

The present method of inoculating for the small-pox. To which are added some experiments introduced with a view to discover the effects of a similar treatment in the natural small-pox ... / [Thomas Dimsdale].

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THE
PRESENT METHOD
OF
INOCULATING
FOR THE
SMALL-POX.

TO WHICH ARE ADDED

Some EXPERIMENTS, introduced with a View
to discover the Effects of a similar Treat-
ment in the NATURAL SMALL-POX.

By THOMAS DIMSDALE, M. D.

THE THIRD EDITION,

WITH

A D D I T I O N S.

D U B L I N :

Printed by J. EXSHAW, at the *Bible* in *Dame-street*.

M.DCC.LXVII.

Advertisement.

SINCE the publication of Dr. Dimfdale's piece on inoculation, another has made its appearance, under the title of Thoughts arising from Experience, concerning the present peculiar method of treating persons inoculated for the small-pox, by *William Bromfeild*, surgeon to her royal highness the princess dowager of Wales, and to St. George's and the Lock-hospital, in which the Author is pleased to give the following character of the piece now presented to the public. " Since the writing of the preceding thoughts, &c. I have with the greatest pleasure and attention, read over the treatise on inoculation, by Dr. Dimfdale, where accurate observations have been reduced to practice, without prejudice or partiality to systems, and the author like an able and experienced physician, has varied his plan according to the circumstances of the case."

N. B. At the close of this piece will be found what Mr. *W. Bromfeild* has given in his fourth section, relative to retarding the eruption of the small-pox; also a few cases that are advanced by him, to corroborate some circumstances of the disorder, and the particular manner of treating it, as recommended by Dr. *Dimfdale*.

TO THE
Royal College of Physicians

I N

L O N D O N,

This TREATSIE is inscribed,

With all due Deference

and Respect,

B Y

The A U T H O R.

TO THE
Royal College of Physicians
LONDON
BY
THE AUTHOR

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INTRODUCTION.

FROM the time that I entered into the practice of medicine, and saw the danger to which the generality of those who had the small-pox in the natural way were exposed, I could not but sincerely wish, with every sensible person of the faculty, that Inoculation might become general.

A considerable share of employment in this branch of my profession has for upwards of twenty years occurred to me; and altho' I have been so fortunate as not to lose a patient under inoculation, except

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one

one child, about fourteen years ago, who after the eruption of a few distinct pustules died of a fever, which I esteemed wholly independent of the small-pox, yet I must acknowledge that in some cases the symptoms have cost me not a little anxiety for the event.

Nor have the subsequent effects of this practice always been so favourable as one could wish; and tho' far from equalling those which too often follow the natural small-pox, either in respect to difficulty or number, yet they sometimes gave no small uneasiness to the operator.

It cannot likewise, it ought not to be concealed, that some of the inoculated have died under this process, even under the care of very able
and

and experienced practitioners. But this number is so small, that, when compared with the mortality attending the natural small-pox, it is reduced almost to a cypher.

These circumstances, however, tended to discourage the operation in some degree. Practitioners were cautious of urging a process, of whose event they could not be certain: and parents, who were sensible enough to observe, that, though the chance was greatly in their favour, yet a blank might cast up against them, engaged in it with hesitation.

Humanity, as well as a wish to promote the honour and advantage of the art I profess, made me ever attentive to the improvement of this part of my employment. Dissatisfied

with the common methods, I had carefully attended to the circumstances that seemed to contribute to the good or ill success of this practice in the course of my own business, as well as to the best information I could get of the success of others.

Many facts had induced me to think that regimen, preparation, and management would do much: that as the disease was of an inflammatory kind, a cooling regimen must certainly for the most part be reasonable. Some faint essays were made to try how far this sentiment might be just. But those who are the best acquainted with the first aphorism of Hippocrates, will be the first in justifying a cautious procedure,

cedure, where the object is no less than the life of an individual.

In this situation I first heard, and with the utmost satisfaction, that in some parts of the nation, a new and more successful method of inoculating was discovered, than had hitherto been practised. The relators gave incredible accounts of the success; which was the more marvellous, as the operators were chiefly such, as by report could lay but little claim to medical erudition.

Knowing that improvements which would do honour to the most elevated human understandings, are sometimes stumbled upon by men of more confined abilities; and that in medicine, as well as in every other circumstance in life, it is our duty

duty

duty to avail ourselves as much as possible of all discoveries tending to the common benefit, I embraced every *just opportunity* of informing myself of facts, circumstances, and events, that either public fame, or more precise relations brought to me. I use the term *just opportunity*, because, if I am not misinformed, endeavours have been used, inconsistent with equity and candour, to rob those who are intitled to our gratitude for assisting us in this important process, of that share of private emolument which is their due, let their title to the discovery be ever so paradoxical.

To expose patients, even in the inoculated small-pox, to all weathers, was a thing unheard of. To permit them through the whole progress

gress of the disease to go abroad, and follow their usual vocations, and that they should neither suffer any present evil, nor experience any disagreeable consequences, was still more surprizing; yet an infinite number of instances have confirmed all this; and some of these instances will appear in the sequel of this performance.

The design of this treatise is to bring the practice still one step nearer to perfection, and lessen the ravages of a distemper, which is not a native of Britain, but, like the plague, has been imported from a foreign country, and demands the exertion of all the powers we are possessed of, either to exterminate it from amongst us, which perhaps is not practicable, or to render it less
unsafe,

unsafe, if not wholly without difficulty or danger.

The following directions for this purpose, are the result of an extensive practice: and if a strong persuasion of the truth of what he writes, founded on repeated trials, and impartial observations, should have led the author to express himself in a very sanguine manner, the future experience of others he trusts will be his justification.

Hertford, Nov. 1.

1766.

Of

Of the AGE, CONSTITUTION,
and SEASON of the Year proper
for INOCULATION.

BEFORE I proceed to describe the regimen and preparatives, it may not be improper to mention what has occurred to me in respect to the most suitable age and constitution for inoculation; and likewise what seasons seem to be more or less favourable for the practice.

In regard to age; where it is left to my choice, I decline inoculating children under two years old. I know the common practice is against me in this particular; but my reasons for rejecting such are founded on observation and experience. I have, indeed, lately inoculated many under this age, at the pressing entreaties of their parents, and they have all done well. But it must be considered, that young children are exposed

to all the hazards of dentition, fevers, fluxes, convulsions, and other accidents, sufficiently difficult in themselves to manage in such tender subjects, insomuch that scarce two in three of all that are born live to be two years old; as is demonstrable from the Bills of Mortality.

Besides, convulsive paroxysms often accompany the variolous eruptive fever in children; and though generally looked upon in no unfavourable light, as often preceding a distinct kind of small-pox, yet they are at all times attended with some degree of danger; nay, many, it is well known, have expired under them; while others, who have struggled through with great difficulty, have been so debilitated, and their faculties so impaired, that the effects have been perceptible during the remaining part of their lives.

And even admitting the eruption to be favourable, and not attended with any such alarm, yet should a larger number of pustules than usual appear, or any untoward symptom happen, and require medical help, the un-
happy

happy sufferer is much too young to be prevailed on to take unpalatable medicines, or submit to other necessary measures, by persuasions, menaces, or bribes. I have often been present at afflicting scenes of this nature; and have reason to think that many children have died of the small-pox in the natural way, merely from the impossibility of prevailing upon them to comply with what was proper, in cases where little or no danger was discoverable, either from the number or species of the pustules, the degree of fever, or any other apparent cause.

It must likewise be taken into consideration, that young children have usually a larger share of pustules from inoculation, than those who are advanced a little farther in life; and that under this circumstance it is well known many have died; and the proportion of these, so far as I can learn, is too great to encourage a continuance in the inoculation of young children; so that it seems most prudent to wait till this dangerous period be over, especially as its duration is so short, that the danger of their receiving the small-pox therein in the natu-

ral way is very little; and it is at this time much more easy to preserve them from it, than when they are left more to themselves, and may be more in the way of infection. But children above this period may be inoculated more freely; nor does there appear any reason to exclude healthy adults of any age, persons of seventy having passed through this process with the utmost ease, and without occasioning the least painful apprehension for the event.

In respect to constitution, greater liberties may be taken than have heretofore been judged admissible: persons afflicted with various chronic complaints, of scrophulous, scorbutic, and arthritic habits; persons of unwieldy corpulency, and of intemperate and irregular lives, have all passed through this disease, with as much ease and safety as the most temperate, healthy, and regular. But those who labour under any acute or critical diseases, or their effects, are obviously unfit and improper subjects. So likewise are those where there are evident marks of corrosive
acrimonious

acrimonious humours, or where there is a manifest debility of the whole frame from inanition or any other cause; all these should be treated in a proper manner previous to the introduction of this disease. Constitutions disposed to frequent returns of intermittents, seem likewise justly exceptionable; especially as the preparatory regimen may in some habits encrease this tendency. I have known, however, instances of severe ague fits attacking persons between the insertion of the matter and the eruption of the pock, and even during maturation; when the bark has been given liberally and with success; the principal business, in the mean time, suffering no injury or interruption.

Among the circumstances generally considered as more or less propitious to inoculation, the season of the year has hitherto been deemed a matter of some importance. Spring and autumn, for the most part, have been recommended, as being the most temperate seasons; the cold of winter, and the summer heats, having been judged unfavourable for this process. But experience

rience does not justify these opinions; for according to the best observation I have been able to make, inoculated persons have generally had more pustules in spring than at any other time of the year; and epidemic diseases being commonly most frequent in autumn, especially fluxes, intermittents, and ulcerated sore throats (all which are liable to mix more or less with the small-pox) the autumn, upon this account, does not seem to be the most favourable season in general.

My opinion is, that, considering the surprising and indisputable benefits arising at all times to patients in the small-pox, from the free admission of fresh cool air and evacuations (which will appear from some cases hereafter subjoined) we may safely inoculate in all seasons, provided care be taken to screen the patients as much as possible from heat in summer, and to prevent them from keeping themselves too warm, and too much shut up, as they are naturally disposed to do, from the weather in winter. And it is well known, that many have been inoculated in the depth of winter, and some during the
greatest

greatest heat in summer, without suffering any injury or inconvenience from either.

When seasons, however, are marked with any peculiar epidemics, of such a kind especially as may render a mild disease more untractable, it may perhaps be most prudent not to inoculate while such diseases are prevalent.

An eminent physician of my acquaintance in London, at that time in considerable business, informed me, that in the year 1756 the small-pox were very rife, in the summer of that year especially. That in most of them the throat was so much affected, that about the seventh day from the eruption, when they ought to have taken liquors in abundance, they could not swallow a drop. The ptyalism was in the mean time copious; and the kind being for the most part confluent, they died on the tenth or eleventh day; and those who sunk under this distemper (who were by much the majority) all suffered from this cause. This instance is only given to shew the necessity of regarding the general state of epidemics
when

when we go into this operation; and to excite those who are friends to this most beneficial discovery, to use every means in their power to provide against a single instance of ill success.

Of

Of the PREPARATION.

IN directing the preparatory regimen, I principally aim at these points: to reduce the patient, if in high health, to a low and more secure state; to strengthen the constitution if too low; to correct what appears vitiated, and to clear the stomach and bowels, as much as may be, from all crudities and their effects. With this view, I order such of my patients as constitute the first class, and who are by much the majority, to live in the following manner: to abstain from all animal food, including broths, also butter and cheese, and from all fermented liquors, excepting small beer, which is allowed sparingly, and from all spices, and whatever possesses a manifest heating quality. The diet is to consist of pudding, gruel, sago, milk, rice-milk, fruit pyes, greens, roots, and vegetables of all the kinds in season, prepared or raw. Eggs, though not to be eat alone, are allowed in puddings, and butter in pye-crust; the

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patients are to be careful that they do not eat such a quantity as to overload their stomachs, even of this kind of food. Tea, coffee, or chocolate are permitted for breakfast, to those who choose or are accustomed to them.

In this manner they are to proceed about nine or ten days before the operation; during which period, at nearly equal distances, they are directed to take three doses of the following powder, either made into pills, or mixed with a little syrup or jelly, at bedtime, and a dose of Glauber's salts, dissolved in thin water-gruel, each succeeding morning.

The powder is composed of eight grains of calomel, the same quantity of the compound powder of crabs claws, and one eighth part of a grain of emetic tartar. Instead of emetic tartar, I have sometimes substituted two grains of precipitated sulphur of antimony. In order to facilitate the division of the doses, a large quantity is prepared at once, and great care taken that the mixture is well performed.

This

This quantity is usually sufficient for a healthy strong man; and the dose must be lessened for women or children according to their age and strength, as well as for persons advanced in years.

The first dose is commonly ordered at the commencement of the course; the second, three or four days after; and the third, about the eighth or ninth day; and I choose to inoculate the day after the last dose has been taken. On the days of purging, broths are allowed, and the patients are desired to abstain from unprepared vegetables.

What has hitherto been said concerning the preparation, must be considered as proper only for the young or middle aged, in a good state of health; but among those who are desirous of inoculation are often found tender, delicate, and weakly women, men of bad stamina, valetudinarians by constitution, by illness, or intemperance; also aged persons and children; and for these a very different treatment is directed; a milder course of

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medicine,

medicine, rather of the alterative than purgative kind, is here preferable; and in many instances, an indulgence in some light animal food, with a glass or two of wine in case of lowness, is not only allowable, but necessary to support a proper degree of strength, especially in advanced age.

Children whose bowels are often tender, and ought not to be ruffled by strong purges, yet require a mild mercurial, and bear it well: besides emptying the bowels of crudities, it is a good security against worms and their effects, which are sometimes of themselves perplexing enough, and produce very alarming and even fatal disorders.

Indeed the particular state of health of every person entering upon the preparatory course, should be inquired into and considered. Inattention to this has, I am satisfied, done great mischief, and particularly the indiscreet use of mercurials, whereby a salivation has often been raised, to the risque of impairing good constitutions, and the ruin of such as were previously weak and infirm. The distinctions and treatment

ment necessary, will be obvious to those who are acquainted with the animal œconomy and medical practice.

The time of menstruation has generally been the guide in respect to the inoculation of women; that the whole of the disease might be over within the menstrual period. This I commonly observe, when I can choose my time without any inconvenience, and inoculate soon after the evacuation ceases: though I have no reason to decline performing the operation at any time; as I can produce many examples in which no inconvenience has arisen, nor any difference been observable, when this circumstance has been disregarded.

Women with child have likewise been inoculated and done well; yet some particular emergency should be pleaded in excuse for it in their situation, as it may be attended with some hazard. I have not inoculated any woman whom I knew to be pregnant; but some who concealed their pregnancy have been inoculated
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by me, who, I fancy, hoped for an event that did not happen, I mean miscarriages; one of these had a child born nine weeks after inoculation, at the full time, with distinct marks of the disease, though the mother had very few eruptions.

Of INFECTION.

THE manner of communicating this distemper by inoculation in this country, has of late been the following: A thread is drawn through a ripe pustule, and well moistened with the matter: a piece of this thread is insinuated into a superficial incision made in one or both arms, near the part where issues are usually fixed; this thread is covered with a plaister, and there left for a day or two. This is the most usual way, though others have been practised by several in the profession.

At present, very different methods are pursued; two of which, that vary in some respects, I have frequently practised, and shall describe; but the following has been so invariably successful as to induce me to give it the preference.

The patient to be infected being in the same house, and, if no objection is made to
it,

it, in the same room, with one who has the disease, a little of the variolous matter is taken from the place of insertion, if the subject is under inoculation; or a pustule, if in the natural way, on the point of a lancet, so that both sides of the point are moistened.

With this lancet an incision is made in that part of the arm where issues are usually placed, deep enough to pass through the scarf skin, and just to touch the skin itself, and in length as short as possible, not more than one eighth of an inch.

The little wound being then stretched open between the finger and thumb of the operator, the incision is moistened with the matter, by gently touching it with the flat side of the infected lancet. This operation is generally performed in both arms, and sometimes in two places in one arm, a little distant from each other. For as I have not observed any inconvenience from two or three incisions, I seldom trust to one; that neither I nor my patient may be under any doubt about the success of the
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the operation from its being performed in one place only.

I have also tried the following method, with the same success as that above described, but do not so well approve of it, because I have been credibly informed that it has sometimes failed in the practice of others. A lancet being moistened with the variolous fluid in the same manner as in the other, is gently introduced, in an oblique manner, between the scarf and true skin, and the finger of the operator is applied to the point, in order to wipe off the infection from the lancet, when it is withdrawn. In this method, as well as in the former, a little blood will sometimes appear; but I neither draw blood with design, nor do I think it necessary to wipe it off before the matter is introduced.

In both these ways of inoculating, neither plaister, bandage, or covering is applied, or in any respect necessary.

These methods of producing the disease never once have failed me; and experience has sufficiently proved, that there is no danger from additional infection by the natural disease at the same time. I therefore make no scruple of having the person to be inoculated, and the patient from whom the infection is to be taken, in the same room; nor have ever perceived any ill consequences attending it. But I advise the inoculated patients (though perhaps there is no necessity for that precaution) to be afterwards separated from places of infection till certain signs of success appear, when all restraint is removed, there being no danger from accumulation.

It seems to be of no consequence whether infecting matter be taken from the natural or inoculated small-pox: I have used both, and never have been able to discover the least difference, either in point of certainty of infection, the progress, or the event; and therefore I take the infection from either, as opportunity offers, or at the option of my patients or their friends.

Nor

Nor is it of consequence whether the matter be taken before, or at the crisis of, the distemper. It is, I believe, generally supposed, that the small-pox is not infectious till after the matter has acquired a certain degree of maturity; and in the common method of inoculation, this is much attended to; and when the operation has failed, it has commonly been ascribed to the unripeness of the matter.

But it appears very clearly from the present practice of inoculation, that so soon as any moisture can be taken from the infected part of an inoculated patient, previous to the appearance of any pustules, and even previous to the eruptive fever, this moisture is capable of communicating the small-pox with the utmost certainty. I have taken a little clear fluid from the elevated pellicle on the incised part, even so early as the fourth day after the operation; and have at other times used matter fully digested after the crisis, with equal success. I choose, however, in general, to take matter for the infection during the fever of eruption,

tion, as I suppose it at that time to have its utmost activity.

In all cases, when I take matter from an inoculated person, it is from the place where it was inserted; as I am always sure to find infection there if the disease succeeds, and always of sufficient energy.

It may appear strange that no bandage, dressing, or application whatsoever, is made use of to the part infected; but that the most ample incision being made, and moistened with the smallest particle of the recent fluid matter, the whole is committed to nature. This method is however perfectly right, because the application of either plaister or unguent, as is the usual practice, will occasion an inflammation on some skins, and in all tend to disguise the natural appearance of the incision, and prevent our forming a proper judgment of the progress of the infection; which will afterwards appear to be a matter of much importance.

If

If neither an inoculated patient is at hand, nor any one in the neighbourhood has a distinct kind of the natural disease, a thread may be used as in the common manner, provided the thread be very recently infected; but I think it ought to be used as soon as possible, after being charged with infecting matter.

The following method of introducing the disease has likewise been found effectual; but I have never practised it myself. Dip the point of a lancet in variolous matter; let it be held in the air till it is dry; after which it may be closed and kept in the common case without any further care; and with this prepared lancet raise the scarf skin obliquely, and keep the lancet a little time in motion between the two skins, that part of the matter may be mixed with the animal juices; then withdraw the lancet, and leave the incision uncovered as before.

Of the PROGRESS of INFECTION.

HITHERTO very little regard seems to have been paid to the progress of infection discoverable by the part where the operation was performed. But it will appear in the sequel, that an attention to this circumstance is very necessary, because a just prognostic may thence be sometimes formed of the future state of the distemper, and indications may be taken from the different appearances on the arm, that will enable us to prevent inconveniencies.

The former method of covering the place of incision with a plaister, and continuing upon it dressings of one sort or another, prevented much useful information of this kind. They prevented any judgment by the touch, and sometimes rendered that by the eye equivocal.

The day after the operation is performed, though it takes effect, little alteration is discoverable. On the second day, if the part is
viewed

viewed with a lens, there generally appears a kind of orange-coloured stain about the incision, and the surrounding skin seems to contract. At this time I usually give the following medicine at going to bed, either mixed with a little of any kind of jelly, or more frequently made into a pill:

Calomel and compound powder of crabs claws, of each 3 grains, emetic tartar $\frac{1}{10}$ of a grain.

A quantity of this medicine should be carefully prepared at once, in order to make the division more exact.

On the fourth or fifth day, upon applying the finger, a hardness is to be felt by the touch. The patient perceives an itching on the part, which appears slightly inflamed; and under a kind of vesication is seen a little clear fluid; the part resembling a superficial burn. About the sixth most commonly some pain and stiffness are felt in the axilla; and this is a very pleasing symptom, as it not only foretells the near approach of the eruptive symptoms, but is a sign of a favourable progress

gress of the disease. Sometimes on the seventh, oftener on the eighth day, symptoms of the eruptive fever appear; such as slight remitting pains in the head and back, succeeded by transient shiverings and alternate heats, which in a greater or less degree continue till the eruption is perfected. At this time also it is usual for the patient to complain of a very disagreeable taste in his mouth, the breath is always fetid, and the smell different from what I have ever observed in any case, except in the variolous eruptive fever.

The inflammation in the arms at this time spreads fast; and upon viewing it with a good glass, the incision, for the most part, appears surrounded with an infinite number of small confluent pustules, which increase in size and extent as the disease advances. On the tenth or eleventh day a circular or oval efflorescence is usually discovered, surrounding the incision, and extending sometimes near half round the arm, but more frequently to about the size of a shilling; and being under the cuticle, is smooth to the touch, and not painful. This appearance is also a very pleasing one; it accompanies

companies eruption; every disagreeable symptom ceases; and at the same time it certainly indicates the whole affair to be over; the pain and stiffness in the axilla also going off.

The feverish symptoms are for the most part so mild, as seldom to require any medicinal assistance, except a repetition of the same medicine that was directed on the second night after the operation; and on the following morning this laxative draught, to procure three or four stools;

Infusion of senna two ounces, manna half an ounce, tincture of jalap two drams.

These are given as soon as the eruptive symptoms are perceivable, if they seem to indicate any uncommon degree of vehemence,

It has been observed, that by attending to the progress of infection, we may be able to prognosticate, with some degree of certainty, the event of the distemper in general. Particular incidents will ever happen,

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but not sufficient to destroy the propriety of general rules.

If the appearances already described are observed early, a very favourable event is implied: but it happens in some cases, although it may be perceived that the inoculation has succeeded, yet it is barely perceptible, the colour about the wound remaining pale, instead of changing to red or inflamed; the edges of the incision spread but little, they remain flat, scarcely rising at all, and are attended neither with itching or uneasiness of any kind. Nay, sometimes on the fifth, and even the sixth day, the alteration is so little, as to make it doubtful whether the infection has taken place.

When matters are in this state, the appearance is unfavourable, and implies a late and more untoward disease: to prevent which, I direct the powder or pill to be taken each night; and in case it fails to operate by stool, or there is the least disposition to costiveness, an ounce of Glauber's salts, or more commonly the laxative draught already mentioned,

tioned, is given in the morning, once or twice as the case may require. I have constantly observed this course forwards the inflammation; and I always wish to see an early progress on the arm, as an early commencement of the eruptive complaints, portend that the distemper will be mild and favourable; and, on the contrary, where both are late, the symptoms are usually more irregular and untoward.

Being now arrived at the most interesting period of this distemper, the eruption, a period in which the practice I am about to recommend differs essentially from the method heretofore in use, and on the right management of which much depends, it will be requisite to give clear and explicit directions on this head, and to advise their being pursued with firmness and moderation.

Instead of confining the patient to his bed, or his room, when the symptoms of the eruptive fever come on, he is directed, as soon as the purging medicine has operated, to keep abroad in the open air, be it ever so

cold, as much as he can bear, and to drink cold water, if thirsty; always taking care not to stand still, but to walk about moderately while abroad.

This treatment indeed seems as hard at first to the patients, as it must appear singular to the reader; but the effects are so salutary, and so constantly confirmed by experience, and an easy progress through every stage of the disease depends so much upon it, that I admit of no exception, unless the weather be extremely severe, and the constitution very delicate. And it is indisputably true, that in the few instances where the symptoms of the eruption have run very high; the patients dreading any motion, and fearing the cold as the greatest evil; yet, when under these circumstances I have persuaded them to rise out of bed and go out of doors, though led sometimes by two assistants, and have allowed them to drink as much cold water as they chose, they have not suffered the least sinister accident. On the contrary, after they have been prevailed on, although reluctantly, to comply with these directions,

directions, they find their spirits revived; an inclination for nourishment returns; they rest well; a gentle sweat succeeds, accompanied with a favourable eruption; and the fever seems wholly to be extinguished.

In general, the complaints in this state are very moderate, and attended with so little illness, that the patient eats and sleeps well the whole time: a few pustules appear, sometimes equally dispersed; sometimes the inflammations on the arms spread, and are surrounded with a few pustules, which gradually advance to maturity; during which time, for the most part, the eruption proceeds kindly, and there is much more difficulty to restrain the patients within due bounds, to prevent them from mixing with the public, and spreading the infection (which I always endeavour to prevent) than there was at first to prevail upon them to go abroad. During this time, medicine is seldom wanted; the cool air seems the best cordial; and if any uncommon languor happens, a basin of small broth, or a glass of wine, is allowed in the day, or some white wine whey at bed time;

time; which are indeed at any time allowed to tender, aged, or weakly persons.

With these exceptions, they have hitherto been kept very scrupulously to the diet at first directed. But after the eruption is completed, if occasion requires, they are indulged in a little well-boiled meat of the lightest kind, as chicken, veal, or mutton.

The regimen above-mentioned, the cooling alterative purges, and the free use of cool air at the time of eruption, almost universally prevent either alarming symptoms, or a large crop of pustules. A few I have seen with such a quantity of pustules, though distinct, that I have neither advised nor allowed them to go out of the house. But the generality of my patients, when the eruptions are few, amuse themselves abroad within proper limits, with the pustules out upon them.

I neither enjoin this, nor maintain that it is necessary; but have not been able to observe that any inconvenience has arisen from it. And how strange soever it may appear, it is true, that those who are most adventurous,

venturous, seem to be in better spirits, and more free from complaints, than others who are inclined to keep within doors. And indeed, such of my patients as have received the benefit of this treatment themselves, seldom permit these who are in the most uneasy state of the distemper, the eruptive, to keep much in the house; but encourage them to bear a little hardship, by recounting to them the benefit they have reaped from the method they are recommending.

Those who have the disease in the slightest manner first described, viz. without any appearance of eruption but on the inoculated part, are soon allowed to go about their usual affairs; and many instances have happened of very industrious poor men, who have instantly returned to their daily labour, with a caution not to intermix with those who have not had the distemper, for fear of spreading it, and with directions to take two or three times of the purge already directed, or as many doses of Glauber's salts. Those who have it in a greater degree, are confined somewhat longer; and a very mild laxative is now-and-then taken, if there is the least disposition to costiveness;

costiveness; as the progress to maturation appears rather to be advanced than retarded by the operation.

When the maturation is compleated, and it is evident we have nothing further to fear from the distemper, I allow my patients gradually to change their course of diet, from the perfectly cooling kind, to one a little more generous; recommending strictly to all a return to their ordinary animal diet, with much caution and restraint upon their appetites, both in respect to food and fermented liquors.

It is not often that we are under a necessity of making any application to the part where the operation was performed: it most commonly heals up, and is covered with a scab, about the time when, in the natural way, all the pocks would have been dried up: but there are some cases wherein the incisions continue to discharge a purulent matter longer; in these instances it is sufficient to cover the place with the white cerate, or any other mild emplastic substance, which may at once prevent the linen from adhering

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ing to the fore, and defend it from the air. And as in these cases the part remains unhealed from some peculiar cause in the habit, it will be necessary to give gentle purgatives, and proper alteratives, as particular exigencies may require.

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ANOMALOUS SYMPTOMS and AP-
PEARANCES.

IN the preceding pages I have described the usual progress of the small-pox from the inoculation. There are, however, deviations from this course, and indeed not a few; some of the most material of which, as they may embarrass the inexperienced, and create a real difficulty, as well as apprehensions of danger, it seems necessary to describe, and the means that experience has suggested to remove these symptoms, or the doubts respecting the event.

The first I shall take notice of, and which, though it very rarely happens, sometimes gives much trouble, is great sickness, accompanied with vomiting, coming on during the eruptive state of the distemper. For this complaint it is always necessary in the first
place

place to clear the stomach; which may be effected either by ordering the patient to drink plentifully of warm liquids to promote vomiting; or perhaps more properly, by giving one grain of emetic tartar to an adult, mixed with ten grains of compound powder of crabs claws, taking care to lessen the dose for very young and weak subjects.

This usually throws off some bilious matter by vomit, sometimes procures stools, or occasions a moderate sweat, and generally administers relief. If, however, no stools should follow from this medicine, and the sickness should remain; a gentle laxative almost certainly procures a respite, and the appearance of the eruption removes the complaint entirely.

Another deviation, of still more consequence, which sometimes happens towards the time of the eruption, and is often, though not always, accompanied with great sickness, is an erysipelatous efflorescence. This, if it shews itself on the

skin partially, and here and there in patches, is not very alarming, and soon wears off.

But sometimes the whole surface of the skin is covered with a rash intimately mixed with the variolous eruption, and so much resembling the most malignant kind of confluent small-pox, as scarcely to be distinguished from it: and indeed some cases of this sort have happened, where, being accompanied with petechiæ and livid spots, I have been much alarmed: not being able, by inspection only, though assisted by glasses, to determine whether what I saw was an inoffensive rash, or tokens of the greatest malignity. Very strict attention however, has enabled me to distinguish the difference clearly; and the following observations will, I hope, tend to relieve others from the anxiety they would feel upon such an appearance.

The real and essential difference then is to be gathered from the concomitant symptoms. In the erysipelatous or variolous rash, there is not so much fever,
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nor is the restlessness, or pain of the head or loins, so considerable; neither is there that general prostration of strength; which are almost never-failing attendants on a confluent small-pox, especially when accompanied with such putrid appearances. Besides, upon a careful examination, there may sometimes be discerned a few distinct pustules, larger than the rest, mixed with the rash, which are indeed the real small-pox. In these cases the patients are ordered to refrain from cold water, or any thing cold; and to keep within doors, but not to go to bed. If any sickness yet remains, a little white wine whey, or other moderate cordial, is advised: and this method has hitherto been so successful, as to prevent any alarming complaint. After two or three days, the skin from a florid changes to a dusky colour, a few distinct pustules remain, and advance properly to maturation, without any further trouble ensuing from this formidable appearance*.

* See Cases XIII. XIV.

This rash has been often mistaken for the confluence it so nearly resembles, and has afforded occasion for some practitioners, either ignorantly or disingenuously, to pretend, that after a very copious eruption of the confluent pox, they can by a specific medicine discharge the major part of the pustules, leaving only as many distinct ones as may satisfy the patient that he has the disease. Such pretensions have certainly been made, and the patient who has been deceived in this manner, has contributed to spread reports untrue as to the fact, and probably prejudicial to the health of others; who in like circumstances have been sent abroad, and other cool means pursued, by which the rash has been repelled, and the bad effects experienced afterwards.

I must also observe here, that rashes of the kind I have described frequently happen during the preparation (whether owing to the regimen, or medicine, or both, I cannot say) and cause the operation to be postponed; but I have observed, that in such cases

cases they are apt to return at the time of the eruption of the small-pox.

In general, as has been already said, the symptoms which precede eruption commence at the end of the seventh, or in the eighth day inclusive from the operation; but it often happens that they appear much sooner, and sometimes much later than the time above-mentioned. For instance, I have seen some cases wherein the disease has happened so suddenly after infection, and with so little complaint or uneasiness, that the whole affair has been terminated, purges taken, and the patient returned home perfectly well in a week's time; before others, inoculated at the same time, from the same patient, and under the same circumstances, have begun to complain.

In this case the inoculated part shews early certain marks of infection, sometimes on the very next day, or the day after, when the incision will often appear considerably inflamed and elevated. The patient about this time frequently makes some of the following

lowing complaints, viz. chilliness, itchings, and small pricking pains in the part, and sometimes on the shoulder, giddiness, drowsiness, and a slight head-ach, sometimes attended with a feverish heat, but often without any: the account they themselves give of their feelings, is in some as if they had drank too much, and in others as if they had caught a cold. These complaints seldom last twenty-four hours, often not so long, and with frequent remissions, and never that I remember, rise to a degree that requires confinement. The inflammation on the arm at the time of the complaints advances apace, and feels hard to the touch; but upon their wearing off, the inflamed appearances gradually lessen, and the part dries to a common small scab; the skin that was before red, turns livid, and the party is quite well, and nothing more heard of the distemper*. In some instances these symptoms attack much later; even on the seventh or eighth day, when an eruption might be expected in consequence

* See Case I.—XII.

inoculated them a second time, and caused them to associate with persons in every stage of the disease, and to try all other means of catching the infection; and this method has been practised with the generality of such patients ever since; yet without a single instance of its producing any disorder; so that I now make no scruple of pronouncing them perfectly safe: and experience has enabled me for the most part to foretell, in two or three days after the operation, when the disease will pass in this slight manner.

Upon the second inoculation, however, the incised parts are commonly inflamed for a day or two, just in the same manner as I have, in numerous instances, found them to be as well in those who, though certain of having had the small-pox in the natural way, have submitted to be inoculated merely for the experiment's sake, that the result might be observed; as in others, who, being doubtful whether they have had it or not, have been inoculated in order to be satisfied. But in all such cases the parts
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soon became well; nor did any of those appearances which have been described as the constant attendants of inoculation, as pain in the head, giddiness, marks of infection in the arm, &c. ensue; nor can they ever be produced upon a person who has had the small-pox before, either in the natural way or by inoculation; and therefore it cannot with reason be suggested that the patients, whom I suppose to get through the disease in the very slight manner above described, may possibly have had the small-pox unobserved in some former part of their lives.

Another and less favourable appearance to be mentioned under this head, is when though the inoculated part shews certain signs of infection, yet the discolouration round it, instead of being florid, is of a pale hue, remains flat, and is very little elevated. This does not promise kindly; and therefore I give the alterative pill more frequently; and if it fails to operate by stool, I add a laxative.

Some of my own patients, and, as I am credibly informed, of other inoculators in this way, have had considerable eruptions of this kind after they returned home; which have probably given occasion for the reports of several having had the disease again in the natural way after inoculation. But that these reports are ill grounded will appear from this observation, to wit, that in all the cases of this sort which have occurred in my own practice, or, as far as I can learn, in that of others, the second or latter crop of pustules has always happened within the time usually allowed for the progress of the small-pox from inoculation; and before the inflammation on the arm has ceased; and sooner than they could be supposed to be produced by infection taken in the natural way; and whenever it has happened, it has been to persons in whom, after a slight eruption, and abatement of symptoms, the disease has prematurely been judged to be quite over, and they have therefore been permitted to return to their families.

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It will doubtless be asked, how cases of this kind should ever happen among those who return home as cured? To which I answer, that it is no unusual thing for industrious men, after a slight eruption, and cessation of all complaints to ask leave to return home to their occupations and families; and where it has been thought that no danger would accrue to others, their request has been often granted; for the physician no more than the patient can foresee when these accidents shall follow; but it may be observed here, that in all these cases of my own knowledge, very repellent methods have been used in the beginning; and a more generous diet, or greater exercise afterwards, has seemed to contribute to this secondary eruption.

Before I conclude this chapter, it may be proper to observe, that inoculated patients, in some stage or other of the disease, may possibly be attacked with diseases altogether independent of the small-pox. Such, for instance, as may arise from worms, or be the epidemic of the season; or such as the
 patient

patient may by constitution be subject to;
and some cases of this sort will be found
among those annexed *.

* See Cases XVII. XIX. XXI.

CONSEQUENCES of this Method of
INOCULATION.

I Shall now consider the consequences that follow this very cool and repelling method; and how far the patient's future state of health may be affected by a practice so new, and opposite to all established theory.

I need not say how much it has been thought right, in most or all eruptive complaints, especially in the small-pox, to forward by every gentle means the efforts of nature in producing an eruption; and on the contrary, how dangerous to check it, either by cold air, cold drink, or any considerable evacuations; or that the use of warm diluents therefore, and the lying in bed, especially if the fever and symptoms run high, or at least confining to the house, have been generally approved and recommended for the purpose. But when a practice so foreign to this, and almost totally different, is inculcated, it is no wonder if mens minds are alarmed, and those evils expected

pected that were supposed to be the unavoidable consequences of it.

Experience, however, and instances of so many thousands succeeding by this method, without any considerable bad effects from it, either immediate or remote, are irresistible arguments for its support and justification, and the best proof of its utility and safety. I have said, without any considerable bad effects; for in reality I have seen none that deserve that name, if compared with what sometimes follow the natural small-pox, or frequently happen after the old method of inoculation.

Every one who has had any share in this practice according to the common or old methods, will allow, that after passing through the disease in a very favourable manner, their patients (children especially) were frequently liable to abscesses in the axilla and other parts, tedious ophthalmies, and troublesome ulcerations in the place of insertion; which though they could not be foreseen or prevented, yet frequently gave more pain and vexation to the patients,

tients, and trouble to the operator, than the disease itself had done: whereas on inquiry into the fate of those who have been treated in the cool way, or this new method, I can say, that in more than 1500 there has been only one who has had so much as a boil in the axilla; and that was in a child who had an issue in the same arm, and which was at that time dried up; and I have only seen two very small superficial boils in others near the place of insertion; and these seemed rather to be occasioned by an irritation from the discharge, than from any other cause, and were all soon healed with very little trouble.

In a few instances also there has been a slough in the incised part, which has made a sore of short duration; but not one instance of an ulcer of any continuance. Such little breakings out too, and scabs, as are frequently known to succeed the mild natural small-pox, sometimes, though rarely, happen to those inoculated this way; and as they are of the same little consequence, are generally cured by the same method of a few gentle purges.

With regard to ophthalmies from this kind of practice, I have never had an example of one truly deserving that name; the coats of the eye have been a little inflamed in a very few, but they soon became clear, without any means used for that purpose. And I know but two cases where I thought the inflammation great enough to require bleeding, and not one where a blister was necessary. So that these complaints, heretofore so frequent and grievous, seem by this new method to be much reduced: a circumstance which, if it does not amount to a proof, admits at least of a fair conjecture, that the state of health is better here, than where those remains of putridity are so evidently existing in the habit.

Discoveries in physic, as in every other science, are in their infancy liable to censure and opposition; and as the present system of inoculation is of so extraordinary a kind, it would not be strange if a greater portion of both than usual should fall to its share. Accordingly, since no charge of fatality during the disease, nor instances of
bad

bad effects soon after the recovery, can be produced, recourse has been had to other measures to calumniate and discredit the practice. It would be tedious to enter into a detail of the many false and ridiculous reports that have been spread against it. In general, the constitution is said to be injured; and the dreadful effects are to appear at some distant period; but at what time, or what kind of disease, nobody pretends to determine. To these general accusations it cannot be expected I should give other than a general answer; which is, that from the strictest observation and inquiry I have been able to make, those who have been inoculated in this way, have continued to enjoy as good a state of health as their neighbours; nay, many of them have thought their constitutions better after the process than before.

But it seems as if these opposers expected that inoculation should not only free the inoculated from the small-pox, and any early bad effects, but must preserve them too from all other disorders through the rest of their lives. To such I can say nothing: but if

others who are more reasonable require further satisfaction as to the consequences of this method, I must desire them to make inquiry of those who have been inoculated under my direction.

Another charge against this method of inoculation is, that some have had the distemper afterwards in the natural way. What I have said under the head of anomalous small-pox, will I believe sufficiently account for the appearances which have occasioned these false reports; and if that does not satisfy, I can only add this positive declaration, that nothing of the kind has ever happened to any patient inoculated by me; and I firmly believe, no one has ever had, or can have, the distemper a second time, either in the natural way, or from inoculation.

The EFFECTS of this TREATMENT
applied to the natural SMALL-POX.

THE very great relief which persons under inoculation experience from fresh air, cold water, and evacuations by stool, during the fever preceding eruption, soon determined me to make trial how far the like treatment might be useful to those who might be seized with the small-pox in the natural way; more especially in such cases, where, from the violence of the symptoms, a confluent kind was justly to be apprehended.

But opportunities of making experiments of this sort in a satisfactory manner are rare. First, because a physician, or even medical assistance of any kind, is not often called in till the eruption shews itself; when it is too late to expect all the good effects that might be hoped for from an earlier trial of this method; and secondly, because the first attack of the small-pox is so much like the beginning of some other fevers as not easily to be distinguished; though a diligent attention

tion to the symptoms, will generally, if we are called in time, enable us to form a pretty certain prognostic. For if the attack of the cold fit be pretty severe, and the subsequent fever unusually high; if a nausea and vomiting succeed, together with great pains in the head, back, and loins, especially the last; if a delirium, great restlessness, disagreeable taste in the mouth, and a peculiar fætid smell in the breath, or even if several of these symptoms are observed, the small pox may with great reason be expected; and if upon enquiry, which should always be made, it appears that the patient has been in the way of infection, there will be little reason to doubt of it.

It may be objected, that notwithstanding the closest attention and enquiry, symptoms of the like nature may precede fevers of other kinds; to which I answer, that some such cases, though few, have happened; and the treatment I am about to recommend has been practised not only without prejudice to the patient, but manifestly to his benefit.

But waving for the present all considerations respecting the treatment of fevers in
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general, I shall only relate what has occurred to me in respect to the natural small-pox.

In several instances where I have been concerned, and where the symptoms and other concurring circumstances induced me to think the small-pox was at hand, I have directed the like management as I recommend to inoculated patients*.

I have been called also to others at the time of eruption, where some pustules having already appeared, made the matter clear; and in every case of this kind, I have endeavoured to get the sick person into the open air, have generally given the mercurial and antimonial pill, and directed a laxative to be taken some hours after it, in order to procure three or four stools; and this method I have more particularly enjoined, and sometimes repeated where the kind has appeared to be bad, and where little or no relief has been found from the partial eruption; the symptoms continuing to be such as portended great danger. I have followed the same method during every

* See Cases XXIII. XXVIII. XXIV.

part of the eruptive fever, intending thereby to abate its violence, to check the eruption, and prevent the conflux, and consequently the danger*.

The success attending this practice has hitherto exceeded my expectations; though it must be confessed, that as the symptoms run much higher in the natural, than they are found to do in the inoculated disease, the relief has not been so considerable; and I have found it extremely difficult to persuade such whose complaints have been very severe, to quit their beds, and attempt to go abroad: indeed the exceeding feeble state they are sometimes in, sufficiently shews that great resolution is requisite to put this in practice.

Among those who have been treated in this manner under my own care and inspection, not one has died, and the number amounts to about 40. Some of the most remarkable cases will be subjoined,

* See Cases XXV. XXVI. XXVII. XXIX.

which

which will more satisfactorily explain the practice, and demonstrate its success.

The immediate sensible effects of going into the open air, are a very great abatement of heat upon the whole surface of the skin, which though but just before intensely hot, generally in a short time feels not much warmer than that of a person in health. The pulse from being very strong, full, and quick, becomes less hard and full, but continues quick; and I have sometimes observed it to intermit; which, however alarming it may seem, is not a dangerous symptom.

The pain in the head is always relieved, but that in the back and loins does not abate in proportion; and although it costs no little pain and trouble to persist in moving abroad under such circumstances, attended for the most part with great lassitude, yet the patients are sensible of the benefits they receive; and entertaining a good opinion of the usefulness of the practice, commonly

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behave with great resolution; and what is very encouraging, in general think themselves stronger.

Upon going within doors to rest themselves, the pain in the head grows worse, but is again relieved so soon as they return into the air.

The effects of the medicines are usually these:

If there has been much sickness at stomach, a vomiting frequently happens soon after the pill: this the patients should promote by drinking plentifully of some warm diluents; and till the fatigue occasioned by it is over, they certainly ought not to go abroad.

By this operation, and the stools which succeed, the feverish and internal heat, thirst, sickness, and pains, are, for the most part, considerably abated. The patients commonly complain of being very low and faint after these evacuations; but the most
urgent

urgent symptoms being alleviated thereby, a disposition to receive nourishment hourly increases. They are then allowed to drink thin mutton or chicken broth, milk pottage or tea, as the most grateful and refreshing cordial sustenance they can take. Sleep likewise now most commonly comes on spontaneously. But they are only permitted to enjoy this refreshment by day upon the bed; for I always dissuade them from going into it till night.

From the foregoing account it appears, that the fever preceding the eruption, and the most grievous symptoms accompanying it, are often greatly mitigated by this practice; and I will here add, that the eruption is most certainly retarded, that is, it does not appear so soon after the attack of the disease, nor come out so precipitately when it has begun to appear, as it seemed likely to have done if the natural progress had not been interrupted; an effect, which, however dangerous it may have been thought, may be produced with the utmost safety, and clearly shews the utility of the practice.

For it is evident from experience, that the later the eruption shews itself after the beginning of the disease, and the slower it comes out, the more mild and favourable is the subsequent disorder. And I am of opinion, that the eruption is not only retarded and protracted by this method, but likewise that it is in some degree repressed; having had strong reasons to apprehend in several instances, that the number of pustules which appeared at first, were by such repression actually diminished; and those that remained seemed larger and of a milder kind.

What has hitherto been said on the subject, relates only to the disease in its eruptive state, which is certainly a very interesting period; but that which follows is not less so, though not always attended to so much as it deserves; for when the eruption is compleated, the symptoms abate, the patients seem relieved, and often to such a degree, that both they, and their attendants, flatter themselves with hopes of a happy event, and think it unnecessary to
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apply for any medical assistance ; yet with all these hopeful appearances, the number and kind of the small-pox are frequently such, as would make a judicious practitioner apprehensive of much danger in the subsequent stages.

And where the practitioners themselves may see reason to doubt of the event, yet few or none of them have attempted, I believe, to do much towards preventing the danger ; for, unless some pressing symptoms call for immediate relief, it is the general practice to wait till maturation comes on, and brings with it such a train of dreadful complaints, as are more than enough to employ, and too often baffle, the best abilities.

In this neglected interval, from the eruption being compleated, to the accession of the fever of maturation, and its concomitants (an interval which in point of duration is very different in different constitutions and kinds of small-pox) I will venture in general to recommend the same mercurial antimonial medicine as was prescribed in
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the eruptive fever, to be repeated at proper intervals, till the maturation advances; at which time it must certainly be discontinued; and these circumstances can be regulated only by those who attend, according to the urgency of the symptoms, and the strength of the patients: a cupful of the following apozem should, if necessary, be now-and-then taken after the mercurial medicine, often enough to procure three or four stools a day, especially if the patient is costive.

Take cream of tartar, two drachms; of manna, one ounce; dissolve them in one quart of barley water, or the pectoral drink.

How far it may be safe or advisable for the patients to venture out into the open air during this stage of the disease, I will not yet pretend to say; but they will certainly be both refreshed and invigorated, by being kept out of bed as much as they can bear, without being over-fatigued; and by fresh air let in sometimes through an open window.

As the violence of the eruptive fever with its attendant complaints must necessarily exhaust the strength and spirits, both should in this interval be recruited, by as much proper nourishment (such as has been mentioned in the former part of this chapter) as can be taken down without offending the stomach; and also, if occasion requires, with medicines of a cordial and anodyne quality; for this is the time to recover as much strength as possible, in order to be better able to encounter and bear the pain and fever, which will most certainly happen, as the state of maturation advances.

Medicines, except what have been already mentioned, seem at this time unnecessary; and they would interfere with, and prevent the true relish for food.

But for the best method of treating the small-pox in its most dangerous stage, I mean that of maturation, I must refer to the several learned and eminent practitioners who have professedly written upon the subject, whose opinions and practice I neither pretend to correct or amend. I shall
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however take the liberty to recommend one medicine to be used in that stage of the disease, which I have found to abate heat, and allay thirst, in such a manner as to afford a very pleasing refreshment.

Take of the weak spirit of vitriol one part, of the sweet spirit of vitriol two parts; mix. Of this the quantity of half an ounce may be added to a quart, or perhaps three pints of barley water, or the pectoral drink, or any other diluent, and to be drank of at pleasure.

I have at present nothing farther to recommend; but what has been said will I presume be sufficient with the cases annexed (in which the method will be more plainly described) to justify further trials of the cooling, repelling, and evacuating practice in the beginning at least of the natural small-pox, till the eruption is compleated, especially where the physician has an opportunity of making the trial before the eruption appears, and can be pretty certain, or has good reason to conclude, that his
patient's

patient's disorder is variolous. And the more violent the symptoms are in this stage of the disease, the more we shall be induced to employ the means which have been attended with so much success, in the same stage of the disease after inoculation.

But it may be asked, if I was called to a patient in a bad confluent small-pox, and finding the eruption compleated, whether in such a case I should venture to give and continue the use of the alterative and purgative medicine, and advise the patient to go out if he can bear it into the open air, in cold weather, or direct air to be let in through a window, even while the mercurial purge may be operating?

Before I give a direct answer to this question, let me first ask the most experienced practitioner, whether he knows any method of cure which may in bad cases be safely relied on, to avert the impending danger, and save his patients? The too well known fatality of all kinds of small-pox, very
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clearly proves that he does not, and that no such method has been yet discovered. And if this be the case, surely a bold, and even hazardous practice, is very justifiable towards any such unhappy patients, who lie as it were under sentence of a cruel death, not to be prevented by what are called the regular and usual methods. But still it may be urged, that no impending danger, however great, can sufficiently justify the trial of any hazardous experiment, unless supported by some degree of reason or experience. Happy, indeed, it is, when we have these two guides before us; but when they are separated, the latter is certainly most to be relied on, and here I have endeavoured hitherto to follow.

For in the practice of inoculation experience has taught me, that after, as well as before, the eruption, persons may safely take mercurial purges, and go out during their operation (though I have seldom advised any to do so) into the cold air, in inclement weather, without suffering the least harm or subsequent ill consequence from it. And
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by this experience I was led, though with great caution to try, whether the same practice might not be safely employed in the cure of the natural small-pox, as well as the inoculated; nor have the trials been unsuccessful; for though among the patients I have treated in this manner, some had confluent spots, yet were the complaints unusually moderate throughout the whole progress of the disease, and the maturation was completed without such troublesome and alarming symptoms and events as might be expected under any other known method of treatment; nor did any secondary fever ensue.

I would not however be understood to entertain so good an opinion of this method, as to insinuate that it will save all who have the bad confluent kind; too many of these are incurable; but I am not without hopes, that it may give a chance of recovery, hitherto untried, to many; and even if this alterative and evacuating course in the early part of the disease should not succeed, so as to avert the approaching danger, I think

there is great reason to suppose that nourishment, cordials, and opiates, which may be wanted in the state of maturation, will be administered with more advantage and security after it, than if that method had not been previously taken.

It seems necessary however to declare, that nothing which has been said is meant to relate to practice in the bleeding or purple small-pox; though very cold repellent methods may perhaps deserve to be tried in these hitherto fatal cases, provided they can be done early; but the mercurial evacuating course seems quite improper.

Upon the whole, what has been said on the natural small-pox, must wait the award of time and experience, the only tests of the utility of any practice; for I have lived long enough to have seen several instances where very ingenious and well meaning men have been greatly mistaken, by relying too much on the first impressions made by a few successful experiments.

C O N C L U S I O N.

BEFORE I dismiss the subject, it may not be improper to give some account of the motives that induced me to adopt this method.

During the course of many years practice of inoculating in the former usual method, I generally committed to writing the most remarkable occurrences, to have recourse to. Among these, I had recorded some cases, which proved that those who had suffered most, were, in general, such as had been kept warm, and nursed with the greatest tenderness and care. These facts disposed me to think favourably of a cooler manner of treating the disease, and made me attentive to the reports, of such a method having been practised in some parts of this country with great success, though too extravagant at first to deserve credit.

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The reports however of this practice still gained ground; and, upon the strictest enquiry, I found they were for the most part true, and that such who were treated in this way, passed through the distemper in a more favourable manner, than my own patients, or those of the most able practitioners in the old method of inoculation; also, that the inoculators in this new way enjoined a stricter regimen, as to diet, than I had hitherto thought necessary; and that they frequently brought their uninfected patients into the presence of those who had the disease, and inoculated them immediately with fluid matter, taken on the point of a lancet, and by a very slight puncture or incision; applying no dressing or covering afterwards.

This way of performing the operation pleased me, as far as related to the slightness of the incision, and the use of fresh matter; for I had (in common with other inoculators) sometimes failed of infecting, by using a thread that had been kept too long in a phial: But the circumstance of bringing

ing the person to be inoculated into the presence of one who had the small-pox seemed hazardous, lest there might be an accumulation of infection.

All doubts, however, were at last removed by the authenticated accounts that I received of these particulars, and of the good success that attended the practice; and I began to try it in January 1765; when, after having directed a strict regimen and some mercurial purges, I inoculated with fluid matter, proceeding with much circumspection and attention; my patients being exposed to the open air in that cold season. The great advantage they received from this treatment was soon apparent, and more than sufficient to encourage my continuance in the practice; till repeated experiments induced me to think, that instead of supposing the fever in the small-pox to be the instrument employed by nature to subdue and expel the variolous poison, we should rather consider it as her greatest enemy, which, if not vigorously restrained, is apt to produce much danger; and that
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all such means should be used as are most likely to controul its violence, and extinguish the too great fervor of the blood. Pursuant to this opinion, besides keeping my patients in the open air, which I had learned from others, I first directed the mercurial and antimonial medicine, and the laxative course in the eruptive state; the manner of administering which, and the success attending, have been already related.

It may perhaps appear singular that bleeding has neither been once mentioned or directed in the course of this work, though by general consent, it is allowed to be the most efficacious remedy in all inflammatory cases. To this I can only say, that the regimen and medicines above prescribed commonly reduce the patients so much as to render bleeding unnecessary. And in the natural small-pox it seemed most reasonable to adhere, as strictly as possible, to those measures which had contributed apparently so much towards passing so easily through inoculation. I doubt not, however, that cases will
arise,

arise in which bleeding may not only be safe but extremely salutary.

It will, I hope, be needless to tell the reader, that I have disclosed the whole of what I know with certainty relative to this process; as the regimen, medicines, different types of the disease, the rules of prognostic, and various events, &c. are fully and faithfully related, according to the best of my judgment and experience. And I believe, if the method now recommended is carefully pursued, it will be found to answer with a success, at least, equal to any yet discovered. Nevertheless it is reasonable to suppose that further experience may produce some improvements; yet when it is considered how short a time is required for preparation; how few medicines are to be taken; those medicines neither nauseous in themselves, nor violent in their operation; of a kind likely to be beneficial to most constitutions, and hurtful to none, unless injudiciously administered; that the disease is usually so mild as to require little or no confinement (the complaints of far the greater number being,

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that they have too little of the distemper); and that the disagreeable consequences which sometimes happened after the former method of inoculation are likewise by this most commonly obviated; I do not see that much alteration can be even wished for. That which appears most likely to be made, is in shortening the time of preparation; for as I have often been obliged to inoculate without any, and have always had the same success, it has inclined me think, that much, if not the whole, of this process may be dispensed with, except in very full habits, or where other particular circumstances may require it. But in all these cases, from the insertion of the matter to the time of the eruptive complaints, the patients have been kept to a close observance of diet, and the use of the preparatory medicines proportioned as well as I could to their condition; for I durst not, by way of experiment, dispense with the use of measures that had been hitherto so successful.

Should it be asked then, To what particular circumstance the success is owing? I can

can only answer, that although the whole process may have some share in it, in my opinion it consists chiefly in the method of inoculating with recent fluid matter, and in the management of the patients at the time of eruption. If these conjectures should be true, perhaps we shall be found to have improved but little upon the judicious Sydenham's cool method of treating the disease, and the old Greek Woman's method of inoculating with fluid matter carried warm in her servant's bosom.

C A S E S.

C A S E I.

Nov. 23d. **A** Very strong, fat, middle-aged man, was inoculated with fluid matter, from a person pretty full of the natural small-pox, and near the crisis.

26th. He came to me, that I might inspect the arm, which then appeared to be certainly infected, and very forward.

28th. He came to the house, and informed me he had been taken very ill on the 26th in the evening, and continued so all the next day. His complaints had been, great pains in his head and back, with heat, thirst, and restlessness. He was at this time, however, pretty well; but on inspecting the arms, they appeared much inflamed for a considerable space round the incision, and the erysipelatous appearance gradually

gradually extended itself over the greatest part of the arms between the elbow and shoulder. He now complained only of slight flying pains in his head and limbs, but without the least degree of fever: after a bad night's rest, several eruptions were discovered on the hips, and one on the neck. Some of these were matured, others dried away; and, upon the whole, the procedure was such as would not by any have been called variolous, if unattended with other circumstances.

C A S E II.

Nov. 23d.] A healthy strong man, inoculated at the same time, and from the same person, with the last, accompanied him also on the 26th, when the arm of this patient appeared in a very doubtful state respecting the infection.

On the 28th, when he came to the house, the skin at the incision was discoloured, felt hard, seemed thickened, but did not appear inflamed; nor did he allow it had itched, or that he had perceived any alteration in his health.

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Things remaining in this state, I inoculated him again on the 30th in the morning, being the eighth day from the first inoculation. On the evening of the same day he complained of chilliness, attended with pain in his head and limbs, and passed an uneasy night. These complaints lasted in a very moderate degree for two days more, but without the least appearance of a fever. A very few pimples were discovered upon the decline of these symptoms, but they soon vanished without maturing.

C A S E III.

Nov. 23d.] A third patient, a young man twenty years of age, was inoculated with the two last. I had not seen his arm from the time he was inoculated to the 28th, when he came to the house in company with the others. He said the incised part had itched very much the first three or four days, but it now appeared nearly in the same state as the preceding.

He was also inoculated again on the 30th. But as the succeeding complaints and doubtful eruption in this case bore an exact resemblance

semblance to those of the former, it is needless to repeat them.

Nothing happened to either from the second inoculation.

C A S E IV.

1765, May 5th.] A man aged twenty-four was inoculated; after which he went to visit a relation, till it should be thought proper for him to come to the house, which I directed him to do on the 11th, if he should continue well till that time.

He took with him two calomel pills, one of five and the other of ten grains. He was ordered to take the least on the 8th, the other on the following night; and an ounce of purging salts next morning.

I did not see him till the 11th, when he came to the house: he was then perfectly well, but said he had been a little giddy for the last day or two, and that his head ached very much the preceding day for about an hour, insomuch that he thought he must have come over; that his arm had itched very much, and the purge worked very briskly.

Upon

Upon examining the arms, both incisions appeared to be considerably inflamed, and looked just as is usual on the approach of the eruptive fever, which I had not the least doubt would soon happen.

On the 12th he complained of some pain in the right shoulder, and under the arm, which he said was stiff, and felt as if it was swelled. However he continued perfectly well, and free from all complaints to the 15th; the arms appearing as is usual when the distemper is attended with very few pustules, that is to say, not quite free from inflammation, but with a slight one.

The case being not so clear as could be wished, in order to be thoroughly satisfied, I inoculated him again, taking particular care to infect the part well.

On the 16th in the morning he took a dose of Inf. Sen. and Manna.

He continued quite well, and no itching, or signs of infection appeared from the last inoculation.

C A S E V.

May 3d. A man of 44 was inoculated. I saw him every day, and it was easy to perceive that the infection had taken place very early.

On the 7th it appeared so forward, that I ventured to prognosticate he would have a very early and mild disorder, and no eruption.

On the 8th he complained of a pain in his head and back, and that he felt a general uneasiness, attended with a loss of appetite, which at other times was very good. He continued complaining in this manner that whole day, but on the next found himself pretty well, and continued so without any other illness. The inflamed appearance on the incision abated from this time.

His health returned, and he still remains perfectly well.

C A S E VI.

A middle aged man was inoculated at the same time; whose case in every circumstance

cumstance so nearly resembled the former, as to render it needless to enumerate the particulars.

Both were inoculated a second time without any eruption or signs of infection happening in consequence of it.

C A S E VII.

Dec. 5th. A healthy man of 38 was inoculated. On the 7th he called on me, when his arm itched very much, and shewed certain marks of the infection having succeeded.

The inflammatory appearance was then considerably abated, and the incisions seemed disposed to heal. He felt no uneasiness on the part, nor had he any illness.

On the 12th and 13th he complained of pains in his head and limbs, as also of stiffness under his arms, which I esteem one of the most certain proofs of the infection having taken place. There was no alteration in the pulse, nor any other sign of a fever; a few pimples about the neck and arms followed these complaints, yet not such as I should have esteemed variolous on any other

other occasion; for some soon disappeared; and others, which remained long enough to have a little matter formed in them, proceeded to this state with great irregularity.

He was innoculated again, but without the least effect.

C A S E VIII.

A man between 50 and 60 was inoculated about four in the afternoon: on the morning of the third day after the inoculation I first saw his arms, when they shewed uncommon signs of infection, being already much inflamed; and upon enquiry, I received from him the following account: that on the same evening he was inoculated, he felt an uneasiness and numbness at and near the place of insertion; and that the day following these complaints increased, and spread up to the shoulder of one arm, which was very stiff and numbed; that the incision had itched several times, and his arms felt as if he had been bruised by a blow with a very large stick. And on the preceding evening, which was the second from the inoculation, his head had

been giddy and in pain, accompanied with some chilly fits; but all these sensations went off without any other illness. He had rested well, and never thought himself in better health.

From this time I saw him at different times every day, and he continued in perfect health; only sometimes especially towards evening, he said he felt as if he had drank too much. The arms were much inflamed, but on the 6th and 7th day they altered their colour to a darker hue, and the inflammation and hardness were evidently abating. He now desired to go a journey of about 20 miles on business; and this I consented to from an absolute confidence that he was secure from any alarming attack; having first enjoined him not to go into company where he might risque spreading the infection; for his breath at this time had that peculiar offensive smell which accompanies the disease.

He returned the following day, being the 8th, in the afternoon, making no complaint but of hunger; yet said his head had ached the preceding night after his journey. His arms were now rather

ther more inflamed, which I attributed to the friction they might have in the chaise; but from this time all complaints of every kind ceased. His arms soon became quite well; he took his first purge on the following day, a second on the 11th, and returned home on the 13th from the inoculation, without having a single eruption of any kind.

It is remarkable in this gentleman's case, that being so well he did not chuse to live with those who had the distemper, but continued in a lodging with his wife, who accompanied him by way of nurse, in full confidence of having had the small-pox many years since. However, after they got home, she fell ill, and had the distemper in a very clear but favourable manner, and doubtless caught it of her husband.

C A S E IX.

A young gentleman aged nineteen was inoculated June 2d, 1765.

On the 3d he rode out with a friend in an open chaise, and it being stormy weather returned home wet. I called on him next morning, and found him in bed, complaining

plaining that he had rested ill, felt shooting pains in his head, his throat a little sore, thought himself feverish, and that he had taken cold the preceding day. All this seemed very probable: his pulse was too quick, though the heat not considerable, and he was in a moderate sweat.

He rose about ten, and kept within doors the whole day, complaining of weariness, slight pain in the head and about the shoulders; also that the incised parts felt uneasy, and itched.

On the 5th he thought his cold considerably better, and ventured abroad. His arm appeared certainly infected, and very forward; insomuch that I suspected he would have no more illness in consequence of the inoculation.

On the 7th the inflammation on the arm was considerably abated, and the incision seemed disposed to heal.

Apprehending from those circumstances that nothing more was to be expected from the operation, he was inoculated again in the evening, from a person who had the distemper pretty full, though of a distinct kind, in the natural way.

No marks, however, of infection ensued from this last operation; and he continued visiting with me many patients in all stages of the disease: so that it is probable he was then in more danger of infection than he will ever be again.

C A S E X.

Dec. 19.] A healthy florid young man was inoculated in both arms; and soon after on the same day he felt a disagreeable numbness and stiffness, beginning at the incision in one arm, and extending as high up as the shoulder. That night at going to bed he took five grains of calomel in a pill.

On the 20th the same kind of sensation in the arm remained, extending also to that side of the head, which was in some pain. These complaints continued this day and the next. I ordered him to take the same mercurial pill at going to bed.

22d. Another indifferent night, with the same complaints, and a stiffness in both shoulders. The pulse appeared to be rather quickened, but without any such increase of warmth

warmth as was sufficient to be called fever. The incisions were unusually forward.

23d in the morning, I was told he was better, and had taken a ride to visit his mother at about ten miles distance; also that he had several pimples, which were believed to be the distemper.

In the afternoon he returned, when I found there were several pustules out, which had the appearance of being true small-pox; and his arms were as forward as is usual at the time of eruption. All his complaints were now gone off, and he seemed quite well.

24th. Gone abroad for his pleasure.

25th. He called on me; and the pustules having advanced properly towards maturation, I ordered him immediately to the house, where he remained perfectly well, and the pustules which were about twenty, matured very kindly.

27th. He took a purgative, which operated moderately. On the 28th he returned home in good health, and has continued so ever since.

CASE

C A S E XI.

Two men were inoculated at the same time, the one about 40 years of age, corpulent, and subject to the rheumatism; the other between 50 and 60, very thin and healthy.

I saw both these patients on the third day, when the places of insertion were in each so very much inflamed, that I was pretty certain they would scarce have any eruption, and acquainted them with my opinion; both made complaints of itching and uneasiness in the part; there was however this difference, the elder said he had felt a numbness and smarting from the time of inoculation, particularly the following night; that his head had been in pain, and he had had several chilly fits. The other complained that his arms felt hot and itched, but he was very well. They both came to me on the sixth day, when the inflammation on the arm of the elder was considerably abated; and he said from the time that I saw him last, he had remained free from any complaint, except a slight uneasiness on the parts infected. The

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incisions

incisions of the other were still in an inflamed state; he said that his head had ached, and that he was very chilly the preceding night; both these symptoms continued for two days more; but the attacks were irregular, lasted but a very short time, and there was not the least appearance of fever. The other held perfectly well, and all signs of inflammation on the arms of both soon disappeared.

They both remained several days in the same house, and keeping company with others in different stages of the disease; the elder of the two was inoculated again, but without the least signs of the infection taking place, and both remain in good health.

C A S E XII.

A gentlewoman turned of 50, of a corpulent habit and clear complexion, was inoculated about noon. On the following morning she informed me that the inoculated parts, and more especially one arm, had smarted very much, and felt numb up to the shoulder, and had been sufficiently troublesome to disturb her rest; upon inspecting

pecting the parts, they were found much inflamed, and a little elevated. These kinds of feelings were complained of that whole day, and towards night her head ached; but she had no increase of heat, or alteration in the pulse. On the third morning there was a flushing on the skin round the puncture on each arm nearly the breadth of a sixpence; on applying the finger, it felt hard about the middle; and upon the whole, the appearances of infection were as evident as are usually observable on the 9th or 10th day. I therefore ventured to assure her, that the disease would pass over in a very slight manner, and most probably without any eruption; and the event justified my prognostic.

She complained a little of pain in her head for several evenings, and the inflammation on her arm increased; but on the sixth day it began to turn to a yellowish brown, and every inflammatory appearance wore off: she remained perfectly well, living with those who had the distemper, and in an infected house, without any illness.

C A S E S attended with an ERY-
SIPELATOUS RASH.

C A S E XIII.

JAnuary 9th a strong healthy man aged 24 was inoculated. The eruptive complaints began on the 8th day, ran pretty high, and on the inoculated parts of each arm he felt very great and unusual pains. On the 10th a true erysipelalous swelling attacked one arm, and extended from the shoulder to the elbow, the other was also affected in the like manner, but not so considerably. In the evening of the same day he complained of great pain and foreness about his stomach, and at this time the whole surface of the skin was nearly covered with a rash and petechial spots of different colours and sizes.

What I distinguish by the name of rash, were pimples much resembling the confluent pocks, and rising above the skin; the petechial spots were interspersed, and even with
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the skin; some of these were small like flea-bites, others were near as large as a silver penny; some were of a very dark purple, and others of a livid colour. I observed them carefully, assisted by a good convex glass, and found the appearances singular and alarming. But as the fever was not high in proportion to such appearances, the head and back free from pain, and no great weakness attended, the event seemed to be the less doubtful. The patient drank a basin of white wine whey at going to bed, and I found him pretty well in the morning: the erysipelas began to be less fiery, and put on a darker hue; a few large distinct pustules of real small-pox soon discovered themselves, and from this time all went on very well; the arms indeed were of a livid colour for some time, but gave the patient no pain or uneasiness, so that he passed through the whole process perfectly well in every other respect.

C A S E XIV.

A healthy young woman 20 years of age, after having taken two of the preparatory powders, had a slight fever accompanied with
sickness

sickness at stomach, which were followed by an erysipelatous rash; on this account inoculation was postponed four days, when the rash was totally gone. On the 7th day from the inoculation she began to have the eruptive symptoms which were accompanied with more fever and pain in the head and back than is usual, also very great sickness and vomiting; these were succeeded by an universal rash, of the same kind as had happened before; in this situation she was ordered to keep her room, and the following medicine directed:

Take compound powder of crabs claws, one scruple; emetic tartar, one grain.

This operated moderately by vomit, discharging some bile and also twice by stool. The stomach was much relieved, but the rash remained, and put on so much the appearance of a confluent eruption, that I could scarce be satisfied it was not so, though I had seen in the same person but a few days before a smaller degree of the same rash. What made the case more doubtful was, that the fever still remained pretty high; and her head
and

and back were not much relieved by this eruption. In this situation I did not think it adviseable to expose the patient to the open air, but directed only a saline mixture, with compound powder of crabs claws, and that she should keep her room, but not her bed.

On the 10th a few distinct pustules were to be distinguished, the rash began to look fainter, and the whole terminated in a very favourable distinct eruption, without any particular accident: the skin peeled off universally, as is not uncommon after a rash.

C A S E XV.

A man aged 44, on the sixth day after inoculation began to complain of pains in his head and back, and of being frequently very cold. These lasted with great severity, inso-much that he took the alterative pill, a purging draught, and kept much in the air till the 9th, when about ten pustules appeared, and his complaints ceased. These seemed likely to dry away without maturing, which is not
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unfrequently the case, where there are very few.

On the 12th he took a purge; his arm remained considerably inflamed; but as he was very desirous of going to a relation's house, where he proposed to be aired, I consented to it.

On the 16th I was told he had been much indisposed since his removal, and that he wished to see me.

On the 17th I visited him, and found a considerable number of pustules, to the amount of about 40, in the face, of true small-pox. The account he gave me was, that he found himself very ill on the evening after his removal, and that he perceived the pustules the next morning. This was on the 14th day from the inoculation, and the forwardness they were in agreed well with his account. His arm continued much inflamed, with many pustules near the incision.

C A S E XVI.

A healthy young man was inoculated December 6th, 1766. On the 11th and 12th he

he was cold and hot alternately, and complained of great pain in his head, back, and limbs.

The 13th he was much easier, but still felt pains in his head and back. The inoculated parts, which from the operation till this day I had no opportunity of seeing, shewed evident signs of infection; but the skin at the incision was pale, not elevated, nor did a thin fluid appear under the cuticle, as is usual when the progress of infection is favourable; neither had he felt much uneasiness about the incisions, or stiffness in the axilla.

14th. He was free from all complaints; the discolouration on the arm had spread wider, and two or three pustules were discovered near the place of insertion.

15th. Many pustules appeared in different parts, about one hundred.

16th. The pustules were properly advanced, and the man seemed to be perfectly well. But there were now some appearances in the arm which I was dissatisfied with: for the inoculated part was covered with a great number

of very small pale-coloured confluent pustules; and the incision instead of being elevated was depressed, and of a livid colour in the middle: this sometimes happens, and denotes an eschar and ulceration at the conclusion of the disease.

17th. He was seized in the middle of the day with a shivering fit, succeeded by great heat, and pain in the head, back, and limbs, which continued all the following night. He likewise felt considerable pain at the incision, and in the shoulder extending to the axilla.

18th. In the morning he complained of great pain at the incision up to the shoulder and the axilla of one arm. The pulse was very quick, and the fever high. In this situation I made no doubt but there would be a second eruption, and therefore persuaded him to get up and go into the air, and directed an infusion of senna and manna to be taken immediately.

This operated four times, and he was considerably relieved of all his complaints; but fresh pustules now made their appearance on the face and other parts, to the amount of
double

double the number at least of the first. From this time he remained quite free from fever, and every other complaint; the last pustules, as well as the first, maturing in the most favourable manner. But what is very remarkable, both crops of pustules ripened nearly about the same time; for the progress of those which came out first seemed to be retarded by the second eruptive fever, and the latter pustules advanced quicker than usual.

C A S E XVII.

June 2d.] Twenty-two persons were inoculated who lodged in two neighbouring houses.

On the 4th in the evening one of them, a man aged 30, had a shivering fit succeeded by fever, with pain in the head, back, and side, which continued all night.

5th. In the morning when I first visited him, the pulse was very quick, full, and strong, and the former complaint remained, but I found him walking about the house. On inspecting the incisions, both were quite well; while those of every one of his associates, which I saw at the same time, shewed evident marks of infection.

This patient had been very much in the way of infection, and I suspected that he was going to have the small-pox in the natural way: I therefore directed the mercurial and antimonial pill to be taken at night, and that he should go into the air as much as he could bear, but not go into bed.

6th. In the morning I was informed that he had been sick and vomited, without having a stool; and that all his complaints remained, though not quite so violent. I prescribed half an ounce of Glauber's salt and half an ounce of manna, dissolved in water-gruel, to be taken immediately.

In the afternoon I found him in bed, but was told he had been in the air, and that the purge had operated four times. He was now disposed to sweat, and his pains were abated; but the fever remained as before, with a white dry tongue; he had a troublesome cough, difficult respiration, and great oppression at his stomach, but there was not the least sign of infection in the arm.

7th. In the morning he was much in the same state, only weaker. I prescribed a salt
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of wormwood mixture, with Mindererus's spirit, and oily mixture for his cough, and one grain of emetic tartar mixed with 10 grains of compound powder of crabs claws to be taken in the evening.

8th. He had four stools in the night, sweated pretty well, and got some sleep; but he coughed much, breathed with difficulty, expectorated some thin frothy phlegm, and complained of great pain in his breast and side. Eight ounces of blood were directed to be taken away; the antimonial powder was repeated, with an addition of one grain of calomel; and he was directed to drink frequently a cup-full of pectoral decoction, to a quart of which was added one ounce and a half of Mindererus's spirit.

9th. The blood taken away yesterday was very fizy, the pain in the breast and side much abated, but the cough very troublesome, and the expectorated phlegm streaked with blood. The inoculated parts were now discoloured, shewed evident signs of infection, and that we should soon have the small-pox to encounter together with the peripneumonic disorder.

10th.

10th. Very restless all the night, coughed much, and with great difficulty expectorated brown viscid phlegm. The bleeding was repeated, and the use of the antimonial powder and other medicines continued; which had every day procured some stools, and supported a constant breathing sweat.

11th. The blood was still found fizy, and the fever, cough, difficulty of respiration and expectoration were increased. The progress of infection in the arm was slow, but shewed, however, that the eruptive fever would soon come on; and I was apprehensive that it would be so confounded with the peripneumonic disorder as to cause much perplexity. I determined nevertheless to attempt to relieve the latter by whatever means I could, and wait the event; and therefore ordered more blood to be taken, a blistering plaister to be applied between the shoulders, and a small quantity of gum ammoniacum to be added to his pectoral medicines. In the evening I was informed that all the troublesome symptoms were considerably abated.

It must here be noted, that all the company,

pany, who had been inoculated at the same time, were now ill, and most of them had some eruptions.

12th. He had more rest; but though most of his complaints were relieved, yet the fever still continued, and he expectorated with difficulty some very dark-brown phlegm, so that no alteration was made in his medicines.

The appearance on the incisions spread, but did not look as usual when the eruptive complaints are begun.

13th. The fever, pain in the side, cough and difficulty of expectoration, being again increased, I ordered a vesicatory to the side, and some oxymel of squills in a pectoral mixture.

14th. The fever and pain of the side were abated, and he had obtained some little sleep, which was however much disturbed by sudden startings. The skin at the incisions had an unusual appearance, not easily to be described: and instead of being inflamed, as
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it usually is, where the progress of the infection is favourable, and not interrupted by some extraordinary accident, it was of a pale hue.

15th. He had rested ill, and the cough was so troublesome, that I ordered more blood to be taken, and the medicines to be continued. The incisions this day looked like pustules irregularly shaped, and a fluid appeared under the cuticle.

16th. All symptoms were more moderate; two pustules were discovered in the face, and those at the incisions seemed tending to maturation.

17th. All complaints much easier; the pustules at the incisions were more elevated, and had matter in them; but the others were but little advanced and looked pale.

18th. He was in all respects so much better, that he ventured to ride out on horseback, and I was released from my attendance; nor did I see him afterwards till he called at my house in good health on the 5th of July. But he
then

then informed me, that in the afternoon of the 19th of June, the day after I took my leave of him, he had been extremely hot and feverish; was relieved on the 20th from all feverish symptoms, and discovered a great number of pustules, which rose, filled, and ripened without any further illness; so that he did not think it necessary to send me any notice of them. Looking in his face, I saw about thirty marks of small-pox, which confirmed the truth of his report.

I have also since received a very satisfactory account that many pustules in his face and other parts, which came out after the time I saw him, stayed a proper time, and matured completely.

C A S E XVIII.

A middle-aged man, on the sixth day after he had been inoculated, complained of pain in his head and back, and had a slight degree of fever. The complaints remained till the 8th, when there appeared some eruptions on the face which I took to be variolous: but it is to be noted, that

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having lived pretty freely, his face was very red and full of pimples; and neither the preparation nor medicines had much altered that appearance; so that it was no easy matter to distinguish between those which were habitual to him, and the fresh ones. The arm at this time was very considerably inflamed, as is usual about the time of eruption.

On the 9th he was perfectly well, and no more eruptions shewed themselves.

Having had several patients who undoubtedly passed through the distemper with no more illness than this man had felt, and sometimes even without any eruption, I really thought that the affair was over.

On the 10th he took a laxative draught, eat a pice of mutton, and drank some ale. On the afternoon of the same day I found him complaining of a pain in his head, which he thought was occasioned by his venturing abroad during the operation of the purge. He had now more fever than
at

at any other time before; however, as he averred that his complaints were such as he usually felt from a slight cold, I did not apprehend any thing more.

On the 11th in the morning he was still much indisposed, and had rested ill. In the evening of the same day I found him much better, but he said there were more pustules on his back. These I did not see.

Next morning I found he was gone to a friend's house, having left word that he was quite well, and I should hear from him if there was occasion.

On the 14th I was desired to visit him, when I found a moderate number of fresh pustules on the face and limbs, and in such forwardness, that I was convinced they had been out ever since his removal; which indeed was confirmed by the account he gave me: these matured kindly, and he remains in good health.

C A S E XIX.

A gentleman's son in perfect health, between four and five years of age, on the third day after inoculation voided a long round worm alive, after having taken on the preceding night a dose of mercurial physic. No signs of worms had hitherto been observed in him, and he afterwards seemed to be quite well, till the symptoms which usually precede the small-pox came on.

After a very moderate illness, an eruption of about twenty pustules succeeded, and all complaints then ceased; so that on the 4th day after the eruption, I proposed, and was permitted, to discontinue my visits for the present. I called again however on the 6th day, and found him well as usual, and at play, the pustules being then nearly matured.

I was informed, however, that in the night of the 4th day, he had been hot, feverish, and restless; was very well the day following, and hot again at night, but
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in a leffer degree; fo that this flight illnefs did not then give the leaft alarm. But on the 7th day early in the morning I was called up to vifit him as foon as poffible, and was informed, that in the beginning of the night he grew extremely hot and delirious, and foon became ftupid, drowfy, and fenfelefs, in which condition I found him, grating his teeth, with convulfive motions about the mouth.

The puftules were at this time quite ripe, and looked, as they always had done, extremely well. His pulse was very quick, though the heat was now moderate, and the refpiration free and eafy; but he was fo comatofe, as not to be roused, even fo much as to open his eyes, by any difturbance that could be given.

In this alarming fituation I defired the affiftance of the phyfician, who on other occafions had ufually attended the family. At our confultation, which foon followed, it was agreed, that as the fmall-pox were very few in number, had always looked well, and were now completely matured,
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the present symptoms must be occasioned by worms, or some irritating cause in the bowels.

With this view a dose of rhubarb and calomel was immediately prescribed and exhibited, though we were obliged to open the mouth by force, and this not without some difficulty. The operation of this medicine was accelerated by a clyster, and a large foetid slimy stool, followed by some smaller liquid ones, was procured that afternoon.

The child, however, seemed to be almost totally insensible during this time, nor did he yet appear to be in any respect relieved by these evacuations: blisters therefore were successively applied to the back, head, and legs, and sinapisms to the feet; leeches were likewise fixed to the temples, and rhubarb with calomel, after some little interval, again directed; tin medicines being given between whiles.

By these means, though not till a considerable quantity of slimy and extremely offensive

offensive fæces had been discharged, some signs of amendment appeared. But the child still remained in some degree comatose till the fifth day from this attack, after which the progress of amendment was very quick, and in two or three days he got quite well, and has so continued.

C A S E XX.

In May 1766, I was desired to visit a considerable farmer, aged 68, to give my advice for a complaint in his legs.

About two years before he had been seized with a numbness and coldness in both legs and thighs, which it was apprehended would end in a palsy. For this disorder he took many medicines, and both his legs were blistered, by which he found relief; but from this time the legs were affected with troublesome itching and burning pains, attended with a sharp serous discharge through innumerable excoriations. These complaints destroyed his rest, and made him unhappy.

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After relating his case, he told me, that as almost every body in his neighbourhood, who had not had the small-pox, was either under inoculation or preparing for it, he could scarcely expect to escape the infection, and had therefore a strong desire to be inoculated, and that his wife, of the same age with himself, was likewise desirous of it.

This proposal induced me to examine the present condition of his legs more strictly. They were now, he said, in their best state; that is, not so full of pain as usual; they were dry and scurfy. His face was likewise scurfy, and of a settled deep red colour; the consequence, as he told me, of a repeated Erysipelas in it, and not of any intemperance.

Upon considering the case, and reflecting that the preparatory course of diet and medicine, would probably amend the condition of his legs, I encouraged him to pursue his intention, and both he and his wife, after a fortnight's preparation, were inoculated on the third of June.

On the 9th both made some slight complaints; and on the 12th the wife grew better, on the appearance of a very few distinct pustules, which matured afterwards in the most favourable manner. But the man still complained of pain and weariness till the 13th, when he grew easier in that respect, and felt a smarting pain in his legs, which were very red, and had several pustules on them. Towards evening they grew more painful, more swelled, and a further eruption was discernible, though not easily to be distinguished, by reason of their diseased state.

He slept very little this night; but on the 14th I found him free from fever, and pretty well in all respects, except the pain in his legs: on which, and under the hams, a great number of distinct, but almost coherent pustules appeared. There were several also in the neck and face, but very few on the body or arms. He had all along been advised not to stir much, but had taken greater liberties of walking about than I had allowed.

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15th, He had not slept a minute during the night. I found him up and walking about the house, complaining much of pain, but saying that in other respects he was well; but he was now rather cool than warm, his pulse very low, his aspect languid, the colour of the face inclined to livid and pale, and he complained of faintness and sickness. I could not avoid being alarmed. The legs also were swelled considerably, but not inflamed. I therefore ordered him instantly to bed; and as the tension was great, applied a cataplasim of bread and milk (being what was nearest at hand) all over each leg, and directed the following medicine to be taken as soon as possible.

℞ Mithrid. ʒss. Decoct. Cort. Peruv. ʒij. Tinct. Cort. Peruv. simpl. ʒij. M. f. haust. quam primum sumend. & sexta quaque hora repetendus.

℞ Sal. Absinth. ʒj. succ. Limon. ʒjss. Decoct. Cort. Per. ʒvj. Tinct. Cort. Per. simpl. ʒjss. Syr. e Cort. Aur. ʒss. M. f. Mixtura, cujus capiat Coch. iv. horis intermediis.

In the evening his pulse was raised, he was easier, and had rested about an hour.

16th, In the morning, after he had rested some hours in the night, he was easier, warmer, and pulse better.

17th, After a good night he found himself free from complaints, and from this time every circumstance went on favourably; the pocks matured on the 7th day, his legs however were both considerably ulcerated for a fortnight after, but then soon healed. He remains at present in good health, and feels less uneasiness from his legs than he did before the inoculation.

C A S E XXI.

A middle-aged woman was inoculated, May 15, 1765. She began to complain on the 23d; the fever and other symptoms were very moderate. On the 26th an eruption, distinct in kind, small in number, shewed itself; all the eruptive symptoms ceased, and she seemed perfectly well.

On the 29th she complained that her throat was sore, felt stiff, and swelled; but

as this is not unusual, little regard was paid to it.

30th, She rested ill, her throat was worse, and it now gave her great pain to swallow. She had also been taken with a shivering fit, succeeded by fever. On inspecting the throat I could not perceive one pustule there, but the uvula and tonsils were very much swelled and inflamed. An acidulated gargle was directed, and a lenitive purge, which in the evening had operated thrice; the gargle had been frequently used, but the difficulty of swallowing was greatly increased, inso-much that she could get nothing down; the fever too was rather increased. Further help could not now be expected from internals; for upon making the trial, liquids returned through the nose. I directed a blister to be applied to the throat, and that she should frequently gargle with warm pectoral drink.

31st, She had not slept a minute, being disturbed whenever she attempted it with such sudden startings as made her afraid to sleep. The feverish heat was not very great,
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the pulfe extremely quick, and all the liquids ſhe attempted to ſwallow ſtill came through the noſe. She could not lye down in bed, and therefore fat up in an eaſy chair the greateſt part of the night.

The puſtules, which in the face did not exceed twenty, and very few appeared elſewhere, advanced to maturation kindly, without receiving the leaſt check from this adventitious illneſs. Her ſpeech was ſo much affected as ſcarce to be underſtood. She informed me, however, that ſhe was ſubject to an illneſs of this kind; and had once narrowly eſcaped with her life, but had never been ſo bad before. I directed twelve ounces of blood to be taken from the arm, and that the ſublingual veins ſhould be pricked. But no relief ſeemed to be derived from any of theſe meaſures; and upon inſpecting the throat again, the glands, uvula, and fauces were very much inflamed and diſtended. The tonſils were then lanced pretty deep, and a good deal of blood being diſcharged, the ſwelling of the parts ſubſided, ſo as to admit her to ſwallow, though with difficulty, a little pectoral

toral drink, and afterwards a few spoonfuls of milk pottage.

June 1st. She had rested but very little, though exceeding drowsy, and worn out for want of sleep; for the sudden startings, upon closing her eyes, still remained, though not in so great a degree as the preceding night; but she had swallowed some liquids, though with great difficulty. The feverish heat was not very great, the pulse quick and more feeble.

On inspecting the throat towards noon, the swelling, though somewhat abated, was still considerable enough to prevent much being swallowed.

In this dangerous situation the operation that had administered some relief was repeated, and other parts of the tonsils and fauces, which had not been wounded before, were now lanced pretty deep; a large quantity of blood was discharged, the parts collapsed, and in less than an hour she was able to swallow liquids; after which she got some refresh-

refreshing sleep, recovered fast, and is now in good health. The pustules, notwithstanding this illness, advanced very kindly to maturation, and turned on the 7th day from the eruption.

C A S E XXII.

A healthy middle-aged man, rather of a corpulent habit, was inoculated, had a slight cold fit (on the 5th day inclusive after the operation) which lasted but a very short time, and was not succeeded by either fever or complaint of any kind.

His arms at that time shewed certain signs of the infection having succeeded, which continued advancing to the 9th day, when the inflammations about the incisions appeared considerably spread, and were surrounded with confluent clusters of very small pustules. In other respects he was perfectly well, and felt not the least stiffness or pain in the axilla or elsewhere, insomuch that he began to be uneasy lest he should have no appearance of small-pox.

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On the 10th several small pimples were to be seen on the forehead, which I should have thought the small-pox, if he had not at this time been quite well, brisk, and hearty, without having felt any previous complaint.

On the 11th in the morning many more were to be seen on the face, limbs, and body, so that he might be said to be very full. I now examined him again very strictly, and could not find that he had been in the least ill; and on enquiring how he had slept, he answered, never better; for he went to bed about ten, and did not wake till near seven in the morning: the eruption, on a close inspection, had such an appearance as would have made me pronounce it the small-pox of an unfavourable kind, if it had been preceded or attended by any feverish or other complaints; but I must confess, that even at this time I supposed it was only an inoffensive rash, as the patient was then, and had been, entirely free from any complaint.

All this day he continued perfectly well, had walked out of his own accord into the fields,

fields, and in the evening asserted that he never had been easier or better in all his life; though, as he confessed to me afterwards, he had been in some company, where he smok- ed his pipe, and drank his share of a quart of ale. Still the pustules remained, and in- creased in number, though not in size; and nothing but the consideration of his having had none of the complaints which usually precede even the slightest kind of small-pox, kept me in any doubt whether they were the small-pox or not.

The next morning, being the 12th, the at- tending nurse told me that he had passed a very restless night with much complaint of pain in his head and back; and I found him very uneasy, with great heat, a quick pulse, and very full of a small sort of small- pox indisputably.

These complaints coming on at this un- usual time made me apprehensive of the con- sequences. I gave him directly calom. gr. iij. tart. emet. gr. $\frac{1}{8}$, and advised him to get up and go into the air, but not to fatigue himself too much. I also directed that after two hours

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he should take a purging draught. [It is to be observed that he had had stools every day regularly; and remaining perfectly well, had taken no medicine for some time.] I called on him again about two, and found him walking about the house, when he said he was better, for that the physick had worked him five times very sufficiently, and each time he had been abroad to the privy, though it rained pretty smartly.

I saw him again in the evening, and then he made but little complaint of pain in either head or back, but was almost incessantly teized with a short tickling cough, and complained of his throat being sore. He then took another pill of the same kind as that in the morning.

Early the next day, the 13th, the nurse informed me that he had been very restless the whole night, had put on his cloaths and came down stairs, but was now gone into bed again, in hopes of getting a little rest. On going into his room I found him almost dressed again, complaining that he had an almost constant irritation in the throat, and finding it impossible to get any sleep, was therefore coming

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ing down stairs. I enjoined him, however, to keep within doors.

About one I saw him again; he had had two stools, and was better. His cough remained somewhat troublesome, and his throat grew sore.

In the evening I found him in good spirits, with a regular quiet pulse, and he had one more purging stool. I ordered another pill of the same kind to be taken at going to bed, and a basin of small white wine whey after it, also an oily mixture to be taken occasionally, to relieve his cough and the tickling sensation in the throat.

The 14th in the morning he had some comfortable rest, and felt himself refreshed; his cough had been much better, so that he had taken but once of the oily mixture. This day he had three stools from his pill; and the small-pox had advanced in an unexpectedly kind manner.

From this time nothing material happened; the cough left him, and his throat gave him no trouble.

The pustules filled with good matter in a shorter time than I ever saw such a number of so small a sort, and many were brown on the 17th, being the 7th day from the first appearance.

On the 19th he took a purge, and was perfectly well.

To these cases many others of a similar nature might be added. But by several unforeseen delays, not in my power to prevent, I have been obliged to trespass so much already on the patience of those who wished to see some account of this practice, that I shall only mention a few, which by a partial or untrue relation might possibly be construed to the disadvantage of inoculation; though when the particular facts are candidly exhibited, every just occasion of prejudice will undoubtedly be removed.

During the autumn of the last year the chin-cough was epidemic at Hertford; and as the winter approached, the small-pox also broke out in many places; and almost
every

every child, who before had the chin-cough, and was seized with the natural small-pox, died of a confluent kind. This calamity fell severely among the poor of this place, many of whom earnestly entreated me to inoculate their families; but this was scarce possible, without some necessary provision could be obtained for them from the parishes to which they belonged: I therefore acquainted the clergymen of the respective parishes, that if proper care was taken that necessaries were not wanting, I would freely inoculate and attend all such as I thought were proper subjects.

Both the gentlemen approved the design; but after a short consultation with their parishioners, the affair was put off, the parish officers alledging they could not provide proper places.

That such a design had been in agitation soon became known, and a number of poor people were continually soliciting me to inoculate them and their children at all events, promising to provide for themselves to the
utmost

utmost of their power. Some had the disease already in their families. It was so much in the neighbourhood of others, that they were in daily fear of taking the infection, and their distress on this occasion great. Women with children at their breasts in want of all necessaries, yet solicitous for the safety of their offspring, pressed me to inoculate them and their children with an importunity not to be described. I acquainted them with the danger attending the infant state; but reasons availing nothing, I yielded to inoculate all who had not the chin-cough, or any other dangerous illness, though against my opinion and inclination, almost against my determined resolution. Amongst a very great number of such subjects of all ages and constitutions, and where some might reasonably be presumed to have taken the infection in the natural way, I expected some disagreeable events would happen; but the probability of saving the lives of many preponderated. The following however are the only cases that border on the unfortunate; and the reader will, if skilful and candid, easily place them to the right account.

A mother

A mother and three children (one of them at the breast) were inoculated. The children had then the chin-cough; but this was carefully concealed from me, as I had refused all under such circumstances. The youngest of about five months old had only five or six pustules in the face, and not more, elsewhere proportionably. She lived past the crisis; but the cough remained violent, and she was much enfeebled, and died as children do who perish by the chin-cough, and without any one circumstance of danger that could be supposed to proceed from inoculation.

Another weakly child, about five months old, I had persuaded the mother to wean, in order that she herself might be inoculated. During the preparation this woman fell ill of a fever, as supposed; but on visiting her, I found the confluent small-pox appearing, and that the child had lain with her constantly. I was earnestly solicited to inoculate this infant, in order to give it a better chance, which with great reluctance I yielded to; it had a very small number of distinct
pustules

pustules, and passed through the disease safely, but not being reconciled to any food but the breast, it died soon after, languishing for want of proper sustenance.

Another unfortunate subject was also a child at the breast, one of eight children, who with the father and mother were inoculated together. On the third day from the inoculation this child was seized with a fever, which from the symptoms I suspected arose from worms. I gave it a grain of calomel; a large worm was voided the next day, and the child was seemingly better; but the fever returned at night, and continued without remission in such a manner as to be very dangerous in itself, and prevented any distinction of the eruptive symptoms: at length a confluent kind appeared, though the number was not great; the bad symptoms were not alleviated by the eruption, and the child died early in the disease.

All these cases happened since the introduction and first chapter were wrote; and have confirmed my opinion, that it is better,
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both on account of the subject and the reputation of the practice, to defer inoculating children till they are about two years old.

It seems not improper likewise to mention the following case; which, if the whole truth is not related, may possibly afford matter of cavil against inoculation.

A short, thick-set, middle aged man was seized with the usual symptoms on the eighth day after inoculation. The eruption was favourable, the crop moderate, the pustules large and distinct, and no peculiar care was either required or observed. The pock matured in seven days; after which he took two purges, and had fixed the day for his return to London.

Two days before his intended journey I found him in the morning sitting by the fire, with his hand upon his head; upon enquiring the reason, he answered, my head feels very queer to-day: a person in company added, that he had made to free with mutton the day before; but this he denied. He did not however seem much indisposed;

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he had taken a purge, and I expected he would be relieved by its operation.

Next morning he told me he had a good night's sleep, and was perfectly well; nevertheless two hours after he fell down suddenly in a fit, and senseless. In this condition I found him about six in the evening, and so he continued till the night of the following day, when he expired, perfectly apoplectic, in spite of every means we could attempt for his relief.

CASES of the natural small-pox,
treated in the preceding method.

CASE XXIII.

ONE morning about ten I was desired to visit a poor man in a fever. Two days before, in the evening, he had been seized with a shivering fit, which was then supposed to be the ague; he soon grew extremely hot, with pain in his head, back, and loins, which continued till I saw him, the 24th October; he had kept his bed, had scarce any sleep, his heat great, pulse strong and quick, and the pain in his loins very severe. This man had applied to me to be inoculated a little before he was taken ill, on account of the small-pox being very much in his neighbourhood; but he had not as yet taken any preparatory steps. I made no doubt but he was now attacked with this disease, and from the severity of the symptoms expected it would prove of the confluent kind. As he lived near me, and I could easily attend to every circumstance, I determined to try

how far the cooling method might be beneficial in treating the natural pox.

I found it very difficult to persuade him to rise out of bed, as he thought himself utterly unable to support himself, notwithstanding he was on other occasions a resolute man. Assuring him however that I would not attend him unless he would comply, he promised to use his utmost endeavours. I left him to put this advice in practice, and ordered him to a carpenter's yard about one hundred yards distant, where I promised to meet him.

In about a quarter of an hour I found he had reached the place of appointment, by the assistance of a neighbour, and was sitting on a bench, complaining of great weakness, and pain in his loins; which he described, by saying he felt as if he was cutting in two; but allowed that his head was easier since he had been in the air. Finding that he had had a stool the preceding day, but none since, I gave him a pill, containing about six grains of calom. and $\frac{1}{8}$ gr. of emet. tartar, immediately;

ately; and as he complained of great thirst, I permitted him to drink half a pint of cold water after it. I advised him not to sit, but to endeavour to walk about a little, though ever so slowly; this he attempted, but went almost double. At this time the weather was not very cold, but there was a pretty brisk wind, with small rain.

About a quarter of an hour after I saw him again; he had resolutely persisted in following my directions, and said his head was greatly relieved, but the pain in his back and loins was much the same. His pulse was now much altered; instead of being full and strong as before, it was low, but quick, and the heat on the skin greatly abated. As he seemed much fatigued, I did not insist on his keeping abroad longer, but permitted him to go home, desiring him to refresh himself, not to pull off his cloaths, or go into bed.

At two o'clock I saw him again; his pill had then worked twice; he seemed fatigued and faint, but was abroad, for he said the air refreshed him, and his head was easier in the
air

air than within, so that as soon as he was a little rested he came out by choice. The pain in his loins remained very grievous, but his head was much easier; and his back and loins became less painful towards evening. I allowed him to go to bed about seven; but being desirous of observing the full effect of this kind of treatment, I ordered no medicine.

25th, Had but little rest, and his complaints nearly the same as when he went to bed. His pulse was now raised, and more full than in the evening, and the degree of heat greater than over night. A few small pustules were now beginning to shew themselves on his face; I directed a purging draught of infusion of senna and manna, quickened with jalap; advised him to get out of bed, and venture again into the air. This he did: by two o'clock the purge had worked thrice, and he was freer from the pain in his back and loins: more pustules now appeared in the face, but scarce any on the limbs. He had hitherto taken nothing since his first seizure, but tea with milk, sage and baum tea,
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loathing all other nourishment. He persisted in keeping out the greatest part of the afternoon; and at seven went to bed, when I found the pulse more calm and regular, and as his complaints were less violent, he began to think of nourishment.

26th, I saw him at seven in the morning; he had slept but little, had one purging stool in the night, and felt himself low and languid; his pulse was now even, full, and regular, and his heat moderate. Many more pustules were out in the face, though but few on the limbs, and his complaints of pain in the head and back gone off. He took milk pottage with some appetite, and spent the greatest part of the day abroad.

At three in the afternoon I saw him, and was told, that lying down in the bed he had fallen asleep, and waked almost choaked with blood; that he had vomited up a considerable quantity, which doubtless had been swallowed, as he was found bleeding at the nose. From what I could learn, the whole scarcely exceeded six or eight ounces.

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He complained of faintness, and said his pains were removed. I ordered him to drink the pectoral decoction, acidulated with a mixture of equal quantities of sweet and weak spirit of vitriol. The number of pustules continued increasing slowly on the face and other parts.

Late in the evening I saw him again; two more purging stools had followed; he complained of being very faint and low, and feared he should have no rest.

I now thought it proper to give him an anodyne cordial, and therefore ordered mithrid. ʒss. which he took immediately. By the help of this he passed a very refreshing comfortable night, and thought himself quite well. The eruption was now completed; the small-pox might be properly called distinct: though full in the face, he had only a moderate number of a large sort on all the other parts; and he went through the succeeding stages without any difficulty.

C A S E

C A S E XXIV.

A young woman who was servant in a house where a child had the small-pox in the natural way, determined to stay there and take her chance.

December 25th, 1765. I was desired to see her. She had been taken with a cold fit the preceding afternoon, which was succeeded by a fever, and the usual symptoms attending the eruption, but in a severe manner. I found her in bed making great complaints of pain in her head, back and loins; her pulse strong, quick, and full; a flushing red colour in the face, and the fever very high.

With much difficulty I prevailed upon her to get up; ordered her to drink some cold water, and go abroad into the air, though it was a very frosty morning, with sleet. At one o' clock I called again, and found her then below stairs walking about. The heat was much abated, her complexion pale, the pulse small and quick, and all her complaints considerably abated.

The account I received from her, and the persons who attended her, was, that upon first going into the air, she was so feeble, that the nurse, and another to assist, could scarce support her, and it was with much difficulty that she could walk with this assistance; that she drank a glass of cold water from the pump, and before she had been abroad many minutes found herself much easier, and had remained so ever since. It now rained pretty hard, which had obliged her to come in; but she said if her complaints returned, she would certainly go out again, be the weather ever so bad, and in this resolution I encouraged her.

On the 26th, about eleven in the morning I visited her again, found she had passed a pretty good night, and had felt no remarkable uneasiness; she had been abroad several times the preceding day, to which she imputed the ease she enjoyed. Two pustules of a distinct kind were now out on the face, and she had the disease in a very favourable manner, without the least bad symptom during the progress, or any ill consequence afterwards.

C A S E XXV.

Jan. 3d, 1766.] A healthy young man was inoculated in company with four of his neighbours. On the sixth, presuming that none of them would be ill, I went to London on business. Returning on the 7th in the afternoon, I was met by a servant, who informed me that this man had been taken ill on the 5th in the afternoon, had continued very bad ever since, and now had something broke out, which was suspected to be the small-pox, and that I was desired to visit him immediately: this I complied with, and found him in bed, complaining much of pain in his head, back, and loins, with great heat. Some small pustules were out in his face, which I perceived to be the small-pox: this was at five in the evening, and much about forty-eight hours from the first seizure.

The weather was at this time exceeding cold, and it froze very hard. I ordered him to rise out of bed immediately, to drink a glass of cold water, and to get some assistance, and walk abroad in the air. Upon inquiry I found he had passed without a stool

the whole day. Five grains of calomel in a pill were ordered to be taken immediately. He rested but little this night, and next morning a great many more pustules were out in the face, sufficient to shew a disposition to flux. As this pill produced no manifest effect, I ordered sal. glaub. ʒvi. dissolved in water gruel to be taken immediately. The vehemence of the fever and other symptoms were scarce moderated by this eruption.

Notwithstanding the medicine and the severity of the weather, I desired he would get on his cloaths, and go into the air as much as he could possibly bear, and in the evening ordered him to be carried in a chaise to the house provided for him in case he had been ill from inoculation. I examined the incisions carefully, but there were not the least signs of the infection having succeeded, either by discolouration, hardness, or any alteration on the skin, nor could he recollect that they had itched or given him the least uneasiness.

In the evening he came to the house as ordered, but was so very feeble and full of complaints, that it was with great difficulty he was got to his room. Upon enquiry I found he had vomited up the salts soon after taking them, and had only one costive stool; he had complied with my orders about getting into the air several times in the day, though with great difficulty. His complaints of thirst, pain in the head and back were at this time very great. I directed him to sit with his feet in warm water for a short time, and, on going into bed, to take a few spoonfuls of a laxative mixture, which was to be repeated till he had stools.

9th. He had been delirious in the night, but rested a little towards morning; the number of pustules was now considerably increased. This day he had three stools from his purging mixture, by which he was relieved, and bore sitting up better.

10th. He passed the night easy, but without sleep. He was very full in the face, but had a smaller number on the body and limbs.

limbs. No complaint, deserving notice, happened during the progress to maturation. He sat up a part of every day to the eighth from the eruption, when, being blind, and very sore, he kept in bed: they turned on the eleventh, and he recovered perfectly.

It was remarkable in this case, that the inoculated parts never shewed the least signs of infection; nor did a greater number of pustules appear near them than might have been expected if nothing had been done; nor is there to be seen the least mark where the inoculation was performed, though in all other inoculated patients who have had the disease, even in the slightest manner, there constantly remains a scar.

It appeared, on enquiry, that this man had been for a considerable time before in a constant intercourse with families in the small pox; and there seems not to be the least doubt but his was the natural disease.

CASE

C A S E XXVI.

A young woman was seized with a fever, and the usual symptoms. The next day an eruption appeared, which gave some suspicion of the small-pox: on the third day more spots were discovered, but she was not relieved. The disorder was now supposed to be an inflammatory fever, attended with a rash; and as she was extremely delirious, a blister had been applied about two hours before I first saw her. The face was extremely full of very small pustules, which indeed were the small-pox, and there was a considerable number on the neck and limbs; but notwithstanding this eruption, the fever was very high, and the degree of heat so excessive, that I scarce ever felt a person hotter; she was so far sensible as to complain of great pain in her head, stomach, and loins, though very delirious, and extremely restless. She was at an inn much used by carriers, and it was highly improper she should remain there. In her present situation I was sensible it might appear very hazardous to move her; but it was evident that the small-pox would be confluent.

fluent. I judged from the violence of the symptoms the disease would be dangerous, and the event doubtful, and was therefore desirous of trying how far the same method and remedies which were used so successfully in the inoculated small-pox, as well as in some cases of the natural disease, would avail in this. The necessity of removing the patient afforded me a good opportunity, without any imputation of rashness. I therefore proposed her being taken down stairs into a parlour under the room where she then lay, while I was present, and ready to assist if the fatigue should be too much for her; this was consented to; the women assisted in getting her cloaths on, which she seemed much pleased with, being then delirious. She was altogether unable to stand, and was therefore brought down by three persons in the same manner as if she had been dead. She was then placed in a chair, but had not even strength to hold her self upright, but was supported in that posture by the women about her.

The fatigue of moving, and change of posture occasioned a faintness, in which she
lost

lost all colour, and the pustules for a time disappeared; upon this, the chair was leaned quite back, the bed was brought down, and laid on the floor, she was placed on it with her cloaths on, and eagerly drank a glass of cold water. Her colour soon returned; the pustules appeared as before; but she was considerably cooled, and her pulse, tho' it retained the quickness, was not near so strong: I staid with her about half an hour, during which time she was more sensible, not so restless, but seemed languid and tired. I ordered the window to be opened, the room to be kept cool, and gave her three grains of calomel, tart. emet. gr. $\frac{7}{8}$, in a pill, and directed a purging draught to be taken as soon as it could be procured, and as there seemed no occasion for the blister, it was taken off.

I saw her next morning at a house to which she had been removed at a small distance, and found her almost free from complaints; she had rested moderately well, was perfectly sensible. Those about her dated her amendment from the time when the purge (which had procured three stools) began to operate.

She was however extremely full all over of a very small confluent kind; yet these inflamed and matured in a very favourable manner. From the minutest observation I could make, it seemed to me that by this management the number in the face was less than when I first saw her, consequently that some pustules were repressed after they had appeared.

C A S E XXVII.

In the beginning of June 66, a young woman was taken with a shivering fit, succeeded by a fever, and the symptoms that usually precede the small-pox, in a very violent degree; these were attended with such general weakness, that in a few hours after the seizure she was obliged to go to bed, where she soon became delirious, and afterwards insensible, her urine passing involuntarily; in this condition I first saw her about forty hours after she was taken ill. The heat was excessive, her pulse extremely quick, but not strong, and a few small eruptions appeared on the face, sufficient to ascertain the distemper. Upon raising her up she did not
make

make the least effort to support herself, and therefore was permitted to lie down, and as the room was small, the window was set open. Five grs. of calomel were with great difficulty got down, and an infusion of senna with manna being prepared, the person attending was desired to give a little and often, till she had a stool.

It was very improper that she should remain in the house where she was, on account of the family; yet there was no possibility of moving her in her present condition. Next morning I was informed she had remained in the same stupid way the whole night, but was now rather better, and had spoke more sensibly, had two stools, and vomited up some bilious matter. The heat was still great, the pulse quick, and many small confluent pustules were out in the face and other parts; this was the third day of her illness. I advised her being got out of bed, and the windows to be kept open; but was in doubt whether she had strength enough to be taken into the open air.

In the evening the eruption was increased considerably in number, and she was so much easier of her complaints as to bear being removed in a cart to a house in the neighbourhood, where I gave her calomel three grains, emetic tartar one eighth of a grain.

She had some rest this night, but the fever continued; and not having had any more stools, I ordered a laxative potion of inf. of senna and manna. She had three stools before evening, and all her complaints abated. She was very full all over of a very confluent kind.

This young woman sat up the greatest part of several days after she was quite blind, by her own choice; and I do not recollect ever seeing one with so large a crop of pustules who went through the disease so easily; for she made no complaint but of soreness, nor took any medicine but a few drops of the baic tincture at bed-time, towards the crisis.

C A S E XXVIII.

A poor man about 35 years of age, who had gone through the preparatory course, came to my house in company with several more, in order to be inoculated. As soon as he came into the room, I perceived he was ill; and on enquiring he told me, that about two hours before he had been taken with a fit of the ague, and that his head, back, and loins were in great pain. Feeling his pulse, I found a good deal of fever, his skin was also very hot. I knew the small-pox was in his neighbourhood; and thence concluded he was seized with this distemper. I advised him to keep abroad in the air as much as possible, and directed a pill of the kind already mentioned at night, and a purging draught the following morning.

These operated four or five times, and he persisted in obeying my orders; the fever and other complaints were not so high as to give any great alarm; he had a pretty large number of a distinct pock, and went through the distemper very well.

C A S E

C A S E XXIX.

About three in the afternoon I visited a middle-aged man, who after two days illness had an eruption, which the neighbours suspected to be the small-pox; I found him in bed, very hot, and in a sweat; his pulse quick, full, and strong; his face pretty full of small-pox, which had begun to appear in the morning. I received the usual account of the preceding symptoms, which had been pretty severe, and he still made great complaints of pains in his head, back, and loins; I immediately gave him a pill, containing cal. gr. v. tart. emet. gr. $\frac{1}{8}$, which I had taken with me upon a presumption that I might want it: I also insisted on his getting up, and going abroad into the air, notwithstanding the sweat he was in, which it was my intention to restrain: I met with the usual difficulty in getting this advice complied with; however he was assisted, came down stairs, and went abroad, being supported by his wife: for he seemed very weak, and had not been out of his bed for two days before:

as he complained of great thirst, I gave him a glass of cold water, and stayed about half an hour to see the effect of this treatment; he was at first very faint and sick, and vomited up some bilious matter, but not the pill he had lately taken: after this, while I stayed, he said his head was better, and allowed he was refreshed by the air; I desired him to continue abroad as much as he could, and when he found himself tired, to go in and lie down a little; but as soon as he was able, to get out again, and if thirsty to drink as much cold water as he pleased. I then took my leave, ordering a purging draught to be taken as soon as he received it, which I concluded would be at least three or four hours from that time.

Next morning, on visiting him, I was told that the purge had operated four times, that he found himself considerably relieved, both in his head and back, and had rested better than any time since he had been taken ill. The eruption proceeded slowly; but many more pustules now appeared in his face, and other parts, than before: he kept abroad, and
his

his complaints continued wearing off. Next morning I found him quite easy; he was pretty full of a distinct pock, and from this time all went on well, without having occasion to take any more medicines.

F I N I S.

A P P E N D I X.

S E C T. IV.

Of retarding the eruption of the small-pox.

WHEN the infection is received in high health and in an inflamed state of the blood, it generally produces a most dangerous species of the disease, and the eruption is often within sixteen hours after the attack; and this from improper treatment, that is, by inflaming the blood with cordials, blisters, &c. confining patients early to bed and heated air; the consequence of which is usually the confluent kind of small-pox; so *vice versa*, if symptoms that threaten a very malignant sort, are attacked by powerful and sudden evacuations, the person kept out of bed, in cool air, and every method taken to abate the inflammation, the disease will be rendered mild, tho' perhaps, not of a distinct sort.

In support of this assertion, I will relate a very remarkable case, that happened in my own family, in the year 1740.

Y

A child

A child about three years of age, was attacked with the usual symptoms of a bad sort of small-pox, and from the great pain in its head and back, the mother thought it right to put it to bed; in less than twenty hours the child was seized with the most violent eruption of the miliary kind, I ever saw make its appearance. Soon after a physician was called in, who declared it the small-pox, and ordered six ounces of blood to be directly taken, and as soon as possible to procure several stools by purges of the cooling kind, with tamarinds.---This was done to the number of a dozen or more, and in the evening the child was bled again; taking in the night at different times nitre in barley-water; next morning on objecting to the child's taking a second dose of purging physic, lest it might retard the eruption, and prevent nature in her design of throwing off the disease by the skin, which otherwise might fall on some of the viscera, and endanger the child's life: the doctor declared that unless he could make it retire for three days at least, the child would certainly die; but if it could be kept back four, it would be still better; in which he
succeed-

succeeded and the small pox came out in clumps, as he termed the appearance of the pimples, not universally distinct, but in blotches, containing perhaps, eight or ten distinct pimples; and these clumps in different parts of the body.-----The child was kept up the whole time, and the air frequently changed, on which the eruption soon disappeared, as the doctor expected; its appearance was late on the third day, and the child was kept out of bed till it was complete; he then was put to bed, and kept moderately cool, when the maturation went on as in the mild sort, and he had not a bad symptom during the progress of the disease; he was purged at the proper intervals, and on his recovery enjoyed perfect health.

The singularity of this case, and the treatment of it being quite new, made me desirous of knowing the doctor's reason for his conduct, and particularly as I thought them hazardous; he then asked me if it was not a principle in practice to prevent inflammations from running too high in any tumor, where matter was intended to be formed? This I declared was always my practice in

the anthrax. He then said, that an early eruption of the small-pox attended with great inflammation was like the anthrax, and must be treated as such, otherwise the whole skin would sphacelate, and no matter be formed; but, that the milder sort of the small-pox might be compared to so many phlegmons, which if the body is not too much heated, will certainly gradually be filled with matter. ---I enquired of him why he was so rapid in his evacuations? He said, there was no time to be lost to give a chance for life; for had they been gradual, their effect would have been of no greater use, than an insufficiency of water against a fire, not to retard, but increase the danger. This case I related to several men of eminence in physic, at the time it happened.

This practice being very different from what I had observed, made me not a little attentive to Sydenham's method of treating the small-pox, when I inoculated; and as the practice of the time, was much in favour of cordials to assist nature, in throwing off the peccant matter to the surface of the body, I am thoroughly convinced, the confining
the

the patient to his bed, as soon as the first symptoms of the disease come on, in order to support the eruptive fever, and denying the admittance of fresh air within the curtains, do always occasion the disease to be more violent, and as Doctor Baker justly observes, "I make no doubt but that this method has been fatal to thousands."

It has been asserted, that where symptoms of the small-pox have come on, attended with the most violent evacuations, and the patient exposed to the cold air, though by it the eruption was retarded, yet, it was not prevented; and that the later the pimples appeared, they were of the more mild sort; therefore it is necessary that inoculated patients should be kept cool until the eruption is completed, and their bodies soluble by proper food or medicine, as occasion may require. So far I agree with the antient and modern practitioners.

*Of the ill effects of too much reducing the patient
before inoculation.*

As instances of the ill effects of reducing patients too low in the preparation are not a few, I may be permitted to mention one which was very remarkable: A gentleman of rank in a consultation, acquainted his physician where I attended, that his father, in order to render the disease as mild as possible when he was to be inoculated, was preparing him several weeks, by repeated purges, low diet, and every method to sweeten the blood, as it is called; which soon, from a strong healthy youth, reduced him to a very weak state: he was then inoculated, and at the usual time was taken ill, but had only a rash, which never matured, tho' all the assistance of medicine, directed by people of the first rank in the profession, was given; he was sent extremely weak and low spirited to school, and in a few weeks had an eruption that came out in blotches, or rather clusters of pimples, that matured; yet, notwithstanding this effort of nature to depurate the blood, he
has

has not been since healthy, though many years have elapsed; but has frequently rashes that appear, and suddenly retire, and attacks of loss of appetite, indigestion, his skin discoloured in several places with a sort of morpew on it, and is ever complaining, and his complaints are now called nervous.

This case made me inquisitive amongst my brethren who had been most conversant with inoculated patients; and they all agreed, that the plan I have mentioned, *mutatis mutandis*, according to the circumstances of the subjects, was in general the best preparation.

An experiment to shew the effects of inoculating matter, and the necessity of attending to the particular state of the habit of patients, and that no one general rule can be prescribed for the purpose.

We often find people solicitous to have the matter taken from the natural sort of small-pox to be inoculated with, supposing it to be more efficacious, than that taken from an inoculated person; while others prefer

fer the matter from inoculation as less virulent, and likely to produce a milder sort of the disease; but to put this matter beyond doubt, an experiment was made with variolous matter, taken from a person who was the 14th in descent, from the natural sort first made use of, by a thread wetted with this matter, 20 children were inoculated at the same time, who had all undergone the same kind of preparation. Some of them had the disease very mild, and others rather severe; this certainly shews, that the whole depends on the habit of body of the person inoculated; consequently, the same kind of preparatory regimen cannot be proper in all constitutions. The quantity of matter introduced makes no kind of difference, as the smallest particle in some constitutions has produced almost a confluent kind of small-pox; in others, tho' legs and arms have been deeply incised and well filled with matter, the effect has been only a few pustules.

The following may in some measure account, for what we have so often heard of some individuals having the small-pox in the natural way, after inoculation.

A person about 17 years of age was inoculated by a gentleman of eminence in the profession, which did not take place, and supposed to be occasioned by the matter inserted, being taken too late in the disease; after the expiration of a fortnight, he was inoculated again with fresh matter. At the usual period the incision became inflamed, and in eight or nine days after the operation, about four or five pimples appeared within a circle of two inches diameter on the incised arm, an inch or two below the plaister on the wound, which was declared to be the disease, and seemed, for two days, to advance towards maturation, but then to abate; on the third day, the physician and surgeon were asked, as so few pimples appeared and they not perfecting their maturation, if they thought the patient secure from the disorder? when it was declared, as

Z effectually,

effectually, as if the person had had ever so many. A relation, dissatisfied with the appearance and progress of the disorder, and supposing it to arise from the low state the patient was reduced to in the preparation, prevailed on him the evening of the fifth day (not without the advice of the gentlemen that attended) to eat a small chicken, and with it to take two or three glasses of raisin wine; in the night he found himself hot and restless, next day he was seized with the usual symptoms of the eruptive fever, and the following appeared a plentiful crop of pustules, which underwent the usual stages of the disease, and unattended with any fever. May we not ask, without suspicion of prejudice or malevolence, whether the first eruption would not have been said, according to the new plan, to have been the true small-pox, and the perfection of the maturation of the pimples no ways necessary? Or supposing this help to the circulation had not been given, as above related, would not some of the variolous seeds have remained in the blood, and probably have been injurious to the constitution for ever after (as in the case p. 166)

had

had not this plentiful eruption, just described, been procured? No person, I dare say will assert, that the small quantity of aliment and wine would have given an eruptive fever, had not the blood been infected with variolous particles.

END of the APPENDIX.

had not this plentiful eruption just before
it had been procured? No person I dare say
will affirm that the small quantity of air
mentioned would have given an erup-
tion; had not the blood been infected
with variolous particles.

The End of the Appendix.