A letter on the inoculation of the vaccina, practised in Sicily : addressed to her excellency Madam D. Stefania Statella / by Francesco Calcagni ; translated from the Italian by Edward Cutbush.

Contributors

Calcagni, Francesco.
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James Woodhouse's

A LETTER

ON

THE INOCULATION OF THE VACCINA,

PRACTISED IN SICILY,

BY DOCTOR FRANCESCO CALCAGNI;

ADDRESSED TO HER EXCELLENCY

MADAM D. STEFANIA STATELLA,

MARCHIONESS OF SPACCAFORNO,

LADY OF THE COURT OF HER MAJESTY THE QUEEN OF THE TWO SICILIES, &c. &c.

TRANSLATED FROM THE ITALIAN

BY EDWARD CUTBUSH, M. D.

OF THE NAVY OF THE UNITED STATES.

PHILADELPHIA:

PUBLISHED BY B. AND T. KITE, NO. 20, NORTH THIRD STREET.

FRY AND KAMMERER, PRINTERS.

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1807.

PREFACE.

THE number of persons, whom I have seen in the streets of Philadelphia, during the present year, with the natural small-pox, induces me to publish the following pages; they contain, in addition to the numerous observations, which have already been offered to the public on Vaccination, many important facts, which may assist in establishing the Jennerian discovery on the firm basis of truth. I therefore hope that they will be acceptable to those, whose minds are still under the influence of prejudice.

It is a consolatory reflection, that the mortality of the human race, in different parts of the world, has been greatly diminished by this important discovery. "In London the mortality from the small-pox was, on an average, annually two thousand persons: in 1800 there died of the small pox two thousand four hundred and nine persons; in 1801 only one thousand four hundred and one; in 1802 one thousand three hundred and nineteen; in 1803 only one thousand one hundred and seventy-five; and in 1804

there died five hundred and eighty-six persons only; a diminution that never was before known, and only to be ascribed to the progress of vaccination. The same experience arose from considering the bills of mortality in all the chief towns in England. In Leeds the average amount of deaths from the small-pox, was annually three hundred and twenty-eight, in 1804 it sunk to sixty-two. At Vienna the average amount of deaths was eight hundred and thirty-five; in 1802 the deaths were only sixty-one, in 1803 only twenty-seven, in 1804 two. At Lucknow, in the East Indies, the amount of deaths, on an average, was eight hundred; in three years after the introduction of vaccination the reduction was to seventy-five. And this was the case as far as our information reaches in every great town throughout the world. From Marseilles, from Geneva, from Paris, where a statue of brass is now about being raised to Dr. Jenner, the small-pox is extirpated. The natives of India say we have no longer (*atila*), the small-pox."*

It will be observed, in the following pages, that some accidental circumstances, in a few cases, are noticed; which, however, ought not to operate against the practice of Vaccination. The innumerable experiments, which have been made in different parts of the world, prove beyond a doubt, its preservative power against the contagion of the small-pox; there-

* Extract from the Remarks of Dr. Thornton, of London, on Vaccination. Vide Political Register. Sept. 25.

fore those trifling circumstances which have been remarked by different practitioners, are not worthy of notice, when compared with the great advantages derived from this important discovery. That these facts may have a tendency to remove the unfounded objections, which are too generally entertained against Vaccination, is the sincere desire of the

TRANSLATOR.

Philadelphia, September, 1807.

A LETTER

ON

THE INOCULATION OF THE VACCINA.

MADAM,

THE great concern which animates your sensible and virtuous heart, towards the first pledge of your connubial state; induces you, with anxiety, to search after the means of preserving it from the inevitable pest, the small-pox. Affectionate mother! fear this terrible rencounter; the name of the small-pox alone, on account of the fatal consequences which accompany it, grieves and torments you. In wishing to avoid it, you remain irresolute, when you ought to adopt the means, proposed by me, and those sage physicians, from whom you asked advice.

The Vaccina is the means; it is the most secure, and the most infallible preservative; this only can remove that suspense and solicitude, which so afflicts and torments you. To encourage and assure your maternal affection, have the goodness to peruse these few pages, which I, with the greatest respect, present to you. They include a brief history, not only of the discovery, but the progress of

the Vaccina, and an abstract relation of all that has been observed by me in the practice of it in Palermo, and other parts of this kingdom * They will serve to remove every suspicion or fear which maternal love can excite; they will animate you to adopt this discovery; to vaccinate your tender offspring, though not yet arrived to the age of two months; besides, they may serve to stimulate those, who, from ignorance, refuse to profit by this happy invention; you may thus become one of the most eminent public benefactresses.

Permit me, madam, to lay before you a limited picture of the small-pox, its fatal consequences, and the means, which have been practised to avoid them. Observe from this, how great may be the utility and advantage of Vaccination.

There is no doubt, but the small-pox is contagious; it is disputed only, whether it were known in the time of Hippocrates. The majority of authors are of opinion, that such a pest was not known at that time in Greece; but, a long time after he flourished, the Arabians, extending by force their em-

* Sicily is indebted, for the introduction of the Vaccina, to the paternal vigilance of her loving sovereign; to the care of Cav. Sig. D. Giovanni Vivenzio, and Sig. Michele Troja, well known for their literary works, on medicine and surgery. The first vaccination, in Palermo, was performed by Jos. H. Marshall, March 14th, 1801. The continuance of it in Palermo, the preservation of the virus, and the propagation of the disease throughout the kingdom, was not owing to my attention and labour only, but to the diligence and care of D. Ciro Troja.

pire, conveyed it to Egypt. The small-pox having taken root in that kingdom, was very soon propagated through all the maritime provinces of Africa. From thence it is said to have been transported to Spain; whence it unhappily spread and infested all Europe.* However that may be, this is certain, that this pestiferous disease, has been the means of precipitating the sixth, or rather the fifth part of mankind into an untimely grave. It is not necessary to take into consideration, the immense mass of evils to which persons attacked by the small-pox are subject; even should they escape with their lives, they are very frequently walking spectacles of human misery.

That the small-pox is, for the most part, violent, loathsome and filthy, cannot be denied; luxations, loss of limbs, contractions, wasting of the body, imposthumes, fistulous sores, scrophula and scabby eruptions appear frequently among us, from this pest. How many are marked, how many deaf and blind, who all acknowledge their ills from this destructive source!! The pain which for the most part accompanies it; the greatest diligence which it always requires, and the fear of parents, are so many reasons to induce us to arrest its progress with all our power. Had it so pleased heaven, that

* Mead, Homes, James, and Rossenstein say, that in the interval from 622 to 640, it passed from Arabia into Egypt. In 714 the Saracens conveyed it to Spain, and in the beginning of the twelfth century, it was observed in all Europe.

such a contagious disease, had remained inclosed in the same cradle in Arabia, where it sprung; and, had not been inhumanly introduced among us, how happy should we have been!!!

Scarcely had this terrible contagion appeared in Europe, and spread in every place fear and distress; physicians confused, were not only useless, but miserable spectators of the tragic and fatal end of thousands. Shortly after, they formed some idea of the disease, and began by degrees resolutely to combat it; though they never could remove the destruction, with which it was almost always accompanied. In searching after a method to avoid this misfortune, necessity and interest induced a Georgian and a Circassian, to invent the method of communicating the disease by inoculation. In consequence of the commerce which these people carryr on, the seraglios of the Mussulmen become filled with females, which are frequently disturbed by the introduction of the small-pox, rendering infirm, or destroying the appearance of their women of extraordinary beauty. Inoculation was therefore, among them, the most secure method of avoiding the deformity of those victims, consecrated to the wicked intemperance of men. The advantage was immediately observed; the destruction was in part mitigated, and some of the fatal consequences of a poison, so pestiferous, were removed.

This happy discovery was very soon propagated. At the end of the seventeenth century, a Thessa-

lian woman,* with a mysterious air, practised it in Constantinople with the greatest success. From thence, in the beginning of the eighteenth century, it was practised in London.† After many controversies, as are usually excited in similar circumstances, from ignorance, interest, or novelty; and after many experiments, which proved the utility of the invention, it was unanimously agreed, by all the learned of the medical art, that the practice of inoculation ought to be adopted. It was consequently embraced by every body, and wonderfully propagated; diligent and wise sovereigns commanded the practice of it, and appointed public places to examine the result.‡ By its adoption throughout Europe, many millions of inhabitants, were rescued from the grave, in the short revolution of an age. But how much caution is necessary; how much necessary preparation in the medical treatment; how much care, in choosing a favourable opportunity to inoculate; and how many other considerations, with regard to the different states of the

* This woman practised inoculation, to delude the Greeks, by making a puncture in the form of a cross, at the same time muttering some words, to induce them to believe it was no of human invention.

† In the year 1721 Lady Wortley Montague, English ambassadress to the Porte, inoculated her only son; on her return, she defended and introduced inoculation for the small-pox, in London.

‡ The first place established in London for inoculation was, in 1746.

age, or health of the person to be inoculated, are necessary to be attended to.

This method of inoculating was pregnant with confusion; it tended to introduce and spread the contagion, at a period when it was not universally adopted, which produced deaths and serious evils in the population, where it was practised; was not this sufficient to make us tremble?

But at the present day, thanks to heaven, a more secure method is discovered, which removes from mankind those disorders however rare, which succeed inoculation: an English genius, has published a discovery of the highest importance. He has drawn from the bosom of nature, an antidote, wished for by all nations. He has immortalized his name; is rendered worthy of remembrance, and deserves well of all mankind. By his assistance, medicine has made rapid progress, and man has received the desired relief.

Edward Jenner, physician of Berkley in the county of Gloucester had for some time observed, that the inoculation practised among the inhabitants of that place, frequently remained without effect, notwithstanding the greatest diligence, in the execution of it. Many persons in that country asserted, that cows were subject to a breaking out of pustules, in the circumference of the nipple or udder; that these openings discharged a humour, which quickly adhered to the hands of the milkers; occasioning in them, similar eruptions on those parts, which came in contact; and those, who had suffered by this

malady, did not remember ever to have had the small-pox. His observations, and these relations, induced him to seek for an occasion, to examine with attention the phenomena to confirm it, and to become acquainted with the course of the disease. With all possible attention, he commenced the examination, not only of those who were at that moment attacked by it, but also the cows, from which it was taken. He inoculated with the *natural small-pox* those persons, who asserted to have had, many years preceding, the disease in question. He gave the virus, taken from the cow, or from persons, who had accidentally taken the disease, to vaccinate others, he submitted all these, after the disease had completely developed itself and dried, to the test of the *natural small-pox*. Finally, he discovered, after many attentive and reiterated experiments, that it was impossible to produce the small-pox, in such persons.

Full of joy, after so many confirmations, and series of observations, he published to the literary medical republic, that "the Vaccina is a safe disease, light, not contagious, and constantly capable of preserving from the small-pox, those who had proved its benign influence." He became the defender of the preservative power of this dicovery, by publishing to the world the result of his labours.* This

* An inquiry into the causes and effects of the variole vaccine, a disease discovered in some of the western counties of England, particularly Gloucestershire, and known by the name of the cow-pox. London, 1798. This work was very soon

most happy discovery, in the moment of its birth gained public and private attention, in all parts of the world. Woodwille, Pearson, Simmons and other physicians of London, repeated the experiments made by the physician of Berkely, and with pleasure obtained the same happy success. The English government persuaded of the unquestionable truth of the discovery, after many and various observations, established a public hospital;* appointed physicians to vaccinate, invited the public to profit by it; despatched physicians not only to vaccinate in all her own dominions,† but even presented the *true vaccine virus*, as Careno informs us, *stamped, with the seal of the institution, with the motto: Feliciores inserit.*‡

From this fortunate institution, the Vaccina is every where spread, and almost every nation enjoys the discovery.§ Stimulated by the example of this

translated into Latin by Luigi Careno in Vienna, and into the German language, by Ballhorn in Hanover, &c.

* A public place was appointed under the protection of the Duke of York, December 9th, 1799, for the inoculation of the Vaccina, &c.

† Joseph H. Marshall, to whom we are obligated for the introductiou of the Vaccina into Sicily, was one of those physicians appointed to convey the disease to Gibraltar and Malta, jointly with Walker, from thence it was conveyed to Egypt.

‡ Careno on the Vaccina. Naples, 1801.

§ It would be tedious to refer to all the places where this new method of inoculating is adopted, but for the honour of those physicians, who introduced it, and those countries which have embraced it, I beg leave to refer in this place to some of them.

genius, other physicians, in many parts of Europe emulated his labours; in many provinces,* they

Odier, Dunant, and Colladon in Geneva. Ballhorn, Stromeyer, Heine, Nolte, Mubry in Hanover. Hessert and Pilger in Giessen. Arnemman, Ossander, and Wandenburgh in Gottingen. Sommering and Behr in Francfort. Hunold in Cassel. Elbeling in Lunenburgh. Wetge in Goslar. Mac Donald in Hamburgh. Sybel, Heim, and Walperger in Berlin. Keil in Halle. Kohder in Zell. Rose and Hemly in Brunswick. Matthai in Hammelin. Voltors in Wunstors. Friese in Breslau. Scott in Hermannstadt. Naranzi, Pagani and Mazzarali in Udina. Salva in Barcelona. Piguellam in Puiccerda. Ferro, Careno and de Carro in Vienna. Moreschi, Aglietti and Picciolini in Venice. Scassi, Batt, Giraud, Marchelli in Genoa. Sograssi and Fabris in Padua. Teine and Marangoni in Vicenza. Ghirlanda in Trevisco. Sacco in Lombardy. Marshall and Walker in Gibraltar and Malta. Miglietti, Troja and others in Naples. In Sicily we are indebted to many gentlemen, who have likewise introduced it. Merulla, Romeo, Salimi in Messina. Ranfaldi and Travella in Aidone. Raimondi in Partinico. Palazzo Adriano and Prizzi in Partanna. Marino in Troina. Bellina in Petralia. De Luca in Termini. And I myself in Modica, Novara, Furnari, and Tortorici. In York, Durham, and Leeds, this benefit is established by the society. In France, the Vaccina, more than in any other place, has made rapid progress. Public places are established, physicians and other respectable persons appointed to propagate it. Vaccination is not only adopted in Constantinople, but even in Bombay, and Bengal, in the East Indies, in Philadelphia, and other places, with which we are not distinctly acquainted. The government of Spain has likewise appointed physicians to propagate it in her dominions in America.

* In Dorsetshire, Devonshire, Hampshire, Somersetshire, Horsley, Leicestershire, Staffordshire, and other places in England. De Carro assures us, that this disease was known by the physicians of the dukedom of Holstein. The commissioners of the Medical Society of Brussels relate, that the small-pox of the

found cows subject to the same disease, they submitted many persons to vaccination, and afterwards to the proof of the small-pox, and saw the same symptoms, the same phenomena, and the same happy result. Luigi Sacco found likewise that cows were attacked by a similar disease in Lombardy near to Varese; he made four hundred experiments with care and determined the safety of this preservative.

Having read with attention the observations of many physicians, that not only the cows of Gloucestershire, were subject to the Variola, called cow-pox, as Marshall affirms, I determined to render myself useful to my country, and this kingdom. I diligently inquired of the country people, whether a similar disease had ever been seen, among the cows of our country. They assured me, that, especially in the months of May and June, they had observed some pustules on the udder of cows, of a livid colour, flat and irregular, which, after appearing a few days, dried, cracked and discharged a sanious humour, which adhered to the lips of the calves, and sometimes to the hands of the milkers. After this relation, the desire of observing the nature of this disease myself was much increased. The few herds found in the neighbourhood of this city, I examined and satisfied myself as soon as possible, and when circumstances permitted, I was conducted into those

cow was met with by their colleague Uytterhaeven, and was used by him. It has also been found in the department of Landes, and in Levignac, department of Lot and Garonne.

provinces of the kingdom, where there are numerous cows.

Jenner is of opinion, that the cow-pox which is seen on the udder of cows, originated from that disease, which attacks the feet of horses, called by the English, Grease, by the French, Jovart, by the Germans, Horntcluft, and by the Italians, Giarda or Giardoni. Some of his reflections induced me to admit the opinion, but Pearson and Simmons made various experiments to prove the opinion of Jenner, without success.

I will not keep you in suspense, madam, by reasoning on the uncertain origin of the Vaccina. This part will serve to render the history clear, but can never convey any advantage to the practice itself. I would also omit a description of the manner of performing the operation; but as on this depends, very much, the perfect production of the Vaccina; I trust it will not be considered troublesome to you, to read that part of the practice, which truely belongs to the vaccinator.

I will therefore give you an account of it in a few words.

Although the inoculation of the Vaccina, appears very similar to that of the small-pox, nevertheless, in the practice of it, it is necessary to have regard to certain circumstances, without which, it cannot be effectually produced. On the incision made by the operator, and the choice of virus* at a seasonable

* The Vaccine humour should be taken from the pustule, before it becomes puriform.

period, depends the production of the true Vaccina. The virus with which we are to vaccinate, ought to be limpid, crystalline, not yellow, or formed into true *pus*. Ordinarily, the virus is taken for innestation, from the Vaccina, on the eighth, ninth or at furthest on the tenth day of the vaccination; rarely later, according as the disease unfolds itself. The incision ought to be made superficial, so as to divide the *epidermis* only, with a slight and small scratch; scarcely colouring the skin with blood. If this be neglected, the vaccination certainly will not succeed, for the quantity of blood, which issues, carries with it that small quantity of virus, which is already applied on the sides of the incision; and instead of producing the true Vaccinia, the spurious appears; that is, a local *suppuration*. The number of incisions, the place where they are made, and the instrument with which the operation is performed, does not effect the practice, the security and utility of the disease. Vaccinators have performed with a lancet or a needle, by making on the middle and anterior part of both arms, one or two very small incisions.*

The Vaccina, in its different stages, does not always present an uniform and regular course, it even varies frequently in the appearance of the symptoms

* We here speak of the innestation of fresh virus, taken from arm to arm. We also vaccinate with virus dried on a thread or crystal. But in performing the operation with a thread, the greatest diligence is required otherwise it will not take effect; a spurious Vaccina may be produced, which, for the most part, has happened in some parts of this kingdom.

which accompany it. I will give you a general idea of its ordinary course. On the third or fourth day after the operation, the incision may be seen surrounded by a small reddish spot, a sensible hardness may also be felt. On the fifth day, frequently on the fourth, a *slight* circular elevation of the skin is visible. Towards the sixth, seventh, or eighth day, the little blister enlarges, and is depressed in the centre, where may be observed a pallid spot, which becomes surrounded by a redness, from one to three lines in extent.

This is the precise time, in which, the vaccinated infant begins to feel some indisposition; such as slight pain in the part and axilla; the countenance becomes pallid, the pulse quick, with some want of appetite; and a certain debility and listlessness in the performance of every operation succeed. On the ninth or tenth day, the pustule is found more enlarged in circumference, of a bright cineritious colour, clear, and its perimeter more elevated. The inflammation, which surrounds it, extends to the diameter of one or two inches and becomes more rosy; at the same time the skin, where the redness appears, becomes harder. Besides, the pulse becomes equal and quick, and a febrile heat is manifest. It is at this time, that the vaccinated patient feels more pain at the pustule and in the axilla, and frequently the glands swell; the weariness increases and motion of every kind becomes troublesome. On the eleventh day, the symptoms are a little changed. On the twelfth and thirteenth, the diameter of the circular

inflammation surrounding the puncture, contracts and becomes clear; the swelling subsides, and is softer; the pustule begins to dry in the centre, becomes livid and flat, and in a few days is converted into a hard, brownish, smooth crust, which generally falls off on the twenty-fourth day; leaving a whitish superficial mark, similar to that of the small-pox. Such are the symptoms, which accompany the Vaccina, the impression which it generally makes on the system, is so light, that the vaccinated seldom complain; they are sometimes more active, but do not incommode the patient more than two or three days.

This is the ordinary course of the Vaccina, and the phenomena which it generally presents. But frequently the time of unfolding itself varies, being shorter or longer; the succeeding symptoms also vary, being more or less violent. I have observed the Vaccina to appear on the eighth, tenth, fourteenth, and nineteenth day. In the city of Aidone, in a boy of five years of age, vaccinated September 28th, the disease appeared on the 20th of October. In a girl, vaccinated by me on the 8th of December, the disease was visible after the fourth day of the operation, and gave clear signs, that it had taken effect. From this period, it made such slow progress, that, on the 26th of the same month, the vaccine pustule could scarcely supply virus sufficient to vaccinate other children.

I observed in two patients,* that the Vaccine pustule regularly appeared on the fourth day, dried

* D. Guiseppa Genchi and Anna Zitto.

on the seventh, and fell on being slightly touched by my finger. I made an incision through the middle of one of them, and found a coagulated humor in the centre.

In many vaccinated subjects, during the state of inflammation, some red spots were seen, which spread similar to those of the *scarlatina*, and disappeared in a few days. A miliary eruption happened to others, bright, of a cineritious colour, elevated above the skin, without any redness, which gradually vanished in a short time.

But sometimes such eruptions have been accompanied by redness, followed by a suppuration scarcely visible, which, from the third or fourth day of its appearance, dried, and presented a whitish scale.*

Almost in all the sanguineous, fat, and coloured† subjects, the inflammation about the vaccine pustule appears greater, and more lively than that which happens to the meagre, yellow and debilitated: in the winter season, however, the inflammation appeared more red, the development of the disease was longer and the vaccine humour degenerated slower. I have observed the contrary during the summer; in this season, the *miliary eruptions* appear more frequently. In infants of two or three days, vaccination very often has not produced its effect; and, therefore, it is necessary to operate on them with the greatest care.

* D. Girolamo Montaperto, D. F. Mayer and others.

† The author, I presume, means those persons who have a ruddy complexion. E. C.

The same has happened to me among boys who were vaccinated whilst they were subject to *eruptions of the skin*, or to the itch.

It happened in some subjects,* that, on the seventh or eighth day, some pustules appeared on parts distant from the *innestation*, which enlarged, inflamed, and suppurated almost e ual to the vaccine pustule, leaving a whit spot on the part. We cannot attribute this to the contagion of the small-pox, as this city was not only free from it at that time, but has been for several years past. Upon this subject, I will relate to you an observation, which is believed by me, one of the best facts at present on Vaccina.

July 13th, 1801. I vaccinated Nicoletto Santoro, aged eight months, living in the street called Conce. On the 19th of the same month, whilst the vaccine pustule showed itself on the incision, *two others* appeared on the anterior muscles of the right thigh, another on the left, and a fourth near to the nipple of the left breast, surrounded by the usual redness, flat, with the edges elevated, equal in every respect to the true Vaccina. I was induced to prove the inoculation with virus taken from one of these pustules. In fact, on the 22d of the same month, I punctured one of the pustūles, which appeared on the anterior part of the right thigh, and vaccinated Ca-

* D. Giuseppe Salamone, Maria Spatola, Giuseppe Geli, Agata di Leonardo, Maria Anna Donari, and D. Francisco Paolo di Caro.

terena Barucheri, aged seven months; [illegible] lono, aged one year and eight months, and Paolo Manno, of five months.

On the 26th, having examined them, I saw that the two first only had taken the Vaccina. I did not cease to examine them daily, and ascertained, that in both, a true Vaccina had discovered itself, with a regular and uniform course.

May 16th, 1801. I vaccinated an infant of one year and seven months. On the 22d, I did not observe any sign of the Vaccina. I returned to vaccinate it on the 28th, and, after the fourth day of the second inoculation, the second incision not only manifested itself, but the first likewise. Both dried upon the twelfth day from the last vaccination.

A change in the axillary gland always accompanies inflammation, and the suppuration of the Vaccina. But sometimes it becomes swelled and painful, more than usual. I have also frequently observed an alteration in the *inguinal* glands.* Another particular phenomenon happened in the person of Don Philip Ruffo, aged three years, vaccinated by me, Dec. 19, 1801. On the 27th, whilst the vaccine pustule appeared, the axillary glands were not only affected, but the inguinal also; and was attacked with slight convulsions; as are usual in the natural small-pox. It frequently happens, that the vaccination remains without producing any effect, and it

* D. Valentino Guaneri, D. Giuseppe Cuomo, Rosa lo Piccolo.

becomes necessary to repeat it many times.* Notwithstanding I repeated it more than once, and used the most scrupulous diligence, it was impossible to succeed in producing it. Marshall vaccinated Don Gaetano Gandolfo, aged two years, four times, with all possible care, without effect. In the course of four months after, he was vaccinated by me, and the true Vaccina very soon appeared.

Six other observations, made, with the greatest care, on subjects of different *ages* and *temperaments*, vaccinated more than once, in different parts of the body, with vaccine virus always different, and taken at different periods of the disease, have led me to think, that the production of the Vaccina depends not only on attention in the practice, or on the activity and quality of the virus, but also on a certain aptitude of the body of the person to be vaccinated.

Frequently the disease does not present a perfect appearance, and is not accompanied by those essential phenomena, which ought to occur in the course of the *true Vaccina*. All this has been observed by Jenner, Odier, Marshall, De Carro, Aubert, and other physicians. I have likewise observed the same twelve times; the Vaccina may, therefore, be distinguished into *true*, *false*, or *spurious*.

It is necessary attentively to observe and distinguish it; because the false will not preserve the

* We ought not to repeat the operation more than four or five times, and not imitate a *physician*, who inoculated his own children nineteen times, without effect.

patient from the small-pox; and those vaccinated from it, remain exposed to the natural small pox.

To become acquainted with the *spurious Vaccina*, an accurate observation, and a comparison of the phenomena and course of the true disease, are necessary.

The elevation of the pustule, in the form of a blister, with the centre acute, and sides depressed, the immediate suppuration, about twenty-four or forty-eight hours after the operation; the softness of the pustule, which opens on being slightly touched; the irregularity of the circumference, which does not present a tumor in the form of a circle, but somewhat oval, accompanied by a whitish crust, rough in the centre; the puriform quality of the humour it contains; the drying up of the pustule, on the fifth or sixth day; the total absence of those universal symptoms which accompany the true disease, and other phenomena, acquired by observation and practice, are indubitable signs, which characterize the *false Vaccina*.

This spurious Vaccina may happen, first, from the quality of the virus with which we vaccinate; secondly, by the matter being dried on threads, on a lancet, or preserved on crystal. It happens that the virus not being well dissolved; the thread hardened; some portions of the lancet rusted, or a rough puncture, irritates the part, where either of the above causes are applied, and produces only a local inflammation and suppuration. The same happens by inoculating with vaccine humour which has become *purulent*. This humour is so *sharp* and *cor-*

rosive, that it produces a small sore before twenty-four hours have elapsed, or at farthest, forty-eight; surrounded by an inflamed margin, which continues some days, and discharges a yellow aqueous humour. Sometimes by inoculating with this virus an irritation only manifests itself, which disappears in two or three days. The vaccinator either from ignorance or accident, may also produce a suppuration, by making the incision too deep. I experienced this, in vaccinating a restless boy, in consequence of his continual wreathings, I made two deep incisions, blood flowed profusely. On account of the disgrace, I used all possible diligence to dry it up, and applied a sufficient quantity of the vaccine virus to the edges of the incisions; three days after, I visited him, and found that the incisions had suppurated, and a whitish crust, humid in the centre, had formed. Thirdly. By vaccinating a person who had had the natural small-pox, an irritation also happened, similar to the above. It may also happen that a pustule may be formed locally, which may deceive, and flatter the vaccinator. Odier was deceived by vaccinating ten times, always with spurious virus.* I have vaccinated, through caprice, many persons, who had had the natural small-pox, and sometimes have produced no other effect than an alteration in the puncture. I have likewise vaccinated many persons, in whom the true Vaccina had previously unfolded itself, without producing any effect; the incisions dried up

* As Odier relates.

Therefore, as the false Vaccina is a physical irritation, a local ulceration, that does not extend its action over the whole system, and which, therefore, cannot preserve the body from the natural small-pox it ought to receive the greatest attention and care from those who practise it, that we may not suffer such persons to be exposed to the contagion of the small-pox.

Sometimes, phenomena present in practice, which render the effect of vaccination doubtful. I have, however, always repeated the operation, on those in whom doubtful signs have appeared; or equivocal symptoms of the happiest issue; it is not just, either through interest or inexperience, to betray the faith of those who place themselves in the hands of a medical professor, believed by them to be honest, and thus insinuate doubt and fear in the minds of the lower order of society, who possess little or no reason; who fear even advantages, when they come to them under an appearance of novelty; and who are terrified at the sight of any accidental event.

I have extended the subject, madam, in matters which interest the practice only, and yet have not arrived to that part, on which you desired information; that is, whether the *Vaccina* is a light, *secure*, and advantageous disease? Excuse me. My transport on this happy and useful discovery would not permit me to withold so many minute observations, which, when united, may at least please, though not interest you. But we have arrived at the point in question.

The Vaccina is generally a disease, if such it may be called, so light, and incommodes so little, that it does not require the attention of a physician. The number vaccinated in Sicily, amounts to five-thousand and upwards; phenomena have not been observed to discourage physicians; and I have rarely called in the assistance of medicine to mitigate succeeding symptoms, in two thousand seven hundred and fifty-four subjects, vaccinated by me since May 4th, 1801. It was my lot, however, to observe in some persons, an inflamation and swelling about the pustule of a considerable circumference, resembling a true *phlegmonous* inflammation, accompanied by some febrile symptoms.* In three boys the pustules were converted into ulcers on the eleventh day, which continued about twenty days.† In the first case, I adopted a bath of distilled elder-water, to which a few drops of vegetable acid were united. In the second, I used the *acetite* of lead, and finally, the saturnine pomatum. In others, I observed towards the conclusion of the disease, though very rare, small pustules and eruptions on the body, which remained one or two months and dried without any remedy. These trifling appearances, are not worthy of comparison with those produced, not only by the *natural* small-pox, but even by the inoculated. If we consider the first of these, it is so

* D. Maria Teresa Invidiato, D. Maria Cecilia Marassi, Carlo Marino, D. Salvadore d'Ippolito.

† D. Melchiora Noto, Salvadore Landolina, and Antonio Beumi.

fatal, that almost all fear its terrible attack. Part of mankind, attacked by it, lose their lives miserably; part are reduced to the greatest danger; part in the course of their days, are obliged to bear its fatal effects, and almost all, during the disease, suffer those grievous inconveniences, which almost always accompany it. Inoculation itself, although more successful, leaves though rare its fatal consequences; even in this, death brandishes his falchion; even in this, the greatest perils are encountered. We have not been able to the present period, to remove entirely the fear and scruples, which these great evils oppose to us. With heartfelt pain, parents have submitted their children to this disease. Besides, by introduc ing it, as I have before said by inoculation, the contagion spreads among others, who dwell in the neighbourhood where it is practised. The Vaccina *alone* is not fatal, no one is exposed to danger, no care is necessary, it does not deprave or vitiate the blood, is not loathsome, no ungrateful noisome vapors arise from it, it does not leave the joints injured, neither is it followed by deafness, blindness, fistulous ulcers, or any other troublesome effects; does not destroy the *beauty* of the face, or maim the limbs, is not contagious, and finally may be practised at all seasons, and on subjects of every temperament, of every age, from the earliest stage of infancy to the period of dentition, and in gravid and infirm women. I have vaccinated infants, of five, eight and fifteen days; boys of seven, nine, and ten years; and young men from nineteen to thirty-five; also

others, emaciated and full of scabby eruptions.* In the most rigid season, vaccination was practised by me in many instances. Two boys vaccinated in the month of July, were carried to Aidone, to propagate the disease; it was necessary to carry another to Modica, for the same purpose, in the month of December; neither suffered the least inconvenience.† But the chief advantage we receive from the vaccine disease, is its great security; we are not under the apprehension of any disaster during the period of vaccination, and its great efficacy in preserving from the natural small-pox, should be conclusive evidence in its favor. This interesting discovery ought to animate parents, to vaccinate their children, and to excite the zeal of a wise government to protect its being in their power, by this easy, secure and cheap means, to preserve to the state the sixth part of its inhabitants; and to banish from society, the small-pox, with all its fatal consequences. You, madam, already know, that vaccination is firmly established, within and without Europe; but such is the imprudence and folly of the present day, as to place the practice of this grand discovery in doubt. I imagine, that, on the score of interest in the life of your

* I vaccinated D. Cristofaro Gravina and D. Spiridione Petta, the first full of eruptions, the second with the Itch. Meanwhile, I observed no inconveniences from these dieases; neither did any ill consequences happen to those, whom I vaccinated, *purposely* with matter taken from them.

† Aidone is one hundred miles distant from Palermo, and Modica one hundred thirty-six.

infant, you have read all the observations, which have been made on the Vaccina, by the most enlightened physicians of Europe. Therefore I will not fatigue you, by repeating all the wise principles, which have been established on this subject; but will refer to a few only, which I trust will be sufficient to tranquillize your mind, and encourage you.

Jenner, to ascertain beyond a doubt, the security and advantage of his discovery, inoculated with the natural small-pox, not only those persons, who had been vaccinated, but also those, who had been accidentally attacked by the Vaccina, ten, twenty, thirty, and even forty years before; without producing the disease.

This useful discovery being made public, the English government, desiring further assurances, appointed physicians, by whom sundry experiments were made with the greatest attention; and the duke of York directed all the English troops to be vaccinated, who had not had the small-pox; and caused experiments to be made, by subjecting them to the proof of this pestiferous contagion.

Marshall in Eastington in a few months, vaccinated four hundred and twenty-three persons of every age, not only the gravid and inffirm, but children during dentition. Two hundred and eleven were subjected to inoculation for the natural small-pox, but, in none of them, was the disease produced. The same public experiments were made in Gibralter, Malta, Naples, and in this city, and always with the same happy result.

Odier affirmed in a company of physicians, that, during the contagion of the small-pox, which desolated the city of Geneva, the mortality was arrested by means of vaccination. All who were vaccinated which amounted to upwards of eight hundred, remained perfectly secure from this disease, notwithstanding some where obliged to live in the *same* dwelling, and sleep in the *same* bed with the infected.

Eschembach a physician of Leipsic, informs us, that in Witemburgh, those only remained free from this poison, which infested the whole country, who had been inoculated, and the true Vaccina produced. In Axminster, Justings vaccinated his wife and children; to be more secure, he had them inoculated by Trobridge, with the natural small-pox; he had the satisfaction to observe that the disease did not appear; they were preserved from all attacks of the small-pox. W. Fermor having vaccinated three hundred and twenty-six persons, from the age of eleven days to seventy five years, made an experiment on one hundred and seventy-three, by inoculating them with the small-pox, but the disease was not produced.

A public certificate of seven eminent physicians of Venice, dated September 13th, 1801, appointed to make the experiment, whether the Vaccina was a preservative against the small-pox, assures us, that they publicly inoculated five persons with the natural small-pox, who had been previously vaccinated by Moreschi, and were not able to produce

the disease. The Venetians confirmed it, when they saw about five hundred preserved from the small-pox, by vaccination, the contagion of the small-pox having appeared in that city, attended with great mortality. The same was happily proved at Udine, on twenty vaccinated subjects; by observing always the same happy result.

In France, the Vaccina has made a more rapid progress than elsewhere. In 1800 Rochefoucault Liancourt, made his first experiments on many persons in Paris, and published his numerous and useful observations. He proposed to raise by subscription the necessary sums, to continue the experiments. They afterwards established in that city, a number of medical characters, with the name of "The Central Vaccine Committee"* They were authorised, to examine the truth of the experiments made with the vaccine infection; they performed accurate experiments, and assured the public by the most convincing truths. They caused the vaccinated to sleep many days, near those with the small-pox, in different stages of the eruption, and suppuration; dressed them for many months with the clothing of the infected; and inoculated repeatedly, (in many places, with virus of the small-pox taken at different periods of its course, two hundred subjects, who had previously been subjected to vaccination, in

* Composed by the president Thourel, Roux, Guillotin, Pinel, La Roche, Jadelot, Doussin-Dubreuil, Mongenot, Parfait, Marin, Salmade, and Husson, Secretary.

short they were firmly convinced of the preservative power of this discovery.

The committee of the Medical Society of Brussels published the happy termination of seven hundred and thirty-nine vaccinated cases, which were preserved from the small-pox, during the contagion in that city; and relate that, in fifteen of them, who had been inoculated for the small-pox, the disease did not appear.

The Vaccine Society of Rheims likewise made the same experiments on twelve persons, who had been vaccinated. Also the medical society of Amiens, Louvre, Roan and Metz, the physicians of Massilia, citizen Forbes of Tilosa, citizen Pages of Alisa, all repeated the same experiments with diligence, and obtained the same happy success.*

In Genoa, Batt, Marchelli and Scassi; in Milan, Sacco; in Vienna, Careno and de Carro; in Hanover, Ballhorn and Stromeyer; Duning, Salva, Piguellem, Lavater and the first physicians of almost all Europe, have introduced and established vaccination in their different countries, by making the same experiments. In this city, Marshall made two similar experiments, by inoculating with the small

* The government of France has favoured the introduction of the Vaccina into her dominions, and employed every means capable of difusing it in a short period; encouraged and employed physicians at the public expense, and after many experiments determining the certainty and advantage of the discovery, ordered a society to be established, composed of the most respectable personages of merit and character for the purpose of encouraging vaccination throughout the empire.

pox two persons whom he had previously vaccinated. I have also practised the same, with the same happy result, on three illegitimate, and on one of my own children. I vaccinated the first May 12, 1801, and afterwards inoculated with the small pox, July 18, 1802. The second, after having vaccinated her, November 31, 1801, was not only placed in contact with children attacked by the small pox, but in the month of July 1803 I obliged her to live many days with one attacked by it, and even to sleep frequently in the same bed, without being infected.*

I vaccinated a child on the 26th of November, 1802; some months after, her sister was attacked by the small pox; who, through poverty, was obliged to live and sleep together, and likewise to wear her clothing, but was not attacked by the contagion.

The prince of Alcontres had one of his children vaccinated, and afterwards subjected twice to inoculation for the small pox, without producing it.

During the small pox that infested this city last year, those only who had been vaccinated escaped the disease.† And here I might adduce numerous facts, evident to every body, that the vaccinated

* This experiment was made in the presence of many persons, in the house of Giuseppe Guaneri the architect, with one of his children, ill of the confluent small pox, who died the day after.

† John Gaetano Sala, only, was attacked after vaccination, by the small pox, and unfortunately died; but it is known to every one, that this happened in consequence of Sala having been vaccinated with a thread impregnated with virus, the true vaccina was not produced, but a local ulcer.

were preserved from this disease, although placed in the same bed and residing in the same dwelling with the diseased.

The vaccina conveyed by me to Aidone in the month of July 1801, was propagated among three hundred persons. The small pox appeared there in October, all those in whom the true Vaccina had appeared escaped the contagion, though obliged purposely to sleep together; and two were inoculated with the small-pox virus without effect.

In the month of December 1802, I was called to Modica, to vaccinate the children of Cavalier Giardina. A malignant small pox reigned there. I vaccinated forty-six persons of different ages; in forty-three the true Vaccina was produced, who therefore were not attacked by the small pox; but in three, in whom the contagion of the small pox was *already* introduced, a fever came on the day after vaccination, and the small pox appeared; two died.*

* There is an observation (whether true or false) written by Pietro Polara of Modica, "*on the production of the vaccina and the small pox by inoculation in the same subject*" (his child.) He praising and even adopting inoculation, in the height of the contagion, blames the highly laudable conduct of his compatriots, who, shaken by the fear of losing their own children, sought to preserve them from the small pox by vaccination. His conduct has been very indiscreet, in having adopted inoculation without proper caution, which, on the contrary, was the wise conduct of those who had recourse to the vaccina; a light and secure disease, adopted in similar cases by the physicians of Geneva, Rheims, Brussels and other countries. I will not therefore examine, whether the pustules that Polara

In the month of July, 1803, I was called to Novara, and vaccinated seventy-five persons with success, from the age of six months to eight years. A few months after, the small-pox appeared there, numbers of children died; those only, who had been vaccinated, were preserved; although surrounded by the contagion that was diffused through the whole country.

The same occurred in other parts of this kingdom, in Petralia, in Resuttana, Partinicio, Palazzo Adriano, and other places, where the Jennerian discovery has been adopted. It has been constantly observed in these places that those only in whom

saw on the incisions made by him, were truly produced by the vaccine humour, applied *twenty-four days previous* to their appearance, or small pox pustules; the same as those dispersed over the body; since such facts have been observed and warned against by Woodwille and other vaccinators. Polara should have been more moderate and cautious in his expressions, and should not have used false and exaggerated language. Why call Marshall mysterious and interested, to whom Sicily is so much indebted? Why falsely assert, that he saw many children subjected to these two diseases, and that some died? when in three only did the natural small pox appear, one or two days after vaccination, which might have happened without this operation. I will not repeat the remarks he has so confusedly made in the case of the object of his attention, or in the description of his adventures. Polara is worthy of compassion, being so *unfortunate* as to vaccinate many persons, his children included, each one, *nineteen times* with *a thread* without producing the vaccina. Who does not see that his little work is the production of passion and envy?

the true Vaccina* had appeared, escaped the general mortality, when the small-pox appeared among them.

So many reiterated experiments referred to by me, and many others, which I have omitted, that I may not fatigue you, show not only the security, but the necessity of adopting vaccination. All Europe has experienced its advantageous effects, and the numerous observations, which have increased from time to time, tend to remove, beyond a doubt, the preconceived opinions against its preservative power; which slander, interest and ignorance have invented. This fortunate discovery exempts us from every danger, and removes all our fears; parents no longer fear the numerous evils and deaths, which too frequently succeeded the small-pox. The state will no longer lose that portion of its inhabitants which usually perished miserably by this disease; and if the sovereigns of Europe would oblige their subjects to adopt this mild operation, they would extirpate the small-pox from their kingdoms in a few years, which has always brought with it terror and destruction.

How much, madam, may be written on the history and advantages of the Vaccina. I trust these observations will be sufficient to determine you, to

* But in some places in which they have *incautiously* vaccinated with *a thread*, impregnated with vaccine virus, a spurious Vaccina was produced; and those vaccinated, were afterwards attacked by the small-pox; as happened in Girgenti, Noto and Syracuse.

vaccinate your tender—charming infant, who, at present, is the sole object of your concern.

To a lady, whose mind is enriched by nature and education, I trust, I do not appear forward. Animate, I pray you, by your example and eloquence, your compatriots; and I will never cease to preserve and propagate this most happy discovery, which has been practised by me to the present period, with the greatest diligence and success.

Excuse the prolixity of these observations; they proceed from a heart, not only sensible to the evils of others, but sincerely attached to you, your little daughter, and all your family. In this I offer you all I possess, and declare myself in every respect, your most devoted and most humble servant,

FRANCESCO CALCAGNI.

Palermo, May 26th, 1804.