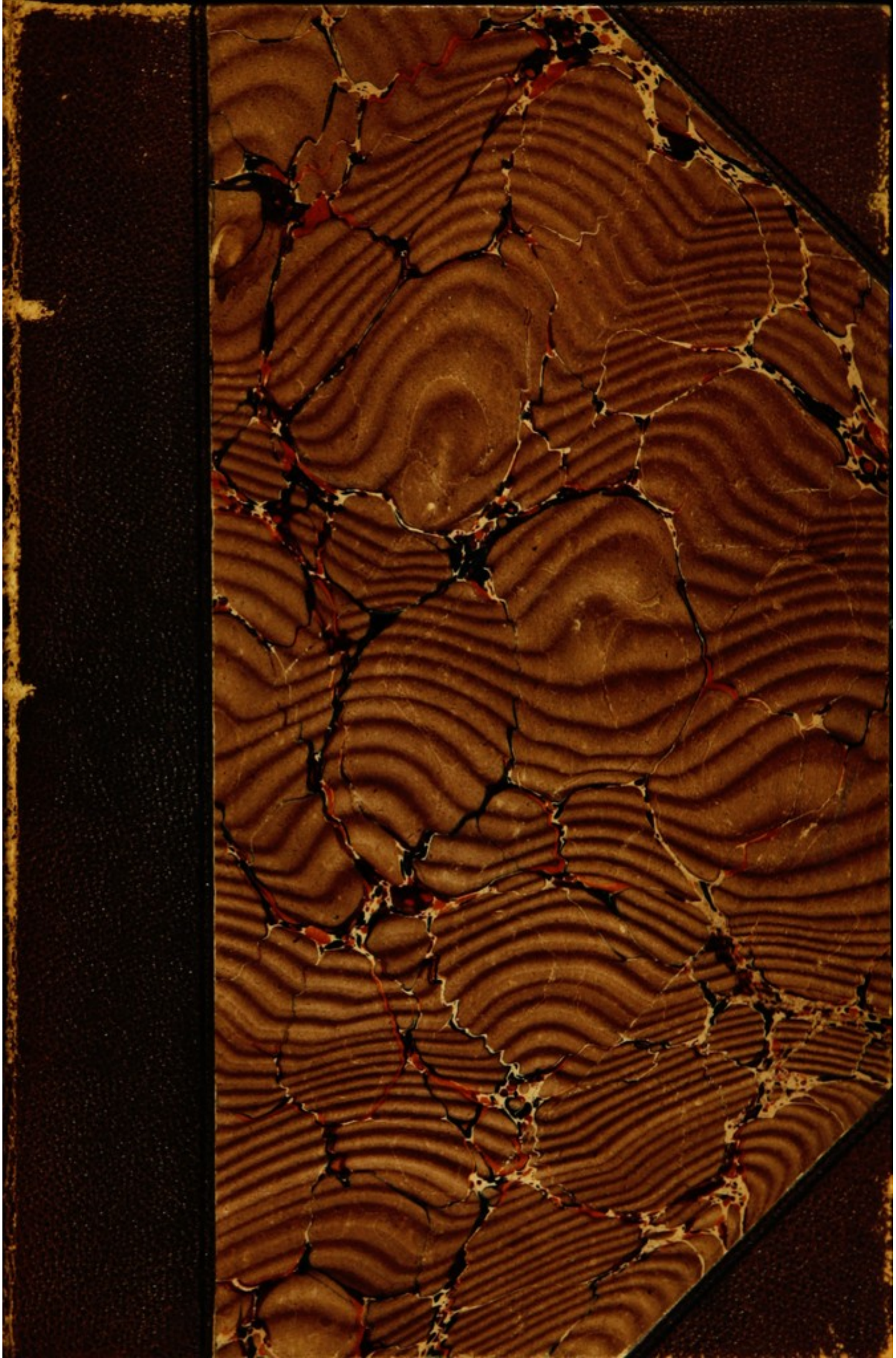
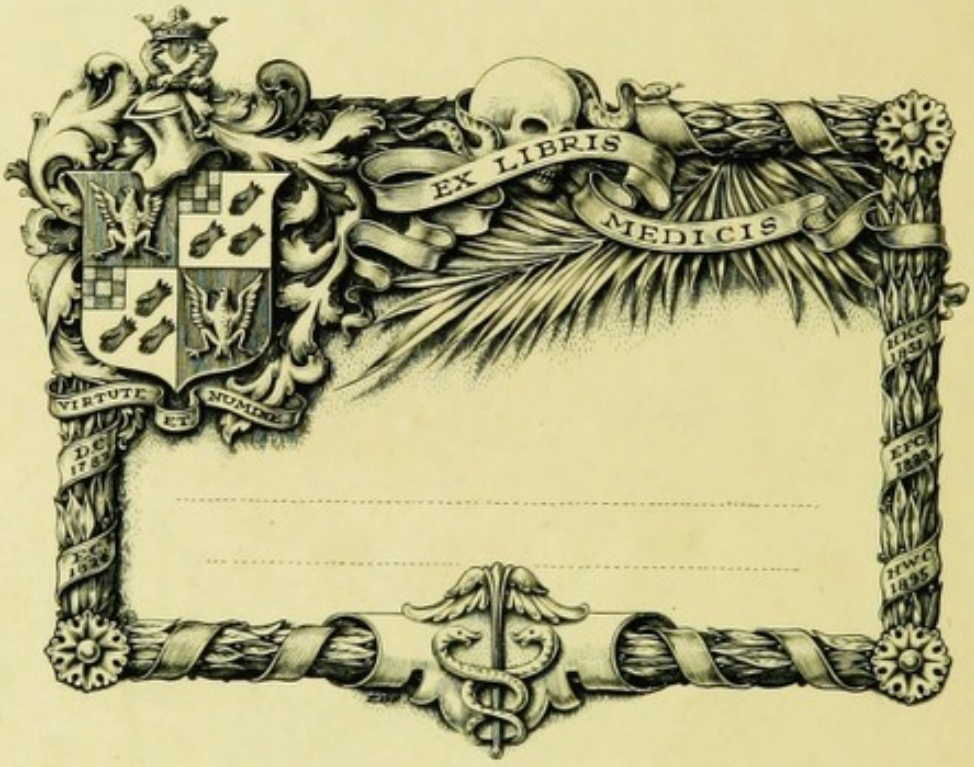
Notes suggested by the Franklin-Heberden pamphlet of 1759 / by Henry K. Cushing.




EX LIBRIS
MEDICIS
VIRTUTE
ET
NUMINE
HKC
1931
EFC
1888
HWC
1895

NOTES SUGGESTED BY THE FRANKLIN-HEBERDEN PAMPHLET OF 1759.

By Henry K. Cushing, M. D.,

Of Cleveland, Ohio.

[From The Johns Hopkins Hospital Bulletin, Vol. XV, No. 162, September, 1904.]

NOTES SUGGESTED BY THE FRANKLIN-HEBERDEN PAMPHLET OF 1759.[1]

By Henry K. Cushing, M. D.,

Of Cleveland, Ohio.

In May, 1903, there was a sale of a large collection of most [276] interesting documents, the so-called "Proud papers," at the book auction rooms of Davis & Harvey, Philadelphia. These had been preserved from early days by a line of eminent and far-seeing men, all Philadelphians but one, as materials for a history of their Province, and from these Robert Proud arranged and published "The History of Pennsylvania in North America."[2]

Since Proud's day this notable collection has come down, from generation to generation, in the line of a distinguished Philadelphian[3] of Colonial and Revolutionary days, intrusted to him for safe keeping, and as tradition rumors, in view of aid rendered in the straitened days of the publication of the History; and in this descent the collection has grown by valuable additions of early Americana.

From this sale the scribe of these notes secured the old pamphlet which has instigated them. In state and condi-

---

[1] Read before the Johns Hopkins Hospital Historical Club, May 23, 1904.

[2] Printed in Philadelphia, vol. i appeared in 1797; vol. ii in 1798.

[3] Philip Syng Physick, M. D. "Mr. Physick placed his son when eleven years of age in the Academy belonging to the Society of Friends in South Fourth St. under the tuition of Robert Proud."

Memoir of the life and character of Philip Syng Physick, M. D. By I. Randolph, M. D., 1839.

[276] tion it is as perfect as when it left the press, and has gained that mellow hue time alone can tint.

It bears this title:

" SOME
ACCOUNT
OF THE SUCCESS OF
INOCULATION
FOR THE
SMALL POX
IN
ENGLAND AND AMERICA,
TOGETHER WITH
PLAIN INSTRUCTIONS,
BY WHICH ANY PERSON MAY BE ENABLED TO PERFORM THE OPERATION
AND CONDUCT THE PATIENT THROUGH THE DISTEMPER.
LONDON.
PRINTED BY W. STRAHAN, MDCCLIX."

This pamphlet had two authors, in each of whom there is reason to be interested. " The account of the Success of Inoculation in America " bears the simple signature, B. Franklin, of Philadelphia.. Franklin was in the second year of his second residence in London, not an unknown journeyman printer, but the representative of the goodly Colony of Pennsylvania, Counselor at large of the American Colonies, high in the esteem of the wise and great of two continents.

This is his preface.

" London, Feb. 16, 1759. Having been desired by my esteemed friend Dr. William Heberden, F. R. S., one of the principal physicians of this city, to communicate what account I had of the success of inoculation in Boston, New England, I some time since wrote and sent him the following paper."

This " paper " fills four pages of the printed pamphlet: the contribution of his fellow author, Dr. Heberden, the eight succeeding pages.

In the Heberden preface is this statement, " Printed at the expense of the author, to be given away in America." William Strahan, the printer, was a little later Printer to the King, Member of Parliament, the old and constant friend of Dr. Samuel Johnson, according to Boswell, and intimate

business and personal friend of Benjamin Franklin of long [276]
duration.[4]

William Heberden was the best classical scholar of his day, one of the group of great London doctors, friends and intimates of their American Associate F. R. S. for Franklin as you know was a Fellow.[5]

Heberden was one of the medical friends of Dr. Johnson, who once characterized him as "Ultimum Romanorum," the last of the learned physicians.

I do not find this philanthropic waif mentioned in Henry Stevens' abounding Bibliotheca Americana, or in Sparks', Bigelow's, Parton's or other biographies of Franklin at my command. A note but recently received from the Librarian at the British Museum reports that there is no copy in its library, neither is there one in the Congressional Library, or in that of the noted Boston Medical Library Association.

The Boston Public Library has a copy, as I learn from its catalogue of 1883, of books relating to Franklin in its possession. A note in this catalogue relates that in the Mass. Hist. Soc. Collections,[6] a reproduction of this pamphlet was published in 1816, through the instigation of Dr. John Farmer.

This is his note to the editor. [277]

"AMHERST, N. H., Oct., 1816.

REV. SIR.—At this time I send you an account of the Success of Inoculation in Boston, written by Dr. Franklin to Dr. Heberden, in London. I have transcribed it from a pamphlet printed in London in 1759. With much respect

Your obedient servant

JOHN FARMER.

REV. DR. HOLMES."

---

[4] Franklin's letter to Strahan from Philadelphia in 1746.

[5] He was made F. R. S. April 29, 1756. "As an additional mark of honor, by vote of the Council, he was relieved from the payment of all fees; and it was ordered that he was to receive the Transactions without cost."—Franklin Cronology.

Three years before, 1753, the R. S. had awarded him the Copley Gold Medal for his electrical discoveries.

[6] Vol. ii, p. 7.

[277] The Rev. Dr. Holmes, of the Mass. Hist. Soc., was the Rev. Abiel Holmes, long minister of the First Church in Cambridge, author of the History of America from the discovery in 1492 to 1806, and father of Oliver Wendell Holmes. Thus 57 years after the issue of the pamphlet from the press in London, and eighty-eight years ago, a copy was sent for publication in Franklin's natal town as a rarity and subject of historical interest.

Paul Leicester Ford, in his useful Bibliography of Benjamin Franklin, quotes the pamphlet but ascribes the "Instructions" to Dr. Archer, instead of Dr. Heberden. Dr. Archer was physician to the London Small pox hospital at the time, and was mentioned by name in the "Instructions," from whence probably arose Ford's misconception.

Dr. Packard[7] reproduces Franklin's portion of the pamphlet with this approval . . . "Which is of such interest and presents such a common sense view of the status of the practice of inoculation at that time that I reprint it in its entirety."

The Surgeon General's Library, Washington, that of the Academy of Medicine, New York, of the Mass. Hist. Soc., Boston, and of the College of Physicians, Philadelphia, are fortunate owners each of a copy, making, with the subject of these notes, six, and all I have been able to locate.

How many copies of this brochure were printed by Dr. Heberden I do not know, but presumably but a few hundred, and these, like New England Primers, and Poor Richard's Almanacs, published for years by tens of thousands, have few known survivors.

Franklin does state that Heberden "printed a very large impression of them," but 500 would seem to me a large impression for those days.

Dr. Packard informs me that he has 5000 in mind as the true number, but cannot recall his authority.

One would like to know how they were disseminated, of their reception and their influence. Primarily would they not have come into the hands of preachers, many of whom were

[7] History of Medicine in the United States, 1901, p. 108.

practitioners as well, of doctors, of town clerks, usually men [277]
of more attainments than most of their fellows, and of post-masters, for Franklin had now been Deputy Post-Master General of the Continental Colonies for six years?

From Proud's History I take this instance of the then ever-present imminence of small pox, and of the acquired equanimity with which it was endured as one of the accompaniments of life sooner or later to be reckoned with.

"William Penn had for a considerable time past been making preparation for his voyage to America, which being at last accomplished in the sixth month of the year 1682, accompanied by a number of his friends, he went on board the ship Welcome, of 300 tons, Robert Greenway, Commander, and on the 30th of the same month (it was August) he writ from the Downs a valedictory epistle.

"The number of passengers on the ship was about 100, mostly Quakers from Sussex, the proprietaire's place of abode. In this passage many of them were taken with the small pox, and about 30 of the number died. In this trying situation the acceptable company of William Penn is said to have been of singular advantage to them, and his kind advice and assistance during the passage, so that in the main they had a prosperous voyage."

Estimating the crew of such a ship at 20 men (a large estimate probably) making with the passengers 120 souls all told, the mortality of 30 would have been one in four of all on board.

But the passengers fared even worse for one-third of them died on the eight weeks' voyage, as the Welcome did not get within the Capes of the Delaware until the 24th of October.[8]

One of the Welcome's passengers was Dr. Griffith Owen, a Welsh Quaker, later one of Pennsylvania's eminent physicians.

His ministrations, however, seem not to have been thought worthy of mention beside the "acceptable company" of the great Proprietaire.

The high born and distinguished Lady Mary Wortley Montague had small pox in early life, and though she escaped pitting, yet suffered the permanent loss of her eyelashes, an unfortunate blemish to an otherwise lovely face.

[8] Encyclopedia Britannica.

[277] Her only brother, the young Lord Kingston, heir to the Kingston Dukedom, died of it.

We can appreciate the interest with which Lady Mary heard of, and made herself acquainted with, the subject of inoculation for the small pox while in her residence in Turkey.

As you know, the early history of inoculation is largely one of speculation and probability. In the early years of the 18th century intimations, through letters and reports, began to appear in Europe, that in the Levantine regions a method of inducing a mild form of small pox was practiced by the common folk.

As information developed it became known that in Hindustan, Central Asia, China, Arabia and Moslem portions of Africa the practice in somewhat varied form, had so long been followed that its early history had been lost.

As the subject became generally known and considered it was also found that in some parts of Great Britain and Europe a practice of inoculation had long been resorted to by the peasantry, usually under the name of buying the small pox, a designation also common for it in the Levant, and parts of Africa. The South of Wales, Pembrokeshire, parts of the Scottish Highlands and Islands, Auvergne and Perigord in France, and Naples and Pavia in Italy are
[278] claimed, with seeming good reason, as seats of this practice.* The designation was due to the custom of offering gifts or compensation to the individual who was to furnish the desired variolous matter.

It is fairly supposable that in divers countries and localities, experience through centuries with small pox epidemics, had revealed to occasional acute observers here and there, that persons suffering the ill received through abrasions or wounds on the hands had a milder form, than when it was taken in the ordinary way of infection. Inducing the disease in imitation, in hope of securing a milder type, would seem a natural sequence of consideration and action. It was the custom of some of the eastern peoples to inoculate between

---

*Crookshank, Monroe on Small Pox, 1818.

the thumb and forefinger, which strongly suggests that they [278]
were simply copying the hint indicated by accidental infection through the hands.

In all those regions of Asia and Africa where sowing, engrafting or inoculating the small pox was practiced, the camel was domesticated and the milk generally used.

Dr. Jenner[10] refers to the traditionary accounts, handed down by the Arabian physicians, that the small pox was originally derived from the camel. Casual infection through the hands, in grooming or milking these beasts, may have given the original suggestion of perpetuating a milder type by artificial transmission, as a similar condition in Gloucestershire dairies put Jenner on his long series of investigations on the cow pox.

The communications of Europeans, sojourning in the Levant, concerning this procedure made little appreciable impress on the convictions of their home peoples. Of these communications the historic ones are those of Dr. Emanuelle Timoni Patavino, a Greek physician, graduate of Pavia and Oxford, resident in Constantinople early in the 18th century, who in 1713 wrote a relation of the subject to a London physician, Dr. John Woodward, who communicated it to the Royal Society; and that of Dr. Jacobus Pylarinus, a Venetian physician, dedicated to the English consul at Smyrna,[11] which reported the Byzantine method of inoculating. The two appeared simultaneously in Vol. XXIX of the Royal Transactions, in 1717. (See Appendix, II, page 284.)

Lady Mary Wortley Montague courageously determined not only to adopt this oriental custom of the common people, but to impart to friends at home the knowledge she had gained.

To her influence and example, according to popular impression, "we are indebted for its introduction and adoption in England, and for its consequent diffusion through Christendom."[12] Lady Mary's first letter on the topic was to her

[10] Baron's Life of Jenner, vol. i, p. 522.

[11] "Illustri, Preclaro atque Erudissimo Viro Wilhelmo Scherard, Dignissimo pro inclyta Natione Britannica Nunc Smirnis Consulo."

[12] Baron's Life of Edward Jenner, vol. i, p. 230.

[278] friend Mary Chiswell, from Adrianople, April 1, 1717, O. S. She wrote: "The Small pox so fatal and general amongst us is here entirely harmless by the invention of ingrafting, which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn when the heat is abated."[13]

"People send to one another to know if any of their family has a mind to have the small pox; they make parties for the purpose; and when they are met (commonly 15 or 16 together) the old woman comes with a nut shell of the matter of the best small pox."[14]

Her little son Edward, three years old, was soon after inoculated under the supervision of Mr. Maitland, surgeon to the British Ambassador, her husband, at the Ottoman Court.[15]

She inserted it so roughly and clumsily in the arm of the child that Mr. Maitland completed the operation in the other arm.

The Montagues returned to England in October, 1718, but only in April, 1721, two and one-half years later, was the daughter, born in Turkey, (four months old when the brother was inoculated) inoculated in London, also by Mr. Maitland. This was the first recorded example in Europe, outside of European Turkey.

The Princess Caroline, of Wales, having lost a daughter by small pox, and anxious to preserve her other children, though an intimate friend of Lady Mary's, was not fully at ease as to the safety of the operation.

The King, at her solicitation, pardoned six criminals who were willing to undergo the ordeal on those terms.[16]

They were inoculated at Newgate by Mr. Maitland, August 9th, 1721, four months later than Lady Mary's daughter. In further trial two groups of Charity children, one of six and

---

[13] An old Greek woman, many years in the habit of engrafting, was employed to procure variolous matter from a suitable subject.

[14] Always taken from a child.

[15] Crookshank on Vaccination.

[16] It succeeded happily upon five of them, the sixth, it was found, had already had small pox.

one of five, were also successfully operated upon in the spring [278]
of 1722.

The Princess now influenced Sir Hans Sloane, the Court physician, to wait upon the King (George I), for his assent. His Majesty concurring, the Princesses Anne and Caroline were, on the 19th of April, 1722, inoculated, under the direction of Sir Hans, a year after the operation on Lady Mary's daughter. But 845 persons in all England, were inoculated in the eight years following the example given by Lady Mary, and of these 17 died, nearly one in fifty. Hence we may judge of the slow and struggling development of the practice, and that the operators had not yet attained to the supposedly safer ways of the oriental performers.

Even the learned Heberden, 30 years later, was in grave fault in his pamphlet directions.

He says "every one would desire to be inoculated from as healthy a person as he could, and then strangely adds, though I believe the health of the person from whom the matter in taken is of very little consequence; it is of none whether he had a good or bad sort, whether he had few or many." This [279]
contrasts badly with the old woman "who comes with a nut shell of the matter of the best small pox."

By 1740 the practice had become nearly obsolete in England, but favorable accounts coming from the West Indies and both Americas a new impetus was given it. The planters and other slave holding folk of the new world had largely adopted it to preserve their costly slave property from sickness, blindness and death from the scourge, so virulent with the dark skinned races.

The Carmelites, and Friars of other orders in Portuguese and Spanish America, had introduced the practice, with great advantage, in the Indian races.

In 1746 the small pox hospital of London was founded to extend the practice among the city poor, and to sequester them, while ill, from the people at large.

In 1754, the influential College of Physicians of London declared its full approbation of the practice, and in 1759 we have found large hearted Dr. Heberden invoking Frank-

[279] lin's aid, for in America, as well as in Great Britain and in much of Europe, there were broad regions where it had not been adopted.

In Franklin's account of inoculation prepared for Heberden he makes this statement:

"Notwithstanding the now uncontroverted success it does not seem to make that progress among the common people in America which was at first expected. Scruples of conscience weigh with many, . . . and if one parent or near relation is against it the other does not choose to inoculate a child without consent of all parties, lest in case of disastrous event perpetual blame should follow."

Franklin had much reason for thorough interest in all that concerned small pox, and in inoculation, its only known alleviation, beside that consideration his ever investigating mind would have compelled.

James Parton, in his life of Franklin, says:

"About the time Benjamin Franklin donned the apron of the prentice boy Lady Wortley Montague came home from Turkey with the secret of the inoculation for the small pox.

"Cotton Mather read all about it, theory and practice, in the Transactions of the Royal Society, which he received regularly and to which he sent contributions.[17] He warmly welcomed the perilous invention, as did his venerable father, Increase Mather. Through their great influence a trial of inoculation was made in 1721, and with such success, that of 285 inoculated in Massachusetts only six died.[18] Nevertheless a great clamor arose against it as there does against every valuable idea or scheme when it is first promulgated.

"The witty correspondents of the Courant, James Franklin's paper, . . . led the attack upon the new remedy, . . . The apprentice meanwhile set the types, worked at the press and carried about the papers never presuming to take part in the controversy, keenly as it must have interested him."

Parton devotes some pages to the stirring occasion, which moved the town to its depths, and might have made some

---

[17] Packard Hist. of Medicine in the U. S., p. 24, says: "Cotton Mather was a member of the Royal Society."

[18] These were all inoculated within a year's time, and all in the three towns, Boston, Cambridge and Roxbury. Dr. Boylston inoculated 247, Drs. Robey and Thompson 39, or one-third as many as were inoculated in all England in eight years.

mention of Dr. Zabdiel Boylston, who alone of Boston's [279]
doctors dared to test the procedure, at Mather's prompting.

With the rather meagre information from the Royal Transactions, and in face of the most violent opposition, on the 27th of June, 1721, he inoculated his only son, about 15 years of age,[19] and a middle-aged negro man and child of the family servants, with complete success. This was but two months later than the inoculation of Lady Mary's daughter in London, and there is no evidence that it could have been known in, or had the least influence in introducing the practice in New England.

Thus the communication of Timoni and Pylarini issued in the august Transactions of the Royal Society, little heeded in Great Britain, bore noble fruit in New England, through the Mathers' zest for knowledge and usefulness.[20]

Dr. Boylston, 40 years old at this time, erudite and respected, became the victim of a general spirit of malice and persecution. He was reviled, assaulted in the streets; his house mobbed and repeatedly harried. Parties patrolled the town with halters ready to hang him on the first convenient tree. For 14 days, at one time, he was obliged to remain hidden in a secluded place, unknown to any of his family but his wife, while by day and night parties sought for him.

Even after the rancor of the multitude had in some measure subsided he ventured to visit his patients only at night, and in disguise.

Many fellow physicians were among his chief contemners, abetting the lawlessness rampant in the community. Dr. William Douglass, a resolute and accomplished man, a comparatively recent comer, was foremost among these, of whom

---

[19] Age variously stated from 4 to 15.

[20] Dr. Holmes says: "Set this good hint of Cotton Mather against that letter of his to John Richards, recommending the search after witch marks, and the application of the water-ordeal, which means, throw your grandmother into the water if she has a mole on her arm; if she swims, she is a witch and must be hung; if she sinks, the Lord have mercy on her soul."—O. W. Holmes, The Med. Prof. in Mass.

[279] it has been recorded "that he was always positive and sometimes accurate." Though deriding the proposal of inoculation, he claimed that he had himself furnished Cotton Mather with the knowledge of the subject; for in a tract published in 1730 Douglass says: "The small pox spread in Boston in 1721, and the Rev. Dr. Cotton Mather having had the use of these papers from Dr. William Douglass (i. e. the writer of these notes), surreptitiously, without the knowledge of his informer, that he might have the honor of a new fangled notion, set an undaunted operator at work." All untrue, I presume, except the undesigned compliment to the intrepid Dr. Boylston.

Gov. Thomas Hutchinson, last Colonial Governor of Massachusetts, relates some things of interest in this connection.[21]

[280] "In 1721 the small pox made great havoc in Boston and neighboring towns, brought into the harbor about the middle of April by the Saltortugas fleet.[22]

Having been prevented spreading for near 20 years before, all born within that time, with those who had escaped it before were liable to the distemper.[23]

Inoculation was introduced upon the occasion, contrary to the minds of the inhabitant in general, and not without hazard to the lives of those who promoted it from the rage of the people. Dr. C. Mather, one of the principal ministers of Boston, had observed in the Philosophical transactions, letters . . . giving a very favorable account of the operation, and recommending a trial to the physicians of the town when small pox first began to spread, but they all declined it except Dr. Boylston, who made himself very obnoxious. Many sober, pious people were struck with horror, and were of opinion that if any of his patients should die he ought to be treated as a murderer."

The aged Increase Mather (82 years) issued an address to

---

[21] History of Mass.

[22] Vessels salt laden from the Tortugas.

[23] According to the records of the selectmen of Boston, of 5889 who took it in the city, 884 died, about one in seven. Boston had the year before, but 11,000 inhabitants, so that more than one-half of them must have participated in the epidemic as sufferers.

the public in the hope of enlightening general opinion. In [280]
tone and character it was most temperate and reasonable. He wrote:

"It has been questioned whether inoculating the small pox be a lawful practice.

"I incline in the affirmative because I have read that in Smyrna, Constantinople and other places thousands of lives have been saved by inoculation, and not one of thousands have miscarried by it.

"This is related by wise and learned men who would not have imposed on the world a false matter.

"Therefore a great regard is due to it. . . And we have an army of Africans among ourselves who have themselves been under it, and give us all the assurance which a rational mind can desire that it has been used in Africa."

Cotton Mather, too, says:

"I was first informed of it by a Garamantee[24] servant of my own long before I knew that any European or Asiatic had the least acquaintance with it, and some years before I was enriched with the communications of the learned foreigners whose accounts I found agreeing with what I had received from my servant when he showed me the scar of the wounds made for the operation, and said that no person ever died of the small pox in his country who had the courage to use it.

"I have since met with a considerable number of those Africans who all agree in one story; that in their country grandy many dy of small pox; but now since they know this way, people take juice of small pox, and cutty skin and put in a drop; then by-nby a little sicky, sicky! then few little things like small pox; and nobody dy of it; and nobody have small pox any more."[25]

May not here lie the explanation of the Mathers' putting ready faith in what, but for this long known testimony of their African servants, would have seemed but an heathen legend strongly flavored with witch-craft or diablerie.

Dr. Boylston was a zealous botanist and naturalist and corresponded with Sir Hans Sloane, President of the Royal

---

[24] Garamantez, a country between the western end of the Saraha and the Atlantic coast.

[25] The Medical Profession in Massachusetts, O. W. Holmes.

[280] Society, before these days of stress due to inoculation. In 1723, on the invitation of Sir Hans, Dr. Boylston went to London, where he seems to have remained two or three years. He was received by the King, Geo. I,—prepared a dissertation on inoculation, dedicated to Princess Caroline, and published by the Royal Society, of which he was made a Fellow, and was presented by the King with 1000 guineas in token of the Royal appreciation of his services and influence in the cause of inoculation.

On page 29 of the "Many Sided Franklin" is reproduced, in fac simile, the notice which appeared in the Pennsylvania Gazette, Benjamin Franklin's own paper under date of Dec. 1736, in Franklin's 30th year.

"Understanding tis a current report that my son Francis, who died lately of the small pox, had it by inoculation; and being desired to gratify the public in that particular; inasmuch as some people are by that report . . . deterred from having that operation performed on their children, I do hereby sincerely declare that he was not inoculated but received the Distemper in the common way of infection; and I suppose the Report could only arise from its being my known opinion that Inoculation was a safe and beneficial Practice; and from my having said among my acquaintances that I intended to have my child inoculated as soon as he should have received sufficient strength from a flux with which he had long been afflicted."—B. Franklin.

Franklin afterwards wrote "I long regretted him bitterly, and still regret I had not given him the disease by Inoculation." For the remainder of his long life everything connected with small pox and inoculation must have clung closely to his remembrance and reflections. Franklin died early in 1790. The immortal Jenner had been zealously engaged for years in the elucidation of a safer and simpler remedy for the great distemper, under difficulties, discouragements and scepticism sufficient to have dazed one not of heroic mould.

In 1797 Jenner presented to the Royal Society, of which he was a Fellow, a manuscript giving the result of his researches and experiments, with the modest title of

"AN [280]
INQUIRY
INTO
THE NATURAL HISTORY OF A
DISEASE KNOWN IN GLOUCESTERSHIRE
BY THE NAME OF THE COW-POX."[26]

The Council of the Royal Society declined to recommend it for publication, intimating that it would entail the loss of such scientific repute as he then possessed gained through [281] previous publications in that body.[27]

In June the next year, 1798, he published himself in small quarto form a pamphlet of some 70 pages, giving the matured results of his researches and experiments, with a somewhat more elaborate title than that of the manuscript declined by the Council of the Royal Society, to-wit:

"AN
INQUIRY
INTO
THE CAUSE AND EFFECTS
OF
THE VARIOLAE VACCINIAE,
A DISEASE
DISCOVERED IN SOME OF THE WESTERN COUNTIES OF ENGLAND,
PARTICULARLY
GLOUCESTERSHIRE,
AND KNOWN BY THE NAME OF
THE COW-POX.
BY EDWARD JENNER, M. D., F. R. S., ETC."

It was dedicated to his friend, C. H. Parry, M. D., at Bath.

In the succeeding year, 1799, a second edition was published, dedicated to the King.

---

[26] The manuscript, with some letters of John Hunter to Dr. Jenner, were given to Sir James Paget, in 1877, by a lady who had received them by will from her cousin, Colonel Jenner, son of Dr. Jenner. In 1879 Sir James Paget gave them to the library of the R. C. S. of London.

[27] The original manuscript is now in the Library of the Royal College of Surgeons, London, Crookshank, Vol. I, p. viii.

[281] With what interest would Franklin have welcomed the knowledge of Jenner's researches on inoculation with the cow pox, or vaccination as commonly known, if he had survived, in whole mind, to that date but eight years only after his death.

He was a Bible student, a great admirer of its impressive English, and well acquainted with its contents. If the opportunity had been of his forecasting the result of Jenner's devoted work, might he not have recalled Numbers xvi, 48, where it is recorded of Aaron, "and he stood between the dead and the living and the plague was staid."

APPENDIX I.

BENJAMIN FRANKLIN'S LETTER.

SOME
ACCOUNT
OF THE SUCCESS OF
INOCULATION
FOR THE
SMALL-POX
IN
ENGLAND AND AMERICA.
TOGETHER WITH
PLAIN INSTRUCTIONS,
BY WHICH ANY PERSON MAY BE ENABLED TO PERFORM THE
OPERATION, AND CONDUCT THE PATIENT THROUGH THE DISTEMPER.

LONDON:
PRINTED BY W. STRAHAN, M. DCC. LIX.

London, Feb. 16, 1759.

Having been desired by my greatly esteemed friend, Dr. William Heberden, F. R. S., one of the principal Physicians of this city, to communicate what account I had of the success of Inoculation in Boston, New-England, I some time since wrote and sent to him the following paper, viz.:

About 1753 or 54, the small-pox made its appearance in Boston, New-England. It had not spread in the town for many years before, so that there were a great number of the inhabitants to have it. At first, endeavors were used to prevent its spreading, by removing the sick, or guarding the houses in which they were; and with the same view Inoculation was forbidden; but when it

was found that these endeavors were fruitless, the distemper breaking out in different quarters of the town, and increasing, Inoculation was then permitted. [281]

Upon this, all that inclined to Inoculation for themselves or families hurried into it precipitately, fearing the infection might otherwise be taken in the common way; the numbers inoculated in every neighborhood spread the infection likewise more speedily among those who did not chuse Inoculation; so that in a few months the distemper went thro' the town, and was extinct; and the trade of the town suffered only a short interruption, compar'd with what had been usual in former times, the country people during the seasons of that sickness fearing all intercourse with the town.

As the practice of Inoculation always divided people into parties, some contending warmly for it, and others as strongly against it; the latter asserting that the advantages pretended were imaginary, and that the Surgeons, from views of interest, conceel'd or diminish'd the true number of deaths occasion'd by Inoculation, and magnify'd the number of those who died of the Small-pox in the common way: It was resolved by the Magistrates of the town, to cause a strict and impartial enquiry to be made by the Constables of each ward, who were to give in their returns upon oath; and that the enquiry might be made more strictly and impartially, some of the partisans for and against the practice were join'd as assistants to the officers, and accompany'd them in their progress through the wards from house to house. Their several returns being received, and summed up together, the numbers turn'd out as follows,

Had the Small-pox in the common way.		Of these died.		Received the distemper by Inoculation		Of these died.	
Whites.	Blacks.	Whites.	Blacks.	Whites.	Blacks.	Whites.	Blacks.
5059	485	452	62	1974	139	23	7

It appeared by this account that the deaths of persons inoculated, were more in proportion at this time than had been formerly observed, being something more than one in a hundred. The favourers of Inoculation however would not allow that this was owing to any error in the former accounts, but rather to the Inoculating at this time many unfit subjects, partly through the impatience of people who would not wait the necessary preparation, lest they should take it in the common way; and partly from the importunity of parents prevailing with the Surgeons against their judgment and advice to inoculate weak children, labouring under other disorders; because the parents could not immediately remove them out of the way of the distemper, and thought they

[281] would at least stand a better chance by being inoculated than in taking the infection as they would probably do, in the common way.

The Surgeons and Physicians were also suddenly oppressed with the great hurry of business, which so hasty and general an Inoculation and spreading of the distemper in the common way must occasion, and probably could not so particularly attend to the circumstances of the patients offered for Inoculation.

[282] Inoculation was first practiced by Dr. Boylstone in 1720.[28] It was not used before in any part of America, and not in Philadelphia till 1730. Some years since, an enquiry was made in Philadelphia of the several Surgeons and Physicians who had practis'd Inoculation, what numbers had been by each inoculated, and what was the success. The result of this enquiry was that upwards of 800 (I forget the exact number) had been inoculated at different times, and that only four of them had died. If this account was true, as I believe it was, the reason of greater success then than had been found in Boston, where the general loss by Inoculation used to be estimated at about one in 100, may probably be from this circumstance; that in Boston they always keep the distemper out as long as they can, so that when it comes, it finds a greater number of adult subjects than in Philadelphia, where since 1730 it has gone through the town once in four or five years, so that the greatest number of subjects for Inoculation must be under that age.

Notwithstanding the now uncontroverted success of Inoculation it does not seem to make that progress among the common people in America, which at first was expected. Scruples of conscience weigh with many concerning the lawfulness of the practice: And if one parent or near relation is against it, the other does not chuse to inoculate a child without free consent of all parties, lest in case of a disastrous event, perpetual blame should follow.

These scruples a sensible Clergy may in time remove. The expense of having the operation performed by a Surgeon weighs with others, for that has been pretty high in some parts of America; and when a common tradesman or artificer has a number in his family to have the distemper, it amounts to more money than he can well spare. Many of these, rather than own the true motive for declining Inoculation, join with the scrupulous in the cry against it, and influence others. A small pamphlet wrote in plain language by some skilful Physician, and publish'd, directing what preparations of the body should be used before the Inoculation of children, what precautions to avoid giving the infection at the same time in the common way, and how the

[28] The year was 1721.

operation is to be performed, the incisions dressed, the patient [282]
treated, and on the appearance of what symptoms a Physician is to be called, &c., might, by encouraging parents to inoculate their own children, be a means of removing that objection of the expense, render the practice much more general, and thereby save the lives of thousands.

The Doctor, after perusing and considering the above, humanely took the trouble (tho' his extensive practice affords him scarce any time to spare) of writing the following Plain Instructions,[29] and generously at his own private expense, printed a very large impression of them, which was put into my hands to be distributed gratis in America. Not aiming at the prize which however is justly due to such disinterested benevolence, he has omitted his name; but as I thought the advice of a nameless Physician might possibly on that account be less regarded I have, without his knowledge, here divulged it. And I have prefixed to his small but valuable work these pages, containing the facts that have given rise to it; because facts generally have, as indeed they ought to have, great weight in persuading to the practice they favour. To these I may also add an account I have been favoured with by Dr. Archer, physician to the Small-pox Hospital here, viz.:

	PERSONS
There have been inoculated in this Hospital since its first institution to this day, Dec. 31, 1758...	1601
Of which number died	6
Patients who had the Small-pox in the common way in this Hospital, to the same day.....	3856
Of which number have died.....	1002

By this account it appears, that in the way of inoculation there has died but one patient in 267, whereas in the common way there has died more than one in four. The mortality indeed in the latter case appears to have been greater than usual, (one in seven, when the distemper is not very favourable, being reckoned the common loss in towns by the Small-pox, all ages and ranks taken together) but these patients were mostly adults, and were received, it is said, into the Hospital after great irregularities had been committed. By the Boston account it appears, that, Whites and Blacks taken together, but about one in eleven died in the common way, and the distemper then was therefore reckoned uncommonly favourable. I have also obtained from the Foundling Hospital (where all the children admitted, that had not had the Small-pox, are inoculated at the age five years) an account to

---

[29] To make them the plainer and more generally intelligible, the Doctor purposely avoided, as much as possible, the medical terms and expressions us'd by Physicians in their writings.

[282] this time of the success of that practice there, which stand thus, viz.

Inoculated, boys 162, girls 176, in all.....338
Of these died in Inoculation, only..... 2
An the death of one of these two was occasioned by a worm fever.

On the whole, if the chance was only as two to one in favour of the practice among children, would it not be sufficient to induce a tender parent to lay hold of the advantages?

But when it is so much greater, as it appears to be by these accounts (in some even as thirty to one) surely parents will no longer refuse to accept and thankfully use a discovery God in his mercy has been pleased to bless mankind with: whereby some check may now be put to the ravages that cruel disease has been accustomed to make, and the human species be again suffered to increase as it did before Small-pox made its appearance. This increase has indeed been more obstructed by that distemper than is usually imagin'd: For the loss of one in ten thereby is not merely the loss of so many persons, but the accumulated loss of all the children and children's children the deceased might have had, multiplied by successive generations.

B. Franklin,
of Philadelphia.

WILLIAM HEBERDEN'S INSTRUCTIONS.

PLAIN
INSTRUCTIONS
FOR
INOCULATION
IN THE
SMALL-POX;
BY WHICH ANY PERSON MAY BE ENABLED TO PERFORM THE OPERATION, AND CONDUCT THE PATIENT THROUGH THE DISTEMPER.

LONDON:
PRINTED AT THE EXPENCE OF THE AUTHOR, TO BE GIVEN AWAY IN AMERICA.
M. DCC. LIX.

Introduction.

Inoculation, as I am well assured, would be much more general among the English on the Continent of America and of course many lives would be saved, if all, who are desirous of being inoculated, could easily be furnished with the means of having it done.

This consideration has engaged me to draw up a few short and

plain instructions, by which any person may be enabled to per- [283]
form the operation in a tolerable manner and to conduct the patient through the distemper in those places where it is not easy to procure the assistance of physicians and surgeons; and this practice has so greatly the advantage over every other way of communicating the Small-pox, that it would be the better to have inoculation performed by any body, or in any manner, than to suffer this disease to come on in the common way, though assisted with all the helps which art can afford.

Plain

Instructions, &c.

Of the season of the year proper for inoculation.

All seasons of the yeare are equally proper, as far as my experience goes; the bad sorts of Small-pox are not more common, or more fatal in hot or cold weather, than when the air is temperate. But as to the mild sorts, usually produced by inoculation, the extremes of weather in England are so far from bringing any danger, that they bring little or no inconvenience to the patients.

That the hottest weather is not too hot for inoculation is plain from this consideration, that it has been and is practised with success in the hottest of the English colonies in the West Indies. There is certainly this advantage attending hot weather, that it allows us to keep the doors or windows of the sick room open, whence arises such a constant renovation and purity of the air, as would, in my opinion, abundantly make amends for all the pretended inconveniences arising from heat, though they were much greater than have ever yet been supposed.

On the other hand, I know of no disadvantages attending winter which will not be sufficiently remedied by fires; and these too will help to make the air of the room constantly fresh.

If I was to make an objection against any season of the year (which I do not) it should be against the spring, though this has usually been chosen by inoculators; for it is in spring, more than in any other season, that many chronical and hereditary distempers are more particularly apt to make their appearance, and to be most troublesome.

Of the Age, Constitutions, &c. of the Persons to be Inoculated.

Children are very successfully inoculated at a month or six weeks old; and there is a particular advantage in their undergoing it while they are at the breast, as they make no difficulty of sucking; and the milk is the best food and physic which they can take. From the time of their being weaned to the tenth year, every year seems equally proper; only the longer it is delayed,

[283] the more danger will there be that the distemper may be catched in the common way. After the first ten years every year is, perhaps, better than the following one; though inoculation may always be practiced with great advantages over the other ways of receiving the small-pox at all ages, till we come to an age so advanced, that the consideration of the infection being perhaps less easily propagated among old people, joined with that of his having but little of life to lose, may make an old man not think it worth his while to submit to it.

It would be madness to inoculate one who was already laboring under some other acute (or violent) distemper. But as to sickly constitutions, and chronical or habitual disorders, I know none which heighten the danger of the Small-pox by having a particularly malignant influence upon it.

Many persons ill of venereal distempers, and others in the last stages of consumption, scrofulous and dropsical disorders, who have accidentally catch'd the Small-pox, have been observed to have it in the most favorable manner.

No one, therefore, ought to be discouraged from being inoculated merely on account of a weakly constitution, or because he is tainted with some hereditary or tedious distempers; unless they were so slight, or so dangerous as to make a probability that he might be cured, or would die before he would be in danger of catching the disease in the common way.

For such an one would receive as much benefit from inoculation as the healthiest person; nor, as far as I have seen, has he reason to fear more danger from it; care only should be taken to choose that time when he happens to be most free from his habitual complaints.

But though I see no reason to refuse the inoculating of such persons as I have been mentioning, yet there are others on whom no consideration whatever should tempt us to perform it, unless we can suppose an absolute certainty of their catching it in the common way; the persons I mean are breeding women.

There is a certain time in every month, during which it has been judged improper to inoculate women. This caution I find by experience to be useless; having known several inoculations at that time without any sort of inconvenience; nor is there any reason for contriving the inoculation so as that the courses shall not happen during the height of the distemper. Let them come when they will, they do no kind of harm, and seem of no consequence, and may be wholly disregarded. They are observed almost always to come on, even out of their regular course, at the eruption of the Small-pox, whenever the patient happens to be considerably full of it; I have talked with physicians who have thought this irregular appearance beneficial, but never heard of any who had reasons to think it hurtful.

Children under two years of age require no preparation; those who exceed this age, every other night for a fortnight before they are inoculated, should take four or more grains of rhubarb, or equal parts of rhubarb and jalap, so as to occasion one stool extraordinary the next day. If ever they had been used to drink any thing stronger than water, or very weak small beer, they must at this time be forbidden it; and they should eat meat only every other noon. As to their play and exercise without doors they may go on just as they used to do.

Such as are grown up may likewise be sufficiently prepared in a fortnight; during which they may be allowed to make half their dinner every day on meat; puddings, tarts, greens or roots, must make the other half. They should wholly abstain from all strong liquors, unless habit has made some absolutely necessary; and in this case they must do with as little as they can. Four such gentle purges should be taken in this time, as that each of them should occasion not above four or five motions. Bleeding is unnecessary. All great fatigue, and violent exercise should be forborn, together with all intense thinking, and application to perplexing business.

Of the Manner of Inoculating.

Every one would desire to be inoculated from as healthy a person as he could, though I believe the health of the person, from whom the matter is taken, is of very little consequence: it is of none, whether he has a good or bad sort, whether he has few or many.

The proper time for taking the matter is just before it would have dried up. In order to take it, any sort of thread must be had ready about the thickness of a common pin.

The head of one of the Small-pox may be opened with a needle, or pin, and then the thread is to be drawn along this, and other pocks, if it be necessary, till it is thoroughly wetted. The thread, thus wetted, may be put into a common pill-box, into which the air can easily get, and here it will soon become dry; you may either inoculate with it as soon as ever it is dry (and I advise it not to be used while it is wet) or you may then put it into a close box or vial, (for it will keep without spoiling after it has been dried) and use it some days after. It has been known to keep its power of communicating the infection for many [284] months. Half an inch of that part of the thread which has been well soaked in the matter, (and this will be known by its stiffness) must be cut off at the time of use. The person who is to be inoculated, must have the fine edge of a pen knife or lancet drawn along that part of the arm where issues are usually made; and it must go deep enough to make the blood just begin

[284] to appear; that is to say, the slightest incision which can be made is sufficient: this small wound should be a little more than half an inch long. In, or rather upon, this, the bit of thread must be put, and a small plaster of what is called the Ladies black sticking plaister, or a plaister of simple diachylon, is all which need be put over it to keep it on.

The inoculation may be performed in both arms for security's sake, least one of the plaisters should happen to come off; though if it were done in only one arm, I believe it would very rarely fail of success. If the person to be inoculated has an issue, the infected thread may be put into that without making any other incision.

Of the Management of the Patient after Inoculation.

After twenty-four hours the plaister and thread may be taken away; and from this time the incision need not be covered with any plaister, or roller, till it begins to inflame and grow sore; when for the ease of the patient it must be defended from the air, and from the rubbing of the cloaths by a bit of what is called in the shops The common plaister.

The inconvenience attending its being covered with any plaister or pultis after the first twenty-four hours is this, that these applications continued for four or five days will occasion a redness on the skins of many people, and in some will cause a considerable degree of erysipelatous (or tettery) eruption. At the time therefore when some appearance of the infection may be expected about the incision, it will be a little doubtful when a plaister has been applied, whether the discolouring and inflammation be owing to the expected distemper, or merely to the plaister. This will keep the patient and his attendants in an unnecessary suspense; and, if there should happen to be no eruption, their uncertainty would be much more perplexing, and might never be cleared up; whereas if such an inflammation came on four or five days after the incision, when no application had been used to the part, there could be no doubt of its arising from the infected thread; and it seems to be the general opinion in England, that a regular inflammation and suppuration of the little wound, proceeding from the infection of the variolous (or pocky) matter, will alone, without any eruption, fully secure the patient from having the Small-pox afterwards. Add to this, that there is not the least use in the applying of any thing to so slight an incision, till it begins to inflame and be sore.

After the plaister is applied, a fresh one may be put on once or twice every day.

If the inoculation should fail of communicating the infection, it may safely be repeated after waiting one month; for if it

does not succeed, it does no harm, and the patient is just in [284]
the same state with those on whom it has never been attempted.

The inoculated persons may be allowed to go out every day, till the symptoms of the fever begin to come on; the confining them to their chambers immediately after the inoculation is performed, will have no good effect on their general health, and often a bad one on their spirits, and is not attended, as far as I know, with any advantage. But they must still observe the caution before mentioned, of avoiding all fatigue of body or mind. The diet may be the same as in the preparation; and, if the patient has not a stool every day, one drachm or more of kuritive electuary may be taken to procure one.

About the seventh day from the inoculation the patient generally begins to be heavy and languid, to feel weariness, headach, sickness, and the other forerunners of a fever; with all which he is so much oppressed as to find himself easiest in bed all the time that these symptoms continue, which is usually three days.

During this time barley-water, thin gellies, sage or balm tea, toast and water, thin gruel, milk-porridge, or some such liquor is commonly all which can be borne; and there is no occasion to press the patient to take any thing else; but if his stomach would bear he might be allowed almost whatever he would choose, meat and broth excepted.

Besides the complaints already mentioned, young children, just before the Small-pox appears, are apt to fall into convulsions; which seldom fail to occasion some alarm, though they are frequently forerunners of a favorable sort, and are very rarely attended with any real danger.

Troublesome as these symptoms are, it is not often that remedies are required for any of them, except the vomiting; and this is sometimes so continual as greatly to weaken the patient both by the fatigue of it, and by its hindering of him from taking any nourishment.

When this is the case, it will be found by experience that in the variolous (or small-pox) fever, as well as in other fevers, eight or ten grains of ipecacuanha will commonly check, if not entirely stop the vomiting, to the great relief of the patient.

They all vanish of themselves on the third day when the eruption (or breaking out) begins. After which the patient may either lie a-bed, or sit up, just as his strength and inclination prompt him. He must continue to abstain entirely from all liquors stronger than small beer, and from broth and meat of every kind; but may nourish himself with milk, panada, chocolate, Sago, gruels of all sorts, bread, biscuits, puddings, tarts, greens and roots. It will be right for him to drink frequently of some warm diluting liquors, such as thin milk porridge, whey,

[284] milk and water, balm or sage tea, toast and water, or warm water sweetened with preserved tamarinds, or any sort of syrup. It is still necessary, that he should have a stool every other day, and this may be commodiously procured, if there be occasion by a clyster of warm water only; a pint and a half will be sufficient for a grown person, and proportionately less for those who are younger.

As soon as the pocks are dry upon the face, the patient may be purged; and a gentle purge should be repeated every third day, till he has taken five. If he should have any cough or soreness of eyes, it will be necessary that he should lose some blood. After the first dose of physic he may begin to eat meat, and to take the air.

FINIS.

Appendix II.

From Pylarinus paper in the Philosophical Transactions, No. XXIX. 1717.

This medical operation which I am going to explain was not first discovered by the Improvers of Physic: but by a rude uncultivated People. It is not known who was the first inventor of it, but it is certain that it was first in vogue in Thessaly, in Greece, and hence, proceeding gradually through the neighboring countries and states, it at last arrived at the City of Byzantium, where it made very little noise for some years at first, and was seldom put in practice and only amongst the common people. But the small pox becoming lately very epidemical the method began to come more and more into practice, but still was never adopted by the people of rank and fashion till a certain Greek nobleman, of the ancient race of the Caryophille in the year 1701, toward the end of winter, asked me seriously what I thought of Inoculation, and whether he would advise me to try it upon his children, for at that time the distemper raged mortally all over the country. I told him I knew not what to say of an affair I was
[285] so ignorant of being entirely unacquainted with the new methods, and at the same time desired leave to talk to some operators about it.

Three days afterward when I went to him again . . . presently there came a Greek woman into the room, who explained the whole operation; though she understood nothing of the true cause how the small pox is produced by inoculation. To all this she added experience and innumerable instances of its good success, some of which I had affirmed to me by people of the greatest veracity. She never inoculates except in winter; she is very nice in her choice of the pus for she will by no means take it promiscuously from every subject, but when the disease is epidemical, she takes the pus from ripe pustules of some girl of a

good habit, and a favorable kind of pock, pricking it with a [285]
pin and squeezing it gently out, and putting into a little shell or glass which must be very clean and not too cold. This little vessel, well covered with a cloth, she puts into the bosom of her servant to be kept warm and as quickly as possible proceeds to the operation. She advizes the air of the room. Proceeding to the operation she pricks the middle of the forehead, the temples, at the roots of the hairs, and also the chin and both cheeks with a steel or golden needle, spurting it in obliquely and separating the skin a little with the sharp point from the flesh below. Then with the same needle she introduces the pus into the little orifice, and ties a bandage upon the parts.

In the meantime the patient must lie moderately abed and not too much.

No wine or meat allowed until the 40th day.