent tubercles, which, after some weeks, subsided of themselves by degrees, by which means the skin recovered its pristine smoothness and evenness. But sometimes, too, it happens, that such pimples, even in the same kind of small-pox, sink deeply into the substance of the skin, at the same time that they tower so much above its surface; and so leave pretty deep, though not very numerous pits, in the face, on

account of the substance of the skin having been destroyed, in consequence of the great quantity of pus they contained. On such occasions, I could always discern, about the bottom of these pimples, at the time of their ripening, a red circle much broader than that about the bottom of the rest; and this proved the sign of a deeper suppuration. When this happens to be the case, it must be of service to open such pimples, and then treat them, chirurgically, as so many open ulcers; for, by the use of the oil of eggs, or other very soft substances of the same kind, we may contrive to soften the bottom of the ulcer to such a degree, and defend it so well from the corrosiveness of the pus, as to keep the vessels open and in a condition to restore the lost substance; and thus entirely fill up the pits already made; or, at least, prevent their being, by a great deal, so deep, as they must otherwise be.

It is, indeed, true, that the distinct small-pox of the mild kind seldom leaves any marks behind it, as *Sydenham* has already observed; and this, he says, happens chiefly during the last six months of the year; for he takes notice, *pustulis faciei deciduis succedere squamulas furfuraceas, quas aliquando excipiunt foveæ cutis. Etenim, ubi primum decidunt pustulæ, nulla adhuc in cute cernitur inequalitas: at vero, hujusmodi squamis exsurgentibus, recedentibusque vicissim, tandem excavantur foveæ istæ, quæ sæpenumero in convalescentibus ab hoc morbo diu visuntur*; “ That the pimples on the face, “ when they come to fall off, are succeeded by “ little furfuraceous scales, and these, sometimes, “ by pits in the skin. It is true, indeed, that, “ when the pimples first fall off, no unevenness “ can be as yet discovered in the skin; but it is “ otherwise,

“ otherwise, when these scales come to start up
 “ and peel off from it; it is then these pits are
 “ made; and they may be discerned in the faces
 “ of those, who have had the small-pox, a long
 “ time after they have got the better of the dis-
 “ der (*i*).” I have already taken notice, that
 persons, who have had the small-pox, continue, a
 pretty long time, in a condition to spread the in-
 fection; the whole of their skin, in those parts
 which were covered with pimples, continues to
 look red for several weeks, the cutaneous vessels
 still remaining dilated; and some morbose par-
 ticles keep still ouzing through the skin, but stick
 in the spots formerly occupied by the pimples,
 these spots being still stuffed with humours too
 thick to let such particles easily escape: hence it
 is no way surprising, that the outside surface of the
 skin should sink in, to make room for such furfura-
 ceous scales, and so form itself into pits. But the
 pits thus produced are never very deep; and,
 when they happen in young subjects, almost en-
 tirely vanish with age, as I have experienced in
 myself, and seen in a great many others.

But, there is reason to apprehend a greater de-
 gree of deformity in the confluent small pox; and,
 accordingly, a physician, in that case, ought to be
 very cautious how he promises, either his patients
 or their friends, perfect immunity with regard to
 that point, about which many are more concerned
 than about any other. For, should it happen
 otherwise than he has foretold, he may be sure of
 having all the blame laid at his own door, and not
 the disorder's.

It appears, by the foregoing history of the
 small-pox, that, in the confluent kind, of the

worst sort, the pimples, instead of pus, contain an ichor little better than gangrenous, which has been known to corrode, not only the subjacent skin, but sometimes even the cartilaginous parts of the nose. Now and then, large portions of the skin mortify, and separate from the rest; leaving behind them white, smooth and shining scars, while the contiguous parts retain their natural colour; and this is no inconsiderable blemish; besides, the surface, by being so much sunk in some places, appears the more raised in others; and by this means the whole is rendered very rough and disagreeable. I took notice, in my Commentary on the 1398th Aphorism, that, in the worst kind of the confluent small-pox, the whole face is covered, as it were, with one entire patch, which, towards the end of the disorder, grows very black, adheres strongly to the subjacent parts, and may, in some sort, be said to sink, to some depth, into the skin. Now, under this hard, dry, mask there is sometimes formed a gathering of sharp humours, which eat so very deep into the parts lying under them, as to make the unhappy patient, should he recover, notwithstanding, from this cruel disorder, look more like a monster than a man.

Sydenham, indeed, advised the appointing of these scabs with the oil of almonds, that they might fall off the sooner, when softened by it. Still he owns, that he was cautious of tampering, lest the face should be disfigured thereby with ugly scars; having often observed oils and liniments do more harm than good (*k*). I have known fresh cream used with success to soften these scabs. *Lobb* has recommended, for the same purpose, a decoction
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(*k*) Sec. III. cap. pag. 192.

made with the maws of ruminating animals (*l*). But, the thing I have known do most good in these terrible cases, towards preventing the patients being disfigured, was to soften the scabs, when they began to dry up, by anointing them with suet, or such other mild substances; or fomenting them with emollient decoctions; then taking them off with great caution; and, next, covering the ulcerous skin with a mild plaister. After this, a skilful and cautious surgeon, by taking off the plaister twice a-day, may do a great deal towards preventing any deformity, and hinder the shriveling of the skin here and there from leaving any ugly marks behind it. Besides, he may apply different things to different spots, according as they either sink below, or raise above, the natural surface. Another advantage to be expected from this method of treatment is, that it opens a way for the resorbed pus to get out again, as I have already taken notice. I have known several persons, whose face had been entirely covered with a kind of horrid mask, by the confluent small-pox, so happily treated in this manner, by an able surgeon, that the pits left on them, though very numerous, were so small and equally distributed, as to occasion very little deformity.

From all this it appears, what we are to think of those topical remedies so highly cried up by different authors, as good to prevent any deformity from the small-pox: the distinct small-pox, of the mild kind, scarce ever occasions any, so that it must be quite idle to extol these remedies for their success in such cases; and, as to the worst kind of small-pox, I have always found them useless in it; nay some of them evidently hurtful;

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for

(*l*) Lobb of the Small pox, page 50.

for which reason it would be wasting time to particularize them.

But, as those disorders, with which persons, recovering from the small-pox, are apt to be afflicted, are owing chiefly to the morbose matter not being completely driven out of the body, every thing recommended in this paragraph, as serviceable for the purpose of preserving the beauty, will either prevent or cure such disorders. It seems, however, worthy of special notice, that that those ophthalmiæ, which sometimes succeed the small-pox, are of a most dangerous nature; and, unless directly resisted by blood-letting, antiphlogistic purges, and very mild collyriums, may deprive the patient entirely of sight, by totally destroying the fabric of his eyes; or rendering the transparent cornea perfectly opaque, without doing any injury to the interior parts of the organ.

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IF the disorder proves very violent; the matter contained in the pimples, a gangrenous ichor, instead of pus; and the skin, almost entirely covered with them; it is plain, that then the disorder must be attended with very considerable, and even ineluctable, evils: and this must be still more evident to those, who have learned from anatomy, that it is not the interior skin alone, which is liable to be over-run with these pimples, but likewise the eyes, all the membranes of the nose, all the linings of the mouth, the
aspera

aspera arteria, the bronchia, the œsophagus, stomach, intestines, liver, spleen, and lungs; this will enable them the better to comprehend, what has been already said concerning this disorder, and fix upon the proper mode of treatment; and judge, likewise, whether the greatness of the evil, the loss of so many lives, in spite of the remedies most in vogue, should not excite every good physician to exert his utmost art in the beginning of the disorder. In the common method of treatment, as many as escape may thank the mildness of the disorder, or the goodness of nature, for their deliverance. The inoculative prophylaxis seems sufficiently safe and certain.

From what has been already said concerning the small-pox, the Reader must be convinced of the great danger, with which it is attended, and the great difficulties, which are sometimes to be encountered in the treatment of it. I took notice, that, in its infancy, it is generally attended with a violent inflammatory fever: As often, therefore, as the disorder happens to prove very heavy, there is the greatest reason to fear it will turn out very ill, that is, terminate in a gangrene. This is often the case with robust young people, who are full of humours, and have lived high, especially when it is the confluent small-pox they have been seized with, and in hot summer weather: for then, as has been said in the Commentary on the 1397th Aphorism, their bodies, towards the end of the inflammation, are apt to be covered with blisters full of a reddish liquor,

liquor, instead of pus ; than which there cannot be a surer sign of the inflammation's turning to a perfect gangrene. Now, if so many and such great mischiefs attend the resorption of the pus, according to what has been said in Sect. 1400, what may we not justly apprehend from a sharp and putrid gangrenous tabus mixed in so large a quantity with the circulating humours? It must be obvious, that a circumstance of this kind cannot but be attended with the most fatal consequences.

On the other hand, in those cases, in which the variolous virus, instead of lighting up an inflammatory fever, entirely extinguishes the vital heat, the danger may, perhaps, be considered as still greater, though there should not appear such commotions and tumults in the body of the patient ; for, it must be obvious from what has been already said, that, on this occasion, the blood is dissolved into a putrid mass, and fatal hæmorrhages, black petechiæ, livid spots, and other dreadful and deadly symptoms must follow. In speaking of these complaints, I took notice of the most powerful remedies used by the ablest physicians against them, though far from always with the wished-for success ; for, it must be owned, that the fury of this kind of small-pox has been sometimes such, as to bid defiance to every thing they could think of to oppose it.

If, now, such great mischief can be done by pimples, which over-run nothing but the external skin, how much greater must be done by those, which attack, in equal numbers, the interior parts of the body? Several were once of opinion, that it was only in the external skin of the body the
small-pox

small-pox had its seat ; whereas nothing can be plainer than that the inside of the nose, the mouth, the fauces, the œsophagus, sometimes swarm with pimples ; and from several symptoms of the disorder, it might justly be inferred, that they are likewise to be found in the stomach, intestines, and other internal parts, did not the dissection of those who have died of the small-pox prove, beyond the possibility of a doubt, that this is actually the case (*m*). Nay, we read of the viscera swarming with pimples, in a patient, whose external skin had been but slightly visited by them (*n*). Now, if the sharp sanies contained in the pimples of a malignant small-pox is strong enough to corrode the skin, the cartilages, nay and the bones themselves, how speedily must it destroy the viscera, which are of a so much more delicate texture ? *Violante* assures us, he once saw, with his own eyes, the middle of the lungs eaten away and destroyed by these implacable pimples, and all the intestines, but especially the thick ones, full of weeping ones, which were already become gangrenous (*o*). I might easily offer many more proofs of this matter ; some of them gathered in the course of my own practice ; but I cannot help supposing, that, after what I have already said of it, no one will be so sceptical as to doubt, that, in the small-pox, the internal parts of the body are no less liable than the external to be covered with pimples.

Hence

(*m*) Fernel. de Abdit. Rer. Causis, Lib. II, cap. 12, pag. 503. Thom. Barthol. Epist. Centur. 3, Epist. 90, pag. 388. Ambr. Parrè, liv. XX, chap. 1 & 2, page 469. Frid. Hoffman. Med. System. Rat. tom. IV, Supplem. pag. 42. Mead de Variol. et Morbil. pag. 36.

(*n*) Werlhoff de Variol. et Anthrac. pag. 6 & 7, in notis.

(*o*) De Variol. et Morbil. pag. 71.

Hence we may see, why a cautious physician, who cannot but know, that this may be the case with any patient he is called to, will not be over-ready to pronounce him in no danger, even though the disorder should wear a pretty mild aspect. For the same reason, he will be very careful to observe, at the time the pimples first begin to appear, whether all the symptoms, with which the state of contagion was attended, cease entirely, or, abate considerably, on the eruption of them; and whether any new ones arise, which were not to be observed in the first stage of the disorder. For instance; the beginning of the disorder is often attended with a delirium; now, this delirium, if it ceases when the pimples appear, portends no mischief, as it may be entirely attributed to the violence of the fever. But, if it continues beyond this period, or even returns after some absence, then there will be all the reason in the world to apprehend, that some pimples have taken possession of the meninges of the brain; a circumstance, which, should they be in any great number, cannot but be afterwards productive of the greatest danger; nay, some eminent physicians, as I have already observed, have looked upon a delirium in these circumstances in so bad a light, as almost to despair of those patients, who were visited by it. For, if the hands and face swell to such a degree, when the inflamed pimples begin to suppurate upon them, in any great number, we may easily guess how hard it must go with the brain, when compressed by its swelled and inflamed meninges; and what terrible consequences may justly be apprehended from the variolous pus collected in these equally delicate and essential parts. This accounts for *Hoffman's* having considered drowsiness, when it came on at the time of

suppuration, and was followed by an alienation of mind and raving, as a suspicious sign; for, when this happens, the brain must be forely affected by the swelling meninges (*p*). It likewise accounts for some of his younger patients, who during the disorder itself, had complained of a heaviness in their head, want of sleep, and were now and then disordered in their minds, dying suddenly of the apoplexy, after their pimples were dried up (*q*). It appears highly probable, that, in these cases, not only the brain was compressed by the swelling of the inflamed meninges, but even corroded by a sharp pus. I never was without my fears, when the stage of contagion happened to be succeeded by any violent pain in the head, watchings, or even a slight delirium. I remember a case, in which the disorder shewed itself of the confluent kind, when the pimples came out, though, in the state of contagion, it had appeared of the mildest. The patient was an healthy young man, and of an excellent constitution. On the fourth day, he complained of a pain in his head, but got ease by a pretty profuse bleeding at the nose. Though, in all other respects, the disorder proceeded as I could wish; yet, as now and then his head-ach returned, and he likewise raved a little, I could not help being in great pain about him. His family, however, seemed to take it ill of me; and some of them went so far as to tax me with pusillanimity, whilst others thought I exaggerated the danger of my patient, merely with a view of valuing myself the more on his recovery, a task they looked upon as both easy and

(*p*) Medic. Ration. Septem. Tom. IV. sect. 1. cap. 7. pag. 148.

(*q*) Ibid. pag. 149.

and certain; but, on the tenth day, his fever encreased suddenly; he began to rave very violently; soon after, he became apoplectic, with a very violent snoring and perpetual tossing of the head; and was a dead man in less than thirty minutes.

If, after the pimples have made their appearance, the voice becomes very hoarse, the respiration difficult, and the patient uneasy, there is great reason to fear, that the lungs are pestered with pimples. In this case, should that capital organ begin to swell at the time of suppuration, in the same manner the face swells, a sudden peripneumony must be the consequence, and it may be expected to carry off the patient within a few hours. On opening the body of the Prince of Orange, who died of the small-pox, at the Hague, in 1750, the whole of his lungs was found very black, inflated, inflamed, and covered all over with black blood (*r*).

Hence it appears, that no small degree of skill and circumspection is requisite to form a certain prognosis of the issue of this disorder. Now, what we are to attend to most for this purpose, are the symptoms which shew themselves during that period of the disorder, in which the inflamed pimples tend to suppuration; for, an able physician may, from the quality of the functions that are injured, form a pretty good guess, what internal parts of the body are affected.

It was from a serious consideration of all these terrible circumstances of the small-pox, the great *Boerhaave* concluded, that nothing should be omitted, in the beginning of the disorder, to prevent

(*r*) Thom. Bartol. Epist. Centur. III. Epist. 90. pag. 389.

vent them; and hence it was he used the antiphlogistic method, in order to hinder the pimples from becoming numerous, and thereby laying the foundation of a dangerous suppuration, or still more dangerous gangrene. He did every thing he could think of to divert the storm from the upper parts of the body, by bathing and other contrivances of art, as I have already taken notice. I have likewise pointed out those cases, in which the antiphlogistic method may be used with success; and at the same time accurately enumerated all those symptoms, which indicate a different method of treatment.

The common method, that formerly used in treating the small pox, and which was still in use when our illustrious author wrote his aphorisms, could scarce do any good; nay, it often did a great deal of mischief. The poor patients were put to bed, and almost smothered with bed-clothes, even in the hottest weather; and, by some persons, with warm sudorific medicines; and, sometimes, lest these preposterous prescriptions should lose their efficacy, they were allowed no drink, or but very little, and that too souled by the silly women about them with sheeps dung; nay, this was often done with the consent of the physicians themselves. Such as, in this time of almost general infatuation, happened to have a little more sense than their neighbours, gave the patients a decoction of harts-horn shavings, or scorzonera roots, and some innocent absorbing powders. It was thought a great crime to bleed; and mere murder to cleanse the body with a gentle clyster. As to purging remedies, the physician dared not so much as give the most distant hint of them, lest he should be thought to have killed the patient, whom he could not cure. Hence he was
obliged

obliged to act the part of a mere looker on, while the poor ignorant creatures about the patients did as they pleased. It is for these reasons our author says, that no one ever recovered by the common method, who would not have recovered equally well without it.

The inoculative prophylaxis seems sufficiently safe and certain.

These words are not to be found in the first edition of these aphorisms, published at *Leyden* by John Vander Linden, in the ninth year of the present century; but, they occur in the third edition, which is more ample, and came out thirteen years after the first; and likewise in the fifth and last edition, which came out a year before the author's death. All those, who ever attended the lectures of this great man, must remember; that, towards the end of the academical year, he always found himself under the disagreeable necessity of hurrying them a little; and this is the reason of his being so concise in speaking of inoculation for the small-pox. He contented himself with barely saying, what several accounts affirmed; that inoculation for the small-pox was not attended with any great danger in Asia or in Greece; that it had succeeded with several in England; that, however, more trials were wanting to say any thing positively of the matter. To the best of my knowledge, he never advised any one to try inoculation, either in *Leyden*, or any other town in Holland; nor could I ever learn, that this method was ever tried there, as long as he lived. About eighteen years after his death, it began; indeed, to be pretty common; and there arose a dispute concerning the expediency of it, which was carried on with some heat on both sides.

sides. For my part, as I was always an enemy to paper squabbles, I contented myself with a calm perusal of all the writings that were published on the occasion, at least those of the eminent physicians and other learned men, who entered the lists with no other view, but the very laudable one of discovering the truth.

It must be allowed, that the following particulars seemed to make greatly in favour of inoculation.

It was affirmed by men of credit, that scarce any one died of the inoculated small-pox, whereas numbers perished by that taken in the natural way. It was laid down as a maxim, that, in the inoculated small pox, the disorder performed its whole course without the least disturbance or danger; that beauty ran no risk from it, as from the disorder taken in the natural way; nor was it ever followed by ophthalmiæ, furunculi, or any other disagreeable complaints arising from a metastasis of the variolous matter on the different parts of the body; nay, that it was never attended with the secondary fever, as the natural small-pox, when attended with any great number of pimples, usually is.

Moreover, the method of inoculation seemed to be possessed of this other singular advantage; namely, that the physician could chuse, for the using of it, that time of life, and season of the year, at which it might be supposed, the patient could best bear it, and stand the best chance of getting over it. Besides, in the way of inoculation, the contagion could be applied to the body, when in the best health; or, if it happened to be a little out of order, the operation might be deferred, till not only every thing was put to rights again, but the body peculiarly fitted to go through the disorder;

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whereas,

whereas, when the small-pox prevails epidemically, it is apt to attack every one who has not already had it, without distinction of age, or sex, or state of body, so as sometimes to fasten on those, whose strength has been already impaired by some other disorder, and even pregnant and lying-in women, &c. Now, the eternal fear of all these evils, it was said, might be avoided by means of inoculation, with little trouble and less danger; since, from numerous observations, there could be no just reason to fear a relapse; and these observations were confirmed by the experiments professedly made, even upon himself, by the illustrious *Maty*.

These blessings, which we are taught to expect from inoculation, are no doubt great and many. Still I could never bring myself to pronounce on the occasion, till I had weighed every thing maturely, that could be said on the other as well as on this side of the question. For this purpose, I first examined myself, with all the attention I possibly could, to see that I was as free from partiality to either side, as the frailty of our nature will admit. The physicians, who differ in opinion with regard to the expediency of inoculation, must all, notwithstanding, be allowed to have the same thing ultimately in view, namely, the good of mankind; and this was enough to entitle them all to my love and respect. Should there be any others, who have endeavoured to defend their way of thinking by any wicked tricks, I leave them to the indignation, or at least contempt, of all honest men.

The first thing I thought it my duty to do on this occasion, was to ascertain, if possible, the proportion between those who got the better of the small-pox in the natural way, and those who

died of it. For this purpose, I carefully examined the diaries I had kept, when I lived in my own dear country, where I had a pretty extensive practice, and was both a spectator and an actor in several variolus epidemics; during some of which I likewise kept notes of the progress of the disorder from the beginning to the end of it; but, with all my care, I could not deduce from these notes of mine this proportion I so much wished to ascertain.

Nay, I found too much difficulty in doing it, even in Vienna, to dare aver any thing with any certainty concerning it. I could, indeed, procure a pretty exact account of those who died there of the small-pox; but I never could come at the number of those who had it. This, no doubt, might have been easily done, were it the general practice to have the advice of a physician on these occasions; but several never make use of any; and this is not the case merely with the poor, but even with those of some rank and distinction. For, as there is a law, that nobody shall enter any house where the disorder is, unless he can avoid all communication, for forty days after, with the court, and, in some cases, even with the courtiers, and is willing to do it; hence, more persons than one would imagine conceal this disorder, and make a great secret of it.

For this reason, I determined to ground my calculation on the issue of the small-pox in other places, in which several persons live together under the same roof, and I might, therefore, be sure of knowing exactly the number of those who had it; and likewise died of, or recovered from, it. Now, the following particulars were the fruits of my researches; and I can answer for the truth of them.

There is at Neustatt, in Austria, a Military Academy founded by the present Empress, where young men of family live in a manner, and learn the military art, with every other branch of knowledge relating to it. In this house, I found; that, in the space of eight years, thirty-two persons had had the small-pox; and, that, out of these thirty-two persons, but one died of it. They receive no young gentleman, under the age of puberty, in this school.

There is another military school in one of the suburbs of Vienna, in which boys are received at the age of six or seven, and maintained till the age of puberty, and instructed in arithmetic, the languages, &c. In this school, I found, that, between the winter solstice of 1756 and the summer solstice of 1757, forty had the small-pox, and all recovered; as likewise that, between the summer and winter solstices of the same year, thirty more had it, and all likewise happily recovered.

In the Theresian College, so called in honour of the Empress, where young noblemen are instructed in all the arts and sciences becoming their rank, the small-pox reigned during the years 1749 and 1750, and thirty had it, several of them very bad; yet but one died of it. In the year 1753, but one had it; in the year 1757, but two; whereas, in the years 1759 and 1760, no less than twenty-five had it, and several of them very bad; yet all recovered. In the year 1761, two had it; in the year 1763, one; and these three likewise recovered. Thus, therefore, the whole number of those seized with the small-pox in the Theresian College, from the 23d of November 1749 to the year 1765, was sixty one; of which, but one died; and he, which I cannot think of without tears, a son of mine. In the city hospital of Vienna,

enna, fifty-nine had the small-pox, in the year 1756; and two of them died; but they had been terribly afflicted with the rickets, before that disorder seized them.

In the year 1757, twenty-seven had the small-pox in the Ophan house, and two of them died of it. In the same house, about the end of the year 1759, and the beginning of the year 1760, eighteen more had it, and one of them died of it, the eighth day of the disorder; but, this was a poor girl, who, for a long time before the small-pox had seized her, had a livid swelling in her upper lip, which, when the pimples came to suppurate, became gangrenous, and prevented her taking either food or physick.

In the year 1759, thirty had the small-pox in the poor house that is situated in the suburbs of Vienna, and not one of them died of it.

During the reign of this same variolous epidemy, fifty-seven persons had it, in the space of four months, in the Pasmanian hospital, which is likewise situated in the suburbs of Vienna, and most of them very dangerously; yet every one of them recovered (*s*); though very few had the mild kind; and that of the rest was attended with very violent symptoms. This epidemical constitution was of so desperate a nature, that even those, who had the disorder very distinct, had much ado to escape. For instance, in two boys and one girl, the fever did not remit on the fourth day, as is generally the case in the distinct small pox: their sixth day was distinguished by a great weakness, difficult respiration, and a delirium; and the seventh, by the eruption of purple spots; the pimples, however, came out very well, of a yellowish-

Z 3

white

(*s*) Anton. Stork, Ann. Medic. Secund. pag. 165. & seq.

white colour. The weakness, indeed, continued; but the difficulty of respiration and delirium went off; on the seventeenth day, the fever itself was over; and these patients perfectly recovered; nor were the rest afflicted with any bad relicks.

Now, by adding, respectively, the foregoing numbers, it will appear, that, out of the 355 persons, who had the small-pox in all the places I have mentioned, but 7 died of it, whereas 348 recovered; so that the proportion of the former to the latter will be as 7 to 348, or about 1 to 50. And, if from the first of these numbers, or the number of those who died of it, we take the three patients, for whose death something besides the small-pox may be blamed, then the proportion of those who died of it to those who recovered from it, will be only as 1 to 89, nearly.

There is not, therefore, in these places at least, so great a difference, as some have asserted, between those who die of the inoculated, and those who die of the natural small-pox. When physicians could bring so many over the latter, I cannot but think it somewhat hard to give a person a disorder, which is not exempt from danger; and which, otherwise, he might never, perhaps, have; or, at least, very late in life.

I already took notice, in my commentary on the 1382d aphorism, that the same variolous contagion is known to affect different men in a different manner; and that, therefore, the virulence of the disorder does not depend entirely on the nature of the contagion that has been received, but on the peculiar disposition of the body which received it. The ichor of a confluent small-pox, applied to the little wound made for the purpose of inoculation, has been known to produce a mild small-pox; and, on another hand, the pus of a
very

very mild small-pox, used in the same manner, a very dangerous confluent small-pox. Nay, let one chuse the mildest small-pox that can be found, and apply the pus of it to the foundest body, still I believe no one will be hardy enough to pronounce concerning the nature of the small-pox, that will be thereby produced. A small-pox, excited with select pus, in the spring of the year, and in a most healthy body, which had been besides most scrupulously prepared to receive it, with all the cautions prescribed by art, has, notwithstanding, been known to turn out of the very worst confluent kind, and was followed by very troublesome furunculi; so that the illustrious *Gaubius*, who attended the patient, had need of all his art and prudence to save him (*t*). This great man confesses, with that candour by which he is so much distinguished, that this case alone is sufficient to shew, that it is impossible to determine, with any certainty, that the inoculated small-pox shall not be attended with any secondary fever, nor leave any troublesome relicks behind it.

Here is another case, to the same purpose. In the afternoon of the 24th of March 1758, a boy of twelve was inoculated for the small-pox, after bleeding, and a scrupulous preparation in other respects, by applying the contagion to a slight wound made in each arm. On the 26th, he complained of an itching, and darting pains towards his arm-pits; his colour left him; and the lips of the little wound in one of his arms opened, and discharged plenty of pus; whereas that in the other was quite dry. The 27th, his heat became greater, his pulse quicker, with a perpetual yawning, a white tongue, and a heaviness about his

Z 4

forehead,

(*t*) *Hollandche Maatschappy der Wetenschappen*, Tom. II. pag. 319, & seq.

forehead, of which he was eased by a bleeding in the nose; and, such a quantity of pus had flowed from what was originally but a little wound in his left arm, that it deluged the dressing; it was now become a deep ulcer, with the lips a quarter of an inch asunder. In the evening, the pain in the head encreased, and was attended with a throbbing, and a fever; on the 28th, his urine was of a flame colour; his pulse quick; his face red and swelled; his eyes watery; with a continual heaviness about his forehead; the ulcer in his left arm discharged a great quantity of pus, the lips of it had separated to a still greater distance from each other, and the upper part of the arm itself was swelled; in the evening, his eye-lids and lips swelled likewise; his face put on a red-flame colour; his nausea and fever encreased, about eleven; he had an uneasy night, and raved now and then. The upper part of his left arm was inflamed, and thicker by one third than in a natural state; the ulcer kept widening; the lips of it were red and painful; a great quantity of pus flowed from it. And now, too, the lips of the little wound in the left arm began to grow hard, and be enflamed; and an erysipelatous inflammation began to take possession of both arms, with a continued fever, a slight delirium, and a pituitous vomiting about noon; in the evening, a very large quantity of pus flowed from the right arm, and the ulcer continued to widen; the night following, he was restless, had scarce any sleep, and bled a little at the nose. On the succeeding day, all the symptoms were the same; the ulcer on the left arm was now fourteen lines broad, and ten lines longer than the original wound. On the 31st, after a restless night, with a slight delirium (a complaint this patient used to

be troubled with even in slight fevers) the symptoms continued the same as before, with the addition of inflamed eyes, and a swelled nose and face; then came on a bleeding at the nose, by which he got some ease with regard to the pain in his head; in the evening, he sweated profusely in every part; the swelling in his left arm disappeared; but the pus notwithstanding kept flowing from the ulcer in it, to such a degree, as made it necessary to change the dressing three times a day, whereas one untying, in the same space of time, proved sufficient for the ulcer in the right arm; from which, however, an eschar afterwards separated.

Notwithstanding this so copious excretion of pus, a great number of pimples came out on his upper and lower limbs, and but few on his face. The ulcer in his right arm was healed by the 19th of April; and that, in his left, closed by the 7th of May (*u*). A younger brother of this patient, being likewise inoculated for the same disorder, had it of the confluent kind; and, on the thirteenth day after the operation, a tumor was discovered under his right arm-pit; and came afterwards to a suppuration (*w*). We may, I think, easily conclude from these two cases, that inoculation is not always productive of a mild small-pox; and that, sometimes, after the inoculated small-pox has done its business, other disorders are found to remain, or seen to follow. The *Acta Helvetica tellus: ex quatuor decim infantibus, qui mensibus Martii, Aprilis, Maii, anni quinquagesimi hujus sæculi inoculati fuerunt, tres vel quatuor, adhibitis frustra omnibus cautelis, tempore delapsus harum*

(*u*) *Hollandsche Maatschappy der Wetenschappen, tom. v. pag. 73. et seq.*

(*w*) *Ibid. pag. 80. et seq.*

rum crustarum, correpti sunt febre miliari erysipelato de cum ardore, rubore, et tumore puuriginoso faciei:

“ Of fourteen children who were inoculated for
 “ the small-pox, during the months of March,
 “ April, and May, of the fifty-fourth year of
 “ this century, three or four, in spite of all the
 “ precautions that could be taken to prevent it,
 “ were, at the time of the falling off of the scabs,
 “ seized with a miliary crysipelatous fever, attend-
 “ ed with a heat, redness, and itchy swelling of
 “ the face (x).” *Kirkpatrick*, who has written
 exceedingly well upon inoculation, and whom I
 have accordingly often mentioned with honour in
 the preceding pages, gives us three remarkable
 cases; in two of which, two girls, who had a
 distinct small-pox in the natural way, lost their
 speech and all the motion of their limbs during
 the disorder, and afterwards recovered both by de-
 grees; but it was a long time before the poor
 creatures were perfectly well again. He saw the
 same thing happen in another small-pox patient,
 a grown-up man, who, though his disorder was
 distinct, and tolerably mild, lost the use of his
 speech and limbs by it, and did not recover them
 for sixteen months after (*). He likewise gives us
 the case of a boy between three and four, who
 was inoculated for the small-pox, whilst he still
 laboured under a weakness he had a little before
 contracted from a fever. The operation, though
 followed by violent convulsions, produced but
 a small number of pimples; still, the child lost
 the use of his speech, his limbs, and his head;
 that of the latter, to such a degree, that he could
 not so much as hold it up; his speech, he, indeed,
 recovered in three months; but it was more than
 five,

(x) *Act. Helvet.* vol. 2. p. 259.

(*) *The Analysis of Inoculation.* p. 75. &c.

five, before he had strength enough to walk alone. I might easily give many other cases to confirm what I have been saying; but I cannot help looking upon these as sufficient, considering that I have taken them from the observations of great men, whose word we may entirely rely upon, and who are besides favourers of the practice, concerning the propriety of which we are now treating.

In my Commentary on the 1382d Aphorism, I took no small pains to prove, that it is the small-pox alone, and not any other disorder, which the variolous contagion produces by its own peculiar efficacy. Inoculation, however, has been known to produce a fever, without any eruption; because, at that precise time, the body happened not to be of such a disposition, as is requisite to hatch the contagion into pimples; when this happened, there now and then appeared an anomalous fever, which used to last for fourteen days: the contagious matter had been applied to both arms; but the little wound, made for that purpose in the right, was healed up in four days; whereas that in the left shewed every sign, from whence it is usual to conclude, that the contagion is working efficaciously on the body; it discharged plenty of pus, and turned to a little ulcer, which did not entirely close up till the fortieth day after the operation that had produced it (y).

The eminent physician, who had prescribed this operation, was in great hopes, though he would not pretend to be absolutely sure, that the girl, who was the subject of it, would never afterwards be liable to breed the small-pox, as she constantly slept, without any other symptoms, with a
brother

(y) Hollandsche Maatschappy Tom. v. p. 90. &c.

brother of her's, who had been inoculated with the same pus. It cannot be concluded, however, from any thing that has as yet appeared, that these hopes of his were altogether so well grounded as one could wish.

For, nothing can be surer, than that the bodies, even of those who have never had the small-pox, are not always in a disposition to be affected by the variolous contagion. I have seen several persons expose themselves, to no purpose, to the small-pox, during one epidemic constitution of it, and yet take the disorder during the next, and that, too, pretty heavily. I already took notice of an old maid, who had the small-pox when past sixty, and happily recovered, after having eat, played, and slept, for eight weeks together, in the same room with her brothers and sisters, who were down in the disorder, without ever taking it from them, and afterwards freely exposed herself to it, with equal impunity, during the whole course of her life, till the time I mentioned; nay, she made so sure of never having it, that she laughed heartily at me for thinking she might, or rather that she actually had it. We meet in medical writers with many other instances to the same purpose (z).

Nor is it as yet certain, that the seeds of many other disorders may not lie lurking in the variolous pus used for the purpose of inoculation, and be communicated by means of it to the human body. Several authors, I know, amongst the champions for inoculation, confidently assert, that no such danger is to be apprehended from it. The illustrious *Guiot*, who has written on the great success of inoculation at Geneva, affirms, that he had

(z) De Haen. Responso ad Epistol. Apolog. Tralles, pag. 26. et seq.

had convinced himself, by a satisfactory experiment, of the erroneusness of this opinion of theirs, and inculcates, that the contagious matter ought to be scrupulously chosen from bodies, that we can be sure do not harbour any other disorder besides the small-pox (*a*).

Another reason, for crying up the practice of inoculating for the small-pox, was, that no one, it was said, on whom this operation had been once performed, need ever after be under any apprehensions of having it; whereas no one can otherwise depend on being exempt from it. But there are several unquestionable instances of a real small-pox's visiting several persons, who had been heretofore inoculated for it, and some of whom had it, by the usual time, in consequence of that operation, though it miscarried in the rest. But, I must refer the reader to what *Du Haen* says of this matter (*b*). I have by me some letters from an ambassador, and a man of great family, describing the whole course of an inoculated small-pox, and of another, natural, one, which succeeded it in about two years; along with a diary of both disorders, written by two very able physicians; but the history of these two disorders may be likewise seen in the same work of the illustrious *Du Haen*.

Now, this confidence, namely, that no person, on whom inoculation had been performed, even without producing the disorder, need fear having it in any subsequent period of his life, was considered by many as a sufficient reason for affirming, that there was no period of life, from the earliest infancy to the extremest old age, at which the inoculative prophylaxis might not be tried. It
must

(*a*) *Academ. Royale de Chirurg.* Tom. II. page 556.

(*b*) *Rat. Medend.* Tom. IX. pag. 261.

must appear, however, from the foregoing pages, that sometimes a malignant small-pox is produced by inoculation, and sometimes a small-pox, which, though of the distinct kind, is attended with a pretty large number of pimples. Now, a little medical assistance must be allowed to be necessary, even in these cases; and it is sometimes no easy matter to prevail on children, who have had too much of their own way, to take the necessary remedies. And suppose dentition should coincide with the small-pox, what evils must not the poor subject, in that case, be liable to? Accordingly, several eminent physicians are against the inoculating of children under four; and not without reason, as far as I am able to judge of the matter.

It must not, however, be dissembled, that it has been alledged, on the faith of observations made by several men very worthy of credit, that even some persons, who had had the small-pox in the natural way, have been again visited by the disorder. But then, such relapses, as I have already said, have been known to happen, likewise, with regard to the inoculated small-pox. It therefore remains to determine, after which kind, the natural, or the inoculated, small-pox, the disorder has returned different; and this is a point which time alone can clear up. Accordingly, *Tralles*, a celebrated professor of the healing art, after seriously considering this, and several other difficulties, of no small moment, relating to the business in question, while about to try inoculation on his own daughter, and others, though he had hitherto favoured that operation, in the end thought proper to decline it, as he could not bring his mind to any certain determination concerning the matter. In short, all his doubts terminated in concluding, *Inoculationem, diversimode*

consideratam, diversam semper faciem exhibere; difficile esse, bifrontis modo vultum blandientem, modo severiorem et austeriorem, contueri; atque illo non allici, hoc non in quemdam terrorem conjici: Nondum id felix temporis momentum adesse, quo, quem præ altero inspicere juvet, extra omnem controversiam collocari possit. “ That inoculation never
 “ fails to wear different aspects, in different points
 “ of light; that it is no easy matter, to behold
 “ the mild and promising, or the severe and
 “ threatening side, of this double-faced disorder,
 “ without being allured by the smiles of that,
 “ or equally terrified by the frowns of this; and
 “ that the happy moment is not yet arrived, in
 “ which we may determine, for certain, to which
 “ of these fæces we are to give credit (c).”

A few years ago, the practice of inoculating for the small-pox was cried up by some of the first-rate physicians in Holland, and gained ground, accordingly; but, this great zeal in its favour wore away by degrees, till at length it came to be almost entirely forgot. During the debates concerning the propriety of admitting or forbidding it, which were carried on in Paris, some persons thought proper to come as far as the Hague, in order to be inoculated there by a very famous man, who had distinguished himself by that operation in particular; but, as at this time nobody in the Hague happened to have the disorder, the magistrates, to prevent the spreading of the contagion, published an edict to forbid the practice in their town, or any of its territories.

It is well known, that some persons of the best sense and understanding, amongst those who approved of inoculation, have taken notice of certain

(c) Tralles Vexatiss. nostra ætate de Infit. Variol. Argum.
 P. 231.

tain circumstances, in which they did not think it, by any means, wise to use it; and the author, just now mentioned, has favoured us with a detail of them (*d*). One of them in particular it may not be amiss to mention, since it is particularly insisted upon; and that is, the disorder's prevailing epidemically in the place where the person might be desirous of being inoculated; since, in that case, he might take it, at the same time, in the natural as well as the artificial way; a thing, which it was universally allowed might be attended with the worst consequences; and hence it is, the very illustrious *Gaubius* takes so much pains to convince us, that, at a time he inoculated a young man of family at Leyden, no other disorder prevailed epidemically there, and still less the small-pox itself; notwithstanding which, that produced by inoculation in his patient proved of the very worst kind (*e*).

On the other hand, it is not without reason, that wise governments, from a proper regard to the health of their subjects, forbid the inoculating any one for the small-pox, in places where no one actually has the disorder; for, it must be allowed, that the small-pox, communicated by inoculation, is capable of spreading the contagion. I have taken notice, in the preceding pages, that the pus taken from a person ill of an inoculated small-pox, has been found sufficient to give the disorder to another; and the pus of this last, to a third; and so on, in succession, to nine different persons, still with the same success; and hence it has been fairly concluded, that the strength of the contagion was no way impaired by its passage through, and operation on, so many different bodies; but
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(*d*) Ibid. page 216, &c.

(*e*) Hollandsche Maatschappij. Tom. II. page 321.

continued endued with the same powers, in the last, which it was possessed of, in the first.

I have, likewise, already proved, that those, who have had the small-pox, breathe, for some time after their recovery, let it be ever so perfect, a contagion sufficient to communicate the disorder to others, who have not, as yet, had it. Now, though I dare not fix the time, that this tendency to communicate the disorder lasts, I think it my duty to relate the observations I have made on the occasion, in the Theresian College, the care of which has been committed to me, at least in matters of any extraordinary moment.

It was a custom in this house not to allow such of its inhabitants, as happened to have the small-pox, any communication with the rest, for six weeks together, reckoning from the beginning of the disorder; yet, in these spacious buildings, in which, besides, some particular rooms, very lofty and airy, are allotted for the reception of small-pox patients, and that, too, in a very remote part of it, from the 23d of November, 1749, to the 10th of April, 1750, the day on which the last person who had the disorder began to be ill of it, thirty, in all, had it. It then ceased entirely for almost three years; when, on the third of July, 1753, a young gentleman of distinction was seized with it; this patient happily got over it. On his recovery, however, he made it his particular request, to be kept for a longer term from the rest of the inhabitants; as, from the recollection of the preceding variolous epidemy, he was greatly afraid of communicating it again to his fellow cadets; and he courageously bore, for three months together, all the irksomeness, which must attend so disagreeable a state of seclusion; but

his perseverance was crowned with success; for nobody took it from him.

Another young gentleman of distinction was seized with the small-pox in the same College, on the twenty-second day of October, 1757; and a third, on the twenty-first of November following; both observed a quarantine of nine weeks; and they were the only persons, who then had the disorder in the Theresian College.

Some persons may perhaps be inclined to think, that almost all those, who never had the small-pox before the years 1749 and 1750, had it during the epidemy which then prevailed; but they are mistaken; numbers never took it, though several leave the College every year, after finishing their studies, and more come in to begin them. Hence, in the year 1759, when the small-pox prevailed greatly in the town, without the walls of the College, it again began to attack those within, in great numbers, so that no fewer than twenty-three had it from the twenty-sixth of July, to the second of January, when the disorder ceased. But, then, we are to take notice, that several of the young gentlemen, who have friends in the town, are daily visiting them; and, of course, while the disorder prevailed there, might have easily caught the contagion, and brought it home with them. The disorder now ceased in the College for almost ten months, till the end of the year 1760, when two took it; one, on the twelfth of November; and the other, on the ninth of December. These were soon followed by two others; the first, on the third of January; and the second, on the first of February, of the year following. On the fourteenth day of October, 1763, one took it; but he was the only person who then had it, the infection being stopt,
by

by keeping him from all communication with the rest, for nine weeks.

Hence it appears, that persons, who have had the small-pox, retain, for some considerable time after their recovery, a disposition to give it to others, who have not already had it; and though the time, during which such disposition is to be dreaded, may not perhaps seem to exceed nine weeks; yet, for ought we as yet know to the contrary, it may be much longer.

I am sorry that the councils and customs of *Kirkpatrick*, who has written so well, and with so much candour, on the small-pox, and of other discreet persons, are not better attended to, by those, who are for inoculating at every age, and in every season; nay, while the small-pox prevails epidemically; for, I cannot help doubting the propriety of such an indiscriminate practice with regard to the welfare of mankind. I am deterred from it, in particular, by the striking observation of an eminent physician at *Leipsick*, who candidly tells us: *Hoc anno habui quatuor inoculatos, et duodecim ægros naturalibus variolis affectos. Ex prioribus unum amisi; ex posterioribus nullum; licet inter illos essent, quos ob humorum malam, constitutionem, ab operatione arcendos statueram:* “ This year I had sixteen small-pox patients; “ four of them were inoculated for the disorder; “ the other twelve had it in the natural way. “ Out of the former I lost one; out of the latter, “ none, though they were of the number of “ those, whom, on account of the ill state of “ their humours, I had pronounced unfit to undergo the operation (*f*).” It appears then, that the persons inoculated in this case were inoculated at a time the small-pox epidemically prevailed; a con-

a conjuncture, in which inoculation had been formerly utterly condemned, even by those who approved of it in most others.

Thus, I have given, in as few words as I could, the reasons, which have hitherto kept me from recommending inoculation for the small-pox.

END OF THE FIFTEENTH VOLUME.



