

Appendix : Containing, The new method of inoculating for the small-pox : delivered in a lecture in the University of Pennsylvania, on the 20th of February 1781 / by Benjamin Rush.

Contributors

Rush Benjamin, 1746-1813.
Royal College of Physicians of Edinburgh

Publication/Creation

Philadelphia : printed & sold by Prichard & Hall, 1789.

Persistent URL

<https://wellcomecollection.org/works/bcpqe8ut>

Provider

Royal College of Physicians Edinburgh

License and attribution

This material has been provided by This material has been provided by the Royal College of Physicians of Edinburgh. The original may be consulted at the Royal College of Physicians of Edinburgh. where the originals may be consulted.

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

APPENDIX:

CONTAINING,

THE

NEW METHOD

OF

Inoculating for the Small-Pox.

DELIVERED IN A LECTURE IN THE UNIVERSITY OF PENNSYLVANIA, ON THE 20th OF FEBRUARY, 1781.

ALSO,

OBSERVATIONS

ON THE

Duties of a Physician,

AND THE

METHODS OF IMPROVING MEDICINE,

ACCOMMODATED TO THE PRESENT STATE OF SOCIETY
AND MANNERS IN THE UNITED STATES.

DELIVERED IN THE UNIVERSITY OF PENNSYLVANIA, ON THE
7th OF FEBRUARY 1789, AT THE CONCLUSION OF A COURSE
OF LECTURES UPON CHEMISTRY AND THE PRACTICE
OF PHYSIC.

PUBLISHED AT THE REQUEST OF THE CLASS.

BY

BENJAMIN RUSH, M. D.

PROFESSOR OF CHEMISTRY IN THE UNIVERSITY OF
PENNSYLVANIA.

THE SECOND EDITION WITH ADDITIONS.

PHILADELPHIA:

PRINTED AND SOLD BY PRICHARD & HALL, IN MARKET
STREET NEAR FRONT STREET.

M.DCC.LXXXIX.

APPENDIX:

STATIONER
GOLDEN
STANDARD

THE
NEW METHOD

Prescribing for the Small-Pox.

PREPARED BY A SURGEON IN THE UNIVERSITY OF TORONTO
AND ASSISTANT TO THE HOSPITAL, MONTREAL.

ALSO,

OBSERVATIONS

On the Dues of a Physician,

METHODS OF IMPROVING MEDICINE

AND ADAPTING TO THE PRESENT STATE OF SOCIETY
AND MANNERS IN THE UNITED STATES.

THESE OBSERVATIONS AND METHODS OF IMPROVING MEDICINE
WAS READ AT THE ANNUAL MEETING OF THE AMERICAN MEDICAL
ASSOCIATION, HELD AT NEW-YORK, IN 1844.

BY THE AUTHOR, J. C. W. M.D.

J. C. W. M.D.

OF THE UNIVERSITY OF TORONTO.

NEW-YORK: PUBLISHED BY J. C. W. M.D.

1844.

PRINTED AND SOLD BY J. C. W. M.D.

NEW-YORK.

GENTLEMEN,

IT must afford no small pleasure to a benevolent mind in the midst of a war, which daily makes so much havoc with the human species, to reflect, that the small-pox which once proved equally fatal to thousands, has been checked in its career, and in a great degree subdued by the practice of INOCULATION.

It is foreign to my purpose to deliver to you the history of this art, and to mark the various steps that have attended its progress to its present state of improvement. We have yet to lament the want of uniformity and of equal success in the practice of it among physicians. A great number of pamphlets have been written upon the subject without exhausting it. There is still ample room left for the man of genius to exercise his talents for observation and reasoning upon it. The facts I mean to lay before you are so inconsiderable, compared with what still remain to be known upon this subject, that I have to request, when your knowledge in it is compleated, that you would bury my name in silence; and forget that ever I ventured to lay a single stone in this part of the fabric of science.

IN treating upon this subject, I shall

I. CONSIDER the proper subjects and seasons for inoculation.

II. I SHALL describe the method of communicating the disorder.

III. I SHALL

III. I SHALL consider the method of preparing the body for the small-pox.

IV. I SHALL mention the treatment proper during the eruptive fever ; and,

V. POINT out a few cautions that are necessary after the disease is over.

I. FORMERLY there were great difficulties in the choice of the subjects for *Inoculation*. But experience teaches us that it may be practised in every stage of life, and in almost every condition of the human body. In infancy the periods before and after dentition are to be preferred. But we seldom see any great inconveniencies from submitting to the general necessity of inoculating children between the ages of three months and two years. Indeed we often see children cut three or four teeth during the preparation and eruptive fever without the least addition being made to any of the troublesome symptoms which accompany the small-pox. There is one inconvenience attending the choice of the first months of infancy for inoculating, and that is, the matter often fails of producing the disorder in such young subjects. I have frequently failed in two or three attempts to communicate the disorder to children under four months old with the same matter that has succeeded in a dozen other patients inoculated at the same time. When the inoculation succeeds in such tender subjects, they generally have less fever, and fewer pustules, than are common in any future period of life.

ALTHOUGH a physician would prefer a patient in good health to any other as a subject for inoculation, yet cases often occur in which it is necessary to communicate

tate the small-pox while the body is affected with some other disorder. I can with pleasure inform you, that the small-pox is rendered so perfectly safe by inoculation, that there are few chronic diseases which should be considered as obstacles in the way of it. I have inoculated patients labouring under a tertian fever, obstructed viscera, the whooping cough, the hypochondriasis, the asthma, the itch, and other cutaneous disorders, and even pregnant women, with the same, and in some instances, with greater success than persons in perfect health. Doct. *Cullen* informs us that he has seen inoculation succeed in scrophulous patients. A physician in *Jamaica* informed me that he had inoculated Negroes with success in the worst stage of the yaws. To these facts I must add one more extraordinary than any that has been yet mentioned: Doct. *Brown*, my late colleague in the care of the military hospitals, informed me, that he had seen inoculation succeed in patients who were seized, after the infection was communicated, with the hospital fever. The preparation of the body should be accommodated to the disease which affects it. Some physicians have thought the small-pox received in this way, was a remedy for other diseases, but my experience has not confirmed this opinion. On the contrary, I am disposed to think that no other change is produced by inoculation than by the regimen and medicines that are used to prepare the body for the small-pox. Nor does the small-pox, during its continuance, afford any security against the attacks of other diseases. I have seen the most alarming complication of the small-pox and measles in the same person.

THE seasons commonly preferred for inoculation in this country are, the spring and fall. It may be practised

tified with equal safety in the winter, a due regard being had to the temperature of the air in the preparation of the body.

THE principal objection to inoculating in the summer months in this climate, arises from the frequency of bilious disorders at that season, to which the preparation necessary for the small-pox probably disposes the body. This caution applies more directly to children who at a certain age are more subject than grown people to a disorder in their bowels in warm weather.

II. THE methods of communicating the small-pox by inoculation, have been different in different countries, and in the different æras of its progress towards its present stage of improvement. The scab, doffel of lint, and the thread impregnated with variolous matter and bound up in a gash in the arm, have been laid aside.

WE are indebted to Mr. Sutton for the mode of communicating it by a slight puncture with the point of a lancet, or needle, dipt in fresh matter. As it is difficult sometimes to procure matter in a fresh state, I have been led to use it with equal success by preserving it on lint in a box, and moistening it with cold water just before I used it. Matter may be kept in this way for a month without losing its infectious quality, provided it be not exposed to heat or moisture. The former destroys its power of infecting as certainly as the salt of tartar destroys the acidity of vinegar. Moisture by remaining long upon the matter, probably destroys its virulence by subjecting it to fermentation. The longer matter has been kept in a general way, the longer the distance will be between the time of
of

of communicating the disorder and the eruptive fever. It will be proper always to yield to the prejudices of our patients in favour of matter taken from persons who have but few pustules. But I am persuaded from repeated observations, that the disease is no ways influenced by this circumstance. I am satisfied likewise that there is no difference between the effects of the matter, whether it be taken in its watery or purulent state. The puncture should not be larger than is sufficient to draw one drop of blood, but it should always be made by a *sharp* lancet, for the sudden inflammation and suppuration, excited by a dull lancet, sometimes throw off the matter so as to prevent its infecting the body*. No plaster or bandage should be applied over the puncture. It should be made in the left arm of all subjects. The objections to inoculating in the leg are too obvious to be mentioned. I have heard of the disease being communicated by rubbing the dry skin with the matter. My own observations upon this subject give me reason to suspect the facts that are contained in books relative to this mode of infecting the body. I have bound large pieces of lint dipt in fresh matter for 24 hours upon the arm, without producing the disorder. A practitioner of physic in New-Jersey informed me that he once gave a considerable quantity of fresh variolous matter in a dose of physic without infecting his patient. I suspect the matter that produces the disease is of the same nature with certain poisons, which require to be brought in contact with a wound or sore in the body before they produce their effects. I deliver this opinion with diffidence. The
subject

* I am disposed to believe that the external applications which are used by the Indians for the cure of the bite of poisonous snakes, act only by exciting inflammation and suppuration, which discharge the poison from the wound before it is absorbed. All their external remedies are of a *stimulating* nature.

subject stands in need of more experiments and investigation.

III. I COME now to consider the best method of preparing the body for the small-pox. This must be done, 1st by DIET, and 2dly by MEDICINE. The DIET should consist chiefly of vegetables. I have never seen any inconvenience from the free use of milk as a part of the preparative diet. In some habits, where a morbid acid prevails in the stomach, we may indulge our patients in a little weak flesh broth two or three times a week with safety. Tea, coffee, and even weak chocolate, with biscuit or dry toast, may be used as usual, by persons accustomed to that kind of aliment. Wine and spirits of all kinds should be withheld from our patients during the preparation. The more acedcent their drinks are, the better. It is unnecessary that this change in the diet should take place till a day or two before the time of communicating the disorder. The system accommodates to a vegetable and low diet in the course of three weeks or a month, so as to defeat in some measure the advantages we expected from it. The good effects of it appear to depend in a great degree upon the *suddenness* with which we oblige our patients to conform to it. For this reason, when we are called upon to inoculate persons who have lived more than three or four weeks upon a low diet, we should always direct them to live a few days upon animal food before we communicate the disorder to them. By these means we may produce all the good effects of the *sudden* change in the diet I have already mentioned. 2. The MEDICINES most commonly used to prepare the body for the small-pox are antimony and mercury. The latter has had the preference, and has been given in large quantities under a notion of

of its being a specific antidote to the variolous matter. Many objections might be made to this opinion; I shall mention only three.

1. WE often see the disorder in a high degree after the system is fully impregnated with mercury.

2. WE often see the same salutary effects of mercury when given before the disorder is communicated to the body, that we perceive when it is given after inoculation; in which case we are sure the mercury cannot enter into mixture with the variolous matter so as to destroy it.

3. IF mercury acted specifically in destroying the variolous matter, it would render every other part of the preparation unnecessary, but this we know is not the case, for the neglect or improper use of the vegetable diet or cool regimen is often attended with an extraordinary number, or virulence of the small-pox, even in those cases where mercury is given in the largest quantity.

THE way in which mercury prepares the body for the small-pox, seems to be by promoting the several excretions, particularly that by perspiration, which by diminishing the quantity of the fluids and weakening the tone of the solids, renders the system less liable to a plentiful eruption of the small-pox. But I object to the use of this medicine for the following reasons.

1. IT effectually deprives us of all the benefits of the cool regimen; for mercury, we know, always *disposes* the system to take cold.

2. ALL the good effects of mercury may be procured by PURGES which do not subject the body to the above mentioned inconvenience.

THE PURGES may be suited to the constitutions, and in some cases, even to the inclinations of our patients. I have seen jalap, rhubarb, senna, manna, aloes, soluble tartar, Glauber and Epsom salts, and the butternut pill, all given with equal success. The quantity should be sufficient to procure three or four stools every day. A little magnesia should always be mixed with rhubarb and jalap in preparing children. It will be sufficient for the mothers and nurses of infants to conform strictly to the vegetable diet. I have never seen any advantages from giving them even a single dose of physic.

IT is hardly necessary to observe, that the quality, dose, and number of purges are to be determined by the age, sex, and habits of our patients. A constitution enfeebled with a previous disease forbids the use of purges, and requires medicines of a restorative kind. Patients afflicted with cutaneous disorders bear larger and more frequent doses of physic than are indicated in more healthy subjects.

IN adult subjects of a plethoric habit, blood-letting is very useful on the third or fourth day after inoculation. We are not to suppose, that every fat person labours under a plethora. A moderate degree of fat is so far from rendering the disease more violent, especially in children, that I think I have generally found such subjects have the small-pox more favourably than others.

MODERATE exercise in the open air should be used during the preparation. But hard labour and every thing that promotes sweat or fatigue, as also the extremes of heat and cold, should be avoided.

IV. WE come now to consider the treatment of the body during the eruptive fever. On the eighth day after inoculation our patients are *generally* seized with the common symptoms of fever. Sometimes this fever appears on the sixth and seventh day after inoculation. But when it is irregular it is often delayed till the ninth and tenth days. I have seen many instances of it on the fourteenth, a few on the fifteenth and sixteenth, and *one* case in which it did not come on till the eighteenth day after the infection was communicated to the body*. The place where the puncture was made with the lancet or needle generally serves as an harbinger of the approaching fever. A slight inflammation appears about it and a pock rises up in the center. But this remark is liable to some objections. I have seen *four* instances in which the fever came on at the expected time, and the disorder went thro' all its stages with the greatest regularity, and yet there was no sign of an inflammation or pock near the spot where the puncture was made: even the puncture itself became invisible. On the other hand we sometimes see an inflammation and pock on the arm appear on the eighth and ninth days without any fever accompanying

* Since the publication of the first edition of this lecture, I have heard of two cases, in one of which the fever did not come on till the 20th, and in the other till the 21st day after the infection was communicated to the body. In some of these tedious cases, I have seen an inflammation and suppuration on the punctured part of the arm on the 8th day without any fever. Perhaps in these cases the inflammation and suppuration are only cuticular, and that the small-pox is taken from the matter which is formed by them.

panying them. Some physicians pretend that this inflammation and solitary pock are sufficient to constitute the disease, but repeated experience has taught me to be very cautious in relying upon these equivocal marks. It is true, I have sometimes seen patients secured against the small-pox both in the natural way and by inoculation where these marks have appeared; but I have as often seen such patients seized afterwards with the small-pox in the natural way to the great distress of families and mortification of physicians. Upon this account I make it a constant practice to advise a second or third inoculation where a fever and eruption have been wanting. As the absence of these symptoms is probably occasioned by the weakness or age of the variolous matter, or the too high state of preparation of the body, we should always guard against both, by making the puncture the second time with *fresh* matter, by subjecting our patients to a *less* abstemious diet, and by giving fewer doses of physic. I have heard it remarked, that if a slight redness and a small pimple appeared on the arm on the third day after inoculation, it was a sign the matter had infected the whole constitution. I acknowledge I have often seen a greater degree of redness on the third than on the second day after inoculation, but I have not been able to establish a diagnostic mark from it; for I have seen the disease produced on the usual days where the redness has appeared on the second day, and in some cases where it has not appeared until the eruptive fever.

I AM led here unwillingly to discuss the old question, Is it possible to have the small-pox in the natural way after inoculation?—In many of the cases

cases supposed to be the small-pox from inoculation, it is probable the matter has been taken from the chicken-pox, which resembles the small-pox in many of its peculiarities, but in none more than that of leaving pits or marks on the skin. But there are certainly cases where there are the most irrefragible proofs of the infection implanted by inoculation being of a variolous nature, where the disorder has been afterwards taken in the natural way. In these cases I would suppose the variolous matter produced only a topical or cuticular disorder. We see something analogous to this in nurses who attend patients in the small-pox. But further, this topical or cuticular infection may be produced by art in persons who have had the small-pox in the natural way. Some years ago I made a puncture on my left hand with a lancet moistened with variolous matter. On the eighth day an inflammation appeared on the place accompanied with an efflorescence in the neighbourhood of it, which extended about two inches in every direction from the spot where the puncture was made. On the eleventh day I was surprised to find two pocks (if I may venture to call them such) the one on the outside of the fourth finger of my left hand, and the other on my forehead. They remained there for several days but without filling with matter, and then dropped off rather in the form of a soft wart than of a common scab. Doct. *Way* of Wilmington repeated the same experiment upon himself, but with an issue to his curiosity more extraordinary than that I have just now related. On the eighth day after he had made a puncture on his hand, a pock appeared on the spot, which in the usual time filled with matter, from which he inoculated several children, who sickened at the usual time, and

and went thro' all the common stages and symptoms of the small-pox. It would seem from these facts, that it is necessary the small-pox should produce some impression upon the *whole* system, in order to render it ever afterwards incapable of receiving an impression of a similar nature. A fever and an eruption therefore seem necessary for this purpose. As the inflammation of the arm on the eighth day is a sign of the *topical* and cuticular infection, so an eruption (tho' ever so small) seems to be the only certain sign of the infection of the *whole* system. The eruption is the more decisive in its report in proportion as it comes out and goes off in the usual manner of the small-pox in the natural way. In those cases where patients have been secured against a second attack of the disorder, where there have been no *obvious* fever or *visible* eruption, I think I have observed an unusual inflammation, and a copious and long continued discharge of matter from the arm. Perhaps this may serve as an outlet of the matter, which in other cases produces the fever and eruption. I am the more disposed to embrace this opinion from the testimony which several authors have left us of the effects of ulcers in securing the body from the infection of the plague. The effects of issues are still more to our purpose. We observe a plentiful discharge of matter from them every time the body is exposed to cold, and the febrile effects of it upon the system are thereby frequently obviated. How far a ratio exists between the degrees of inflammation and the discharge of matter from the arm, and the degrees of fever and eruption, must be determined by future and very accurate observations. If it should appear that there are the least inflammation and smallest discharge where there have been the highest fever and most copious eruption,

eruption, and on the contrary, if it should appear that there are the greatest inflammation and discharge where there have been the least fever and smallest eruption, I must beg leave to add, without attempting in this place to explain the reasons of it, that the remark, if generally true, is liable to some exceptions. But the subject is involved in darkness; I shall be satisfied if I have brought you within sight of the promised land. Your own ingenuity, like another Jewish leader, must conduct you thither.

THE indications in the treatment of the body during the eruptive fever are,

1st. To regulate the degree of fever.

2d. To mitigate troublesome and alarming symptoms.

THE fever which produces the eruption is generally of the inflammatory kind. It sometimes therefore comes on with the symptoms of great heat, preceded with chilliness, and determination to the head and breast, and a full hard pulse. The remedies proper in this case are,

A. Bloodletting. The quantity to be drawn must be regulated by the violence of the symptoms, the constitution, habits, and even country of the patient, and by the season of the year. I have never found more than one bleeding, to the quantity of twelve or fourteen ounces, necessary in any stage or degree of the eruptive fever of the small-pox by inoculation.

B. Cool air is of the utmost consequence in the eruptive fever. The use of this remedy in fevers
marks

marks an æra, not only in the management of the small-pox, but in medicine. The degrees of cold should always be increased in proportion to the violence of the fever. Stove-rooms, so common in this country, should be carefully avoided. The more we oblige our patients to set up and walk in the open air, the better. Even in those cases where they languish most for the bed, they should be encouraged rather to lie upon, than *under* the bed cloaths. Children should be stript of flannel petticoats that come in contact with their skins, and even clouts should be laid aside if possible, without great inconvenience, and at any rate they should be often removed. Great and obvious as the advantages of cold air appear to be in the eruptive fever, it has sometimes been used to an excess that has done mischief. There are few cases where a degree of cold below forty of *Fahrenheit's* thermometer is necessary in this stage of the small-pox. When it has been used below this, or where patients have been exposed to a damp atmosphere some degrees above it, I have heard of inflammations of an alarming nature being produced in the throat and breast.

c. The bowels, more especially of children, should be kept open with gentle laxatives. And

d. Cool subacid drinks should be used plentifully until the eruption is completed.

Sometimes the small-pox comes on with a fever the reverse of that which we have described. The heat is inconsiderable, the pulse is weak, and scarcely quicker than ordinary, and the patient complains of but slight pains in the back and head. Here the treatment

ment should be widely different from that which has been mentioned when the fever is of the inflammatory kind. Bleeding in this case is hurtful, and even cool air must be admitted with caution. The business of the physician in this case is to excite a gentle action in the sanguiferous system, in order to produce the degree of fever which is necessary to the eruption of the pock. For this purpose he may recommend the use of warm drinks, and even of a warm bed, with advantage. If the eruption delays beyond the third day, with all the circumstances of debility that have been mentioned, I have frequently ordered my patients to eat a few ounces of animal food, and to drink a glass or two of wine, with the most desirable success. The effects of this indulgence are most obvious where the weakness of the fever and the delay of the eruption in children, have made it necessary to allow it to mothers and nurses.

THE small-pox by inoculation so seldom comes on with the symptoms of a putrid fever, that little need be said of the treatment proper in such cases. I shall only observe, that the cold regimen in the highest degree, promises more success in these cases than in any others. I have repeatedly been told, that when the small-pox appears confluent among the Africans, it is a common practice for mothers to rub their children all over with pepper, and plunge them immediately afterwards into a spring of cold water. This, they say, destroys a great part of the pock, and disposes the remainder to a kindly suppuration. From the success that has attended the use of the cold bath in putrid fevers in some parts * of Europe mentioned

C

in

* In a dissertation entitled "*Epidemia verna quæ Vratislaviam, Anno 1737 afflixit*," published in the appendix to the *Acta Nat. Curios.* Vol.

in a former lecture, I am disposed to believe in the efficacy of the African remedy.

THE fever generally lasts three days, and the eruption continues for a similar length of time, counting the last day of the fever as the first day of the eruption. But this remark is liable to many exceptions. We sometimes observe the eruption to begin on the first, and often on the second day of the fever, and we sometimes meet with cases in which a second eruption comes on after the fever has abated for several days, and the first eruption considerably advanced in its progress towards a complete suppuration. This is often occasioned by the application of excessive cold or heat to the body, or by a sudden and premature use of stimulating drinks or animal food.

I COME now to treat of the best method of mitigating troublesome and alarming symptoms.

THE only *alarming* symptom is convulsions, to which children are subject during the time of dentition. These have been less frequent, since the liberal and judicious use of cool air in the eruptive fever than formerly. They are often relieved by putting the feet in warm water. But a more effectual and speedy method of curing them is to expose our patients suddenly to the open air. The colder the air the quicker relief it affords in these cases. To prevent the return of the fits, as well as to allay any disagreeable and troublesome startings, a few drops of laudanum should be

Vol. X. it appears, that washing the body all over with cold water in putrid fevers, attended with great debility, was attended with success at *Breslaw* in *Slesia*. The practice has since been adopted we are told by several of the neighbouring countries. CULLEN'S FIRST LINES OF THE PRACTICE OF PHYSIC.

be given. They generally yield in a little while to this excellent remedy.

THE next symptom which demands the aid of our art, is the inflammation and sore on the arm. Poultices of all kinds should be laid aside, as tending to increase the inflammation and sore. Instead of these, the part affected should be washed three or four times a day with cold water*. This application is not only agreeable to our patients, but soon checks the progress of the inflammation, and disposes the sore to heal about the time the eruption is completed. The eyes should likewise be washed frequently with cold water, to secure them from pustules and inflammation. With respect to those alarming or troublesome symptoms which occur in those cases where the pocks are numerous, or confluent, they happen so seldom in inoculation that they do not come properly under our notice in this place. They are moreover fully discussed by Docts. *Boerhaave, Huxham, Hillary* and other practical writers.

V. I COME now, in the last place, to deliver a few directions that are necessary after the eruption and suppuration are over,

IT is well known that eruptions of an obstinate nature sometimes follow the small-pox. These I believe are often occasioned by a too *sudden* and speedy use of animal food. To guard against these disagreeable consequences of inoculation, it is of the utmost importance to enjoin a cautious and *gradual* return to the free use of an animal diet, and at the same time it will be necessary

* Where the inflammation on the arm has been so considerable as not to yield immediately to the application of cold water, I have used the vegetable mineral water with advantage.

cessary to give our patients a dose or two of purging physic.

THUS, gentlemen, have I delivered to you a short history of the new method of inoculating for the small-pox. I am aware that prejudices are entertained against some parts of it by physicians of the most ancient name and character among us. I have witnessed the effects of the old and new methods of preparing the body upon many thousand patients, and I am satisfied not only from my own observations, but from the experience of gentlemen upon whose judgments I rely more than upon my own, that the new method is by far the safest and most successful. Added to this, I can assure my pupils, that I have never known a single instance of a patient prepared and treated in the manner I have described, that ever had an abscess after the small-pox, or even such an inflammation or sore upon the arm as required the application of a poultice.

OBSERVATIONS

OBSERVATIONS

ON THE

Duties of a Physician,

AND THE

METHODS OF IMPROVING MEDICINE,

ACCOMMODATED TO THE PRESENT STATE OF SOCIETY
AND MANNERS IN THE UNITED STATES.

DELIVERED IN THE UNIVERSITY OF PENNSYLVANIA, ON THE
7th OF FEBRUARY 1789, AT THE CONCLUSION OF A COURSE
OF LECTURES UPON CHEMISTRY AND THE PRACTICE
OF PHYSIC.

GENTLEMEN,

I SHALL conclude our course of lectures, by delivering to you a few directions for the regulation of your future conduct and studies, in the line of your profession.

I SHALL, *first*, suggest the most probable means of establishing yourselves in business, and of becoming acceptable to your patients, and respectable in life.

Secondly. I SHALL mention a few thoughts which have occurred to me on the mode to be pursued, in the further prosecution of your studies, and for the improvement of medicine.

I. PERMIT me, in the first place, to recommend to such of you as intend to settle in the country, to establish yourselves as early as possible upon *farms*. My reasons for this advice are as follow. ↓

1. IT

1. IT will reconcile the country people to the liberality and dignity of your profession, by shewing them that you assume no superiority over them from your education, and that you intend to share with them in those toils, which were imposed upon man in consequence of the loss of his innocence. This will prevent envy, and render you acceptable to your patients as men, as well as physicians.

2. BY living on a farm you may serve your country by promoting improvements in agriculture. Chemistry (which is now an important branch of a medical education) and agriculture are closely allied to each other. Hence some of the most useful books upon agriculture have been written by physicians. Witness the essays of Dr. *Home* of Edinburgh, and of Dr. *Hunter* of Yorkshire in England.

3. THE business of a farm will furnish you with employment in the healthy seasons of the year, and thereby deliver you from the tedium vitæ, or what is worse, from retreating to low or improper company. Perhaps one cause of the prevalence of dram or grog drinking, with which country practitioners are sometimes charged, is owing to their having no regular or profitable business to employ them in the intervals of their attendance upon their patients.

4. THE resources of a farm will create such an independence as will enable you to practice with more dignity, and at the same time screen you from the trouble of performing unnecessary services to your patients. It will change the nature of the obligation between you and them. While money is the only means of your subsistence, your patients will feel that they are

are the channels of your daily bread ; but while your farm furnishes you with the necessaries of life, your patients will feel more sensibly that the obligation is on their side, for health and life.

5. THE exigencies and wants of a farm, in *stock* and *labor* of all kinds, will enable you to obtain from your patients a compensation for your services in those articles. They all possess them ; and men part with that of which money is only the sign, much more readily than they do with money itself.

6. THE resources of a farm will prevent your cherishing, for a moment, an impious wish for the prevalence of sickness in your neighbourhood. A healthy season will enable you to add to the produce of your farm, while the rewards of an unhealthy season will enable you to repair the inconvenience of your necessary absence from it. By these means your pursuits will be marked by that *variety* and *integrity*, in which true happiness is said to consist.

7. LET your farms be small, and let your *principal* attention be directed to grafts and horticulture. These afford most amusement, require only moderate labor, and will interfere least with your duties to your profession.

II. AVOID singularities of every kind in your manners, dress, and general conduct. Sir *Isaac Newton*, it is said, could not be distinguished in company, by any peculiarity, from a common well-bred gentleman. Singularity in any thing, is a substitute for such great or useful qualities as command respect ; and hence we find it chiefly in little minds. The profane and in-
delicate

delicate combination of extravagant ideas, improperly called wit, and a formal and pompous manner, whether accompanied by a wig, a cane, or a ring, should all be avoided, as incompatible with the simplicity of science and the real dignity of physic. There is more than one way of playing the quack. It is not necessary, for this purpose, that a man should advertise his skill, or his cures, or that he should mount a phaeton and display his dexterity in operating to an ignorant and gaping multitude. A physician acts the same part in a different way, who assumes the character of a madman or a brute in his manners, or who conceals his fallibility by an affected gravity and taciturnity in his intercourse with his patients. Both characters, like the quack, impose upon the public. It is true, they deceive different ranks of people; but we must remember that there are two kinds of vulgar, viz. the rich and the poor; and that the rich vulgar are often below the poor, in ignorance and credulity.

III. It has been objected to our profession, that many eminent physicians have been unfriendly to christianity. If this be true, I cannot help ascribing it in part to that neglect of public worship with which the duties of our profession are often incompatible; for it has been justly observed, that the neglect of this religious and social duty generally produces a relaxation either in principles or morals. Let this fact lead you, in setting out in business, to acquire such habits of punctuality in visiting your patients, as shall not interfere with acts of public homage to the SUPREME BEING. Dr. Gregory has observed, that a cold heart is the most frequent cause of deism. Where this occurs in a physician, it affords a presumption that he is deficient in humanity. But I cannot admit that infidelity

fidelity is peculiar to our profession. On the contrary, I believe christianity places among its friends more men of extensive abilities and learning, in medicine, than in any other secular employment. *Stahl, Hoffman, Boerhaave, Sydenham, Haller and Fothergill*, were all christians. These enlightened physicians were considered as the ornaments of the ages in which they lived, and posterity has justly ranked them among the greatest benefactors of mankind.

IV. PERMIT me to recommend to you a regard to all the interests of your country. The education of a physician gives him a peculiar insight into the principles of many useful arts, and the practice of physic favours his opportunities of doing good, by diffusing knowledge of all kinds. It was in Rome, when medicine was practised only by slaves, that physicians were condemned by their profession "mutam exercere artem." But in modern times, and in free governments, they should disdain an ignoble silence upon public subjects. The history of the American revolution has rescued physic from its former slavish rank in society. For the honor of our profession it should be recorded, that some of the most intelligent and useful characters, both in the cabinet and the field, during the late war, have been physicians. The illustrious Dr. *Fothergill* opposed faction and tyranny, and took the lead in all public improvements in his native country, without suffering thereby the least diminution of that reputation, or business, in which, for forty years, he flourished almost without a rival in the city of London.

V. STUDY *simplicity* in the preparation of your medicines. My reasons for this advice are as follow.

D

1. ACTIVE

1. ACTIVE medicines produce the most certain effects in a simple state.

2. MEDICINES when mixed frequently destroy the efficacy of each other. I do not include chemical medicines alone in this remark. It applies likewise to galenical medicines. Nor do I assert that the virtues of all these medicines are impaired by mixture; but we can only determine when they are not, by actual experiments and observation.

3. WHEN medicines of the same class, or even of different classes, are given together, the *strongest* only produces an effect. But what are we to say to a compound of two medicines which gives exactly the same degrees of impression to the system? The effect of them will probably be such, if we may judge from analogy, as would have been produced by neither in a simple state.

4. BY observing simplicity in your prescriptions, you will always have the command of a greater number of medicines of the same class, which may be used in succession to each other, in proportion as habit renders the system insensible of their action.

5. BY using medicines in a simple state, you will arrive at an exact knowledge of their virtues and doses, and thereby be able to decide upon the numerous and contradictory accounts, which exist in our books, of the characters of the same medicines.

UNDER this head I cannot help adding two more directions.

1. AVOID

1. AVOID sacrificing *too much* to the taste of your patients, in the composition of your medicines. The nature of a medicine may, in some instances, be wholly changed, by being mixed with sweet substances. The Author of nature seems to have had a design in making medicines unpalatable. Had they been more agreeable to the taste, they would long ago have yielded to the unbounded appetites of man, and by becoming articles of diet or condiments, have lost their efficacy in diseases.

2. GIVE as few medicines as possible in tinctures made with distilled spirits. Perhaps there are but few cases in which it is safe to exhibit medicines prepared in spirits, in any other form than in *drops*. Many people have been innocently seduced into a love of *strong drink*, from taking large or frequent doses of bitters infused in spirits. Let not our profession in a single instance be charged with adding to the calamities which have been entailed upon mankind by this dreadful species of intemperance.

VI. LET me advise you, in your visits to the sick, *never* to appear in a hurry, nor to talk of indifferent matters before you have made the necessary inquiries into the symptoms of your patient's disease.

VII. AVOID making light of any case; "*respice finem*" should be the motto of every indisposition. There is scarcely a disorder so trifling, that has not, directly or indirectly, proved an outlet to human life. This consideration should make you anxious and punctual in your attendance upon every acute disease, and keep you from risking your reputation by an improper or hasty prognosis.

VIII. Do

VIII. Do not condemn, or oppose, unnecessarily, the simple prescriptions of your patients. Yield to them in matters of little consequence, but maintain an inflexible authority over them in matters that are essential to life.

IX. PRESERVE, upon all occasions, a composed or cheerful countenance in the room of your patients, and inspire as much hope of a recovery as you can, consistent with truth, especially in acute diseases. The extent of the influence of the will over the human body, has not yet been fully ascertained. I reject the futile pretensions of Mr. Mesmer to the cure of diseases, by what he has absurdly called animal magnetism; but I am willing to derive the same advantages from his deceptions, which the chemists have derived from the delusions of the alchemists. The facts which he has established, clearly prove the influence of the imagination and will upon diseases. Let us avail ourselves of the aid which these powers of the mind present to us, in the strife between life and death. I have frequently prescribed remedies of doubtful efficacy in the critical stage of acute diseases, but never till I had worked up my patients into a confidence, bordering upon certainty, of their probable good effects. The success of this measure has much oftener answered, than disappointed my expectations; and while my patients have commended the vomit, the purge, or the blister which was prescribed, I have been disposed to attribute their recovery to the vigorous concurrence of the *will* in the action of the medicine. Does the will beget insensibility to cold, heat, hunger, and danger? Does it suspend pain, and raise the body above feeling the pangs of Indian tortures? Let us not then be surprised that it should enable the system
to

to resolve a spasm, to open an obstruction, or to discharge an offending humor. I have only time to hint at this subject. Perhaps it would lead us, if we could trace it fully, to some very important discoveries in the cure of diseases.

X. PERMIT me to advise you to attend to that principle in the human mind, which constitutes the association of ideas, in your intercourse with your patients. A chamber, a chair, a curtain, or even a cup, all belong to the means of life or death, accordingly as they are associated with cheerful or distressing ideas, in the mind of a patient. But this principle is of more immediate application in those chronic diseases which affect the mind. Nothing can be accomplished here, till we produce a new association of ideas. For this purpose, a change of place and company are absolutely necessary. But we must sometimes proceed much further. I have heard of a gentleman in South-Carolina, who cured his fits of low spirits by changing his clothes. The remedy was a rational one. It produced at once a new train of ideas, and thus removed the paroxysm of his disease.

XI. A PHYSICIAN in sickness is always a welcome visitor in a family : hence he is solicited to partake of the usual sign of hospitality in this country, by taking a draught of some strong drink every time he enters into the house of a patient. Let me charge you to lay an early restraint upon yourselves, by refusing to yield to this practice, especially in the forenoon. Many physicians have been led by it into habits of drunkenness. You will be in the more danger of falling into this vice, from the fatigue and inclemency of weather to which you will be exposed in country practice.

tice. But you have been taught that strong drink affords only a temporary relief from those evils, and that it tends afterwards to render the body more sensible of them.

XII. MAKE it a rule never to be angry at any thing a sick man says or does to you. Sickness often adds to the natural impatience and irritability of the temper. We are, therefore, to submit to the severe and unnecessary toils that are sometimes exacted from us, and to bear even the reproaches of our patients with meekness and silence. It is folly to resent injuries at any time, but it is cowardice to resent an injury from a sick man; since, from his weakness and dependence upon us, he is unable to contend with us upon equal terms. You will find it difficult to attach your patients to you by the obligation of friendship or gratitude. You will sometimes have the mortification of being deserted by those patients who owe most to your skill and humanity. This led Dr. *Turner* to advise physicians never to chuse their friends from among their patients. But this advice can never be followed by a heart that has been taught to love true excellency, wherever it finds it. I would rather advise you to give the benevolent feelings of your hearts full scope, and to forget the unkind returns they will often meet with, by giving to human nature—a tear. Let us not despair. From the increasing influence of reason and religion in our world, the time must soon come, when even physicians, and the brute creation, shall become the objects of the justice and humanity of mankind.

XIII. AVOID giving a patient over in an acute disease. It is impossible to tell, in such cases, where
life

life ends and where death begins. Hundreds of patients have recovered who have been pronounced incurable, to the great disgrace of our profession. I know that the practice of predicting danger and death upon every occasion, is sometimes made use of by physicians, in order to enhance the credit of their prescriptions, if their patients recover, and to secure a retreat from blame, if they should die. But this mode of acting is mean and illiberal. It is not necessary that we should decide with confidence at any time, upon the issue of a disease.

XIV. CASES will frequently occur in which you will be exposed to a struggle between a regard for your own reputation, and for the life of a patient. In such cases, let christianity determine what is to be done. That new commandment which directs us to make the measure of our love to our fellow-creatures, the same as the love of the Author of our religion was to the human race, certainly requires that we should at all times risk, and even sacrifice reputation, to preserve the life of a fellow-creature. The pusillanimous, or, as he is commonly called, the *safe* physician, who, absorbed wholly in the care of his own reputation, views without exertion the last conflict between life and death in a patient, in my opinion will be found hereafter to have been guilty of a breach of the sixth commandment; while the conscientious, or, as he is commonly called, the *bold* physician, who loses sight of his character, and even of the means of his subsistence, and by the use of a remedy of doubtful efficacy turns the scale in favour of life, performs an act that borders upon divine benevolence. A physician who has only once in his life enjoyed the godlike pleasure that is connected with such an act of philanthropy, will
never

never require any other consideration to reconcile him to the toils and duties of his profession.

XV. I SHALL now give some directions with respect to the method of charging for your services to your patients.

WHEN we consider the expence of a medical education, and the sacrifices a physician is obliged to make of ease, society, and even health, to his profession; and when we add to these, the constant and painful anxiety which is connected with the important charge of the lives of our fellow-creatures, and above all, the inestimable value of that blessing which is the object of his services, I hardly know how it is possible for a patient sufficiently and justly to reward his physician. But when we consider, on the other hand, that sickness deprives men of the means of acquiring money; that it increases all the expences of living; and that high charges often drive patients from regular-bred physicians to quacks; I say, when we attend to these considerations, we should make our charges as moderate as possible, and conform them to the following state of things.

Avoid measuring your services to your patients by scruples, drachms, and ounces. It is an illiberal mode of charging. On the contrary, let the number and the *time* of your visits, the nature of your patient's disease, and his rank in his family or society, determine the figures in your accounts. It is certainly just to charge more for curing an apoplexy, than an intermitting fever. It is equally just to demand more for risking your life by visiting a patient in a contagious fever, than for curing a pleurisy. You have a
right

right likewise to be paid for your anxiety. Charge the same services, therefore, higher to the master or mistress of a family, or to an only son or daughter, who call forth all your feelings and industry, than to less important members of a family and of society. If a rich man demands more frequent visits than are necessary, and if he imposes the restraints of keeping to hours by calling in other physicians to consult with you upon every trifling occasion, it will be just to make him pay accordingly for it. As this mode of charging is strictly agreeable to reason and equity, it seldom fails of according with the reason and sense of equity of our patients. Accounts made out upon these principles, are seldom complained of by them. I shall only remark further upon this subject, that the sooner you send in your accounts after your patients recover, the better. It is the duty of a physician to inform his patient of the amount of his obligation to him at least *once* a year. But there are times when a departure from this rule may be necessary. An unexpected misfortune in business, and a variety of other accidents, may deprive a patient of the money he had allotted to pay his physician. In this case, delicacy and humanity require, that he should not know the amount of his debt to his physician, till time has bettered his circumstances.

I SHALL only add, under this head, that the poor of every description should be the objects of your peculiar care. Dr. Boerhaave used to say, "they were his best patients, because God was their paymaster." The first physicians that I have known, have found the poor the steps by which they ascended to business and reputation. Diseases among the lower class of people are generally simple, and exhibit to a physician

E

the

the best cases of all epidemics, which cannot fail of adding to his ability of curing the complicated diseases of the rich and intemperate. There is an inseparable connection between a man's duty and his interest. Whenever you are called, therefore, to visit a poor patient, imagine you hear the voice of the good Samaritan sounding in your ears, "Take care of him, and I will repay thee."

I COME now to the second part of this address, which was to point out the best mode to be pursued, in the further prosecution of your studies, and the improvement of medicine.

I. GIVE me leave to recommend to you, to open all the dead bodies you can, without doing violence to the feelings of your patients, or the prejudices of the common people. Preserve a register of the weather, and of its influence upon the vegetable productions of the year. Above all, record the epidemics of every season; their times of appearing, and disappearing, and the connection of the weather with each of them. Such records, if published, will be useful to foreigners, and a treasure to posterity. Preserve, likewise, an account of chronic cases. Record the name, age and occupation of your patient; describe his disease accurately, and the changes produced in it by your remedies; mention the doses of every medicine you administer to him. It is impossible to tell how much improvement and facility in practice you will derive from following these directions. It has been remarked, that physicians seldom remember more than the two or three last years of their practice. The records which have been mentioned, will supply this deficiency of memory, especially in that advanced stage of life when the advice of physicians is supposed to be most valuable.

II. PERMIT

II. PERMIT me to recommend to you further, the study of the anatomy (if I may be allowed the expression) of the human mind, commonly called metaphysics. The reciprocal influence of the body and mind upon each other, can only be ascertained by an accurate knowledge of the faculties of the mind, and of their various modes of combination and action. It is the duty of physicians to assert their prerogative, and to rescue the mental science from the usurpations of schoolmen and divines. It can only be perfected by the aid and discoveries of medicine. The authors I would recommend to you upon metaphysics, are, Butler, Locke, Hartly Reid, and Beattie. These ingenious writers have cleared this sublime science of its technical rubbish, and rendered it both intelligible and useful.

III. Do not confine your studies and attention only to *extraordinary* cases. The most frequent outlets of human life are through the channels of *common* diseases. A late professor in the college of Glasgow, when a student in one of the London hospitals, was observed to be busy in examining the pulse of a patient in a fever, while all his fellow students were employed in examining with uncommon attention the case of a child with two heads that had just been brought into the hospital. Upon being condemned by his companions for neglecting to profit by the examination of so new a case, he answered, "I never expect in the whole course of my life to see, or hear, of another child with two heads; but I expect to meet with fevers in my practice, every day of my life." This sensible answer admits of extensive application to the advancement of medicine. Could we eradicate fevers only from our bills of mortality, how much more should we add to the population and happiness of our country, than by discovering remedies for polypi and aneurisms?

IV. LET

IV. LET me remind you, that improvement in medicine is not to be derived, only from colleges and universities. Systems of physic are the productions of men of genius and learning ; but those facts which constitute real knowledge, are to be met with in every walk of life. Remember how many of our most useful remedies have been discovered by quacks. Do not be afraid, therefore, of conversing with them, and of profiting by their ignorance and temerity in the practice of physic. Medicine has its Pharisees, as well as religion. But the spirit of this sect is as unfriendly to the advancement of medicine, as it is to christian charity. By conversing with quacks, we may convey instruction to them, and thereby lessen the mischief they might otherwise do to society. But further. In the pursuit of medical knowledge, let me advise you to converse with nurses and old women. They will often suggest facts in the history and cure of diseases which have escaped the most sagacious observers of nature. Even negroes and Indians have sometimes stumbled upon discoveries in medicine. Be not ashamed to inquire into them. There is yet one more means of information in medicine which should not be neglected, and that is, to converse with persons who have recovered from indispositions without the aid of physicians. Examine the strength and exertions of nature in these cases, and mark the plain and home-made remedy to which they ascribe their recovery. I have found this to be a fruitful source of instruction, and have been led to conclude, that if every man in a city, or a district, could be called upon to relate to persons appointed to receive and publish his narrative, an exact account of the effects of those remedies which accident or whim has suggested to him, it would furnish a very useful book in medicine. To preserve the
facts

facts thus obtained, let me advise you to record them in a book to be kept for that purpose. There is one more advantage that will probably attend the inquiries that have been mentioned; you may discover diseases, or symptoms of diseases, or even laws of the animal œconomy, which have no place in our systems of nology, or in our theories of physic.

V. IN dangerous cases that are *plain* and *common*, let me caution you against having recourse to consultations. They relax exertion, suspend enterprise, and lessen responsibility in a physician. They moreover add, unnecessarily, to the expences of a patient. But in *difficult* and *obscure* cases let me advise you to anticipate the fears of your patients, by *requesting* assistance. Such candor begets subsequent confidence and business, for truth is the universal interest of mankind. There are few instances in which any solid advantages have been derived from more than *two* physicians consulting together. Where a greater number are employed, the prescriptions are generally the result of neutralized opinions, and are of course often unsuccessful. The epitaph of Pliny, viz. "Se turba medicorum peruisse," might be inscribed upon the tombstones of many persons, whose sick beds had been surrounded by a croud of physicians.

VI. LET me recommend to your particular attention, the indigenous medicines of our country. Cultivate or prepare as many of them as possible, and endeavour to enlarge the materia medica, by exploring the untrodden fields and forests of the United States. The ipecacuana, the Seneca and Virginia snake roots, the Carolina pink-root, the spice-wood, the saffrafras, the butter-nut, the thoroughwort, the poke, and the stramonium,

strammonium, are but a small part of the medicinal productions of America. I have no doubt but there are many hundred other plants which now exhale invaluable medicinal virtues in the desert air. Examine, likewise, the mineral waters, which are so various in their impregnation, and so common in all parts of our country. Let not the properties of the insects of America escape your investigation. We have already discovered among some of them, a fly equal in its blistering qualities to the famous fly of Spain. Who knows but it may be reserved for America to furnish the world, from her productions, with cures for some of those diseases which now elude the power of medicine? Who knows but what, at the foot of the Allegany mountain there blooms a flower that is an infallible cure for the epilepsy? Perhaps on the Monongahela, or the Potowmac, there may grow a root that shall supply, by its tonic powers, the invigorating effects of the savage or military life in the cure of consumptions. Human misery of every kind is evidently on the decline. Happiness, like truth, is an unit. While the world, from the progress of intellectual, moral and political truth, is becoming a more safe and agreeable abode for man, the votaries of medicine should not be idle. All the doors and windows of the temple of nature have been thrown open by the convulsions of the late American revolution. This is the time, therefore, to press upon her altars. We have already drawn from them discoveries in morals, philosophy, and government, all of which have human happiness for their object. Let us preserve the unity of truth and happiness, by drawing from the same source, in the present critical moment, a knowledge of antidotes to those diseases which are supposed to be incurable.

I HAVE

I HAVE now, gentlemen, only to thank you for the attention with which you have honored the course of lectures which has been delivered to you, and to assure you, that I shall be happy in rendering you all the services that lie in my power, in any way you are pleased to command me. Accept of my best wishes for your happiness, and may the blessings of hundreds and thousands who were ready to perish, be your portion in life, your comfort in death, and your reward in the world to come.

THE END.

