

Tracts on inoculation, written and published at St. Petersburg in the year 1768, by command of her Imperial Majesty, the Empress of all the Russias : with additional observations on epidemic small-pox, on the nature of that disease, and on the different success of the various modes of inoculation / By the Hon. Baron T. Dimsdale.

Contributors

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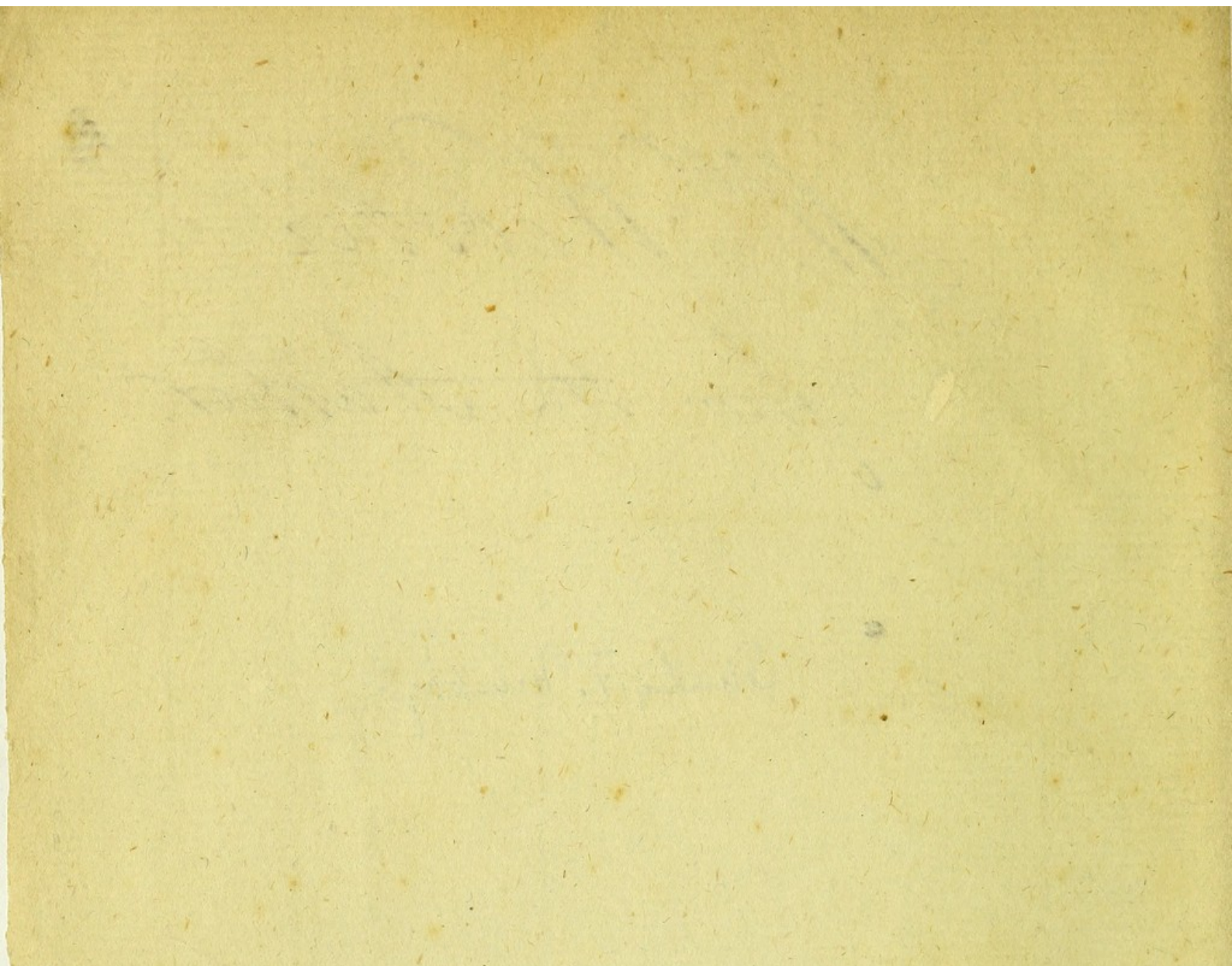


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from the Author.

Shirley F. Murphy



T R A C T S

O N

INOCULATION.

T R A C T S,
O N
I N O C U L A T I O N,

Written and published at St. Petersburg in
the Year 1768,

By Command of her IMPERIAL MAJESTY,

T H E

Empress of all the Russias :

With ADDITIONAL OBSERVATIONS

On Epidemic Small-Pox, on the Nature of that Disease,
and on the different Success of the various Modes of
INOCULATION.

By the Hon. Baron T. DIMSDALE,

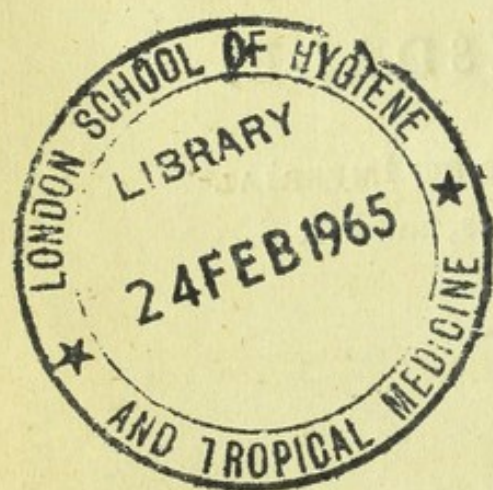
Physician and actual Counsellor of State to her IMPERIAL
MAJESTY, the Empress of all the RUSSIAS, and F.R.S.

L O N D O N :

Printed by JAMES PHILLIPS, George-Yard, Lombard-
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For W. OWEN, in Fleet-Street; and CARNAN and
NEWBERY, in St. Paul's Church-Yard.

M DCC LXXXI.



TO HER
IMPERIAL MAJESTY,
CATHARINE THE SECOND,
EMPRESS of all the RUSSIAS.

M A D A M,

ENCOURAGED by the gracious permission of your Imperial Majesty, I have now the honour to lay at your Majesty's feet, this humble attempt towards the improvement of a science to which I am attached by education and profession, in a point extremely interesting to the lives of mankind.

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The

The distinguished fortitude with which your Imperial Majesty exposed your person to the early experiment of a practice, before little known in Russia, was only one of the many striking instances of your Majesty's unwearied zeal for the prosperity of your subjects. Under the influence of examples so illustrious as those of your Majesty, and his Imperial Highness the Grand Duke, the introduction of inoculation has been facilitated within your Majesty's Dominions, and will, I trust, considerably promote the strength and happiness of the Empire.

I shall

I shall content myself with silent admiration on the important events of your Majesty's glorious reign, and on the happiness which the subjects of the vast Empire of Russia enjoy, under your mild and equitable government. This is a task well worthy the pen of the most able historian. But it is incumbent on me to acknowledge, with a degree of gratitude, which words cannot sufficiently express, the condescension, the confidence, and the generosity which I have experienced from your Imperial Majesty. The remembrance of these honours is indelibly impressed on my heart, which it will be equally my duty and my inclination to manifest on

all occasions, by the most perfect obedience to your Imperial commands.

I am,

Your Majesty's most obedient,

and most dutiful servant,

DIMSDALE.

PREFACE.

P R E F A C E.

IN compliance with a promise formerly made, I now offer to the public some account of my journey to Russia, in the year 1768, together with five small tracts written by the command of the Empress, while I was at St. Petersburg, and by her Majesty's order published in the Russian language, from which, the English copy being lost, they are now translated.* The accounts of the inoculation of the Empress and the Grand Duke,
may

* These Tracts are included in Chapters 1 and 2.

may be thought perhaps to be given too much in detail, and to be incorrect in the language ; but I must inform the reader, that having received her Majesty's commands to give an account of the illness, I thought it became me to give it simply from the notes which I had taken at the time, rather than to endeavour at embellishments. The other three tracts were composed from some papers which I accidentally carried with me, and from what I could recollect. In their present form they are a translation from a translation, which, it is hoped, may be some plea for imperfection. The additions now made, which, to distinguish them from the original publication,

lication, are printed in Italics, contain incidental observations, that have since occurred on the same subjects. The reflexions on epidemic small-pox have also, in part, been published before ; but it was thought not impertinent to the general design of this work to insert them here. Some of the opinions advanced may appear singular and disputable. I shall only say, that as enquiries tend to the discovery of truth, I willingly submit them to investigation, without entertaining any sanguine hopes that they will produce conviction, much less do I mean to enter into any contest in support of them. But though I may have been mistaken in the
theoretical

theoretical and speculative part, I can truly assure the reader, that I have been scrupulously careful to relate nothing as fact, which I was not myself an eye-witness of, or had good authority for.

ERRATA.

Page	13	line	9	For <i>acknowledgments</i> , read <i>acknowledgment</i> .
	14		8	For <i>Chereasoff</i> , read <i>Cherkasoff</i> .
	21		13	For <i>were</i> , read <i>where</i> .
	87	penult		For <i>which</i> read <i>as</i> .
	97		3	For <i>abllity</i> , read <i>ability</i> .
	125		15	For <i>inoculation</i> , read <i>maturation</i> .
	132		9	For <i>deluted</i> , read <i>diluted</i> .
	136		18	After <i>this</i> , add <i>is</i> .
	136		15	Dele <i>part</i> .
	176		12	After <i>remarkable</i> , read <i>case</i> .
	237		19	For <i>never</i> , read <i>rarely</i> .

C H A P I.

Some Account of a Journey to
RUSSIA, and of the Introduction
of INOCULATION into that Country.

IT will easily be supposed that Russia, in common with other countries, has experienced the mortality of the small-pox in a very great degree. The City of St. Petersburg in particular,† though the greatest

† The following precautions were observed when I arrived in Russia, with a view to prevent this distemper from spreading. Where the small-pox appeared, the families were enjoined to give immediate notice to the president of the College of Medicine, who is always a nobleman of distinction: if it happened to a person of rank, no restriction was laid on their choice of a physician, but all the family, as well as the physician who

B

attended

greatest precautions are taken, is scarcely ever free from it, the infection being constantly renewed by the intercourse which subsists with various parts of the world.

The fatality of the disease, in an instance of a most affecting nature, seems more immediately to have given rise to the great event which makes the subject of this treatise.

A young lady, daughter to a nobleman of distinguished quality and fortune, extremely beautiful in her person, and not

attended them, were strictly ordered not to appear at court, until a proper time was elapsed sufficient to secure them from the danger of conveying the infection.

If the disease broke out in the family of a poor person, all that belonged to the house were confined at home; a plate was placed on the door to inform passengers that the small-pox was there; a provision was made by the crown for their support; surgeons were also retained and paid by government to attend on them, and give every necessary assistance; and they were themselves directed not to intermix with others, in a manner that might endanger the extending of the contagion.

less

less amiable for the accomplishments of her mind, was contracted to a nobleman of the highest rank and station in the Russian court. A few days before the time appointed for the nuptials, she was unfortunately seized with the small-pox, which proving of a malignant kind, soon terminated in a loss that was universally lamented.

It was neither possible, nor was it material, to ascertain how the infection penetrated the recesses of the court; but it was obvious from this fatal incident that neither rank nor fortune afforded any security against the ravages of this dreadful disease; and the whole court, sensible of the danger to which the Empress and the Grand Duke were exposed, were filled with extreme solicitude for those lives upon which the safety and happiness of the empire so essentially depended.

The danger to which these illustrious characters were exposed, as well as the Empress's well known zeal for the welfare of all her subjects, gave birth to a proposal for introducing the practice of inoculation.

The first personages in the empire determined to set the example, by submitting to the operation; and a resolution was accordingly taken by the Empress, to invite a physician from England, where inoculation had been most practised, and was generally allowed to have received some modern, and very considerable, improvements.

I received the first invitation to undertake the employment by a courier who arrived at my house in Hertford in the beginning of July, 1768; he brought me a letter from his excellency Mr. Pouschin, the Russian minister, wherein he represented that the Empress having a desire to engage an able physician to go to St. Petersburg,

burg, in order to introduce inoculation, he wished to see me as soon as possible.

Though I had not, at that time, the most distant intention of engaging to go abroad, yet I thought it my duty to wait on his excellency, and to acknowledge the honour he had done me by his proposal. Accordingly I paid my respects to him in London, when he acquainted me, that having advised with some eminent physicians on the occasion, they had united their recommendations in my favour. His excellency condescended to use every suggestion to engage me in the service of the Empress, assuring me that in respect to situation, appointments, and the most perfect freedom of returning when I pleased, every thing should be settled to my wishes. At this meeting only distant hints were dropped of its being extremely probable, that, besides the benefit intended to the whole empire, some persons of the highest rank were likely to be the objects of the proposal.

These encouragements would certainly have been very acceptable to any young man, not already well settled in his profession ; but my situation was different. I was happy in the possession of a fortune equal to my wishes, engaged in a considerable and profitable employ, and the still more endearing attachment to a large family. All these were reasons sufficient for my declining the offer. I therefore excused myself, at the same time tendering my best services to find a person, who by his abilities in this, and every branch of his profession, might be fully qualified for the undertaking.

I was endeavouring to execute this commission, when I received a second invitation from Mr. Pouschin, and he then informed me that another courier had arrived from the court of St. Petersburg, that he was an officer of distinction, employed only on extraordinary occasions, and had performed the journey with such uncommon

mon expedition, as to have been only sixteen days on his journey to London; from whence it was evident, that the Empress and Grand Duke were immediately interested in this application. I therefore embraced the proposal, and assured Mr. Pouschin that I would prepare for my journey with all possible expedition.

His excellency, after genteely expressing the satisfaction he felt in my concurrence, desired me to name my own terms, adding, that whatever they might be, his orders were to comply with them. But lucrative motives, which had little weight with me from the beginning, had still less when such an unlimited proposal was made; I replied, that I would not stipulate any reward for my services, but left it entirely to the gracious pleasure of her Imperial Majesty: upon this Mr. Pouschin was pleased to give me an order for £1000, assuring me, that it was only intended for

the expences of my journey by land, recommending that way as the most certain in point of time, for my arrival at St. Petersburg. To omit nothing that might be agreeable to me from my setting out to my return, and supposing I should chuse to have some of my family or friends to accompany me, he was so obliging as to assure me, whoever I chose to accompany me, should be received and accommodated to my perfect satisfaction. It will be easily imagined that such an additional favour was most grateful to me, and my choice naturally fell on one of my sons, who was studying physic in the University of Edinburgh, and was well instructed in my method of inoculation.

We set out on the 28th of July, 1768, and travelled with great expedition, so that we arrived before the house, intended for us at St. Petersburg, was quite ready for our reception; a handsome apartment was therefore provided in the Grand Milione, a
large

large street very near the palace, with every accommodation we could wish for at our command.

At this time the Empress was at the palace of Peterhoff, about twenty versts from Petersburg: but the Grand Duke was at the summer palace, which on account of its pleasant gardens and situation (being just at the extremity of the city) is generally the residence of the court during that season of the year.

On the day after our arrival, I received notice that his excellency Count Panin desired to see me in the afternoon of the next day. We waited on him accordingly, at his apartments, which on account of the high trust reposed in him, as governor to the Grand Duke, and also from his constant employment in state affairs, as minister, were always in the palace.

The

The remarkable politeness with which that nobleman received us, has made too deep an impression on my mind to be effaced, and though it is not in my power to do justice to the force of his expression, I will endeavour to give the purport of what he was pleased to say to me at this first interview.

After the common civilities of enquiring after my health, &c. he said :

“ You are now called, Sir, to the most
 “ important employment that perhaps any
 “ gentleman was ever intrusted with. To
 “ your skill and integrity will probably
 “ be submitted, no less than the precious
 “ lives of two of the greatest personages
 “ in the world; with whose safety the
 “ tranquillity and happiness of this great
 “ empire are so intimately connected, that
 “ should an accident deprive us of either,
 “ the blessings we now enjoy might be
 “ turned to the utmost state of misery and
 confusion

“ confusion. May God avert such un-
 “ speakable calamities ! But the hazard of
 “ the infection of the small-pox, in the
 “ natural way, is so threatening, that we
 “ are in duty compelled to have recourse
 “ to the expedient of inoculation, which,
 “ though so little known in this country,
 “ has been adopted and practised in Eng-
 “ land with the greatest degree of success.
 “ We have physicians of great learning
 “ and abilities in their profession, but not
 “ being experienced in this new branch of
 “ practice, her Imperial Majesty was
 “ pleased to lay her commands upon her
 “ ministers, to enquire after and engage
 “ a person of the best abilities in it, and
 “ whose success had been confirmed by
 “ long practice ; you come to us well re-
 “ commended in these essential points, I
 “ shall therefore repose the utmost confi-
 “ dence in you, and have only to request
 “ that you will act without the least re-
 “ serve.”

As

“ As to the resolution of the Empress in
 “ this particular, with regard to herself, I
 “ must leave to her Majesty to explain her
 “ own sentiments ; but with respect to the
 “ Grand Duke, he is already determined
 “ on the operation, provided you encour-
 “ age it ; it has been submitted to his own
 “ consideration ; he approves, and even
 “ wishes it. I have therefore to request,
 “ that before an affair of so great conse-
 “ quence is finally settled, you would make
 “ yourself well acquainted with his con-
 “ stitution and state of health.”

“ His Imperial Highness knows you are
 “ arrived, expects to see you, and invites
 “ you to wait on him to-morrow. I can
 “ venture to assure you, that he will be
 “ easy of access, and willing to be acquaint-
 “ ed with you. Be with him as much as
 “ possible ; see him at his table, and at his
 “ amusements ; make your observations,
 “ and, in short, study his constitution.
 “ Let

“ Let us not be too precipitate, but when
 “ every circumstance has been duly at-
 “ tended to, report your opinion freely,
 “ and depend on this, that if you should
 “ deem the operation hazardous, and ad-
 “ vise against it, we shall think ourselves
 “ equally obliged to you, nor will the
 “ acknowledgments on account of this ex-
 “ pedition, be inferior to what it will be
 “ upon the utmost success.”

In answer to these judicious intimations
 for my conduct, previous to the undertak-
 ing, I assured his Excellency, that I would
 in every respect carefully attend to them,
 and that he might depend on my making
 a just report.

On the day following we were intro-
 duced, and had the honour to dine with
 the Grand Duke, who received us with
 the utmost politeness and affability ; after
 dinner, upon taking leave, his Imperial
 Highness condescended to give us a gene-
 ral

ral invitation to his court and table, as often as it was convenient to us. The Empress arrived that evening in the city, and the next day we received orders to attend her Majesty at ten o'clock, on the day following, at her summer palace. When we were introduced, there were only his Excellency Count Panin and Baron Chereasoff present; the latter had the honour to preside at the college of medicine; and having been educated at the University of Cambridge, understood the English language perfectly well. I wish I could pay all the tribute I owe to the friendship of this nobleman, during our residence in Russia, on every occasion.

Though I was prepared to expect very much from the excellent understanding and politeness of her Majesty, yet her extreme penetration, and the propriety of the questions she asked, relative to the practice and success of inoculation, greatly surprised

prized me. On my retiring, I had the honour to be invited to dine with her the same day, and it may not be unentertaining to relate the manner of serving the Empress's table at St. Petersburg.

The Empress sat singly at the upper end of a long table, at which about twelve of the nobility were guests. The entertainment consisted of a variety of excellent dishes, served up after the French manner, and was concluded by a desert of the finest fruits and sweetmeats, such as I little expected to find in that northern climate. Most of these luxuries were however the produce of the Empress's own dominions: pine apples indeed are chiefly imported from England, though those of the growth of Russia, of which we had one that day, are of good flavour, but generally small. Water melons and grapes are brought from Astracan; great plenty of melons from Moscow, and apples and pears from the Ukraine.

But

But what enlivened the whole entertainment, was the most unaffected ease and affability of the Empress herself. Each of her guests had a share of her attention and politeness; the conversation was kept up with a freedom and cheerfulness to be expected rather from persons of the same rank, than from subjects admitted to the honour of their sovereign's company.

On the following day I was again ordered to attend the Empress, when she was pleased to inform me of her resolution to submit to be inoculated as soon as possible; on which occasion, that I may not appear to have been too precipitate in a matter of such consequence, a more ample relation of this conference may be excusable. I took the liberty, during the conversation, to request the assistance of the court physicians, to whom I desired to communicate every proposed regulation and medicine; but the Empress would by no means consent to any such consultation, and condescended to give her reasons as follows.

“ You

“ You are come well recommended to
 “ me; the conversation I have had with
 “ you on this subject has been very satis-
 “ factory, and my confidence in you is in-
 “ creased; I have not the least doubt of
 “ your abilities and knowledge in this
 “ practice; it is impossible that my phy-
 “ sicians can have much skill in this ope-
 “ ration; they want experience; their in-
 “ terposition may tend to embarrass you,
 “ without the least probability of giving
 “ any useful assistance. My life is my
 “ own, and I shall with the utmost cheer-
 “ fulness and confidence rely on your care
 “ alone. With regard to my constitution,
 “ you could receive no information from
 “ them. I have had, I thank God, so good
 “ a share of health, that their advice never
 “ has been required; and you shall, from
 “ myself, receive every information that
 “ can be necessary. I have also to ac-
 “ quaint you, that it is my determination
 “ to be inoculated before the Grand Duke,
 “ and as soon as you judge it convenient;

C

“ at

“ at the same time I desire that this may
 “ remain a secret business, and I enjoin
 “ you to let it be supposed that, for the
 “ present, all thoughts of my own inocu-
 “ lation are laid aside. The preparation
 “ of this great experiment on the Grand
 “ Duke will countenance your visits to
 “ the palace, and I desire to see you as
 “ often as it may seem necessary, that you
 “ may become still better acquainted with
 “ what relates to my constitution, and al-
 “ so for adjusting the time, and other cir-
 “ cumstances, of my own inoculation.”

I promised obedience to her Majesty's
 commands, and had only to propose that
 some experiments might first be made by
 inoculating some of her own sex, and age,
 and as near as could be of similar habit.
 The Empress replied, “ that if the practice
 “ had been novel, or the least doubt of the
 “ general success had remained, that pre-
 “ caution might be necessary; but as she
 “ was well satisfied in both particulars,
 “ there

“ there would be no occasion for delay
 “ on any account.”

From this time therefore measures were taken for the designed introduction of inoculation into the empire; for which purpose some preparations had indeed been made, previous to my arrival. A large and convenient house was already provided, that had been built by Baron Wolf, which for some time before had remained uninhabited and unfurnished. This was proposed to be prepared as an hospital, and was purchased by the Empress for that purpose. Dr. Schülenius, a physician of Livonia, who had successfully inoculated many persons in that province, in a method similar to that which was formerly practised in England, was engaged to live there, and superintend the patients; as also Dr. Strenge to act as his colleague in that employment. It was some time before the necessary regulations could be made; every circumstance however being at length fa-

vourable, it was determined to begin the inoculation on two young gentlemen of the cadet's corps, who were therefore removed to the house; and as my attendance at court could not be continued, if I visited persons under the disease, it was determined that my son should undertake the first inoculation, and conduct the whole of that business at Wolf House, while I was to remain at court, in order to become perfectly acquainted with the constitutions of the Empress and Grand Duke.

The two young cadets, whose names were Basoff and Swieten, about the age of fourteen years (who were supposed not to have had the small pox) were accordingly inoculated. I say supposed, because, however strange it may appear, at that time the nature and symptoms of the disease were so little known and attended to, there were few who could be certain whether they ever had had this disease or not. The general

ral method was to search for marks, and if none were found, it was concluded the party had not had the disease. In the case of the two cadets, the matter for their inoculation was taken from a child of a poor man, in the suburbs of Petersburg, who, according to my son's relation, was pretty full of a distinct kind of small-pox, which was then near the crisis, and the child seemed free from danger, except what might happen from improper treatment, which was indeed very extraordinary, the room where the child was lodged being extremely confined, hot, and offensive; he therefore endeavoured to persuade the parents to admit some air, by opening the window, and to let the room be kept more cool, assuring them, that otherwise the child's life would be endangered. These remonstrances were ineffectual, it being the prevailing opinion, that it was impossible to keep the patient too hot, and accordingly the child, who otherwise would

have been in no danger, died, as we were afterwards informed, in a few days.

Every body was anxious for the success of this first attempt on the two cadets, and accordingly, a journal of every material appearance was transmitted to me from my son, twice a day, and translated for the Empress's perusal. It was with great concern I received an account that Basoff, on the second day after inoculation, was seized with great sickness and vomitings, attended with other symptoms of fever; and, upon a strict inquiry, it was discovered that he had improperly overcharged his stomach with a quantity of dried fruits, which it was hoped might be the sole occasion of that disorder; but, whatever might be the cause, he continued ill of a high fever, accompanied with some alarming symptoms, of which we in the city received a particular and frequent account. It happened in this case, as I have seen in others where the inoculation has been un-

luckily

luckily performed about the time that the constitution was attacked by a fever, that the complaints occasioned by such an unexpected disease have interrupted the regular progress of infection, and the appearance on the arm has been rendered doubtful. This accident in the present instance embarrassed me greatly. My son's accounts were clear, and I could depend on his judgment; but unfortunately the fever continued, attended with dejection, which might probably increase by the patient's apprehensions; for although both these young gentlemen behaved with proper resolution when the matter was inserted, yet the practice being novel, I was told afterwards they considered themselves as victims devoted to a dangerous experiment.

On the 6th day the report was very unfavourable, inasmuch that I had determined to go to Wolf House, in order to assist in taking care of these patients; but

I was first commanded to attend on the Empress.

She received me in so engaging a manner, and animated me so much by the encouragement she gave me, that I cannot forbear to relate what passed on this occasion. She said, “ I do not like to see you
 “ so unhappy; tell me what is the matter.” I answered, “ that the unfavourable ac-
 “ counts received of the patients at Wolf
 “ House, distressed me greatly.” “ I am
 “ sorry for it too,” she replied, “ but tell
 “ me truly, are you certain that the ca-
 “ det’s fever is not occasioned by the ino-
 “ culation.” I said, “ Most assuredly not,
 “ it began before the infection could dis-
 “ turb the habit, and continues with symp-
 “ toms that never accompany inoculation
 “ at this period.” “ Then dismiss your
 “ fears,” replied the Empress, “ I make no
 “ doubt, with the blessing of God, he will
 “ be carried safe through his complaint,
 “ and all will end well. Nevertheless, I
 “ must

“ must own it is an unhappy circumstance ;
 “ for if any accident should happen, though
 “ from a different cause, it will be im-
 “ possible to convince the vulgar that it
 “ was not owing to inoculation, which
 “ would increase their prejudices at the
 “ beginning of this practice, and render
 “ my project of introducing the practice
 “ into my dominions, very difficult : how-
 “ ever, be in good spirits, we can but do
 “ what is right ; events must be left to
 “ providence. I am well satisfied with
 “ your conduct, and you may depend
 “ on my protection and support ; and
 “ whatever may be the event with this
 “ boy, it shall not alter my resolution,
 “ provided you remain in the good opinion
 “ of the propriety of my being inoculated.
 “ You shall perform the operation on me,
 “ and my example will tend to re-establish
 “ the reputation of the practice. For the
 “ present I approve of your intention to
 “ go to Wolf House, but as there is still
 “ time to receive another report, which
 perhaps

“ perhaps may be more favourable, I will
 “ have you wait till evening, and then
 “ to determine, as the situation of the pa-
 “ tient may make it prudent or not.”

It happened very fortunately that the evening's report was more favourable, the fever having abated considerably, on which account, my intended visit was postponed, and from that time there was not the least appearance of danger in either of the patients: the symptoms of the eruptive fever were moderate, and were followed with only two or three pustules in Basoff; and Swieten's arm, which had never seemed likely to produce any eruption, remained well, with such an appearance as indicated his having had the small-pox before.

While my son was engaged in attending the patients in the manner related, I employed my utmost attention to make myself acquainted with the constitutions of my illustrious patients; and for that purpose

pose paid my duty to the Empress once or twice every day, generally dining, as I had been desired, and passing great part of the day with the Grand Duke ; by which means I had opportunities of receiving every necessary information relative to the states of their health. At length the time for the inoculation of both was finally determined on. That of the Grand Duke was publicly talked of, but, as nothing was said respecting the Empress's inoculation, every one believed that she had laid aside all thoughts of it. Matters were in this situation when I quitted St. Petersburg, to assist Dr. Schulenius, Dr. Strengé, and my son, in forwarding inoculation at Wolf House. When I arrived there, I found the two young gentlemen perfectly well. Four more young gentlemen of the cadet corps were next selected as proper subjects for inoculation, and the natural small-pox, in a suitable state for the purpose, was discovered in the suburbs of the city. We therefore went to the infected

ed house with the four young gentlemen, and a young maid servant of our family, who was doubtful whether she had had the disease or not. We were conducted thither by a German surgeon, one of those appointed by the court, with an annual salary, to attend on families of inferior rank, under this disease. The reception we met with on this occasion may be interesting to the reader, as it shews, in a strong light, the improper manner of treating the disease, and the prejudices of the populace.

The child from whom we were to take matter for inoculation, was rather full of small-pox; the kind was favourable and distinct, and near the time of maturation, but he was gasping for breath, from the very great heat of the room. We remarked a kind of horror in every countenance on our entering the house; but when I approached the bed to take the matter for inoculation, a woman, whom I was soon in-

“ formed

formed was the mother of the child, threw herself on her knees at my feet, with her forehead to the ground, and her arms over her head (the eastern manner of prostration, which is still retained in Russia) in this posture she made a plaintive cry, in a language I did not understand. I was greatly surprized at this behaviour, and intreated my German companion to inform me what gave occasion to such appearance of distress. “ You must know, said he, that an opinion “ prevails in this country, that although the “ operation may be salutary to the inocu- “ lated, yet it produces certain death to “ the person from whom the matter is “ taken. This poor woman, who is the “ child’s mother, cries to you for mercy, “ and whatever may be the consequence, “ insists that you shall not inoculate from “ her child.” Shocked at the thought of being considered as a murderer, I intreated the surgeon to inform the woman, that I would not on any account undertake so wicked an employment, as to deprive an
innocent

innocent child of its life; that what I proposed to do could not be in the least hurtful or dangerous to it; but if she could not be prevailed on to believe what I said, I would instantly retire, and relieve her from all apprehensions. Upon this my interpreter conversed with the family, and I observed a well looking man talked for some time with the mother, after which he turned, and addressed himself to the surgeon, who then assured me the woman consented, and I accordingly inoculated the five patients, still observing that the woman seemed to remain in great distress. The intense heat of the room seemed to endanger the life of the child, which I was the more concerned for, after hearing the prejudice above related. I therefore used my utmost persuasions that a window might be opened, as it would infallibly relieve and refresh the child. But all intreaties and arguments were in vain (such was the prepossession in favour of heat) until they were enforced by the present of a ruble (about four shillings

shillings and sixpence of our money) a window was then immediately opened before we quitted the house, and I was promised that it should remain so for some time. On our return, I questioned the surgeon concerning the success of his representation to the mother, which, as her consent was obtained, I hoped had given satisfaction. But he informed me that she still remained of the same opinion. “ You
 “ could not understand, said he, the force
 “ of what her husband, who is a very rea-
 “ sonable man, said to her; he first en-
 “ quired of me, whether we came by the
 “ express command of the empress, and
 “ being answered in the affirmative, he
 “ turned to his wife.”

“ My dear, said he, I would no more
 “ than yourself consent to lose our child,
 “ for the advantage of any person breath-
 “ ing; but you hear that this gentleman
 “ comes by her Majesty’s orders; and if
 “ her Majesty had commanded the hand or
 “ feet

“ feet of our child to be cut off, which
 “ would be worse than death, we must
 “ have submitted; let us therefore shew
 “ our obedience, and not oppose the or-
 “ ders of her Majesty.” Upon this re-
 presentation the woman submitted. On
 reflecting after our return on the distressed
 situation of this family, the strength it
 would add to the general prejudice, should
 this child not recover, and the extreme
 danger to which it was exposed, by misma-
 nagement, I desired my son to see the child
 in the afternoon, in order, if possible, to
 contribute to its safety. He informed me,
 that after opening the window, the child
 had fallen into a sound sleep, and continued
 better; but that he found the apartment
 shut up as close as before, though it was
 not altogether so hot. The child recover-
 ed, though his life was greatly endangered
 by a series of ill treatment afterwards; for
 while he remained in a very weak state,
 the parents carried him to the Bagnio,
 in opposition to the advice of the surgeon,
 a prac-

a practice which is customary with the lower class of people, in every illness in this country, by which his weakness and danger were greatly increased. However, a decoction of the Cort. Peruv. which I advised to be given, and more prudent measures, in respect to air, carried him safe through the distemper.

As we were extremely anxious for the event of this inoculation, our observations were carefully and frequently made on the progress of it in the five patients; but notwithstanding every one of them appeared to be infected by the operation, yet the appearance on the arms was different from what I had ever experienced; for on the punctured part, almost immediately, arose a pimple, which soon became one large pustule, filled with yellow matter, very much resembling the small-pox completely matured. This continued to the seventh and eighth day, when the eruptive symptoms might in the common course be expected

pected to appear. Not one of them however had any illness, nor did I then expect they would; and in short, the experiment turned out wholly ineffectual. The wounds on the arms dried up, and the patients continued in perfect health. It is not easy to describe what I felt on this mortifying event. It will be much more readily conceived by every sensible reader. Happily, however, I had the honour and good fortune to be employed in the service of a princess, whose superior understanding and fortitude had prepared her for every event. Her Majesty had just reason to be discouraged at the ill success of this second experiment. I saw and felt the disappointment in its full force, and my utmost endeavours were excited to investigate the cause; it was the more remarkable, as we never met with one instance of a similar event, in all the inoculations that took place afterwards.

We

We continued to reside at Wolf House, which was guarded by a detachment of guards, at my request, as the best measure both to favour the secrecy which her Majesty had enjoined, respecting her own inoculation, and to prevent the possibility of spreading the infection, by an improper intercourse with the city.

In this retirement I sat down to reconsider and examine every particular of these cases, having kept a copy of the journal which I had daily transmitted to Baron Cherkasoff, president of the college of medicine, with my opinion of the several appearances, and which had been by him laid before the Empress. From an accurate review of the different circumstances, I drew up a memorial for the inspection of the Empress, which in substance was as follows. I freely acknowledged that the whole process of this experiment on the five persons had been carried on according to my directions, without the least variation;

tion ; that the autumn had been temperate and favourable ; that nothing appeared in their constitutions against making the trial ; nor did any thing in their manner of life account for an effect so contrary to my expectation, and the whole course of my experience in England. I could infer nothing satisfactory from their constant use of Bagnios, or the encreased flow of perspiration arising from it, so that, on the whole, I was strongly disposed to believe that these patients had really passed through the natural small-pox in some early period of their lives. For strange as it might seem that this should have been the case, without themselves knowing or being informed of it ; yet if it was considered, that no public registries, or private memorandums of the disease were kept ; and that the only method of enquiry whether any person had ever had it or not, was to search for the marks of it remaining in the skin (a proceeding liable to great uncertainty) it was reasonable to conclude, that those patients

might

might probably have had the disease without remembering it, and that the experiment was thereby rendered ineffectual. I was more clearly persuaded of this being the truth, because in the method of inoculation, which I now practised, I was convinced by numberless facts, and long experience, that no one instance ever occurred of its failing to produce the disease on persons who had not had it before.

But for still greater satisfaction on this point, I proposed that the same persons should be inoculated a second time, in the old and original manner, still practised by Dr. Schülenius, by a long incision, in which lint moistened with matter was inserted, and the wound covered with a plaister. I recommended likewise, that the patients should frequent the rooms of those who were under the natural small-pox, even of the worst sort; that they should touch the sick, and use every means that might expose them to receive the disease. If from

this second trial no disorder ensued, but they still remained perfectly well, it would confirm others in my opinion, that they had had the disease already in the natural way, and could be in no danger of it hereafter.

This representation being laid before the Empress, the proposal was approved and carried into execution; the result was, that not the least symptom of infection was produced; but the Empress, being already fixed in her resolution, thought it unnecessary to wait the issue of this second experiment, and determined to undergo the operation without any further delay; having accordingly received orders to prepare for it, I selected and inoculated three children of good constitutions, to be ready, as near as could be computed, at the time agreed on.

The time and place of this important transaction, is mentioned in the account of her Majesty's inoculation; but it may not be uninteresting to recite more
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in detail, the particulars of a process, in which all Russia was concerned.

By the correspondence with Baron Cherkasoff, every circumstance was settled agreeable to the Empress's pleasure, and accordingly, about nine in the evening, on October the 12th, an express arrived at Wolf House, with orders that I and my son should immediately attend, and bring with us some person from whom the infection might be taken. No other person in the family had the least expectation of this order; and we, in common with the rest, appeared ignorant of its object, but proceeded immediately to St. Petersburg.

The child I had fixed upon as the most proper subject, and on whom the small-pox just began to appear, was then asleep; we wrapped him up in a pellice, and conveyed him to the coach, into which we entered, and were immediately conveyed to a gate of the palace, next the Milione,

that being the place which I had been directed to for this purpose when I left the city. We were conducted up a pair of back stairs, and were met by Baron Cherkasoff, who accompanied us to the Empress. The inoculation was soon performed, after which my son returned back to Wolf House, with the child, and intimated to the family there (who were anxious to know what had been done,) that I had inoculated the child of a nobleman. I lodged that night at our house in the Milione, and the next morning went to Czar-sco Selo, a palace about twenty miles from Petersburg, to which the Empress now removed. At first no other persons were at that palace but the necessary attendants, it being given out that her Majesty's journey was only to give directions about some alterations, and that her stay would be short. But several of the nobility soon followed, and the Empress observing among them some whom she supposed not to have had the small-pox, said

to

to me, “ I must rely on you to give me
 “ notice when it is possible for me to
 “ communicate the disease; for though I
 “ could wish to keep my inoculation a se-
 “ cret, yet far be it from me to conceal it
 “ a moment, when it may become hazard-
 “ ous to others.” Accordingly, on the
 fifth day, (that I might be certain of being
 in time) her Majesty was pleased to let it be
 known that she was under inoculation.
 Indeed, it was scarce possible that the no-
 bility should be without suspicions of it,
 on seeing me there, and so frequently with
 the Empress, as they knew I had been so
 lately at Wolf House with the infected
 patients. However, no person asked me
 a question, or seemed in the least inquisitive
 on that point. The Empress, during this
 interval, took part in every amusement
 with her usual affability, without shewing
 the least token of uneasiness or concern;
 constantly dined at the same table with
 the nobility, and enlivened the whole
 court with those peculiar graces of con-
 versation,

versation, for which she is not less distinguished, than for her rank and high station.

The particulars of her Majesty's illness will be found in another place.

The inoculation of the Grand Duke had been postponed for a short time, on account of his Imperial Highness being seized with the chicken-pox, which terminating happily, and the necessary care being taken after it, the subject was resumed.

By my constant attendance at court, and particularly in the apartment of his Imperial Highness, I had the satisfaction to find that he was in a good state of health; yet, in order to receive every necessary information, as well as assistance, during the course of the disease, I made application to the Empress, for permission to consult with his physicians on this subject, and that I might have an order for their attendance

ance and aid during the whole process. Her Imperial Majesty granted my request, in consequence of which, Dr. Cruse, who had constantly attended his Imperial Highness in all his indispositions, and Monf. Fau-
sadier, his surgeon, who had always been near his person, from the time of his birth, were directed to give me all possible assistance. I was happy in this appointment, having already made some acquaintance with both these gentlemen, by meeting them frequently in the Grand Duke's apartment.

His Excellency Count Panin, who was present at the first meeting, informed us that the inoculation of the Grand Duke was determined on, and that we were desired to confer together, and agree on every measure to be taken, as well during the preparation, as the progress of the disease; but I was extremely disappointed by Dr. Cruse's and Monf. Fau-
sadier's declining to be concerned in this business; they
alleged,

alleged, that on the attack of any natural disease, they held themselves obliged to give their best assistance, and should on such an occasion most willingly consult with me; but that they considered the inoculated small-pox in a different light, and as it was a process they could not be supposed to be acquainted with, they must decline giving their opinions on that business. On Dr. Cruse's being asked whether he had any thing to object to the operation, he replied, with great candor, "that he
 "approved of it, and of the method I
 "used, as he found it described in my
 "treatise on the subject; but that all the
 "use he could be of, would be to give
 "a circumstantial account of what he had
 "observed, with respect to the constitution of the Grand Duke, during his
 "attendance upon him." In consequence of this, I requested that Dr. Vigor, physician to the maids of honour, might be desired to give his assistance, who being an
 English-

Englishman, I flattered myself would not object. A conference was held at the house of Mons. Fauvadier, when Dr. Cruse, agreeable to his promise, gave a very clear and distinct account of the several indispositions of the Grand Duke, and his present state of health; but Dr. Vigor excused himself from taking any part, saying, that it was a matter of too great importance for him to engage in. Mons. Fauvadier gave me a detail in writing, of his sentiments on the subject, and of the management the Grand Duke had been under from his birth, with regard to his health: a management, though well intended, so injudicious and extraordinary, that Mons. Fauvadier assured me, it could only be accounted for by the fondness and partiality of the late Empress Elizabeth, who, though a princess of distinguished wisdom on other occasions, had imbibed the prejudices of some old ladies, to whose care the infancy and health of the Grand Duke were entrusted: notwithstanding all these

these disagreeable circumstances, I had the happiness to find his Imperial Highness perfectly well formed, active, and free from any natural infirmity.

Being thus totally disappointed in my expectations of any assistance from the faculty, I thought it expedient to give my opinion in writing; and accordingly I prepared the following memorial, on the day after the consultation, and had the honour of presenting it to the Empress, who was pleased to express her approbation of the method therein proposed, and to direct that I should proceed in the inoculation as soon as it was convenient.

T H E

T H E

M E M O R I A L.

I H A V E, with the utmost care and attention, taken into consideration the accounts I have been favoured with by his Excellency Dr. Cruse, and Mons. Faufadier. These contain a very perfect and circumstantial detail of what relates to the health of his Imperial Highness, from his infancy to this time; and I make my acknowledgements to both those gentlemen for so satisfactory an information.

The general reflection that I make, is, that his Imperial Highness has suffered much by improper treatment while a child, and that, probably, the greatest part of his
complaints

complaints in the infant state may be attributed to this cause. The effects, however, are visible in his constitution, which is enfeebled by repeated illnesses, and, upon the whole, his Imperial Highness is of a tender and delicate habit.

The complaints in the glands of the throat and cheek have not escaped my notice; but as they are now perfectly removed, and have been so for some years, I think them of no consequence, nor do I think the habit, that may be supposed to have occasioned these swellings, any objection.

About three years since, it appears, that his Imperial Highness voided a round worm by the mouth, and took some proper medicines afterwards; but since that time, there have neither been more worms passed, nor have any symptoms appeared that give reason to suspect that there are any. This circumstance therefore I think, at present, immaterial.

I remark

I remark also that his Imperial Highness had, in September 1763, a fever at Moscow, which was occasioned by taking cold, and attended with great danger; and also, that last July he had a feverish indisposition, which was cured by the Cortex Peruvianus; but these fits of illness do not appear to have injured the constitution.

I also observe that his Imperial Highness has sometimes complaints in his stomach and bowels, but they seem to arise from temporary indigestion only, and have been always easily removed by taking Rhubarb, an infusion of the Cortex Peruvianus, and Sal Absinth.

The present state of health of his Imperial Highness remains to be considered, and the honour I have been indulged with, of being frequently in his presence, has afforded me opportunities of observing his Imperial Highness at different times, and

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I have

I have carefully endeavoured to profit thereby.

I have remarked that his Imperial Highness is active and lively, though very thin, and appears to possess a considerable degree of strength; for I have been surprized to see that after a great deal of exercise, and long continued, he has not shewed any marks of fatigue.

In respect to food, I have observed that, for the most part, what he eats is plain and light, and that his Imperial Highness seems to have a keen appetite, and good digestion; for I have taken notice, that he does not appear heavy or dull after eating, but, on the contrary, returns to his amusements chearfully, which is a certain proof that the stomach is not improperly oppressed by the preceding meal.

I have also carefully attended to the pulse of his Imperial Highness, and have
had

had the pleasure to find, that it is regular, of a proper degree of strength, and quickness, and, in one word, such as denotes good health.

Upon the whole, taking every circumstance into consideration, his Imperial Highness seems to be of a delicate and tender constitution, but at present in good health, and subject to no complaint, but what transiently arises from indigestion, and this admits of an easy remedy.

It will be expected, that after having attended to every particular, I should give my opinion, whether upon the whole, his Imperial Highness is at present in a proper state of health to be inoculated for the small-pox, or not; and this I shall very willingly do, in a clear manner, and in few words.

If I were in England, and the same question were asked for a person of rank, cir-

cumstanced exactly as his Imperial Highness, I should make no scruple to declare that I did think him in a proper state to be inoculated.

It has been said that climates differ, that hitherto we are not competent judges of the alteration this may make, and that therefore it would be proper, as the first experiment, to inoculate some persons of inferior rank, particularly such as are nearly of the same age and constitution with his Imperial Highness. This proposal seems both reasonable and proper, and I am ready, and even desirous, to make the previous trial, in any number of such young persons that can be procured, the more the better ; and also in others of different ages, that experience, the surest guide, may determine whether this climate is as propitious to the practice of inoculation, as England.

The

The following are the regulations that I should advise before the inoculation, but they are submitted to the consideration of the physicians and surgeons of the court, and may admit of any alteration that may be agreed on in consultation.

I should think it improper to reduce his Imperial Highness to a lower state of health than he is in at present, either by regimen or medicines.

I would recommend that he might continue to eat and drink in the same manner that he has been accustomed to, and neither to alter quality nor quantity, till within three days of the inoculation; only observing to allow more food, if he has an appetite to eat it, at dinner, and to abate of the supper, which ought to be light; by which I would be understood to mean, that animal food should be eaten but once a day, and that even the quantity of vegetables should be small in the evening; I

would also advise, that when the weather is fine, his Imperial Highness should walk abroad in the air, having some additional clothing to prevent taking cold. Three nights before the inoculation, I would propose that he should take three grains of the compound powder below,* made into a pill, with a little of any kind of conserve. Though the dose is very small, it will probably procure two or three laxative stools the next day. If this should agree very well, the same may be repeated on the night next after the inoculation, either with the addition of a little Rhubarb, or not, as may be thought most proper. For some days between the inoculation and the beginning of the eruptive complaints, which will be about a week, I recommend that his Imperial Highness take of a light decoction of the Cort. Peruv. in the manner that shall be agreed on in consultation; and once more, in that period, I would perhaps again give one of the same pills, and
a laxa-

* This refers to the powder I always use at the time of inoculation.

a laxative to procure three or four stools the following morning; but this will depend on circumstances that cannot be known at present; for if costive, some proper laxative must be taken; if the contrary habit prevails, it will not be necessary.

During this week his food should be puddings, pies, potatoes, or any kind of vegetable or milk diet, and boiled chicken or mutton every other day, but in a small quantity. The drink to be water, with only one small glass of wine at dinner. The breakfast to be tea as usual, and to eat bread either toasted or not, as is most agreeable, but without any butter, which is forbid during the whole time of preparation.

When the eruptive complaints begin, I advise that his Imperial Highness may be kept as cool as is consistent with security from taking cold; and this I propose to be effected, by keeping one large room,

adjusted to a proper temperament by a thermometer, in which he may occasionally walk. But if the weather should be so mild, that he would, if well, walk abroad in the open air, it would be very adviseable that he should do so, though feverish; for it will certainly alleviate the pain in the head, which is a constant attendant of the eruptive fever, and there will be no injury received by it. At this time also, I constantly enjoin my patients not to lie down on the bed, unless much fatigued, which is seldom the case, and I absolutely forbid going into bed.

For the rest of the disease it is impossible to give directions. In general, all complaints cease when the eruption shews itself; but where the number of pustules is considerable, the treatment is always the same as is used by experienced practitioners.

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The inoculation should be performed by a very slight puncture of a lancet, wet with recent and fluid variolous matter, and no plaister, bandage, or application, used afterwards.

T. DIMSDALE.

Sept. 24th, 1768.

The

The Grand Duke continued in high spirits, and eager for the experiment. The fortunate event will be related in the sequel. But I must not omit mentioning, that both the Empress and the Grand Duke were pleased to permit several persons to be inoculated from them; and by this condescension, the prejudice which had reigned among the inferior ranks of people, that the party would suffer from whom the infection was taken, was most effectually destroyed.

Immediately after the recovery of the Grand Duke, a nobleman of the first distinction acquainted me with the honourable and generous manner in which her Majesty proposed to reward my services; and particularly that I should be created a Baron of the Russian Empire, and appointed actual counsellor of state, and physician to her Imperial Majesty, with an annuity of five hundred pounds a year, to be paid me in England; besides ten thousand

land pounds sterling, which I immediately received; and also that I should be presented with a miniature picture of the Empress, and another of the Grand Duke, as a memorial of my services to the Imperial Crown of Russia. Her Majesty was also graciously pleased to express her approbation of my son's conduct, by conferring the honour of the same title on him, and ordering him to be presented with a superb gold snuff box, richly set with diamonds.

The examples of these illustrious personages had such immediate influence, that most of the nobility were impatient to have their families inoculated; this business being happily accomplished, I designed to return to England, but was detained by a further engagement. The Empress was pleased to inform me, that several of the nobility, residing at Mosco, were about to set out from thence for Petersburg, with their families, to place them under my care; at the same time expressing

sing her concern for the children, who would be obliged to travel at that severe season of the year ; still however repeating her wishes, that the desires of the nobility might be complied with before my departure. It would have been inexcusable in me to hesitate a moment on such an intimation ; I therefore offered to set out immediately for Mosco with my son, and to render all the services we could, to as many as were willing to accept of them.

The generosity of the Empress had been such, that she might expect to lay her commands on me for any service in my power to perform, but her politeness on this occasion was extremely remarkable, and never to be forgotten ; for after acknowledging my care and success in the services for which I was more immediately engaged, she condescended to add, that she could not press me to undertake so long a journey, which perhaps might be prejudicial to my health. My offer was
accepted,

accepted, and I thought, with great pleasure, of the entertainment I should have in seeing that great and ancient city. But a further service was proposed. Among the frequent conversations that I had the honour to have with the Empress, she had enquired minutely into the manner in which I had conducted the practice of inoculation in England, with a view to extend it through her own dominions ; and her thoughts were now employed on establishing a house, for the reception of such patients, in some convenient situation near Mosco ; and it was under consideration, (provided such an establishment should take place) whether my son should not remain in Russia, and superintend the business. In consequence of this intention, I was commissioned to communicate the design to a nobleman of distinction at Mosco, and with him to inspect such houses as might be procured for the purpose ; or, if none could be found ready and convenient, to fix on a proper spot for erecting a new building.

building. Nothing now remained but to prepare for the journey, but on enquiry I was informed, that at Mosco, as well as at Petersburg, every possible precaution was used to prevent the spreading of the small-pox, and it was very probable that much time might be lost before the disease could be discovered there, in a proper state for inoculation. I therefore thought it adviseable to make use of an expedient that was thought pretty extraordinary; it was to inoculate one or two children at Petersburg, to take with us, to answer the purpose of infection, when we should arrive at Mosco. It was with some difficulty that two children were procured; for though the idea of arbitrary power conveys with it a presumption that nothing more would be wanting, than an Imperial order for us to fix on the persons we thought most eligible, yet such mildness and benevolence prevails under the government of the Empress, that no such compulsion is ever practised. After a few days

days two children were obtained, the one a boy about six years old, the son of a sailor's widow ; the other a girl about ten, the daughter of a deceased subaltern German officer, whose mother had soon married again, and was gone with her new husband, leaving the child to the care of the grand-mother, who being miserably poor, and unable to support her, had placed the girl in the hands of a gentleman, as a pledge for eight rubles ; this sum was repaid him, and the children were inoculated at Petersburg, two days before the time fixed for our setting out ; and as it was expected that the journey would be performed in four days, we hoped to arrive at Mosco on the sixth after the inoculation. Our accommodation for this journey, of about five hundred English miles, in consequence of her Majesty's particular orders, were exceedingly good. We had one of the Empress's coaches, that was constructed for travelling night and day, the back being made to let down occasionally, for repose.

repose. Captain Walschoff, who has been my interpreter and companion, was appointed to accompany me in another carriage; and there were also a sufficient number of smaller carriages, to accommodate our servants, and for the conveyance of our baggage and provisions; but though the time of our departure had been fixed on, we were retarded by unavoidable disappointments till the fourth day after the children were inoculated; and as it was discovered since the inoculation, that the boy had a scald-head, we left him behind us, and set out on our journey with the girl only. In order to be certain of having a sufficient supply of matter, I inoculated her in four places, two on each arm. We found the road from Petersburg to Mosco very bad, it being just the critical time between travelling on wheels or sledges; after the frost is sufficiently set in to make the ice on the rivers safe to pass over, a considerable time is necessary before the roads over the snow are sufficiently

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ly beaten and level for travelling. Our carriages were therefore on wheels when we set out, and we were obliged to travel with a great number of horses, and slowly. This was at the time when the war broke out between the Russians and Turks, and our journey was retarded, on account of our going just after the troops, who took this rout on their march to the confines of the empire, to the general rendezvous at Kiof, in the Ukraine; their baggage, &c. having employed the post-horses so much, that in many places we found it difficult to procure such as were able to proceed with us. Under these circumstances, though there was every where a disposition in the inhabitants to assist us as much as possible, we were nevertheless so much delayed, that we did not arrive at Mosco till early on the morning of the seventh day, from the time of setting out, and eleventh from the inoculation. The same journey is frequently performed in three days. I was exceedingly concerned at the

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delay,

delay, on account of our little patient, who began to complain on the eighth (as is usual) and seemed to suffer considerably from the fever preceding the eruption; yet we were under the necessity of travelling on night and day, incessantly, without any stoppages, except what were necessary for the exchange of horses at the several stages. The eruption of the small-pox appeared therefore while we were on the road, and proved benign and moderate in respect to number.

At Mosco we were accommodated with a very good house, situated near the center of the city. Many of the nobility instantly applied to have their families inoculated, and as the patient that we brought with us was at that time in a very proper state to take matter from, we began to inoculate on the day after our arrival, so that in a few days we had inoculated more than fifty patients from that girl only. After the first were recovered, several others,

others, encouraged by their success, were desirous of being inoculated also. This business engaged me for near two months, when all my patients being happily recovered, I proposed setting out on my return to Petersburg, but was seized with a very dangerous fever, of the pleuretic kind, which reduced me greatly. I should not have mentioned this circumstance, but as it gives me an opportunity of paying my grateful acknowledgments to Baron Afhe, and Dr. Dahl, who were so obliging as to attend me, and for whose skill and assiduity my best thanks are due. As soon as I was somewhat recovered, and had gained sufficient strength, we set out on our return to St. Petersburg, and as the roads were now much better beaten, we travelled on sledges all the way, with greater expedition than we went, so that we reached the end of our journey on the fourth day.

Having now finished my business, I made my request to her Imperial Majesty, for permission to return to England; she assured me my time should be my own; having therefore taken leave of the Empress and Grand Duke, I prepared every necessary accommodation for the journey, and was indeed just setting out, when a nobleman called and informed me, that the Empress was desirous of seeing me. I was much concerned to find her with every symptom of a pleuretic fever, and she did me the honour to say, that she should be sorry to stop my journey, but wished to have my assistance; I therefore again took up my residence in the palace. Her symptoms encreased, and the pulse became now such, as I was convinced made it necessary that she should be bled; the Empress consented, and Mons. Rouffelin, a very able, ingenious surgeon, in whom she reposes great confidence, was directed to take away eight ounces of blood; but before the operation, the Empress desired to see me again,

again, and informed me, that Monf. Rouffelin had refufed to bleed her, representing, that as ſhe was then in a ſweat, the taking away blood would interrupt the perſpiration, and be attended with danger. I thought, on the contrary, there was a neceſſity for inſtant bleeding, and ſhe was pleaſed to determine on being bled, from which ſhe received an immediate relief. I do not mean to give a detail of the whole illneſs, which filled me with the greateſt anxiety, but ſhall only ſay that in a ſhort time the moſt alarming ſymptoms abated. So ſoon as the Empreſs was recovered, and all danger over, which was in about three weeks, I again prepared for my journey to England. Having taken my leave, and received further proofs of the munificence of her Imperial Majeſty, I was attended to Riga by an officer commiſſioned to ſee that every neceſſary accommodation ſhould be provided in the ſame manner as at my firſt arrival in the country.

An Account of the INOCULATION of
her IMPERIAL MAJESTY, Catharine
the Second, Empress of all the
RUSSIAS.

HER Imperial Majesty, the prosperity of whose subjects is always near her heart, was not only one of the first persons who ventured to be inoculated, but has even most graciously determined to publish, throughout her dominions, an account of the most interesting circumstances of this her experiment, with the intention, that others may be excited to make use of the same means, and preserve themselves from the danger which attends this terrible distemper in the natural way.

In obedience therefore to her order, I shall relate the circumstances most worthy of attention, which occurred during the time I had the honour to attend her at Czarſcoe Selo; and ſhall likewise add an account of the inoculation of his Imperial Highneſs the Grand Duke.

The Empreſs, during eight days before inoculation, was adviſed to abſtain from animal food at ſupper, and at dinner to eat of ſuch only as was of eaſy digeſtion.

On Saturday the 11th day of October, 1768, the day before inoculation, ſhe took five grains of the mercurial powder.

Sunday the 12th, late in the evening, ſhe was inoculated with fluid matter, by one puncture in each arm, and on the ſucceeding night was very reſtleſs, and complained of pains in different parts of her body, ſuch as uſually happen after catching cold; the pulſe was quicker than natural.

On

On Monday morning the 13th of October, the Empress went to Czarſcoe Selo, one of her country palaces, whither I repaired the ſame day by her order; her dinner conſiſted this day of ſome weak ſoup, boiled chicken and vegetables. After dinner her Maſteſty ſlept near an hour, and found herſelf greatly reſreſhed. In the evening ſhe was very eaſy and chearful.

Tueſday, October the 14th, ſhe paſſed a tolerable night; certain ſigns of infection appeared on the places of incifion: a little pain was felt under the arm, oppoſite to the inoculated part; dinner conſiſted of ſoup made without meat. In the evening ſhe complained of a giddineſs, and much heat; however, after drinking a glaſs of cold water, the giddineſs and heat went off. Supper was water gruel.

Wedneſday, October the 15th, ſhe paſſed a good night, the giddineſs and the pain under her arm ceaſed, the places of incifion became

became more red. In the evening the heaviness returned, but by a walk in a cold room, it was relieved; diet as yesterday.

Thursday, October the 16th, she had rested well, but complained this day of a heaviness in her head, at intervals, though upon the whole she was tolerably well. Four grains of the mercurial powder were given this evening at going to bed; diet nearly as before.

Friday, October the 17th, she had had a very good night. In the morning she took half an ounce of Glauber's salt, dissolved in warm water, and the day passed very well; but in the evening she complained of a pain in her head, and that her hands and shoulders seemed benumbed, and she was inclined to sleep; dinner consisted of a small piece of chicken, and some vegetables; the places of incision advanced properly, and, with the assistance of a magni-

magnifying glafs, I could plainly difcover fmall pimples around the part.

Saturday, October the 18th, the Emprefs had fleep well, and felt herfelf in the morning perfectly well. At noon however fhe complained of a fhivering, which was fucceeded by heat, and uneafinefs all over her body. She was likewise affected with heavinefs and giddinefs of her head, pain and numbnefs under her arms, and pain in her back. All thefe complaints were greatly relieved by a walk in a cold room ; nevertheless, fhe had no appetite, and, excepting a little water gruel at dinner and fupper, fhe did not take any food this day ; the incifions in the arms became more red and inflamed.

Sunday, October the 19th, fhe had fleep a good deal, but with frequent interruptions ; pain of her head and back, with other febrile fymptoms, ftill continued.

She

She rose however at her usual hour, and after walking a little in a cold room, found herself much better. The incisions looked more red, and in the evening many of the pimples, mentioned before, appeared to unite in a general inflammation. As she complained of great heaviness and disposition to sleep, she went to bed rather earlier than usual: had no appetite all day, and did not take any thing but tea, water gruel, and some water in which apples had been boiled.

Monday, October the 20th, she had passed a better night, with considerable perspiration. Heaviness and giddiness of the head somewhat relieved. Fever not so high, but complained of feeling herself weak. This morning half an ounce of Glauber's salts, dissolved in warm water, was exhibited; a numbness under one arm, and pain in the back and feet, gave some uneasiness the whole day, but the pain in the head was relieved. In the evening all those complaints

complaints were moderated. More pustules appeared round the incision, and the circumference of the wound itself looked more red than before. One pustule was also discovered in the face, and two upon the wrist. Pulse slower, and fever almost gone. No inclination to eat this day: a little soup and some tea were all the nourishment taken.

Tuesday, October the 21st, she had passed the night very indifferently, but in the morning was free from pain. Some pustules appeared on the face and arms, and the fever was entirely gone. She eat boiled chicken with a good appetite, and upon the whole passed the day very well.

Wednesday, October 22d, she slept very well, and waked free from complaint.

This day I went to Petersburg, by the Empress's command, to see the Grand Duke, who was indisposed with the chicken-pox.

en-pox. I returned to Czarſcoe Selo in the evening, and was agreeably informed that ſhe had paſſed the day exceedingly well. More puſtules appeared, and advanced according to my wiſhes; diet the ſame as before.

Thursday, October the 23d, the night paſſed extremely well. In the morning the Empreſs complained of a ſoreneſs in her throat; diet as yeſterday.

Friday, October the 24th, ſhe had ſlept very well, but ſtill complained of her throat, which was now become more painful; ſhe likewiſe felt herſelf more ſleepy after dinner, than uſual. During the whole time from her arrival at Czarſcoe Selo, the Empreſs, in condeſcenſion to the nobility, who daily came thither to pay their duty to their ſovereign, had made it a practice every afternoon to quit the inner apartments, and converſe with them till eight o'clock in the evening; but this evening ſhe

she with-drew at six, complaining very much of her throat. On examining the fauces, I perceived a large pustule on the upper part of the right tonsil, which probably was the occasion of great part of the pain she felt. But the complaints were not solely owing to this; they proceeded partly from a recent cold, which arose from the apartments to which she had removed, not being so thoroughly aired as those which she had left. A gargle of black currant jelly dissolved in warm water, was freely used with immediate benefit. The pustules continued to mature in the most favourable manner.

Saturday, October the 25th, she had had a very good night; the pain and swelling of the throat were abated; towards evening some of the pustules, which at first appeared, began to change their colour to a darker hue.

Sunday,

Sunday, October the 26th, the night was passed extremely well, the pain of the throat was no longer troublesome, and the hardness of the tonsils was greatly abated. In the evening most of the pustules in the face put on a brownish colour.

Monday, October the 27th, she had rested extremely well, dined on chicken, and passed the day without the least complaint; all the pustules were now become brown.

Tuesday, October the 28th, the Empress, being entirely free from uneasiness, took half an ounce of Glauber's salts; this day she took an airing in her coach, and continued it every day till November the 1st, when she returned to St. Petersburg in perfect health, to the great joy of the whole city. In the evening she appeared at court, and received the congratulations of the nobility and gentry, who attended on this joyful occasion.

N. B. From the time of the inoculation, to the commencement of the eruptions, the Empress walked every day for two or three hours in the open air. The temperature abroad at that time, was, according to Reaumur's thermometer, 5 or 6 degrees ; that of her apartment was from 12 to 14.

From the time of the inoculation,
to the commencement of the eruptions,
the subject was kept in the open air,
for three hours in the open air. The
temperature of the air was 60,
and the humidity of the air was 75.
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An Account of the INOCULATION of
his IMPERIAL HIGHNESS, the
GRAND DUKE of RUSSIA.

WHEN her Imperial Majesty had taken the resolution to be inoculated before the Grand Duke, she was pleased to intimate that it would be agreeable to her that his Imperial Highness should be inoculated with matter taken from herself, at such time as I should think it most proper for infecting. It was therefore concluded to perform the operation on him as soon as the disease should appear kindly on the Empress, and all apprehensions of danger were over. This step was more particularly resolved on, as it would

afford her an opportunity of visiting the Grand Duke during the whole process of the disease. But his Highness being indisposed with the chicken-pox, at the proper time for putting that intention in practice, it was of necessity laid aside. That distemper was however very inconsiderable, and of short duration.

His Imperial Highness remained in the winter palace at St. Petersburg, and took, at proper intervals, gentle physic twice, and was so perfectly recovered, that on the twenty-ninth of October, he took a dose of the mercurial powder, as preparatory to the inoculation.

The inoculation was performed on him with fresh fluid matter, by one puncture in the right arm only; the matter was taken from the younger son of Mr. Briscorn, apothecary to the court. November the 2d, nothing remarkable happened; at bed-time

time a dose of the mercurial powder was repeated.

November the 4th, symptoms of infection appeared on the arm. He continued very well all day, and felt no particular sensation in the inoculated part. This evening he took three spoonfuls of the decoction of bark, which, in a consultation with Dr. Cruse, previous to the inoculation, had been agreed on as a proper medicine to be taken occasionally.

November the 5th, on examining the incision, the mark of the infection very evidently appeared, and he complained of the part around the wound being somewhat painful. Three spoonfuls of the bark decoction were taken this morning, and the same dose repeated again in the evening. Before going to bed he felt a shivering, and a slight degree of pain under the inoculated arm.

November the 6th, this morning he had a shivering, succeeded by a feverish heat; the quickness of the pulse increased to 96 in a minute; but this went off before noon. In other respects he was as chearful as usual, and eat his dinner with a good appetite; this consisted, during the whole of his indisposition, of weak soup, vegetables, and sometimes chicken. The remainder of the day passed very well.

November the 7th, he had slept well the preceding night; the inflammation was much advanced to day, the pulse quicker, but without much heat. At noon he eat with a good appetite, but after dinner felt a considerable shivering, which was followed by a feverish heat; the pulse beat 104 strokes in a minute; a heaviness and drowsiness, which he complained of, were soon removed by a walk in a cool room.

Novem-

November the 8th, he had rested very well last night, but the pulse still continued very quick, and he had alternately cold and hot fits throughout the whole day, which gave him some uneasiness. He took a walk in a cool apartment several times, which afforded sensible relief; and notwithstanding these complaints, his appetite continued sufficient to take reasonable nourishment.

November the 9th, his Imperial Highness's complaints were much the same as yesterday; one pustule appeared upon the chin, and three were discovered upon the back.

November the 10th, more pustules appeared on different parts, and he was quite free from complaints. The illness, which commonly happens at the time of eruption, was removed.

November the 11th, he had slept very well, and passed the day without complaints.

November the 12th, he had not slept so well last night, as on the preceding nights, and complained this morning of having sweated very much in the night, and that his throat was sore and painful; he took his breakfast and dinner with appetite, and was chearful all day; but in the evening the soreness of the throat increased, and the difficulty of swallowing was very great.

The pain in the throat continued for two hours very troublesome, and a great quantity of frothy phlegm was thrown up; but upon using a gargle of black currant jelly dissolved in warm water, he found himself much easier, and at going to bed drank two cups of sack whey.

The heat, even at the most severe period of this illness, was moderate, and the pulse generally from 90 to 100 strokes in a minute.

November the 13th, he slept well; the throat still continued sore and painful, yet not so as to prevent swallowing. On examining it, I discovered a large pustule above the *Velum Pendulum Palati*, which was also somewhat swelled. The morning passed very favourably, and dinner was taken with appetite. After dinner he had a shivering fit, which was succeeded by a smart fever, and the pulse rose to 118 in a minute.

As his Imperial Highness complained much of weakness, he lay down to take rest, and this was the only time during his illness that he reposed himself on the bed in the day. In the evening he found himself much better, and the fever was considerably abated.

Novem-

November the 14th, he passed a very good night. This morning he was free from fever, and his throat much better. The pustule above the *Velum Pendulum Palati* had a much less inflammatory appearance, and the part around it did not look so much swelled as before.

From this time he was quite free from pain; the pustules, which together did not exceed forty, matured kindly, soon dried up, and the illness terminated very happily.

November the 22d, he was perfectly recovered, and this day being appointed for a thanksgiving to the Almighty, he was present at the divine service with her Imperial Majesty, at the court chapel; on which occasion the nobility and gentry expressed their satisfaction and joy in a manner to be expected from loyal subjects attached to their sovereign, and to his Imperial

perial Highness the Grand Duke, by the ties of affection and gratitude.

And her Imperial Majesty has permitted me to declare, for the general satisfaction, that she already finds herself not only perfectly recovered, but her health better than for some time before. His Imperial Highness likewise appears to be in the most promising and desirable state of health.

I shall

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A SHORT ACCOUNT OF
REGULATIONS
IN THE

Medical College of St. Petersburg,
in 1768.

AMONG the many wise regulations that were made by Peter the Great, on first founding the city of St. Petersburg, one was, the establishment of an officina, or shop, furnished with every necessary drug and medicine that might be wanted for the relief of the diseased, and the appointment of a number of able persons to attend those who should stand in need of either medical or chirurgical assistance, and direct the remedies that were proper in their disorders.

This

This institution, in its infancy, was principally intended for the relief of the numerous workmen, and others, assembled from different parts, for the purpose of erecting, in a most unfavourable situation for health, being then a boggy spot, though extremely well calculated for commerce, the now splendid Imperial City of St. Petersburg.

As the buildings advanced, and the court became established there, many of the nobility erected superb palaces, and, with their families, became inhabitants. A great number of merchants also, invited by the liberal advantages offered to them by the Emperor, assembled from different parts of Europe, and settled in the infant city. For the relief of such of these as were able and willing to pay for medicines, it became necessary to enlarge and extend the medical establishment; and accordingly, the number of those who had been appointed to superintend the dispensary, were increased, and the whole expenditure

expenditure and receipt was vested in the crown ; the prices of the medicines were fixed, and none allowed to be delivered, but on producing an order from a licensed physician, or surgeon, who had produced sufficient credentials of his ability, and in consequence thereof, received his appointment from an officer appointed by the Emperor.

These are the outlines of the establishment first settled ; but a medical college having been since fixed at St. Petersburg and Mosco, some improvements have been made, which will appear by what I shall relate of the state of medicine as it stands at present.

Every physician or surgeon, whatever diploma, or other document, or recommendation he may produce, must undergo an examination very sufficiently strict, by the medical college, before he can have the liberty of practice in the empire. Un-
til

til such liberty is announced in the public papers, he can have no medicine from the Imperial shop, nor dare any apothecary receive his prescription, to supply him with medicines. To such who are acquainted with the facility of procuring a diploma from some German or French universities, this precaution will appear very necessary; and indeed it has several times happened, that these pretenders to science, who have ventured to try at passing an examination, have failed, and been refused. But I have never heard of a single instance of this power having been abused; on the contrary, the examinations are allowed to be liberal, but sufficiently exact to detect and exclude ignorant pretenders.

By degrees it has been found convenient to permit the establishment of free laboratories, and apothecaries shops, at St. Petersburg, and Mosco; and they begin also to be established in other principal cities of the empire, where formerly only Imperial officinæ

officinæ were allowed ; but all those persons who have the privilege to keep them, produce satisfactory proofs of their ability and integrity, and comply with certain requisitions before they are licensed. The price of medicines in the imperial, as well as the free laboratories, as they are called, is fixed, so that no imposition or abatement can happen to occasion dispute.

To each principal division of the army a physician is appointed, with a surgeon general ; to each of the different regiments, a surgeon, with one or two surgeon's mates. The fleet also is served nearly in the same manner as in England, and every officer and common man in the army and fleet suffers a deduction of two per cent. from his pay, for the support of the hospitals, and for the medicines that they may stand in need of ; persons immediately attached to the service of the court, pay only one per cent. all others in civil employment pay for their medicines.

H A DESCRIP-

of the war were allowed, but all of the per-
sons who have the privilege to keep them,
and who have the power to make them
and to make them, and to make them with
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A DISCOURSE

A
 DESCRIPTION
 OF THE
 METHODS
 PROPOSED

For extending the salutary practice
 of Inoculation through the whole
 Russian Empire.

IN obedience to the orders received from
 her Imperial Majesty, I shall endeavour
 to demonstrate, in a clear and concise man-
 ner, the destructive effects of the small-
 pox in the natural way, and the safety and
 advantage of inoculation, even when per-
 formed after the old manner; and exhibit
 the improvement of the new method, be-

ing the same which is now introduced into this great empire.

It will not be in my power to execute this plan with the accuracy I could wish, being engaged in an employment that demands much time and attention. But I will use my best endeavours to describe, in the first place, a method of extending the practice of inoculation, so that it may not be dangerous to those in the neighbourhood, who, either on account of bad health, age, prejudice, or other reasons, are unwilling to submit to the operation, and yet may be salutary to such as are proper objects, and approve it.

It is not to be supposed that the method now practised in England so successfully, can be received in Russia without some alterations. The experiments, however, which I have made in England, in order to ascertain the most commodious manner of conducting the business, have fully convinced me of the propriety of inoculating
in

in a house built, or set apart, for that purpose, in some retired situation.*

One, and indeed no inconsiderable advantage derived from a plan of this sort is, that by collecting all the patients together in one house, the physician will be enabled to attend a great number at the same time, in a proper manner, and also to pay particular attention to such as may more immediately require his assistance.

And it is of no small importance to those who are inoculated, that the necessary regulations in respect to regimen, as well as every other circumstance that requires the physician's attention, may, in such a situation, be properly observed.

Another advantage is likewise obtained by this method, that, with proper caution,

* In the original, published in Russia, here followed a circumstantial account of the house I had built for the accommodation of my patients in England, and the manner of conducting the process, &c. which being unnecessary to insert in this translation, I have omitted.

the small-pox will not be communicated to others, in the natural way of infection.

Notwithstanding all these conveniences, it will doubtless happen here, as it did in my neighbourhood, that many persons of distinction will rather prefer the inoculation of their families at their own houses. In this case it is submitted to the wisdom of government, whether it would not be proper to give orders that such persons should give public notice of their intention to inoculate, mentioning the time when the operation is to be performed, and also of their perfect recovery. By these means, such as have not had the small-pox, will have it in their power to avoid the infection.

So much with regard to the accommodation of persons of rank, who may be inoculated under one or the other above-mentioned regulations. But the poor cannot enjoy those advantages. Humanity, however, and the interest of the state, equally

equally demand, that all possible attention should be bestowed for their assistance and preservation.

In order to attain this end, I know of no better or more certain method than that which I followed in my own neighbourhood, by inoculating all the inhabitants of a village, who had never had the small-pox, on the same day : and, if this be performed in a proper manner, they might be all duly visited, and proper medicines administered at a moderate expence, and the whole be over in about three weeks : after which, that village would have nothing to apprehend from the small-pox for some years. For the completion of this plan, it will be necessary that every child should be inoculated for the small-pox soon after its birth, or that inoculation should be performed in every town or village once in five or six years. This last method I would rather recommend, and therefore, in order to make this proposal perfectly intelligible, I

shall endeavour to explain it more particularly.

A list of the names and ages of such inhabitants of every town and village as have not had the small-pox, is first necessary to be obtained; and marks should be made against the names of those, who, on account of their ill state of health, or other reasons, are not thought fit subjects for the operation, in the judgment of the inoculator; and such persons should be provided with a separate place of abode, where they may not be in danger of receiving the infection: the rest should be collected in one place, inoculated at one time, and proper medicines, with directions, specifying the time and manner in which they are to be taken, should be distributed to each individual. On the fourth day after the inoculation they should again be assembled together, the punctures examined, and such farther medicines given as the inoculator may think proper. After the seventh, the
patients

patients should be examined daily; for from that time to the eleventh, or perhaps fourteenth, is a period that requires more particular attention. During the whole of this time, and indeed throughout the whole process, the sick may continue at their own houses. And it may be reasonably presumed, that there will be a sufficient number of such as are but slightly indisposed, who may be able to assist the others, so as to make the expence and trouble of nurses unnecessary. But we must also suppose that, of the great number inoculated, there will be some who may have the disease severely, or whose cases may require more constant attendance than they can possibly have at their own habitations. To provide for such extraordinary instances, therefore, a proper house, and other conveniences, should be previously appointed, to which such patients should be removed, when thought necessary.

It

It will be impossible to determine precisely, how many patients may want such attendance, and consequently difficult to provide exactly the necessary accommodations ; but I imagine there will not be more than four or five out of one hundred.

The diet of all should consist of vegetables, milk, bread, and the like ; and in some cases a little mutton broth may be allowed. The drink should be nothing but water, unless by the particular direction of the inoculator.

But in order to secure the observance of this regimen more exactly, all salted provision, and every kind of strong liquor, ought to be removed from the place, and every necessary precaution taken to prevent the patients from procuring any. In respect to medicines, a sufficient quantity should be prepared, and proper doses for different ages and constitutions put up separately, and distributed by the inoculator

tor among the patients, with directions in what manner they should be administered; and their recovery should be completed with some proper purgative.

A licence or exclusive permission ought to be granted to such physicians or surgeons as undertake to inoculate for the small-pox; for the mischief arising from the practice of inoculation by the illiterate and ignorant, is beyond conception.*

Such

* To enumerate the instances that have happened within my own knowledge to confirm this assertion, would be almost endless; I shall only mention a few that are remarkable.

I was desired to visit a young woman about ten miles distant; I found her dying from the inoculation of a man, who, upon the credit of having been my coachman, had set up inoculator: he was gone on the pretence of procuring my assistance, but in fact had ran away; this was his thirteenth patient.

Another illiterate person in my neighbourhood began the practice; but a child he had inoculated happening to have a fit, he was so frightened as to elope, till he was informed that his patient was out of danger.

I received

Such persons, instead of confining the infection within narrow limits, too often, through want of skill or honesty, are the

I received a letter from a poor man who kept a school about eight miles from Hertford, to inform me, that not being able to pay a proper person, he had himself ventured to inoculate his own family; and begging a visit on account of one of his children who he feared was in danger, I complied with his request, and found one child dying of a confluent pock; but my compassion for him abated, on finding his house filled with some poor neighbours, from whom he received a small gratuity for their inoculation; one of whom had lost an eye under his care. This man's residence was in a small town, and from his patients several caught the small-pox, and some died.

I saw a poor woman dying of a confluent disease; her husband had raised money for his own inoculation, and having had the disease favourably, was assured by a farmer who inoculated him, that he might safely go home to his family. The wife died, leaving five children, who all had the disease and recovered.

At a village not far from Hertford, the same farmer inoculated as many of the parish as could raise five shillings and three-pence, informing the others that the small-pox was not catching from the inoculated; but the whole neighbourhood became infected, and several died.

means

means of propagating it, to the great terror of many people, the unhappy consequences of which remain in many places in England. For, besides the dreadful mortality which the disease itself has occasioned, it has often proved the source of discord and contention among neighbours, and disturbed that harmony and friendship which had before subsisted among the inhabitants.

To conclude, I beg this small treatise may be considered only as an imperfect sketch drawn up in haste; but if it should be approved of, and her Imperial Majesty should be pleased to command me to enter into farther particulars, I will employ my utmost endeavours to render it more perfect, and also assist in the execution of any part of what has been therein proposed.

These were my sentiments in 1768, and I see no reason to alter them at present. It
has

has indeed been my constant advice to recommend inoculation, as a happy expedient to rescue mankind from the fatal ravages of the natural small-pox. Persons of condition have in general adopted the practice, and those of inferior rank have had it in their power to secure their families, by the moderate terms on which the practice has been conducted, where circumstances require it. The poor, whose situation renders them unable to bear expence, and who, if neglected, would be the greatest sufferers, have been much the objects of my attention; and I have endeavoured to afford them every assistance in my power, by sundry general inoculations of different parishes in the county of Hertford. It has also been my constant rule, when called to attend in families of persons of fortune, to enquire if any servants, or others, who would be exposed to the danger of taking the natural disease from them, chose to accept of the opportunity of being inoculated; and these I have willingly taken under my
care,

care, without expecting the least additional gratuity. I claim no merit from this conduct, which appeared to be my duty, nor are these particulars mentioned boastingly, but to shew that in practice, as well as by precept, my mite has been contributed to the relief of a most valuable part of the community. I may also add, that it has been my invariable custom to recommend every possible precaution to be taken, that the disease may not be spread by the careless behaviour of my patients; and this I esteem a very essential part of the duty of those who inoculate, having seen a great number of fatal instances from inattention to this particular. It is with great satisfaction that I congratulate the public on the advantages we may reasonably expect, from the united efforts of several gentlemen of eminence in their profession, who, in different parts of the kingdom, have generously exerted themselves on the truly charitable plan of inoculating the poor. The medical gentlemen of the cities of Chester, Bath, and the populous

populous town of Leeds, with several others, are of the number. The general plan these gentlemen act on, so far as has come to my knowledge, is, to take due care of the patients ; to supply them with every kind of medicine and necessary food ; to enjoin the observance of some excellent orders to prevent the spreading of the infection, and to give rewards to such as shall produce a satisfactory testimonial of their having complied with those orders. It is much to be wished, that the public was universally acquainted with the particulars of their regulations, and the success of the practice ; from whence, and a communication of sentiments, it may be reasonably hoped some expedient might be found, to inoculate the poor of this metropolis, in a manner consistent with the safety of others.

A short

A short estimate of the number of those who die of the natural small-pox, with a view to demonstrate the advantages that may accrue to Russia, from the practice of inoculation.

It is needless to expatiate upon the havoc which the small-pox makes in most parts of the known world : probably there is not a country, city, or smaller community, which has not experienced its devastations in its turn. Its effects, in places unacquainted with the proper treatment and remedies against it, are scarcely less general and fatal than those of the plague itself.

Though this fact is generally allowed, yet many, I think, are ignorant of the immense

menſe loſs mankind ſuſtains by this diſtemper. It may not be amiſs therefore to ſhew, from well attested accounts, the proportion of perſons who die of the natural ſmall-pox : for which purpoſe it will be neceſſary to chuſe ſome country or city where an exact register of the births and deaths, as well as an accurate liſt of diſeaſes, is regularly kept.

Dr. Jurin, ſecretary to the Royal Society in London, carried this into execution in 1722, ſoon after inoculation had been introduced into England, being deſirous of ſhewing the different effects of the natural and inoculated ſmall-pox.

I ſhall not here infer all that was publiſhed by this ingenious author, as the whole may be found in the Philoſophical Tranſactions of the Royal Society, under N^o 374. The following extract will be ſufficient for my preſent purpoſe.

The

The Doctor for forty-two years selected from the Bills of Mortality of London, such as died there of the small-pox and other distempers. His observation may appear perhaps somewhat extraordinary: nevertheless, it appears to be true, that of 1000 infants, 386 die under two years of age, which is considerably more than one third. These he deducts, as supposing them to die of the diseases natural to infancy; and afterwards proceeds to demonstrate, that if the whole bulk of mankind be taken at the age of two years, the eighth part die of the natural small-pox; and that of such as have it in the natural way, one in five or six dies.

With respect to my own calculations on this subject, I endeavoured to find out whether the small-pox proved equally fatal after the time mentioned by the doctor. With this view, before I left England, I procured the Bills of Mortality of the city

of London for the last thirty-four years, excepting two, which could not be found.* Of these I made a table, which I have inserted in page 122 of this treatise. I was surprized to find the numbers for these thirty-two years past, tally so exactly with the observations made by Dr. Jurin.

On examining the table it appears, that within these last thirty-two years 760,098 persons have died, and of those 268,529 have been infants under two years of age, which agrees with Dr. Jurin's calculation, in being rather more than one-third of the whole.

* These two have since been examined. The numbers are, for the year 1739, 25432 deaths, of which, 1690 by the small-pox, and 9687 under two years old. For the year 1763, 26143 deaths; 3582 by small-pox, and 8200 under two years old.

The conclusion, with these additions, remains the same.

I suppose

I suppose, with Dr. Jurin, that the deaths of these were occasioned by various diseases incidental to infancy, and I deduct them out of the whole number; the remainder is 491,569. It appears likewise, that in the same course of time there died of the small-pox 66,515, which confirms Dr. Jurin's account, and indeed exceeds the eighth part. Hence we may fairly conclude, that in general the small-pox carried off the eighth part of those who died in London above two years old, in the period above-mentioned. I procured also the best accounts I possibly could of the whole number of those who had had the disease from places where the small-pox had raged most, and found, that near one out of five died who had the disease in the natural way. This also agrees with Dr. Jurin's observations. We see then that even in London, where the climate is temperate, the disease well known, and the treatment of the sick very ably conducted,

this single disease destroyed more than the eighth part of the inhabitants.

But if we turn our eyes towards other dominions, and give credit to the accounts received, we shall find the disease still more fatal, and in some cities it is almost as destructive as the plague.

It is impossible for me to ascertain with any degree of certainty, the precise number of persons who die annually of the small-pox in Russia. I am persuaded, however, both from good intelligence, as well as from my own observations, that it is exceeding fatal here. Though I cannot confirm this assertion by proofs, yet by some conversation with the learned, I am credibly informed, that of those who have the small-pox in the natural way, one half die, including the rich and poor.

It seems hardly necessary to shew, how much the riches and strength of states depend

pend upon the number of inhabitants. But perhaps there is not any country in which the certainty of this position is more indisputable than in Russia; for not only the strength of the empire, but the riches of every individual also, must be in proportion to the degree of population. If therefore in London, which enjoys the many advantages already recited, more than 2000 persons die annually of the small-pox, we may surely suppose, that the loss which Russia, in its whole extent, sustains by this distemper in the same space of time, amounts to two millions of souls.||

And

|| Some who have estimated the number of inhabitants in Russia, and calculated from the proportion of deaths that may be supposed to happen by the natural small-pox, have thought the number of two millions much too large; perhaps it may be so, the conjecture was hastily written, at a time when my mind was deeply impressed with the ravages of the small-pox in Russia. I went to a village near St. Petersburg, to enquire for matter for inoculation, where the small-pox was supposed to be, and, to my great surprize, was told that the patients were all dead; astonished at this answer, I

And this havock must greatly retard the increase of the human species.

There are some diseases peculiar to old age, which terminate a life almost entirely spent, and totally useless to the community.

Such diseases, considered in a political sense, are not hurtful to the state. But the small-pox spreads destruction chiefly upon the younger part of the species, from whose labours in their several callings, the public might otherwise have expected advantages beyond all computation. The disappointment and loss incurred is of course neither to be calculated nor conceived.

A discourse upon this subject might be extended to a great length ; but it seems

enquired more minutely, and was informed that the number of persons who had had the distemper, was 37, out of which only two had survived.

unneces-

unnecessary to enlarge, especially when I consider to whose judgment this essay is with all humility submitted.

The public, I am persuaded, must be sufficiently convinced from fact and demonstration, that inoculation is the only means of preventing the mischiefs arising from the small-pox.

In a former treatise I have laid down a plan for an effectual method of general practice, by which the spreading of the natural small-pox will be prevented, and the cure of the inoculated rendered as easy and safe as possible.

I have therefore nothing more to add, but my wishes, that the empire of Russia may meet with the utmost success from this discovery, under the reign of so illustrious and beneficent a sovereign.

Years.

Years.	General List of Deaths.	Deaths from Small Pox.	Under two Years of Age.
1734	26062	2688	10752
35	23538	1594	9672
36	27581	3014	10580
37	27823	2084	10054
38	25825	1590	9600
39			
1740	30811	2725	10765
41	32169	1977	10456
42	27483	1429	9030
43	25200	2029	8621
44	20606	1633	7394
45	21296	1206	7689
46	28157	3236	9503
47	25494	1380	8741
48	23869	1789	7637
49	25516	2625	8504
1750	23727	1229	8204
51	21028	998	7483
52	20485	3538	8239
53	19276	774	7892
54	22696	2359	8115
55	21917	1988	7803
56	20872	1608	7466
57	21313	3296	7095
58	17576	1273	5971
59	19604	2596	6905
1760	19830	2187	6838
61	21063	1525	7699
62	26326	2743	8372
63			
64	23202	2382	7637
65	23230	2498	8273
66	23911	2334	8035
67	22612	2188	7668
	760098	66515	268529

C H A P. II.

ADDITIONAL OBSERVATIONS

T O A

T R E A T I S E,

E N T I T L E D,

The present Method of Inoculation
for the Small-Pox, &c. published
by the Author some Years ago.

SINCE the publication of the above-mentioned treatise, I have continued the practice of inoculation, and attended to every part of the process, with the utmost circumspection, in order, as much as possible, to reduce the preparatory regimen, and subsequent management of the patients, to a greater degree of certainty.

In this addition therefore, I shall make such observations as appear to be of the
most

most importance, and to render them as connected as possible, I shall follow the order observed in that essay.

I do not find much reason to alter my sentiments, delivered in the first chapter, with respect to the age, constitution, and season of the year, proper for inoculation.

Although I am still of opinion that the inoculation of children under two years of age, is liable to objection, I have nevertheless had repeated occasion to inoculate many under that age, without a single instance of any fatal consequence; if, therefore, from situation, or other circumstances, there is danger of taking the disease by natural infection, it may be very adviseable to inoculate during this early period.

In addition to this, I would just drop this cautionary remark, that children with heads remarkably large, in proportion to their bodies, appear to me exceptionable subjects; I
parti-

particularly refer to such children as may have been suspected of having had water in the ventricles of the brain, in early infancy. I have seen two of these, where the eruptive fever was accompanied with a very alarming stupor, which did not abate, although the eruption was of a distinct kind, and the pustules very few in number; and one of them, who had been suspected to have had the hydrocephalus when very young, and was inoculated when four years old, died during the disease, without recovering from the stupor, having, at the same time, a very mild and moderate eruption of pustules, in which the progress of inoculation did not seem interrupted.

With respect to the chapter on *Preparation*, I have expressed a doubt “whether
 “much, if not the whole of the preparation,
 “may not be dispensed with, except
 “in full habits, or where other particular
 “circumstances may require it.”* Re-

* Present method of inoculating for the small-pox,
 page 82, 7th edition.

peated experience has fully confirmed this opinion, so that, for some years past, I have not enjoined any restriction in respect to diet; nor directed any medicines to be taken before the time of the operation, by such as have appeared to be in a proper state of health. On the evening of the day in which the operation is performed, I have for some time given a few grains of the following powder, which is somewhat different from the composition I had before prescribed, though not materially.

R \acute{x} Merc. dulc. sublim. \mathfrak{z} ss

Pulv. \grave{e} Chel. Canc. c. \mathfrak{z} iiii \mathfrak{s}

Sulph. Aurat. Antimon. gr. 24.

Tart. Emet. gr. 6. Misce accuratissimè.

Three or four grains of this powder is a sufficient dose for children: I seldom give more than six grains to adults.

After

After the inoculation is performed, the rules laid down* concerning diet are to be observed; and a proper attention being paid to prevent costiveness, no more medicines are usually given till the fifth or sixth evening after the operation; on one of which, according to the greater or less apparent inflammation of the infected arms, I repeat the same quantity of the powder as before. As this quantity commonly produces in children two or three stools on the following day, no further medicine is necessary for them. But to adults I usually prescribe a gentle purgative the morning after the exhibition of the powder, and the repetition, or omission, of the powder, in all cases, is to be regulated according to the symptoms. Sometimes a third dose is ordered about the time of the eruption.

There are however persons of robust and plethoric constitutions, to whom, not only

* Present method of inoculating, &c. page 17.

a very moderate diet, but some evacuations are necessary, previous to the operation.

I am also clearly persuaded, that several tender and delicate persons have suffered greatly, from the want of skill in those who indiscriminately prescribe the rules laid down for preparation, for all constitutions alike; enjoining a strict abstemious diet, and injudiciously exhibiting mercurials, and other active medicines; by these means reducing the strength of the patient too low, and exposing him to unnecessary sufferings, and sometimes to great danger.

Convinced of this truth by many instances which have fallen within my own observation, I have been cautious in giving mercurials, or repeated purgations, or of refusing the use of common diet to such constitutions; but have allowed light animal food at dinner, with a glass or two of wine, as custom may have occasionally made

made necessary, during the whole time preceding the eruptive fever.

By these means, persons of very delicate habits have not only been conducted through this disease, without any unfavourable symptom, but, instead of being subjected to a variety of disorders, have even enjoyed a better state of health after, than before ; but here likewise it is impossible to fix any general rule. The management of every one must be submitted to the judgment of the operator, who should neither neglect to give proper medicines when the occasion requires, nor by a multiplicity of directions interrupt nature in her efforts.*

*At the end of this chapter I have mentioned an instance under my own observation,
 “ of a child born nine weeks after inoculation,
 “ at the full time, with distinct marks of the*

* The present method of inoculation, page 22.

“disease, though the mother had very few eruptions.” I have since seen instances in a general inoculation of a village near Hertford, in which two women with child were inoculated, and each had a plentiful eruption of small-pox: three or four years afterwards I inoculated the children, and both had the disease with a tolerable number of pustules. I will just add, that although of many pregnant women that I have inoculated, not one miscarried during the disease; yet I have known miscarriages to happen in a short time after their recovery: I therefore think it unadvisable to inoculate women in that state, unless the necessity of the case requires it.

To the third chapter concerning *Infection*, it seems not improper to add, that the method I now generally use in performing the inoculation, as believing it to be the best, is simply this. The point of a lancet slightly dipped in the recent variolous matter, which I prefer taking during the eruptive fever, is introduced obliquely between
the

the cuticula and cutis, so as to make the smallest puncture possible, rarely producing a drop of blood. The finger is then gently pressed on the lancet while introduced, which being turned, is withdrawn.

The precaution of turning the lancet is, that the matter may be more certainly wiped off and inserted. This operation is free from pain.

This mode of practice I formerly did not entirely approve of, but from further experience, I find it the best, and it always succeeds when properly conducted.*

I formerly made it a point to inoculate with fluid matter, as has been described; but it being hardly possible at all times to find patients in a proper state; and some persons objecting to this intercourse, from an appre-

* Present method of inoculating for the small-pox, page 25.

hension of danger, I have for a considerable time found the following method equally successful. A lancet well infected, or matter placed, when in a fluid state, on a plate of glass or gold, and afterwards suffered to dry, is held over the steam of boiling water, or a small quantity of water, barely sufficient for dilution, is added to it, and the matter, thus moistened or deluted, is used for the purpose of inoculation ; as I know of no difference as to the success, where there is an opportunity of advising with a patient, I consent to the choice of either method.

In the next chapter, on *the Progress of Infection*, extensive experience has abundantly convinced me, that at the commencement of the eruptive state, when a high degree of fever, and other alarming symptoms, threaten a large or unfavourable eruption, the going out in the fresh cool air, and taking evacuants, are absolutely necessary, and productive of the happiest effects.

But

But the same treatment is not required where the complaints are moderate, and the constitution of the patient is delicate. I have therefore, in such cases, relaxed considerably in this particular, and it is now my practice with such patients, to dispense with these injunctions.

The eruption being completed, and the complaints much abated, or entirely removed, a strict adherence to the very cold regimen is by no means requisite, but on some occasions may be attended with danger. Where the eruption is abundant (which whatever may be asserted by some practitioners, will sometimes happen, notwithstanding every precaution is used) I recommend confinement to the chamber, that the ease of the patient, which is now become a necessary object, may be fully consulted. For though the pustules may be quite distinct, and without any apparent danger, yet as each of these is like a little boil, all taken together must neces-

farily occasion much uneasiness and pain, especially when the patient is in motion.

Under these circumstances, the room should be kept moderately cool, of such a temperature as to be agreeably warm to those who are sitting in it; for the sudden transition from a warm close room, to a cool airy one, may prove very dangerous to the patient, and is therefore not to be used, but with great discretion, as will evidently appear from the following instance.

I was desired to visit a woman who had a good sort of natural small-pox, though very full. Through the excessive officiousness of those about her, who had seen the good effects, in some cases, of exposing the sick to the cold air, she was, near the time of maturation, forced out of bed, dressed, and removed into a cool room. Here she fainted away, the pustules all sunk, and she seemed expiring; but by being immediately

diately put into bed, and taking some cordial medicines, the pustules rose again, and she soon became better. It must however be acknowledged, that her life was exposed to the most imminent danger. Extremes therefore should be cautiously avoided.

I have also been called on to visit other patients, ill of the natural small-pox, who from a prevailing idea that the cold regimen was proper in every stage of the disease, have evidently been exposed to danger, by having been injudiciously carried out at the time the pustules were far advanced in maturation; and I have even known this improper treatment practised in the middle of winter.

If the quantity of pustules be large; if the fever, after the eruption, remains in any considerable degree, and the skin feels stretched, and painful, but more especially if the throat be sore, so as to render swallowing very difficult (which in a few

instances has happened) in such cases I apply a blister plaister upon the very place of the arm where the incision was made. For in such cases it frequently happens, that the inoculated part is the principal seat of pain, occasioned by a cluster of confluent pustules formed about the incision, which seems to point out the propriety of diminishing the tension and inflammation of the part, and discharging the acrid variolous matter, as it were from the fountain, whence the whole mischief had its source. The blister plaister I use is about the size of an English crown piece, and consists of,

Pulv. Cantharid. part.

Unguent. Basilic. flav. (Pharm. Lond.)

ana. q. s.

This spread pretty thick on a soft linen rag, whose edges are covered with some sticking plaister, in order the better to fix the blister plaister on the part.

Let

Let it be gently pressed till it sticks a little, putting a small piece of lint between it and the inoculated pustule, and suffer it to remain on about twelve hours. It will almost infallibly produce both speedy and considerable relief.

The blister plaister being removed, the part is to be dressed with a little Unguent. Basilic flav. on a pledget of lint, and the whole covered with a little Cerate Epulotic of the same dispensatory, spread on a soft linen cloth; and this Cerate, I think, is always preferable to any other application that has been, or is now in common use for dressing blister plaisters.

I do not know that any person has ever practised this method of applying blister plaisters on the inoculated parts, except myself, and those who have received this information from me; but its effects are so speedy and salutary, as to render it worthy of general use on such occasions. It
likewise

likewise gives much less trouble than the application of large blister plaisters, upon other parts of the body, which are not only more painful, but less efficacious. It is indeed attended with so little uneasiness, that even children seldom complain of it.

It may perhaps be imagined, that from this application the sore may afterwards become troublesome to the patient; but experience is against this supposition; for when I have inoculated in both arms, and blistered only one, the blistered incision has most commonly healed sooner than the other.

Under this head I have also to add, that in some cases, particularly of young children, it happens that the inoculated part, even early in the disease, inflames considerably, so as to occasion great restlessness and fever, although the pustules on other parts are very few, and of a good kind; in this state I apply a common cataplasm of bread and milk

to

to the part, which, with certainty, gives relief.

Some respectable practitioners having expressed their satisfaction with that part of the chapter of anomalous symptoms, &c. where the erysipelatous rash that had sometimes been mistaken for a confluent small-pox, was shewn to be inoffensive ; I am encouraged to mention another complaint that has several times distressed me greatly, and I make no doubt has also occurred to others in the course of their practice, with what I esteem to be the cause, and best manner of treating it.*

Sometimes a patient who has passed through the eruptive fever, in the usual manner, with moderate symptoms, and been relieved from every complaint by the eruption of a few pustules, has, after all apprehensions of future illness ceased, been unexpectedly attacked with a smart, and even alarming degree of fever, accompanied with great restlessness, and very frequently

* Present method of inoculating, &c. page 44.

*frequently in children with uncommon fits of crying. Not being able to account for this complaint from any circumstances belonging to this disease, I, for a time, attributed it to some unknown cause, independent of the small-pox; but observing that seizures of the same kind happened in several instances, my attention was excited to investigate its true cause, which I am now convinced originates from pustules situated on the * internal part of the mouth, or on the membranous parts of the nose or œsophagus. I have always treated this complaint successfully, by moderate cordials, sufficient to produce a slight perspiration, by which means, the whole disturbance has generally been over in twenty-four hours, and no further inconvenience has been suffered from it; this arises from the abatement of the tension; for it is observed, that the pustules on those parts, which are constantly hot and moist, come to maturity much earlier than those on the skin.*

In the last paragraph of the chapter, on the consequences of this method of inoculation,

* The Grand Duke's case was of this kind.

it is observed, that “ I firmly believe no
 “ one has ever had, or can have, the dif-
 “ temper a second time, either in the na-
 “ tural way, or from inoculation.” || Al-
 though I am supported in this opinion by
 the most eminent English physicians, yet
 I have found many persons in Russia, who
 affirm, they have had the small-pox twice,
 some even thrice. This however does not
 induce me to change my opinion, as it is
 probable, nay, more than probable, that
 those who have been entrusted with the
 care of persons under eruptive disorders,
 have been themselves deceived, as to the
 nature and quality of such eruptions.

It is not my intention to dispute this
 point at present; * if however we suppose
 some to have had the natural small-pox
 twice, this circumstance, instead of making
 against inoculation, is an argument in its
 favour, as I can with the utmost truth de-

|| The present method of inoculation, page 60.

* The subject is treated of more fully in another
 part of this publication.

clare,

clare, that of the very great number of those I have inoculated (several of whom have passed through the disease in a very slight manner) I never heard that a single person has had, or even been suspected to have had, the small-pox a second time. The inoculated therefore seem to be more secure than those who have had the disease naturally. That instances have happened, though not in my own practice, where inoculated persons have afterwards taken the natural small-pox, I have heard, and believe; but so far as I have been able to discover by my enquiries, it has constantly happened that the operator has been deceived; indeed, there was much greater ambiguity and hazard of its failing in the former method, by large incisions and the use of plaisters, than in the present practice, where the whole progress of infection is so plain, that an experienced practitioner can hardly be mistaken. This, added to the certainty of infecting, are strong recommendations of the present practice.

C H A P. III.

O N E P I D E M I C

S M A L L - P O X.

NOtwithstanding that I always make use of the word *disease*, when treating of the small-pox, in order to accommodate myself to the general prevailing idea, yet I do not allow of that term, when speaking of the productive cause; because I am of opinion, that the small-pox is never generated in any one, otherwise than by the medium of air infected with the effluvia of persons sick of the distemper, by contact with some infected substance, by incision, or by puncture; and on this account it seems to me more proper to consider it as a poison, the operation
of

of which, most of the human species are liable to experience once in their lives, but very rarely, if ever, twice. The operation of poisons is various, yet each produces, in a greater or less degree, the peculiar effect of the parent species. The bite of some serpents occasions almost instant death; of others, the injury is of a nature to admit of a cure, if remedies are timely applied; the bite of a mad dog has, in some instances, proved fatal after several months, without any appearance of injury remaining during the interval. The venereal disease, too, has frequently been known to remain a considerable time after the infection had been received, without shewing itself. To enumerate the modes of action of different poisons, would be in itself a work of very great extent, and foreign to my present purpose; it will be sufficient to say, that I consider the small-pox as a poison of the last mentioned species, which, occasioning no immediate indisposition, does not fail shewing its effects after a certain

tain time in the manner that has been minutely described in different parts of my former treatise, as well as by many other authors; and I am not without hopes, that this opinion will be well supported by the following observations, respecting the epidemic small-pox.

I do not believe that the state of the air, call it epidemic, or by any other name, ever generates small-pox, unless aided by contagion; but I allow it to be true, that certain seasons and constitutions of the air, are more favourable than others to spread infection, and propagate the distemper: neither am I of opinion, that the small-pox returns epidemically at certain periods, as has been supposed by some eminent writers. The reasons which have influenced me to adopt this opinion, shall be submitted to consideration; but I desire to be understood to write on small-pox only, independent of other disorders that have been deemed epidemic.

L

That

That this disease was unknown to the ancients, admits of no doubt; for the Greek and Roman physicians, gave accurate descriptions of diseases, and descended to very minute circumstances; yet we do not find any account of a distemper that can be supposed to be meant for the small-pox: in fact, it is allowed that the small-pox was imported from Asia, at the time of the crusades, and made its first appearance about the 13th century, soon after which, innumerable writers described it. It was unknown in America, until carried thither by the Europeans, about 200 years ago: and in some of the northern parts of Europe, it has not made its appearance above 70 or 80 years. No traces of it were to be found in Siberia, until the Russians extended their dominions, and carried it thither; some parts of Tartary are still free from it; the island of St. Helena remains also to this day uninfected, and its inhabitants, who justly dread the introduction of this disease, make
strict

strict enquiry into the health of the crew of every ship which touches there, and use every necessary precaution where there has been room to suspect danger of infection.

From these historical relations it will appear, that the small-pox has been imported into Europe ; that it is not a native of our climate, and consequently, that the idea of its beginning in any place from an epidemic state of the air, unaided by contagion, is erroneous.

But as a different opinion has been espoused by some eminent writers, and facts have been produced in support of it, I shall endeavour to state these with candor, and then examine how far the reasoning deduced from them will stand the test of enquiry.

It has been insisted on, that the small-pox, far from continuing perpetually in

one place, as might be expected, if contagion alone was the cause, has usually raged with violence for a time, and having destroyed a great number of the inhabitants, it has abated gradually; after which there has been a respite for some years in that place; an interval having then elapsed, the attack has been renewed in the same manner, and the like melancholy scenes of devastation have been again exhibited.

It has also been alledged, that during this interval, if the natural disease has appeared from the inoculation of any persons, or other causes, the contagion produced has never been sufficient to excite the epidemic, until it returned regularly from a particular state of the air.

These returns have been called periodical, and some have gone so far as to fix the periods of its visits to different towns, at a certain specified number of years.

This

This I take to be a true representation of the facts, alledged in favour of epidemical small-pox; and I do not controvert the former part, but the latter appears to me to be a mistake: that the small-pox may have returned, and become general in the same place, more than once in about the same number of years, is not improbable; but that it does so regularly, I deny, and will venture to appeal to the common experience of every country to decide this point, which, as well as the other, shall be farther elucidated in the sequel. In the mean time it may not be improper to observe, that it would puzzle the most ingenious theorist to account for this intermittent disorder in the air, or indeed for the other malignant qualities which have been supposed to exist in it, independent of contagion. Let us then quit these visionary ideas, and try whether, by having recourse to observation and plain reasoning, this matter will not be accounted for in a more satisfactory manner, for,

Nec Deus interfit, nisi dignus vindice nodus
inciderit,

is a rule not less just and applicable in medical reasoning, than in the conduct of the drama.

The historical account which has been produced to shew that the small-pox is not a native of our climate, may serve also as a sufficient proof, that it never begins here from any distemperature of the air alone; and the following circumstances are of great weight towards establishing the truth of this opinion. If this disease was the offspring of a particular epidemical air alone, it certainly could not be restrained by any care, or precautionary methods: but that the reverse is the case, will appear to every one who attends to the following remarks. In the most considerable towns in England, the inhabitants having experienced great injury to their trade, and the loss of many lives, by this disease becoming

ing universal, have, at a public expence, provided a house (and in some places more than one) which is called the Pest-House, situated at a convenient distance from the town, * and alone, to which all the poor, who fall ill, are removed, as soon as it is discovered that they have the small-pox; such houses are provided near most of the considerable towns in my neighbourhood in the country; medical assistance and nurses are afforded; due care is taken to bury the dead privately, and to give such patients as recover proper airings, until they may be in a state to return home, without danger of infecting others: this method, when duly complied with, has stopt the spreading of the disease, and prevented the contagion from becoming general; and the great benefit derived from it is so apparent, that even parochial parsony approves and allows the expence. To these observations may be added, what

* Chap. 2. Sect. 2.

the most ignorant and uncivilized people, have done to preserve themselves. The Calmucks, to whom the small-pox has been carried by the Russians, after having lost a great number of inhabitants, by its virulence, thought of the expedient of carrying the sick into the woods, and leaving them alone in huts, with a sufficient quantity of provisions; such as survived were not again suffered to join the others, until they had been sufficiently washed, and had performed a long quarantine. Those who died, were, with the huts they died in, covered with earth by those who had passed through the disease, and by this means the effects of the contagion were checked. The small-pox is very fatal among these people, and I am informed that they make use of the same custom to this day.

Dr. Mead relates, that the small-pox was spread among the Hottentots, by their being employed to wash the linen of some Dutch Sailors, who had been sick of that disease,

disease, and it raged with great and destructive violence ; but these ignorant people being taught by experience, that the disease might be spread by contagion, drew lines round the infected part of the country, and guarded them so strictly, that if any person attempted to fly from the spot, he was immediately shot dead.

To these observations I may add a quotation from Sydenham, which contains a most remarkable and well-attested fact, respecting the plague, which is also a contagious disease.

“ In the mean time, I much doubt if
 “ the disposition of the air, though it be
 “ pestilential, is of itself able to produce
 “ the plague ; but that being always predominant in some place or other, it is conveyed to others by pestilential matter, or
 “ the coming of an infected person from
 “ some place where the plague prevails ;
 “ and that even there it is not epidemic,
 “ unless

“ unless the constitution of the air favours
 “ it ; otherwise I cannot conceive how it
 “ should so happen that in the same cli-
 “ mate, at the time the plague rages vio-
 “ lently in one town, a neighbouring one
 “ should totally escape it, by strictly for-
 “ bidding all intercourse with the infected
 “ place. An instance of which we had
 “ some few years ago, when the plague
 “ raged with extreme violence in most
 “ parts of Italy, and yet the Grand Duke,
 “ by his vigilance and prudence, entirely
 “ prevented its entering the borders of
 “ Tuscany.”*

Now it is also evident, that if the sup-
 posed prevalence of epidemic small-pox,
 occasioned by distempered air, independent
 of contagion, was well founded, the pre-
 cautionary method, above described, must
 be ineffectual, the malignant air admitting
 of no restraint ; would exert its influence,
 and the removing of some would be no
 security to such as remained at home.

This

* Sect. 2. Chap. 2.

This opinion will be further confirmed by attending to what frequently happens in villages where no care is taken to prevent the disease from spreading ; also from what sometimes occurs in large towns, where some considerable persons, who will not remove, fall sick ; or where the disease breaks out in too many families to admit of a removal of all ; in either instance, the distemper becoming general, the fatal effects are severely felt, and here contagion exerts its force uncontrouled, until most of the inhabitants have passed through it. In fact, the small-pox, which I believe to be very contagious, may not unaptly be compared to fire ; if one or more houses in a town are burning, provided the people are able to extinguish the flames, the calamity is averted ; but if by accident the fire should begin in many places at the same time, so that the efforts to stop its progress become ineffectual, a great conflagration must necessarily ensue.

The

The small-pox, at certain periods within my own memory, has raged at Hertford, the town where I reside, and has been attended with the loss of many lives ; yet we have had no such calamity for more than ten years past. Suppose the reason of this to be asked, the answer is obvious, that it could not happen, because the general inoculations that have been practised there, have left scarce any who have not had the disease ; and this consequence will be the same, whether inoculation or the natural small-pox be the cause ; the place will remain secure from an epidemic, until a fresh race of children, or a change of inhabitants has furnished it with more subjects for the disease. And I conceive this clearly accounts for the returns that have been mistakenly called periodical, and supposed to arise from an unfavourable alteration of the air alone.

These

These reasons appear to me convincing against the opinion of self-generated epidemic small-pox, and I therefore maintain that the small-pox is a poison or (if it will please better) a disease of the contagious kind, communicated either from an atmosphere infected with the effluvia of persons sick of that distemper, or by contact with substances that retain the fomes of infection.

The first of these is probably the more usual mode of communication, which no doubt is greatly aided or retarded in its progress, by the particular state of the atmosphere and disposition of the season ; we are seldom however able to ascertain the particular time when the infection is received, or the part of the human frame that is first infected ; for notwithstanding it is a prevailing opinion that the fauces and lungs are first attacked, yet this idea does not seem confirmed by the effects produced upon the constitution.

It

It is to inoculation that we are indebted for the discovery of the subtile nature of the variolous poison, both with respect to the small proportion that is sufficient to infect, and also to the great length of time in which, when dried and preserved in a condensed state, it still retains its activity and power of reproducing the disease.

It is certainly true, that a mode of infection, somewhat similar to this practised in inoculation, will happen on other occasions by accident. For example, those who have the disease badly, will infect the clothes, furniture, and other substances which are near them; and as the poor are not sufficiently attentive to a change of raiment, nor even to the cleanliness of their furniture or persons, the consequence of their having the disease severely will necessarily be, that the apartment, and every thing which is in it, as well as the wearing apparel of those who attend on them, will remain in an infected state; and, in some distant

distant period, a person, who has not passed through the disease, may receive the infection by being *in contact* with the infected place. Still it seems probable, that the natural disease is most generally contracted from the disposition of the air, or some other unknown cause having loosened and diffused the seeds of the disease from substances impregnated with them, which thus becomes active, and consequently the small-pox may appear without the immediate cause being known.

It seems also extremely probable, that infected particles may be conveyed by the winds, into places remote from the original seat of infection, in the same manner as we observe the seeds of plants to be transported into distant parts ; or as the aromatic smell of the spice islands is distinguished by persons in ships at a considerable distance from the shore.

Another

Another objection has been made, and great stress laid on it by some writers, who say, You maintain that the small-pox is never produced without actual contagion; whence then did it first originate?

The answer to this, and to a variety of questions of the like nature, as of the venereal disease, the measles, the plague, &c. is; that the Supreme Being has, for the wisest purposes, limited human knowledge; and that after having diligently employed our best abilities to investigate the causes, we are frequently obliged to be satisfied with effects, and to desist from further enquiry, being unable to acquire perfect information on every point.

[Faint bleed-through from reverse side]

THIS opinion is so generally entertained in England, that to some it may seem unnecessary to enlarge on the subject; but as in many parts of Europe, the small-pox is thought liable to returns, and more particularly, as some very respectable authorities in this country (where it is certainly well understood) have been produced in support of this opinion; that I

may

may not appear too strongly prejudiced in favour of the contrary doctrine, I will state the reasons which induce me to continue in my former sentiments.

The true natural small-pox has been well described by many authors ; but although the particular criterion, which is understood to distinguish it from all other diseases, is the eruption which succeeds the fever, yet the most accurate description will not be sufficiently clear, because there are other eruptions so similar to the mildest kind of small-pox, that, in some cases, the most experienced may not be able to decide, by one view, in any stage of the disease, whether they are truly small-pox or not ; I shall therefore endeavour to point out the diseases most liable to be mistaken for small-pox, and the particular circumstances that require the strictest attention in all doubtful cases.

It

It may be proper to mention that the measles, and anomalous eruptions under the general name of rashes, have sometimes been considered as true small-pox; but in these the doubts are easily cleared up by a proper attention, so that no mistakes of this kind are in danger of being permanent.

But the diseases that very much resemble, and have been most frequently taken for small-pox, are swine and chicken-pox; which indeed differ from each other in scarce any circumstance, except the size of the pustules, and have been by some supposed to be the same. In fact, they are such trifling disorders, that it seems of no great importance to determine that question; however, those cases, in which either are attended with a great number of pustules, certainly resemble very much a mild kind of small-pox, and the distinguishing points which require the most attentive ob-

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servation,

ervation, may be comprized under the following heads.

First. The complaints preceding the eruption.

Secondly. The eruption at its first appearance.

Thirdly. Its progress, duration, and manner of declension.

With respect to the first; the swine and chicken-pox are commonly attended with a restlessness, and sometimes lassitude, at intervals, for about twelve hours; and these are all the symptoms which usually precede the eruption: they are seldom, if ever, accompanied with fever which deserves attention as such; nor do I recollect ever to have been called to visit a patient under these disorders, previous to the eruption; but having occasionally been in families, particularly in schools, where several children

ren have fallen ill one after another, I have had opportunities of attending to the whole progress of these disorders.

The natural small-pox, on the contrary, even when the kind is good, and the number of pustules very few, is usually preceded by a smart access of fever, of three or four days continuance, before the eruption.

The first appearance of the eruptions may indeed be very similar, but those of the natural small-pox are generally more numerous than those of the chicken-pox; and I have remarked, that the eruptions of the chicken and swine-pox are often in small clusters, more irregular in their size, and more unequally placed, than those of the true natural small-pox.

In the progress, duration, and manner of declension of the eruption, these diseases are further distinguished; the pustules of

the chicken-pox very soon have a small pellicle, filled with lymph, which grows yellow and dries away in about four days, the part becoming brown. Whereas the progress of the eruptions of the mildest kind of natural small-pox, from its first appearance to the time of full maturation, is seven days, and the pustules dry away more slowly than those of the other diseases.

It must still be allowed, that in some instances it will be extremely difficult to decide, particularly when it is considered, that where symptoms are so very trifling, persons of judgment rarely attend the whole time, if at all; and in general, as little or no medicine is thought necessary, a nurse decides the doubt; or if a gentleman in the medical line is once consulted, it frequently happens that a hasty judgment is given, and the patient is visited no more.

I am inclined to believe, that the idea of the return of the small-pox, frequently originates

ginates from mistakes of this kind, not doubting that the decision is right on the second appearance, because on such an unexpected event, the best opinions are taken to decide the point.

But how is the first illness to be cleared up? We have no other mode of enquiry, but of those who saw it at the time; some years may have elapsed; the idea formerly taken will probably remain, and the satisfaction to be obtained from this only resource will be far from sufficient to clear up a difficulty which might, even at that very time, be no easy matter.

To the arguments now offered, I can truly add, that in a practice of more than forty-six years, I have not met with a single instance of any person's having the small-pox twice. I will subjoin some very remarkable cases that have occurred.

I was desired to visit a child ill of the small-pox, where an ingenious surgeon attended, and informed me before I saw the patient, that I should find the disease so mild as to be quite free from danger ; but that it was a serious consideration what course to advise to the family, which consisted of the mistress of the house, with a child at the breast, two other children, and two maid servants, who not suspecting it to be the small-pox, had continued with the sick child. I found the pustules more numerous than I had ever seen in the chicken-pox, and about the state which is usually called the turn ; indeed they so much resembled true small-pox, that on my first seeing them, I had no suspicion to the contrary ; but upon inspecting them more minutely, there seemed an irregularity in their size, and manner of being placed, that, entertaining some doubt, I made a strict enquiry into the progress of the eruption, and was informed, there had been scarce any previous illness ; and that
from

from the first appearance it was not completely five days: I therefore gave it as my opinion, that it was not small-pox, but chicken-pox. A fresh difficulty then arose, the family being unanimous in asserting, that the chicken-pox had been very much in the village the preceding year, and that this child, amongst the rest, undoubtedly had it. Under this uncertainty the family, dreading the consequence of a mistake, determined to be inoculated, and were immediately placed under my care. They all passed through the disease effectually, but favourably; after they recovered, and before they returned to live with the child above-mentioned, I requested that I might be permitted to inoculate it, both for its security, and for the family's and my own satisfaction; this was complied with, and the child had a considerable number of true small-pox from the inoculation, accompanied with the usual symptoms.

This

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

Another Case is as follows.

In the latter part of November, 1779, I was desired to attend on a lady twenty-five years of age, and her daughter between three and four years old, both ill of the natural small-pox.

On my visit I found them very full and blind; the small-pox were confluent as to numbers, but of a mild kind.

The account I received from the gentleman was, that his lady had been informed by her parents, that an apothecary of eminence

nence had inoculated her at two years of age, and from thence she had always esteemed herself perfectly safe from the small-pox, but was unable to give any account in what manner she was supposed to have had the disease.

That his daughter had been inoculated when eight months old, by a physician in considerable practice, who had assured him of the disease having been properly and effectually passed through.

That about five weeks ago, two other of his children had been inoculated by an eminent surgeon in the neighbourhood, and had both passed through the disease satisfactorily, but favourably.

That his lady and the other child being supposed perfectly safe, had constantly lived with them, but as it now appeared, had certainly taken the small-pox from them.

It

It being impossible for me to gain any satisfactory explanation from the lady, in regard to the manner in which she had passed through the disease the first time, my enquiries were confined to what had happened to the child on its inoculation ; and I was informed that the arms became much enflamed and sore, infomuch, that they were obliged to enlarge the sleeve of one arm, and that during the illness the child had a slight fit ; that it was not remembered whether any pustules matured, but a few had appeared, which soon went off ; that the physician, upon taking the whole into consideration, had given them assurance that the disease was effectually passed through.

The difficulties being increased by this account, I enquired from whom the infection was taken, and was informed, that it was from the son of the gentleman's gardener. At my request the gardener and his son were sent for, and, on my examining

mining the man, he informed me, that about two years before, the small-pox had been very much in that neighbourhood, and that his son having had the disease in a favourable manner, had been selected for the purpose of inoculating his master's child, by the physician who performed the operation.

Thus far my enquiries rather tended to support the opinion, that the small-pox had been taken from the first inoculation. But to be perfectly satisfied, I enquired of the gardener, in what manner his son had had the disease, and was told, that he had scarce any illness; that the number of pustules was few; he could not be certain as to the number of days they kept out, but that his neighbours said, no one ever had the disease so mildly. The possibility occurred to me, that the gardener's boy might have had the chicken-pox, and not the small-pox, and that a mistake of this kind might have given rise to the present misfortune;

fortune; I requested to be permitted to inoculate the gardener's child, which would be a decisive proof whether the first illness had been the natural small-pox, or some other disease. This was consented to, and I inoculated the gardener's son from the same child, who had been formerly inoculated from him. The consequence was, that the appearance of his arm went on, previous to his illness, in the manner we usually observe in inoculation from small-pox: he had the eruptive fever at the proper time, and a considerable number of pustules, with every circumstance to prove the true small-pox to have been produced by this inoculation.

From this experiment it became clear beyond a doubt, where the mistake had been; and the physician, who conducted the former inoculation, is convinced that this was the case.

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I cannot help observing, that if the gardener's son had been dead before the sickness of the gentleman's child, the case would have remained on record as one where the natural small-pox had appeared, after the patient had passed through the disease in a satisfactory manner by inoculation.

I subjoin the gentleman's own account, in confirmation of what I have related, as also to give some light into the time which natural small-pox takes to produce the disease.

“ Mrs. R. was inoculated about twenty-
 “ three years since, at two years of age, by
 “ an apothecary in London ; her daughter
 “ was inoculated by a physician, about the
 “ middle of the year 1776, and was then eight
 “ months old ; this was performed from the
 “ son of my gardener, who has lately been
 “ inoculated for the sake of experiment,
 “ by Baron Dimfsdale, and had the disease
 “ very

“ very effectually, though favourably. Mrs.
 “ R’s two younger children were inocu-
 “ lated the 25th of October, 1779, both
 “ of whom received the distemper at the
 “ usual time in a favourable way. On the
 “ 22d of November Mrs. R. sickened, and
 “ two days afterwards her eldest daughter,
 “ each, after three or four days illness, had
 “ appearances of the small-pox, when it
 “ was thought necessary to call in the
 “ assistance of Baron Dimisdale.”

The following is another remarkable
 in support of the point in question.

I had received well authenticated information, that a general inoculation having been performed in a parish in the country, where all the patients were supposed to have taken the infection, and to have gone through the disease favourably, it happened a few years after, that the natural small-pox broke out in the same neighbourhood;

and

and these people, supposing themselves safe, went without fear into the houses where the disease raged ; that most of them fell ill of the natural small-pox, and many of them died. To be further confirmed in the veracity of this account, I lately applied to a gentleman of character, resident in the parish ; and the following is an extract from his letter.

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

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“ inocu-

“ inoculation was taken from a subject
“ having the chicken-pox.”

The following case, which I lately attended, is also in point on the present subject, and the account of the early part of the disease I received from an experienced and sensible apothecary, who attended the family.

“ The child had been two days indis-
“ posed with a diarrhæa, accompanied with
“ lassitude. On Saturday in the afternoon
“ he was seized with a regular fit of fever,
“ which continued the following day, and
“ in the night following, his sleep was
“ disturbed with frequent startings; on
“ the Monday the fever was more mode-
“ rate; on the Tuesday morning some
“ eruptions were perceived, though but
“ little regarded; but on the Thursday they
“ were considerably elevated, and much
“ resembled small-pox; they continued to
advance

“ advance until Saturday, the greatest num-
 “ ber being on the face, arms, and loins ;
 “ some began to dry, but in general they
 “ were so advanced, that every casual vi-
 “ sitor pronounced them to be small-pox.
 “ At this time an eminent physician was
 “ called in, who, being in doubt whether
 “ it was real small-pox, recommended that
 “ inoculation should be performed with
 “ the matter, to determine clearly the
 “ point. This was complied with. On
 “ the Saturday, another child in the same
 “ family was inoculated with some white
 “ viscid matter, taken from a pustule.
 “ The effect was, that the inoculated arm
 “ shewed signs of having received the in-
 “ fection, though rather later than is usual
 “ from small-pox ; and after a slight in-
 “ disposition, an eruption appeared simi-
 “ lar to the former, but not so numerous.
 “ On the following day, which was the
 “ 11th from the inoculation, Baron Dimf-
 “ dale was desired to visit the patient.”

Both the patients were shewn me; on the first, the pustules were in many parts, even then, moist; they appeared small in size, perfectly distinct, but more numerous, especially in the parts above-mentioned, than I had ever seen in chicken-pox. The place of insertion on the inoculated child was inflamed, and had some matter in it; the eruption was evidently of the same kind as that from whence it had been taken, and such as rendered a determination extremely difficult; however, taking all the circumstances into consideration, I gave it as my opinion that the disease was a spurious kind of pock, and proposed inoculating these children from real small-pox, to determine the point; this was consented to, and the event was, that a mild, but satisfactory eruption of small-pox was produced from the inoculation; and, as a further confirmation, a third child was shewn me at the time when I inoculated the first with real small-pox matter, who, in consequence of having cohabited

cohabited with the other two, caught the same distemper, and had also, after a slight fever, eruptions of the same kind.

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

It may be further observed, that in England, where this disorder has been more particularly attended to than in any other country, it is seldom reported to be received twice.

From what has been offered, I hope to stand excused in retaining my former opinion on this point, with the following limitation. I do not insist that it is a law of nature, that the small-pox never shall return a second time; nor would I abso-

lutely reject the authorities of very respectable persons, who have given cases where they think it has occurred ; but, in deference to them, I am willing to suppose, that as we know some are so constitutionally framed, as never to be subject to receive the disease, it may possibly happen that a very few may be liable to a second infection ; instances of this kind, if any, are, however, certainly very rare, and I never met with one in my own practice, but have enquired accurately into several that have been esteemed such by others, of which some remarkable instances have been just mentioned, where the mistakes were discovered by an attentive enquiry. It is further a well established truth, that the mildest kind of natural small-pox, which is accompanied with very little illness, and the eruption of which is scarce sufficient to indicate its being really the disease ; and the malignant confluent sort, which is attended with the most imminent danger, are still the same distemper, and the one renders
the

the patient as secure from a second attack as the other.

Experience has often shewn this to be equally true, respecting the inoculated disease ; for although sometimes patients under inoculation pass through the illness in a manner that differs materially from natural small-pox ; yet where the infection appears to have succeeded satisfactorily on the punctured part of the arm, although no eruption should be discovered in consequence of it, the party will never receive the disease in future. Not that I ever did recommend any one to rest assured of this, and neglect all future attempts to confirm his security ; on the contrary, although my whole experience convinces me of the truth of the assertion, wherever the event of once inoculating has appeared in the least doubtful to others, I have not only prevailed on my patient to a second, and often to a third, inoculation from fluid matter ; but have requested that he might

fee, and be permitted to touch persons in an infectious state of the natural disease; and every experiment of this kind has been made, without a single instance of any disease being produced; and I earnestly recommend the same method to every one, not only as a necessary satisfaction to the patient, but also to render the practice perfectly free from the charge of being insecure, as it respects a return of the distemper.

I have briefly insisted on these particulars here; a more circumstantial account, and cases in point, will be found in a former publication.*

It will probably be expected, that I should point out the particular criteria discoverable in the inoculated part, in the mildest kind of disease, which give affu-

* The present method of inoculating for the small-pox, in the chapter of anomalous appearances, page 42, and cases at the end of the book,

rance that it has so effectually taken place, as to secure the patient from any future attack.

Those who have been much employed in the practice, I am fully persuaded, know, as well as myself, that there is a certain particular appearance produced on the arm by the infection of the variolous poison, which differs from all others. Although it may be as difficult to convey a clear idea of this difference in writing, as to define, with precision, the eruption of the natural small-pox on its first appearance, which cannot be described so accurately, as to enable a person, unacquainted with the distemper, to decide with certainty upon it.

This material point I have already discussed with some care, and refer the reader to the chapter on the progress of infection in my former publication.*

* The present method of inoculating, &c. page 30.

I have

I have only to add, that inoculators, even at this time, have different methods of communicating the infection. In the use of incision the event may be obscure. But if inoculation be performed by a slight puncture, and with fluid matter, the progress is usually this; after two, three, or four days, a small redness of a particular colour may be distinguished, which gradually rises to a pimple, resembling the small-pox in its first appearance; this fills with a pellucid fluid about the time of the commencement of the eruptive symptoms, and the inflammation increases very fast during the fever.

Now when this gradual progress is observed to take place, I maintain, that although it be unattended with fever, or derangement of health, and not followed by any eruption, the person will, during the remainder of his life, be secure from receiving the disease. I am emboldened to speak in this positive manner, from having
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made repeated trials to infect such patients again, and in every instance ineffectually; but I would not be understood to insist on this in contradiction to what other practitioners may have experienced, if any such there be. And it may be proper in this place to remark, that, in my treatise *On the present Method of Inoculating, &c.**

“ I have asserted, 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 at the crisis, with equal success; I chuse however, in general, to take matter for infection during the fever of erup-

* See page 27.

“ tion,

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

I should not have said any thing on this subject at present, had I not thought it necessary to take notice of a late publication which militates strongly against my position. The respectability of the author,* and the importance of the question merit attention. He says, that from some remarkable instances, which he has seen himself, he has reason to believe that a fluid taken from the inoculated arm, previous to the eruptive fever, is a very uncertain method of infecting, and therefore, a hazardous refinement of the operation; and gives the following instances as decisive on the question.

Five surgeons at Plymouth inoculated 40 patients, 30 of whom were inoculated with crude matter, taken from the arm of a

* Mudge on the Inoculated Small-Pox, vide from
 p. 17 to 23.

woman

woman five days after she herself had been inoculated with concocted matter, which did eventually produce in her a smart fever, and a sufficient number of eruptions.

The other ten were inoculated with concocted matter, taken from a pustule of natural small-pox. The arms of all the forty took the infection; the latter ten, after the eruptive fever, had the small-pox in the usual way. The infection took place in the other thirty, so as to inflame the arms considerably, and to produce a very large prominent pustule with matter in it on each of them; yet not one had any eruptive fever, or a simple subsequent eruption on any part of the body; but about the eighth, in some the ninth, and in others the tenth day, the inflammation began to disappear; and on about the twelfth or thirteenth, the pustules on their arms scabbed off. It is added, that the matter which was in those pustules, having been used to inoculate others, produced on them exactly the same appear-

appearance, unattended also with either fever or small-pox; the thirty, not being esteemed secure, were inoculated again from concocted matter, and the result was, that every one of them had the eruptive fever and succeeding eruptions; in short, they had the small-pox in different degrees, but all in the usual way of inoculated patients.

Now, considering these cases to have been as related, it appears satisfactory, to my judgment, that the failures have arisen from too precipitately forming an opinion, that an inflammation, and a sore with matter on the punctured part, would certainly convey the disease, without considering so accurately as was necessary, whether such inflammation and sore were truly of a variolous nature, which in the present instance, I think, was not the case, and consequently the inoculation of the thirty patients having been performed from a discharge not impregnated with the variolous poison, the small-pox could not be produced; and a
second

second experiment from the discharge of one of the thirty would undoubtedly have had a similar effect.

To elucidate this point, I must beg leave to insist, that, an inflammation and pustule with matter on the inoculated part, in consequence of inoculation, is no proof of variolous infection, unless accompanied with the usual gradual progress and specific appearance that so accurately distinguishes the infection of this species of poison from all others. It is true, that chicken or swine-pox, and measles, have been conveyed by inoculation, and occasioned inflammation and a sore on the arm; and, I doubt not, but that other cutaneous diseases may be propagated in the same manner, although no man would, for his own information, be justified in making the experiment. Let it also be taken into consideration, that persons of a particular bad habit of body have suffered very great, and sometimes very dangerous inflammations from very slight punctures,
instances

instances of which are well known to have frequently happened.

Fortunately the great number of patients inoculated from one subject assists to remove every doubt; for in the course of my own experience, and I appeal to that of others, not a single instance has happened, to the best of my recollection, where I could have inoculated four persons from the arm of any one patient on the fifth day; although once, and only once in my life (a singular fact, which I thought worth recording) I did succeed in procuring sufficient infection for one so early as the fourth day: and, indeed, it is very unusual that a fluid for the purpose of infection of a single person can be taken from the arm of one inoculated so early as the fifth day, although on the eighth, ninth, and tenth it is common.

Had I seen an inflammation and discharge sufficient to inoculate thirty persons so early as the fifth day, I should have been induced

induced to suppose that some constitutional indisposition had occasioned so remarkable an appearance, and of course that the matter was unfit for the use of conveying the small-pox; and I am further confirmed in this opinion by recollecting some cases* that happened to myself, among the first that were inoculated at St. Petersburg: they were of young gentlemen from the Cadet corps, who had been directed to be inoculated under the supposition that they had not before passed through the disease: in these the inflammation immediately followed the inoculation, and a pustule appeared on the inoculated part, which filled with concocted matter much earlier than ought to happen in the usual course; and although at that time I wanted matter to continue the practice of inoculation, I did not approve of making use of this, from the irregularity of the progress. The result was, that the young gentlemen had no

* See Chap. I.

disease, and the sores soon scabbed and dried off. They were inoculated again without effect, and on enquiry I had reason to believe that they had had the small-pox before. Now, in these instances, the part inflamed very much, although it was not accompanied with the characteristic that denotes true variolous infection.

Other cases of unusual early inflammation I have seen, but cannot recollect circumstances with sufficient precision to relate them. I never however attempted to make use of matter, *by way of experiment*, from such irregular cases.

The doubt whether inoculation might be effectually performed from matter in a crude state, I thought deserved the foregoing particular discussion, and have only to add, that provided there has been due care to take infection from true small-pox, and the progress in consequence of it, in the inoculated

lated person, has been agreeable to what is usually observed in inoculated patients, and such as I have described above, no doubt remains with me, but that the crude matter will be equally efficacious with that which has been more concocted.

And further, if the inoculation be performed with fluid matter, the infection will certainly take place without being liable to miscarriage from any fancied difference either of the air, or constitutional disposition of the recipient: for, although I have allowed, and do believe, that in certain states of the atmosphere,* diseases may be more easily propagated than in others; and from the obscurity of the manner in which infection fixes itself in the natural way, it may, and indeed does, sometimes happen, that persons exposed to great danger, escape being infected; yet where the real active virus is introduced into the ha-

* See chapter III.

bit by inoculation, no constitution of the air, or the body, can resist its operation; and this I esteem a most important recommendation of the manner of inoculation I have described; for whether fluid matter taken from the diseased, be immediately used, or matter taken recently and dried, but rendered moist by holding over the steam of warm water, or even diluted, if necessary, with a small proportion of warm water, the effect will be the same.

But I have observed this last method has been rather slower in producing the disease, and doubtless the dilution ought to be with a very small proportion of water, lest there should be danger of the infecting matter being rendered inactive, which possibly might be the consequence, though I never experienced an instance of it.

I beg leave to observe, that I do not mean to insist, that the small-pox has always been produced by the inoculation,
but

but that where it has once failed, no repeated attempts to infect by inoculation, or by exposure to natural small-pox, have succeeded, and the patient will remain secure from the disease.

In some general inoculations of poor persons, where several have resided together, and where, if the inoculation had failed, their lives might have been in danger from the natural disease, in a very few instances the infection has not appeared sufficiently evident after four or five days; in such cases, I have for security inoculated them again; but, to the best of my recollection, in every such instance, the prior inoculation has come forward, and has succeeded, having only been later than is usual; nor has the double infection seemed to be in the least injurious to the patients.

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C H A P. V.

O B S E R V A T I O N S

T O P R O V E

That some Persons pass through Life, without appearing to be capable of receiving the Small-Pox.

THAT every person is liable to receive the small-pox once, has been a generally received opinion; but as some persons have passed through a long life without taking the disease, although frequently in the way of infection; and as others have been repeatedly inoculated, and afterwards intentionally exposed to the worst kind of natural small-pox, without

any appearance of disease being produced ; the conclusion will be warranted, that some are so constitutionally framed, as not to be subject to this distemper in any degree : although I must acknowledge, the strictest observations have not enabled me to form the least previous judgment, respecting the probability of individuals receiving it favourably, or unfavourably, or of their escaping it altogether.

In support of this position, I shall not produce instances of adults, upon whom repeated inoculations have had no effect ; for to such it may be answered, that they probably have passed through the disease in some early period of their lives, in a manner too favourable to have been observed ; nor shall I depend on the cases of many who have been inoculated, with no other appearance than one small pustule on the part which was infected, because, if the appearance were truly variolous, they have passed through the disease regularly, though

though slightly, and no similar appearance can ever be produced again by repeated inoculations.

But the evidence I shall rely on will be cases of infants, who, being inoculated, have not shewn the least signs of receiving variolous infection on the part of insertion, have had no illness in consequence of it, nor could be made to receive the disease by a second or third inoculation, or by cohabiting with others who were ill of the natural small-pox.

At a general inoculation at Little Berkhamstead, which I conducted, with the assistance of my worthy and learned friend, Dr. Ingenhouz, a child in the earliest state of infancy, inoculated with several others in the same cottage, shewed no appearance of having received the infection, and was therefore inoculated again, and lived with others under the disease in the
same

same apartment, without shewing the least sign of being indisposed.

A second instance was a child of a gentleman of distinction at Petersburg, where several were inoculated in one family, who lived in the same apartment. On one infant the inoculated part shewed not the least sign of being infected, and on that account it was inoculated again, yet neither did this succeed, and the child continued perfectly well, although living with the rest. On my return from Mosco, some months after, I was permitted to inoculate the child a third time, and the event was the same as before.

The third case is still more remarkable.

I was desired to visit a child in London, far advanced in a bad confluent small-pox, and was informed by the mother that, a few days before, she had lost an elder child of the same disease. She had, at the same
time,

time, a third at her breast, a fine healthy child; they inhabited one apartment, which was rendered extremely offensive from the stench occasioned by the malignity of the distemper, and the mother was employed the whole day in carrying the sick child in her arms, or taking the infant to nurse and suckle. The anxiety of the father and mother was great, and I was requested to give the little one a chance by inoculation, upon my assuring them, that such a measure would not be injurious to it, if the natural disease took place. I inoculated it with little hopes of success from the experiment, as the child might reasonably be expected to fall ill every hour. Not the least infection however appeared on its arms, although inoculated from the virulent matter of the other child, who died soon after; nor did it shew the least signs of indisposition, although strictly attended to every day. This happened at Christmas, and, in the May following, I called again to enquire after the child, whom

whom I found in perfect health, and was assured that he had not had any illness. I now proposed to the parents to take the child to a patient, who was then full of natural small-pox, and near the crisis; this was done, the child was inoculated again from fluid matter, and made to touch the sick person, and this experiment, similar to the former, produced no illness, nor appearance of infection.

More instances to confirm this opinion might be produced, but I trust these will be sufficient to give satisfaction on a point that I know is allowed by many, though disbelieved by some.

C H A P. VI.

O B S E R V A T I O N S

T O P R O V E

That though a Person has been exposed to the natural Small-Pox, if he is inoculated in Time, the Inoculation will supersede the natural Disease.

I H A V E already observed that, among the various changes in the practice of inoculation, that which has taken place in the mode of infection, is very material. I remember the time when the inoculator thought it necessary to use every precaution that could be suggested, to prevent the
supposed

supposed danger of communicating the natural disease. The patient's head was turned aside, a handkerchief sprinkled with spirits of lavender-water, or some volatile spirit, was held to the nose, and the inoculator was as expeditious as possible in performing the operation, making afterwards a precipitate retreat, as if he were an assassin. Time and experience have however at length convinced us, that all these precautions are needless, and we now make no scruple to bring the person, who is to be inoculated, into the presence of the person from whom the matter is to be taken ; and even, if it should be more convenient for the former to reside in an infected apartment, it is permitted, from a moral certainty that after the infection has been communicated by inoculation, it will infallibly produce the disease, and no accumulation, or other bad consequence, will arise from such residence. I am aware, however, that this practice will still be objected to by many as rash and dangerous.

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This therefore leads me to mention an important and interesting discovery, which is, that though a person, who has never had the small-pox, has continued to reside in an infected apartment so long, and with such communication with the sick, that there must be the highest probability of the infection being taken, yet, even under these alarming circumstances, if inoculation is performed, he shall have the distemper from the inoculation only, with every advantage arising from it; and the natural infection shall be, as it were, superseded. I may truly call this an interesting discovery, because formerly it was a custom, whenever it unfortunately happened, that the disease was not distinguished in time, or that any one had, by accident, resided some days in an infected apartment, to use every means that prudence could suggest to prepare the patient by medicines and regimen, and wait the approach of the natural disease; and I am sorry to say, that the best regulations have not succeeded

ceeded in producing a mild distemper, equal to the plausibility of the attempt. I do not assert that inoculation will succeed in this manner, when the natural infection has been so long taken, as to be ready to shew itself by the eruptive symptoms; for, in that case, I have no doubt of its being too late; nor can I pretend to fix the precise time at which it will succeed; for the absolute moment when the natural disease infects the habit cannot certainly be known.

The manner of acquiring the knowledge of this fact has been gradual, as chance has thrown instances of it in my way, and experience has since confirmed it.

When the natural small-pox has appeared in a family, and it has been probable, from circumstances, that some persons of the family who had not passed through the disease, had not yet taken the infection, it has been the general practice, to persuade
them

them to submit to inoculation, which has, in my experience, as well as in that of others, as far as has come to my knowledge, always been attended with success. I have even encouraged some, who seemed to be in great danger of *having received* the natural infection, to try the effect of inoculation, from a persuasion that inoculation, in case it did not anticipate the natural distemper, could not tend to accumulate the disease, or to produce a more malignant species of it. This practice has been justified by success in every instance that I have known.

If it should be asked by what criterion it is to be known whether the inoculation has anticipated the natural disease ; the answer will be, that where the inoculated part shews the proper signs of being infected, and the eruptive fever commences at the time usually observed in inoculated patients, then the disease may be fairly supposed to have proceeded from inoculation ; on the contrary, when the natural

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disease

disease is too far advanced to be anticipated, the inoculated part shews no appearance of being infected, and the disease appears earlier than it would have done from inoculation.*

I have already observed that to fix the precise time at which one who lives in a house where the small-pox actually exists, shall take the infection, is certainly impossible; but where there has been a residence in the same apartment for a considerable time, and a free intercourse with the sick, in an advanced state of a bad disease, the infection, in all probability, must have been taken.

I have inoculated persons who have been four or five days, and sometimes longer,

* I have never had a patient who was inoculated on a supposition of having previously received the natural infection, in whom the natural disease was not superseded by the inoculation; but I have several times had patients, who, being inoculated without any suspicion of this kind, fell ill of the natural disease two or three days after.

thus

thus situated, with every satisfactory appearance of their receiving the disease from the inoculation.

The rashness of inconsiderate persons has very much assisted and confirmed this discovery. For at the time when an eagerness for inoculation prevailed in the neighbourhood of Hertford, and a great number were under my care in one house, I have frequently found some who have employed the interval of their waiting to be inoculated, in conversing with the sick in their apartments for two or three hours. At first I remonstrated strongly against this conduct, not without some fear for my reputation, but more particularly for the lives of the patients, but the practice was still continued; and once, to my great surprise, on a morning visit, I found a person who came the preceding night, who told me, laughing, that he was sure I would not refuse to inoculate him, for he had slept with an acquaintance ill of the small-

pox in the house. In this instance, and in others almost as strong, the parties were inoculated without seeming to have received the least injury from their indiscretion. To these I shall add some remarkable cases out of a very great number, to the same purport.

An old man continued to lie in the same bed with his wife and child, when his wife was ill of the natural small-pox, until, as he said, she was so sore that she could not bear him to lie near her. She was at that time supposed to have had a fever, and to have been much relieved by the coming out of a rash, not suspected to be small-pox; but an apothecary being sent for, declared it to be that disease, and nearly at the height. Upon this discovery, the old man, the child, and a young woman who had attended on the sick person, desired to take the chance of inoculation: it was accordingly performed, and they all had the disease in consequence of it, with the favourable

favourable appearances that usually attend that mode of passing through the distemper.

In a village near Hertford, a boy who had been at service was sent home to his friends ill of a fever, which terminated in an eruption. The father, being very poor, did not apply for medical assistance until the boy was blind and delirious; in which state I found him, very full of a malignant kind of small-pox, with his sister, a healthy girl of about seventeen, who had never had the distemper, in the same bed to take care of him. The family consisted of the father, mother, and four more children, not one of whom had had the disease. In this unfortunate situation I recommended inoculation, and the proposal was accepted for all the children. The father and mother rather chose to remove; the man alledging, that going out early to work, returning home late, and not having been near the boy, he thought he was

not infected, and the woman chose to accompany her husband. Those who were inoculated remained in the house, and continued to have constant intercourse with the boy, the sister constantly attending on him as nurse: the event was, that the boy died of the secondary fever, after a very long illness, and became so very putrid and offensive, that the room was scarcely tolerable during the short time of a visit; but those who were inoculated had the small-pox from the inoculation in a favourable manner. Of the two who removed, the old man continued well, and escaped the disease, but his wife fell ill of the natural small-pox, several days later than those who had been inoculated, passed through the distemper severely, and lost one eye.

A third case is still, if possible, stronger. When I was at St. Petersburg, engaged in the important employment of inoculating the Empress and Grand Duke, Count Scheel

Scheel, then resident minister from the court of Denmark, and one of his children became my patients; I at that time declined inoculating another child, which did not appear to me in perfect health. During the time that his Excellency was under inoculation, his Countess was brought to bed of two sons; and as he had a sufficient number of pustules to render it dangerous for him to visit her on account of the children, he was apprized of it; however, about a month after, I was called upon to visit one of the twins, whom I found full of bad small-pox, advancing to maturation. The family had supposed this eruption to have been only one of the kinds that infants are subject to. The other child was at that time lying in the same cradle with its brother, and both having been suckled by one woman, I enquired of her whether it had been her custom to devote one breast to one, and the other to the other, or to suckle both from the same nipple;

and was answered, that she made no difference, and that both the children had sucked from the same nipple that very morning. Under these circumstances no doubt could remain of the other child's having taken the infection; and there was great reason to suppose, that the child who had been objected to on account of ill health, was also infected, as she lived in the same apartment. Thus circumstanced, notwithstanding it was esteemed a hazardous experiment, I was desired to inoculate both the others. Although I should readily have consented to it in England, I could not avoid expressing some reluctance, lest a prejudice should be formed against the practice, in a country where the introduction of inoculation was so newly attempted, in case of a failure of success. But the importunity of the Count, and the tears of the Countess, who earnestly intreated me not to put the lives of her children in competition with the reputation of the practice, together with
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the hopes I entertained of success, induced me to comply. And as no time was to be lost, I instantly inoculated both children from that which had the natural disease : a sufficient proof of the infectious state it was in.

The result was, that the infant who had it in the natural way, died the next day, and both those, who were inoculated, had the disease mildly, with the usual symptoms attending inoculation.

The probable cause of this singular circumstance is, that the natural and inoculated diseases take place after different periods of infection ; for we know the inoculated patients usually begin to complain on the 8th, 9th, or sometimes indeed on the 10th day, except in some few instances ; and although the exact time of receiving the natural infection is unknown, yet from accounts well authenticated, which I have had from others, and from my own experience, I am inclined to think, that from

13 to 20 days, or more, usually intervene before the commencement of the eruptive fever.

All writers on the subject assert, that in whatever manner inoculation may be performed, it sometimes fails to infect. And I allow it to have happened so in my own practice several times in the old manner; but I deny that it does so at present, and, on the contrary, maintain, that if the method I have directed be accurately followed, the success will be infallible. By which I would not be understood to mean that the disease shall always be produced, because in some instances, as has been already observed, persons are incapable of receiving the infection; but I insist, that if no infection appears to have been taken on the first trial, no future inoculation will succeed, nor will the party be ever subject to receive the natural disease. The uninterrupted experience of many years, in a very great number of patients, emboldens me
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to make this positive assertion, for the truth of which, if necessary, I appeal to them. This fact at once destroys every idea of their being certain dispositions of seasons, or constitutional particularities at certain times, which will resist the power of infection. But let it be observed, that I am now speaking of the inoculated disease only; for I would not be understood to affirm, that all times and seasons are alike disposed to favour the propagation of the infection in the natural way, being of the contrary opinion.

The success of the operation must depend on the mode of performing it; and that the new mode should be more successful than the old one, will appear mysterious, as in the old way, though failures were frequent, it was the custom to use a much greater quantity of matter, and to make a large wound for the insertion; whereas, at present, the smallest moisture on the point of a lancet, is sufficient for
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the purpose, and the puncture is so trifling as seldom to make any blood appear; the inoculation being not unfrequently performed on children in their sleep, without waking them. But it must be remarked, that in the old way, the matter inserted was dry, had often been kept on a thread a long time, and, immediately after the operation, some lint, with digestive ointment, was applied to the wound, a plaister was put over it, and the dressing was renewed every day; whereas, in the present method, the matter is generally fresh, or if a few days old, and dry, it is moistened by steam, or with a little warm water just sufficient for the purpose of dilution. Now I apprehend, that the dry matter could not be immediately, or readily, imbibed, so as to infect, until it was liquified, and that the use of the unctuous applications must have sheathed or obtunded the activity of the variolous poison; some of which might perhaps also adhere to the plaister, which was removed the day after
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the operation : and I am also in doubt, whether the variolous matter, which formerly was placed in the cellular membrane when the wound was made quite through the skin, might not be sometimes rendered inactive by the unctuous part of that membrane. Whether these explanations may be satisfactory or not, the fact is true, and these are the best reasons I am able to adduce for this very essential difference between the two methods.

Dr. Archer, who for many years has been physician to the hospital for inoculation at Pancras, and to that for receiving patients actually seized with the small-pox in Cold-Bath-Fields, and has with great assiduity attended the patients under his care, has informed me, that it not unfrequently happens, that persons are brought to the latter hospital, and admitted in his absence as patients on whom the small-pox is supposed to be already appearing. Upon examination, he has found the eruptions

tions to be of some other kind; but compassion to such patients, brought into a house loaded with infection, has induced him to permit them to reside there, until the real disease appears; and the doctor assures me, that patients, thus circumstanced, almost constantly have the small-pox in a very favourable manner. I am of opinion that such patients very often receive the disease by the cutaneous absorbents from contact, as the beds and bedding, and indeed every part of the furniture of that hospital, are certainly in a high state of infection, and that this is the most probable reason why the small-pox, in such patients, is almost universally of a mild distinct kind; the infection by contact, as well as by inoculation, being quicker, as I apprehend, in its operation, and therefore superseding the progress of infection taken in any other manner.

C H A P. VII.

C O N J E C T U R E S,
O N T H E

Probable Causes of the different
Kinds and Degrees of natural
Small-pox, and on the different
Success of the Methods adopted
in the Practice of Inoculation.

IN the course of treating the above subjects, some recapitulations cannot perhaps well be avoided, in order to render the reasoning more intelligible, which the reader is therefore requested to excuse.

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In endeavouring to investigate the causes of the mildness of the small-pox in some cases, and of its great malignity in others, the first circumstances that offer for consideration, are the habit of body, and mode of living of the parties; as many of the favourable, or unfavourable symptoms of the disease might be expected to proceed from these sources. But, after strict attention, little satisfaction will be collected from them. Men in high health, who have been accustomed to take great liberties with their constitution, by indulgence in eating and drinking, and in general by a luxurious and irregular mode of life, might be expected to have this disease almost universally in a severe manner; and on the contrary, children in early infancy, whose only nutriment has been the mother's milk, or very innocent vegetable food, and young persons of apparent good constitutions and temperate lives, particularly females, who, from education, and attention to personal beauty, live so abstemiously, as
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to be in what may be termed a perfect state of preparation, might reasonably be expected to have the small-pox very favourably; yet, notwithstanding these plausible appearances, it not unfrequently happens, that persons of the first mentioned class pass through the disease favourably, while those of the latter suffer extremely, and even become victims to its malignity.

It may be further observed, that no preparation, either by medicine or regimen, has as yet been found effectual in producing a favourable kind of small-pox in those who, having been unhappily exposed to natural infection, submit to such regulations as are judged most proper, and determine to wait the event. It is undoubtedly true, that a good constitution, and a regular course of life, are advantages upon the attack of any illness, but little dependance can be had on them, in respect to their producing a mild kind of the natural small-pox.

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I shall therefore pursue the enquiry, by adverting to other circumstances, remarking first, that not any two of the human species are exactly alike, either in the features and shape of the body, or in the faculties of the mind, and that similar causes produce very different effects in different persons; thus the sting of a bee, wasp, or other insect, occasions great pain, considerable swelling, and even sickness, in some, while others suffer no inconvenience from them. A slight superficial injury of the skin, in particular habits, produces pain, ulceration, and even danger of life. So likewise with respect to the operation of medicines, we find very different effects in different constitutions from opiates, mercurials, antimonials, and in short from every active drug. The skin of some is so particularly irritable, that a slight tickling produces involuntary laughter, while others bear it without emotion. Hence it is not improbable, that the distinguished fortitude of many, upon the most trying occasions,

sions, and even their patience in suffering bodily pain, may depend, at least in some degree, on their sensations being less exquisite than those of others.

Many circumstances will undoubtedly occur to the reader in support of this idea, that the variety of constitutional particularities can only be accounted for from an original difference in the conformation of the corporeal parts, inexplicable by the limited extent of human observation or reasoning. I accordingly suppose that some are, from their first existence, so constitutionally formed, as to be disposed to receive the small-pox in a milder, or more violent degree: and this seems confirmed by a well established truth, that some families are remarked to have this disease in a very dangerous manner. The same observation is even extended to particular nations. Among the Calmucks, and some other Tartars, it is said to be generally fatal: Negroes and Indians are also reported to suffer ex-

tremely by it; and the Hottentots to have been at times almost extirpated. Other instances in proof of the same position might be added.

The second circumstance which seems of importance, is, that when the small-pox has been epidemic, at some seasons a good, and at others a bad kind, has been observed to prevail; from whatever cause this difference may arise, it must have great influence on the pre-disposition just mentioned.

A judicious or improper treatment of the fever, in the early part of the disease, does also considerably contribute to the quantity and kind of the eruption which succeeds. To these may be added another, and indeed, I believe a principal cause of a good or bad kind of small-pox, and that is, the mode of receiving the infection, and the nature of the parts which are affected by it. When the disease is taken
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by contact with infectious substances, or by any other mode of cutaneous absorption, which may probably be often the case; the person receiving it may be considered as virtually inoculated, so far as relates to receiving the disease by the cutaneous absorbents, which I shall, in the sequel, endeavour to shew, is one chief reason for the mildness of the distemper by inoculation; and, in order to be the more perfectly understood, I must request the reader's attention to a few general remarks on the properties and effects of different poisons, without meaning, however, to enter minutely into a subject so extensive.

Some of these are known to prove mortal when taken by the mouth, and yet may be applied to the skin, when wounded, without injury. Some, on the contrary, occasion almost instant death, when inserted by a slight puncture, but may be safely swallowed; while others are fatal by whatever means they enter the constitution.

tution. Some exert their baneful influence instantaneously; others lurk a considerable time in the habit unperceived, until they seem to have gathered sufficient strength and activity to diffuse their mischief over the whole frame.* It has also been observed, that some have not occasioned any local disease, when applied to the skin or muscles by a wound, while others injure the part first affected violently: yet both shall be productive of fatal effects on the body. Several experiments of the learned and accurate Abbé Fontana, to whom the publick are indebted for much useful information, prove some of these facts, || and particularly, that the American poison called Ticunas, when applied to the skin, proved uncertain in its effect, but was certainly mortal to every animal when the muscle was pierced, and occasioned instant death on being *introduced into the blood*.

* Of this kind is the poison of the mad dog and the small-pox.

|| Vide Philosoph. Transact. Vol. LXX.

Having given this specimen of the variety of effects produced by different poisons, it will not be required that I should prove the small-pox to agree exactly with any one of them. It seems indeed a poison *sui generis*, yet similar in some respects to some or other of those just mentioned.

As I concur in opinion with those who suppose the poison of the small-pox, in inoculated patients, to be absorbed by the cutaneous lymphatics, and by them to be conveyed into the blood, it will be necessary to say something concerning those vessels and their use, that the reader may have before him the whole of my reasoning on the present point.

Great and very useful discoveries have been made by modern anatomists, in tracing the course, and explaining the offices, of this system of vessels; but it will be sufficient for my present purpose, to ob-

serve, that they are distributed on the surface of the body, and open into its different cavities, absorbing noxious or salutary fluids, and even sometimes solids; passing generally through one or more glands, but not universally, having been sometimes observed to approach without entering them, anastomosing with others, and finally emptying themselves into the Thoracic Duct, and thence into the blood.

The practice of inoculation has clearly demonstrated some circumstances unknown before, and a diligent attention to the progress of the inoculated disease, will considerably illustrate the difficult subject I am now treating.

By the insertion of some of the poison, we first observe a local injury, which gradually inflames and produces a pustule, similar to the species from which it was taken; this fills with a pellucid fluid, and
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the skin is slightly ulcerated ; * at this period absorption begins, as we are well assured by a common, though not constant complaint of pain and foreness in the lymphatic gland in the axilla. From thence the blood becomes infected, and the eruptive fever, as it is termed, begins ; as this advances, the foreness under the arm, if such has happened, abates, and at the time of the eruption ceases, as does also the fever itself in distinct kinds. No other consequent complaints happen, unless what may be owing to the irritation on the filling of the pustules, which, where the number is few, is generally scarce observable.

The reader is desired to advert to what has been advanced respecting the lymphatic system and its offices, poisons and their effects, and the progress of variolous

* The ingenious Mr. John Hunter has proved, that absorption is best performed from ulcerated surfaces ; badly from inflamed ones.

infection in inoculated patients, and then consider whether the following inference seems just. That when the small-pox is received in the manner related, the quantity of poison generated is small, the organs first affected are not of the vital kind, and in them, it is probable, part of the virulence may be exhausted ; that the poison, when received into the blood, has already gone through that modification which is necessary to produce the disease, and that the combination of these circumstances causes a more favourable distemper.

As a further support of this opinion, I refer to what has been before observed in the experience of Dr. Archer ; because in apartments so perfectly impregnated with infection as an hospital for the reception of persons under the natural disease must at all times necessarily be, it appears extremely probable that those who are admitted as patients having the natural-pox, but who in reality have some other disease, take

take the infection almost immediately by both modes ; and as it agrees with my experience, that receiving the infection by the cutaneous absorbents, occasions an earlier disease than the other mode, it shews a very probable reason why patients, so circumstanced, should escape more favourably.

Thus far I am not without hopes, that what has been advanced may appear reasonable, but the remaining part, in which I propose to take into consideration, why some have the distemper in a very dangerous manner, will be attended with great difficulty, because no one is sensible of the stroke of infection, nor does any derangement of health inform us where the poison is concealed in the habit. Under these disadvantages, I shall risk the conjectures that seem to me most probable, desiring the reader to bear in mind what has been advanced, as the reason for the mildness of the distemper, when received

ceived by the cutaneous absorbents, and presuming, that in the instance before us, as well as in most others that will admit of investigation, there is an uniformity in the operations of nature.

I shall suppose, that in bad cases of the small-pox, a greater quantity of the infection has been received internally, either into the blood immediately, or from parts that have a near communication with it, from whence an universal and dangerous disease is produced. I do not pretend to be able to determine which these parts are, with any degree of precision; but there seems a great probability that infected air passing into the lungs, and the blood becoming infected thereby, or some parts nearly communicating with the blood, may be the means of occasioning this dangerous situation, although no local injury be known, which I believe has never been discovered under any mode of receiving the infection, unless a wound, puncture,
or

or considerable irritation has been made to convey the disease. In support of this opinion, I shall remark, that in all bad kinds of small-pox, the blood is certainly infected and contaminated, even in a greater degree than in any other distemper. This may be proved from the violence of the feverish symptoms, during the eruptive state, and the succeeding universal eruption in bad confluent kinds, but still more apparently in the bleeding sort, where the texture of the whole mass of blood is destroyed, and rendered unfit even for circulation, as may be proved by the capillary vessels bursting, the secretions becoming sanguinary, and petechial spots appearing on the skin; preludes to certain death.

Dissections of bodies dead of bad kinds of small-pox, have never been attempted; perhaps they might be dangerous to the operator, but I have reason to think that, in bad confluent kinds, the internal parts would be found loaded with pustules, because

cause I remember being present at the opening the body of a boy, who had recovered from being cut for the stone, but died in St. Thomas's Hospital of a confluent small-pox; the dissection was soon after his death, and only performed in order to examine the state of the incision into the bladder; but we were surprized to see the internal parts of the abdomen, and even the intestines, very full of variolous pustules. And as the most excruciating pain in the back and loins is a never failing symptom which precedes bloody discharges, I should not think it improbable that the Thoracic duct might be found in a very diseased state. I am sufficiently aware, that objections may be made to the conjectures last thrown out; but I am inclined to believe, that the general idea of the distemper being rendered more fatal by the poisonous matter growing to a state of activity, either in the blood, or in parts which have a ready communication with it, will be found true.

Before

Before I dismiss the subject, I would just observe, that the place of insertion in an inoculated patient being always more diseased than any other, has given rise to a plausible opinion entertained by many, that the principal reason for the virulency of some kinds of natural small-pox, arises from the great disease of the parts primarily affected, and that the variolous poison, having been received by the breath or deglutition, the lungs, fauces, stomach, or intestines, consequently suffer more than any other parts, and, being organs of the first importance, the symptoms become proportionably more dangerous.

While I was more anxious to discover the most successful mode of treating this disease, than to consider its theory, I adopted the same idea without minutely enquiring how far it could be supported; but having since taken the subject into more attentive consideration, I do not think the supposition, that these parts are so materially

rially affected, can be true, or that it accounts satisfactorily for the appearances of bad kinds of small-pox. For if any of the organs mentioned were diseased at the part where the infection was first received, in the manner that happens under inoculation, undoubtedly alarming complaints of the parts affected would be coeval with, and accompany, the eruptive fever; which is so far from being true, that we have no indication to support this idea before, at, or during, the eruptive fever; nor if we were to suppose it could possibly happen without any discovery, would it account for the general confluence that covers the superficies of the body in bad kinds of small-pox: I therefore reject this opinion, though at the same time I admit the probability of some of these parts being the inlets to the infection, and the unfortunate channel, through which the blood becomes infected.

It

It seems extraordinary that none of the writers on inoculation have considered the different modes of practising it, with a view to discover the essential difference that arises from thence, in the success of the practice. This task shall be attempted in the following pages, requesting the reader to excuse a repetition of some particulars which shall be mentioned with as much brevity as possible.

When inoculation for the small-pox was first introduced into England, a rigorous and tedious preparation by medicines and regimen was enjoined, although the mode of performing it was simple, and consisted of a puncture only. But, notwithstanding the positive assurance which was given of the certainty and security of the practice, the restless desire of improvement soon suggested different methods. I shall pass over the attempts made by blistering the part, and by friction with infected lint, as these were relinquished on account of the uncer-

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tainty

tainty of infecting, and relate the reasons advanced in support of another mode of practice, which continued for several years. It was imagined that the success of inoculation arose from a copious discharge of the morbid matter at the part where the disease was communicated, and in consequence of this opinion, it was thought proper to make a wound through the true skin, as large as for an issue; and, that the body might be the more relieved by this salutary drain, one incision was made on the arm, and another on the leg, in which, for greater security of infecting, large pieces of lint, well moistened with matter, were placed; these were confined on the part with a plaister, and dressed every day by a surgeon with digestive ointment, so that by the time the eruptive fever commenced, a considerable sore and discharge was obtained. The distemper produced by this mode of practice, was usually, though not always, of the distinct kind, but frequently attended with a high

a high degree of fever before the eruption ; and sometimes also this mode failed to infect.

After the crisis, the following untoward consequences not unfrequently happened ; inflammations in the eyes, abscesses in the axilla, and other parts, with illconditioned ulcers on the place of insertion ; and these appearances of remaining mischief in the habit, were not only painful, but obliged the patient to go through a course of purging and alterative medicines. Disagreeable circumstances of this kind occasioned an alteration in the manner of infecting, which was changed for a slight incision, and the application of a thread well infected and dried, continuing the custom of dressing with plaisters and ointments ; and, in both methods, the patient, on beginning to complain, was advised to go to bed, and use the proper medicines to procure perspiration. The last of these was the general custom about fifteen years ago, at which time a new and far more successful mode

was introduced in the counties of Essex and Suffolk, of which I shall now, as indeed I have done at all times, and on every occasion, give the whole merit to the family of the Suttons. The essential difference consisted in returning to the original method of a slight puncture, and the use of recent fluid matter, without applying a dressing of any kind to the part, and enjoining the patients to go abroad into the open air during the eruptive fever, and allay their thirst by drinking cold water. In this new method, as well as in all the former, a preparatory course of medicine and regimen was directed; to say more than this would be superfluous, as it is now well known, that the pretence to wonderful effects from specific medicines, which would remove the most malignant kind after the eruption had appeared, was ill-founded; the supposed confluency being only the inoffensive rash which I have minutely described.* By

* Present method of inoculating, &c. page 44.

this last method, and some improvement made in it, every symptom has been rendered more favourable, the success of producing the disease certain, and it is extremely rare that we hear of any complaint in the eyes, or other marks of remaining putridity.

The truth of what has been now represented, is so universally known in England, that I should not have thought this relation necessary, if some further illustration of the opinions I have offered might not be deduced from it.

In the first described practice a much greater quantity of matter was used, which was placed in contact with the wounded skin, and the cellular membrane; the digested discharge occasioned by the dressings, was considerable, and not only the lymphatics of the skin, but also those which open into the cellular membrane, might

might receive the variolous matter when fit for absorption, and in a great quantity.

Now the lymphatics that open into the cellular membrane, are so large as to admit of being seen, whereas, those on the skin are so minute, as to be only known to exist from the effects. Hence it may appear probable, that the communication to the blood may be more ready from the larger, than from smaller vessels. It is moreover certain, that the cellular membrane is one universal net work, which has communications throughout the whole system, as is proved by emphysemas, or more obviously by the common practice of butchers blowing their meat; and possibly by this means the poison, when in a state capable of producing the disease, may be extended to the orifices of a greater number of lymphatics. The method by a thread was not liable to the same objections, but the dry matter acting
as

as a caustic,* and confined by dressings of ointment and plaisters, occasioned a fore and a discharge of matter, though in a less degree than by the former, and not communicating with the cellular membrane, it was less subject to the mischief I have supposed to be derived from that cause.

The last || which has been so fully described, is free from all the causes which, as I have supposed, contribute to render the distemper less favourable.

* I have seen many instances of a portion of the skin being destroyed, quite to the cellular membrane, digesting off in a slough, as happens from the application of a caustic, and particularly in children whose skin is thin, and of a delicate texture; hence, may it not be a question, whether this mode of infection is not a principal reason why children more frequently have the small-pox badly from inoculation than adults?

|| At present it is the practice of some to use a fresh infected thread, without any covering of plaister; but from what I have known of this practice, I think it not so eligible as that which I have described and recommended.

It

It may be suggested that I have not given due credit to the influence of the open air, and of drinking cold water, which in my former publication I supposed to be of great advantage. I have in a former part of this treatise allowed, that experience has confirmed the propriety of this treatment in *some* cases; but I am not at present so sanguine in the opinion respecting the necessity of pursuing this regulation in *all*, or the almost infallibility of its salutary effects. The patients that were under my care at Petersburg and Mosco, in 1768, undeceived me on this head. For, during the severity of a Russian winter, it would have been an unpardonable rashness to have ordered patients into the open air, or indeed to enjoin them to reside in unwarmed apartments. So that I directed the regulation of the rooms to a temperate heat by the thermometer, and this method succeeded to my satisfaction.

I have

I have been prevented from a more early performance of my engagements for the publication of this work, by a necessary attention to many other avocations. It is now completed with some haste, on account of a sudden obligation to attend the court of Russia a second time, and therefore it is hoped the public candour will excuse what incorrectness or repetitions may appear.

F I N I S.

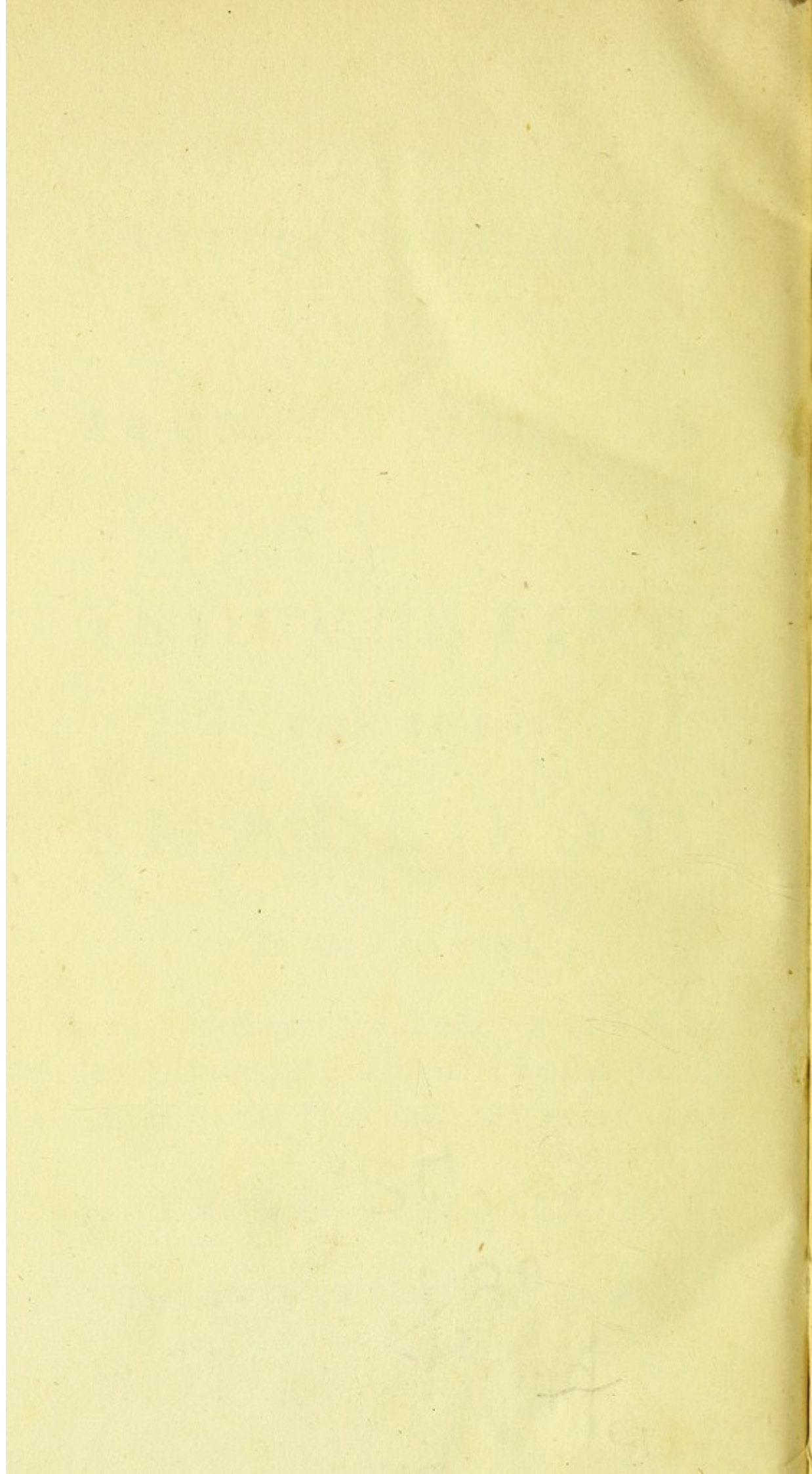
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To which are added,

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to discover the Effects of a similar Treat-
ment in the NATURAL SMALL-POX.

By THOMAS DIMSDALE, M.D.

The SEVENTH EDITION, Corrected.



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