

Familiar observations on the inoculation of the cowpox as now very generally introduced in Great Britain ... with a view to the final extermination of the small pox / by Alexander Herman MacDonald.

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John Thomson Esq

with compl^{ts} from his friend the Author.

FAMILIAR OBSERVATIONS
ON THE
INOCULATION OF THE COWPOX

AS
NOW VERY GENERALLY INTRODUCED IN GREAT BRITAIN, AND
SEVERAL PARTS OF THE CONTINENT; WITH A VIEW TO
THE FINAL EXTIRPATION OF THE

S M A L L P O X.

THE discovery of the advantages that may
accrue, both to the welfare of the public,
and the happiness of individuals, from the
substitution of the vaccine to the variolous
inoculation, render it worthy the atten-
tion, and the patronage of all those, who
have the welfare of mankind at heart.
To you therefore, Sir, who are indefati-
gable, and ever-watchful philanthropy,
I take the liberty
of your fellow-creatures.

BY
ALEXANDER HERMAN MAC DONALD M. D.

*To you ye Delicate! I write, for you
I tame my youth to philosophic cares,
And grow still paler by the midnight lamps.*

ARMSTRONG.

HAMBURGH 1800.

PRINTED BY J. C. BRÜGEMANN.

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To you ye Doctors! I write, for you
I leave my youth to philosophic care,
And grow still wiser by the midnight lamp.
ARMSTRONG.

HAMBURG 1800.

PRINTED BY J. C. BLOCHMANN.

TO
CASPAR VOGHT ESQ.

SIR

THE discovery of the advantages that may accrue, both to the welfare of the public, and the happiness of individuals, from the substitution of the *vaccine* to the variolous inoculation, render it worthy the attention, and the patronage of all those, who have the interest of humanity at heart.

To you therefore, SIR, whose indefatigable, and ever-watchful philanthropy, eagerly embraces all occasions of encreasing the happiness, or alleviating the miseries of your fellow-creatures, I take the liberty

of dedicating the following Observations:
happy, while placing this little treatise
under the safe guard of its proper pro-
tector, to embrace the opportunity it
affords me, of acknowledging my own
personal obligations to you, and thus
publicly testifying the sincere esteem,
with which

I have the honor to be,

SIR

Hamburgh 6 October 1800.

No. 88. Neustädter Fuhrentwiet.

Your obliged and grateful Servant

A. H. M.

Define quapropter novitate exterritus ipsa

expuere ex animo rationem: sed magis acri

judicio perpende, et, si tibi vera videtur

dede manus. —

LUCRET.

IT has been often regretted, that, while every art and science has arrived at some degree of eminence; medicine, which is of all the most beneficial to mankind, has kept no pace with the other branches of human knowledge.

When we look into the page of medical history, the cause, why less progress has been made in this particular science, appears plainly; for we find that from its very origin, Medical men, instead of consulting nature, have ever amused themselves with the most idle nay extravagant speculations. Experience indeed, often taught them the futility of their boasted theories; for they have seen them abandoned by their most ardent admirers, and dissolved

“like the baseless fabric of a vision” leaving “not a wreck behind.” Yet, strange to tell, even at this present most enlightened period, we find men, who in extravagance of opinion, give way to none that have preceded them, they reason upon occult qualities, that have no existence, and support them, not from a conviction of their truth, or merit; but, because they were invented by some favourite author: they have even made the bold attempt, to reduce the various and complicated functions of the animal machine, both in health and disease, to a few principles only. While one of the first anatomists, that our age has produced, after having spent his whole life, with patient industry, and unremitting application, in anatomical pursuits, openly avowed in his latter days; that, he hitherto so imperfectly understood the structure of the animal body, “whose machinery” to use his own words “is so infinite, the parts so delicate, and their relation to, and influence upon one another so incomprehensible,” that he looked upon himself, “in the true and humble light of a mere inquirer.”

Such

Such were the modest words of Dr. WILLIAM HUNTER, the honour of his country, of his age, and of his profession. Had medical men followed the steps of this departed Genius, or had they kept in view, what they formerly were taught by a BACON "*non fingendum aut excogitandum quid natura feret aut faciat, sed inveniendum est,*" surely independent of the benefit humanity would have derived from such a conduct, it would have conferred the highest honour upon themselves, and the science they professed.

To prove, that this saying of BACON is founded upon sacred truth; I shall adduce two well known instances viz. the discovery of *the Circulation of the blood*, and that of *Irritability*; these two discoveries are the greatest that ever have been made in medicine, or perhaps any other science, and have justly immortalized the names of a HARVEY and a HALLER: yet these were made by a few simple experiments; while the acutest speculations of former philosophers had failed in the attempt.

In relating this, I have no wish, to expose the science of Medicine on its weakest side. No, by pointing out these errors, my great object has been, to put in a stronger point of view, and to reflect higher honour upon the labours of those *Eminent Men*, who, in these days, have improved the science they cultivated; of men whose discoveries promise to humanity such benefits, that they deserve to be ranked among the immortal benefactors of Mankind.

The inoculation of the cowpox of which I intend to treat in the following essay, engages at present the mind of the public; but upon this, as on every other subject opinions are so various, that one scarce can meet two persons, who think upon it, in the same way: the reason of this is plain; the works which treat upon this subject were not intended for the public in general, and are only read by medical men, and even few of them read, with the attention the subject requires. Now and then, it is true there appear some accounts concerning this inoculation

lation in the public papers, but these vary according to the whim of their Authors, who are in general very ignorant of the subject they treat. Thus the public is kept in a continual suspense, not knowing what to adopt or what to reject. The subject still is of so great importance, and the happiness of each individual in society depends so much upon it, that I hope it may plead an ample excuse in me, if I presume to lay before the public the rise and progress of the Inoculation of the Cowpox.

Nothing new however must be expected here, my aim is not "to show what I know, but labour to show, and describe as clearly as possible" what I think a Generous public "ought to know"—and shall claim no merit in the performance: "to make a shew, and to appear learned" "and ingenious in natural knowledge, may flatter vanity: "to know facts to separate them from suppositions, to "range and connect them, to make them plain to ordinary "capacities, and above all, to point out the useful "appli-

“applications, is, in my opinion much more laudable,
 “and shall be the object of my ambition. *)

In several of the dairy counties in England, namely of Gloucestershire, Devonshire, Dorsetshire, Hampshire, Somersetshire, Staffordshire and Leicestershire **) a distemper among the cattle has been noticed from time immemorial, “for the oldest farmers were not unacquainted with it in their earliest days” which appears “upon the “nipple of the cow, in the form of an irregular pustule, “of a palish blue or rather of a colour somewhat “approaching to livid, and surrounded by an erysipelatous “inflammation. The animal becomes indisposed, and the “secretion of milk is much lessened. This disease is “observed to have been communicated, from these diseased “animals to the domestics employed in milking. Inflamed “spots begin to appear on different parts of their hands,

*) Dr. Hunter's Introductory Lectures.

**) Pearson on the cowpox.

“which

“which quickly run into suppuration, first assuming the
 “appearance of the small vesications produced by a burn;
 “these superficial suppurations put on a circular form
 “with their edges more elevated than their centre, and
 “of a bluish colour. Absorption takes place, and the
 “system becomes affected with febrile symptoms, which
 “generally continue from one to three or four days, and
 “then decline. This disease whether it affects man or
 “beast is called by dairy farmers the cowpox. But what
 “renders this disease so extremely singular, is, that the
 “person who has been thus affected, is for ever after
 “secure of the small pox, neither exposure to the variolous
 “effluvia, nor the insertion of the matter into the skin
 “producing this distemper. *)

This last mentioned fact is so well known in the
 counties where the cowpox prevail, that it is become
 a common saying among the country people, that persons

*) Jenner on the Cowpox.

who have been affected with the cowpox, to use their own words, "*are hard to take the small pox.*" *)

But what is more, instances are not wanting, where farmers have practized inoculation with the cowpox, not only upon themselves, but upon their wives, children, and domestics; frequently it must be allowed, not without alarming these philosophic rustics, altho' unnecessarily, for they always got well, and when at a future period they were inoculated with the small pox, never a disease has followed. **)

These and similar facts were not unknown to several medical practitioners, for it not unfrequently happened, that, when in these counties large inoculations for the small pox were practised, several of the inoculated persons, were found unsusceptible of the variolous infection, altho' inoculation was repeated upon them four, five, and

*) Pearson on the Cowpox.

**) Pearson on the Cowpox.

sometimes six times, while at the same time, they were associating with those that had the small pox. This could not but astonish the inoculator, who, upon inquiring, always received this reply "that at some former period they had been affected with the Cowpox.*)

"But before truth" as an elegant Author justly observes, "in its silent or disputed march, has roused the attention of the indolent, converted the supercilious, subdued the interested, and reached the ears of all, an age has passed away." So one need not be surprised, that facts so long known, and which promised such benefits to mankind never excited the attention of the medical world, till within these few last years.

Thus, as attraction, the weight and elasticity of the air, shewed themselves to the senses every day, but required a TORRICELLI and a NEWTON to illustrate them;

*) Jenner's 2d Essay on the Cowpox.

so it required a Jenner to inquire into and illustrate the Phenomena of this new disease.

This ingenious practitioner began his inquiries with a benevolence and zeal worthy of imitation. Like an able philosopher he first inquired into the origin and nature of the disease as it appeared in the brute, and acquired to himself the knowledge, how to distinguish the true from the spurious cowpox. Next he examined the disease as it appeared in Man, with the same scruple and accuracy. Having resided upwards of twenty years in Gloucestershire, several hundred instances must have fallen under his own observation, of persons not taking the small pox, after they had gone through the cowpox: but neither these generally received opinions concerning the cowpox, nor the failures which he often experienced in his inoculations, and which were generally ascribed to his patients having had the cowpox, could satisfy this truly philosophic Inquirer. He therefore put it to the test of experiment; and the first experiments he instituted were to inoculate persons with
the

the smallpox, who were known to have gone through the cowpox. Of these Experiments he has published about twenty instances, but none of them took the smallpox, either in this way, or by associating afterwards with patients labouring under this disease, altho' amongst these, there were persons who had been affected with the cowpox at the distant period of 25, 27, 31, 38, and even 53 years.

The next experiments, which Dr. Jenner instituted, were those of inoculating with the cowpox matter, persons, who never had laboured under either the smallpox, or cowpox.

In the first of these experiments a boy was inoculated with the cowpox matter, taken from a sore, on the hand of a dairy maid, who was infected by her masters cows; on the 9th day the boy complained of uneasiness in the axilla; on the 9th he became chilly, lost his appetite, and had a slight headache; on the following day he was perfectly well.

Two months afterwards this boy was inoculated with the small pox, but no disease followed; several months afterwards this inoculation was repeated, yet he was found unfusceptible of the infection.

In the second of these experiments, a child of 5 years and a half old was inoculated with matter taken from the nipples of an infected cow. It became indisposed on the 6th day, vomited once, and felt the usual slight symptoms of fever till the 8th day, when it recovered.

With the matter taken from this case, several children were inoculated, all of whom went through the disease as usual, and from these, others were again infected with the same success.

By these experiments Dr. Jenner ascertained this most important fact, that, the matter in passing from one human subject to another through five gradations, lost none of its original properties.

In

In these cases Dr. Jenner likewise observed, that the appearance of the incisions, in their progress to maturation was much the same as when produced in a similar manner by variolous matter; in some, the pustules resembled so much the small pox pustules, that an experienced inoculator would scarcely have discovered a shade of difference. The only difference which Dr. Jenner could observe, consisted in the pustulous fluid remaining limpid nearly to the time of its total disappearance, and not as in the smallpox becoming purulent.

Dr. Jenner has made many fruitless attempts to give the small pox to these persons. In all, the incisions were inflamed on the 2d day, and there was a pale inflammatory stain around them; on the 3d these appearances were still increasing, and their arms itched considerably; on the 4th the inflammation was evidently subsiding, and on the 6th scarcely perceptible; no symptom of indisposition followed.

In order to be convinced that the small pox matter here
made

made use of was in a perfect state, Dr. Jenner at the same time inoculated a patient with some of it, who never had gone through the cowpox, and it produced the small pox in the usual manner.

In all these Experiments, and cases which came under Dr. JENNER's observation, the disease produced by the inoculation was uncommonly slight; never any eruption appeared, except on the inoculated part; never any case proved fatal, either by inoculation or the casual infection, neither was in any one case a latent disease roused, such as scrophula, which is often roused by the inoculated small pox. But what is most important of all, it never proved contagious, for in the above related cases, children and even adults infected with the cowpox have slept in the same bed with others, who never had gone through either the cow pox, or small pox without infecting them.

No sooner were these admirable experiments published, than the curiosity of the medical world was excited concerning

cerning this important discovery. Inquiries were made in several of the dairy counties in England, and the experiments of Dr. Jenner were put to the test.

Among the medical gentlemen, who prosecuted these inquiries, Drs. PEARSON and WOODVILLE have distinguished themselves; and honour is due to them for the zeal they have shewn upon this occasion, for improving the medical science.

Dr. Pearson shortly after Dr. Jenner's publication, favoured the public with a treatise, intitled: *An Inquiry concerning the History of the Cowpox, principally with a view to supersede and extinguish the Smallpox.* In this little excellent work, every proposition advanced by Dr. Jenner is minutely considered, these Dr. Pearson confirmed not only by his own experience, but likewise with communications he was favoured with from several respectable Authorities, and principally from the Revd. Mr. Drewe of Abbots, Dr. Pultney of Blandford, the Revd. Dr. de Salis of Wing,

Wing, Mr. Downe Surgeon at Bridport, the Revd. Mr. Smith of Wendover, and Mr. Gifford Surgeon at Gillingham near Shaftsbury.

The mode in which Dr. Pearson and his correspondents prosecuted their inquiries was very much same with that of Dr. Jenner, and therefore I shall not tire my reader by repeating it, but shall content my self with enumerating the principal results; which are as follows:

That persons who have undergone the cowpox infection either accidentally, or by the inoculations are thereby rendered unfulceptible of the variolous infection; that the disease is not contagious; that the febrile symptoms are in general very slight; that the disease never proved fatal; that it bears a great resemblance to the small pox; that there is no difference in the effects of the matter, from the first human subject infected from the brute animal, or from the matter generated successively in the 2^d, 3^d, 4th, or 5th human creature from the origin in the brute; that

no

no consequential disease which could be attributed to the cowpox has been observed, nor any disease excited, to which there previously existed a disposition, nor, lastly, that it has ever been discovered to produce a predisposition to peculiar diseases.

Dr. Pearson concludes his treatise with stating a set of queries which are intended to serve as a guide for medical men in the acquisition of future facts upon this important subject.

Dr. Woodville next has presented the public with a candid and accurate account of the effects of two hundred cases, in which inoculation was performed with the cowpox; and the result of these trials has confirmed what was formerly advanced by Drs. Jenner and Pearson.

After giving a short detail of these 200 cases Dr. Woodville has subjoined a table mentioning the names and ages of the patients inoculated; the number of days during
C which

which the febrile symptoms continued, and the number of pustules produced.

From this table it appears, that the inoculated cowpox though in a great majority of instances a very slight affection, in some cases however there occurred eruptions, notwithstanding this, the indisposition is less than in small pox, and never is followed by a secondary fever; the appearance of the eruption was a fact quite new, for neither Dr. Jenner nor Dr. Pearson had ever observed it.

While Dr. Woodville was publishing his treatise, he still prosecuted his inquiries, and the number of cases inoculated with the cowpox under his direction, at the time the work was publish'd, had amounted to six hundred.

Here however, it must not be kept concealed, that an infant at the breast died on the 11th day after the cowpox matter had been inserted in its arm; this solitary case is however the only one I ever have heard off; and if we

C

consider

consider the tender age of this infant, it leaves a doubt in my mind, whether we are intitled to ascribe its fatal termination to the inoculation of the Cowpox.

After these publications of Drs. Pearson and Woodville, further observations upon the cowpox have been publish'd by Dr. Jenner, in these he has defended in a masterly manner, some of his doctrines which had been objected to; and has added some excellent practical rules, together with communications he recieved from different medical men, among which Mr. CLINE, *Lecturer of Anatomy and Surgery at St. Thomas's Hospital*, has transmitted an account of the result of his trial with the cowpox: from which the following is an extract,

MY DEAR SIR,

"The cowpox experiment has succeeded admirably. The child sickened on the seventh day, and the fever, which was moderate, subsided on the eleventh. The in-

flammation arising from the insertion of the virus extended to about four inches in diameter, and then gradually subsided, without having been attended with pain or other inconvenience. There were no eruptions."

"I have since inoculated him with small pox matter in three places, which were slightly inflamed on the third day, and then subsided."

"Dr. LISTER who was formerly Physician to the small pox hospital, attended the child with me, and he is convinced, that it is not possible to give him the small pox. I think the substituting the cowpox poison for the small pox, promises to be, *one of the greatest improvements, that has ever been made in medicine*; and the more I think on the subject, the more I am impressed with its importance.

With great esteem I am, etc.

Lincoln's Inn Fields

August 2d 1798.

HENRY CLINE."

Of

From Dr. Jenner's further observations, I shall here select two cases, which on account of the facts they contain, are well worthy the notice of the public.

"Wishing, says the Doctor, to see the effects, of the disease on an infant newly born, my nephew, Mr. Henry Jenner, at my request inserted the matter of the cowpox into the arm of a child about twenty hours old. The child went through the disease without apparent illness, yet it was found effectually to resist the action of variolous matter with which it was subsequently inoculated."*)

Dr. Jenner himself has inserted the cowpox matter in a boy, who the day preceding its insertion, sickened with the measles. The measles with all its symptoms appeared on the 3d day, and the disease went through its course, without any deviation from its usual habits; and, notwithstanding this, the cowpox virus excited its common appearances, both on the arm, and on the constitution, without any sensible interruption; on the 6th day there

*) Jenner's 2d Essay upon the cowpox.

was a vesicle, on the 8th pain in the axilla, chilly, and headache, on the 9th nearly well, on the 12th recovered. *)

Here therefore exist a deviation from the ordinary habits of the smallpox, for it has been observed that the measles suspend the action of variolous matter.

Dr. Jenner finishes this treatise with the earnest hope, that the general investigation that is now taking place, may be conducted with *that calmness and moderation, which should ever accompany a philosophical research*, and by doing so, he does no doubt, but the cowpox inoculation must soon be placed in its just point of view.

Before I finish this account of the labours of British Practitioners, who have distinguished themselves in this important inquiry; I must not omit to mention Mr. ANDERSON Surgeon in Leith, who has been particularly active and successful with the inoculation of the cowpox

*) Jenner's 2d Essay upon the cowpox.

in his neighbourhood, and from his communications to Dr. DUNCAN of Edinburgh, it appears, that, the results of his experiments all tend to confirm, what has been advanced by Drs. JENNER, PEARSON and WOODVILLE.

He inoculated above an hundred, from the beginning of May, to the end of September 1799, of whom, only three had any other pustules, than those on the incisions, and none of them fever, or symptoms to excite uneasiness.

The matter he used for Inoculation was send to him from London. Two children only were inoculated by this matter. In every other instance the matter was taken from human subjects, to whom the disease had been communicated from these children, and through the whole succession the disease had the same appearance, and was equally slight.

Mr. ANDERSON finishes his communications in the following manner: "I am of opinion that the vaccine
"inocu-

“inoculation, if it shall continue to be as favourable, as I
 “have found it, will be of much more benefit to mankind
 “than even the variolous, great, very great as it has been.
 “In this country I do not imagine, that above one third
 “of the children are inoculated, owing to the prejudices,
 “arising from frequent deaths. But from the success of
 “the vaccine inoculations, I have been able to persuade
 “numbers in all ranks of life, who could never be brought
 “to consent to the variolous inoculation, to allow their
 “children to undergo the vaccine inoculation from the idea
 “of none have suffered; I except the case of Dr. Woodville,
 “which appears to be a doubtful one. It also appears to
 “me, that in the three cases where pustules appeared, they
 “were owing to topical inflammation.” *)

In the preceeding accounts, I have purposely omitted
 several circumstances, that would perhaps have been very
 interesting to the medical world; such as the supposed

*) Annals of Medicinæ 1799.

origin of the cowpox, practical rules necessary to be observed in the management of inoculation, collateral Experiments etc. but as I write at present for the public in general, to whom such observations would be tedious and little interesting, I hope I shall be excused for these omissions. If my future investigations prove successful, and if actual experience shall point out to me circumstances, which have not as yet been determined, upon this important subject, I shall not omit to pay that duty I owe to the science I cultivate.

I hope that from the above Histories every one of my readers, is convinced of the efficacy of the cowpox inoculation rendering the person unfusceptible to the variolous infection. Had this fact been ascertained by one single observer, objections would be deemed justifiable; but as I have adduced a numerous and respectable evidence, all tending to confirm this point, and, as not a single well-authenticated instance has proved the contrary; no reasonable doubt can be entertained upon the

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subject:

subject: I think it therefore unnecessary to dwell upon it any longer; and shall now proceed to consider the comparative merits of the variolous and vaccine inoculation.

It cannot be denied, but the inoculation of the small pox has proved to mankind a ready means, to alleviate and escape the danger of a most distressing disorder: still, notwithstanding these happy effects, the inoculated smallpox is sometimes accompanied with symptoms, which give just cause of alarm, and often prove fatal under the most judicious management.

If I were to record all the distressing scenes which frequently attend the inoculated small pox, or relate the sad histories of those unfortunate families, who in consequence of inoculation have felt the ragings of this dire disorder; the stoutest heart would draw back with horror, and drop a tear of pity over the sufferings of humanity.

I would wish to drop this subject, for my pen can give
but

but a faint sketch of those pictures of singular distress, which every Physician of even moderate experience has witnessed.

Fancy to your self one of these little innocent sufferers, stretched out, and covered over with one continued sore, threatened with suffocation, uttering the agonies he feels, by piercing, heart-wounding groans — Observe how his mouth foams, listen to the grindings of his teeth, see how he thrusts his little trembling tongue betwixt them, and how piteously it is wounded—Look how he is agitated with the most dreadful convulsions, his feeble limbs are twisted and contorted and threaten dislocation, his frame bends backwards, is lifted up, and thrown down again—These fits now increase — then cease — Alas! only to return with repeated violence — Misery calls loud for help — but calls in vain—New convulsions succeed—he moans—struggles—gasps—gasps again—and expires.

If at scenes like these your heart would bleed, what must be the feelings of a fond parent, when “this

destroying scourge nips in the bud the fairest blossom of all his hopes."

What renders these cases often more deplorable, is, that they sometimes happen under circumstances still more distressing.

Before me lie the records of two unfortunate families: In the one a father and four of his children were inoculated for the smallpox; the eruption proved of the confluent kind; the father and two children died, two recovered — he left behind him a widow with her two infants in the greatest misery. The other is of a young widow who lost her husband at the early age of twenty four. One infant at the breast was left her, which in her pitiful situation constituted her only consolation: soon after, the smallpox began to rage in the city where she lived; she therefore was advised by her friends to inoculate her little boy — with reluctance, (as if presaging her impending misfortune) she consented — her fears, alas! were but too well grounded:

grounded: On the day preceeding the eruption, the child was seized with convulsive fits and expired on the 10th day.

One smiling boy, *her last sweet hope*, she warms,

Hush'd on her bosom, circled in her arms;

Daughter of woe! — ere morn, in vain carels'd,

Clung the cold babe upon thy milkless breast,

With feeble cries thy last sad aid required,

Stretch'd its stiff limbs, and on thy lap expired.

DARWIN-

It may be said that such distressing cases as these are rare. I grant it; and happy for humanity it is so: still no one can be certain that such a dreadful misfortune may not befall himself, or his family. By inoculation for the small pox one has a chance, and indeed a very great one to be saved; yet, one has no certainty: should therefore means be offered to escape with certainty a destructive and dangerous disease, would it not be an inducement to change them for those, of which one can say nothing more, than that it will give you chance. In my opinion there can not
be

be a moment of hesitation, but certainty must be preferable to chance: and from the history I have delivered, I with safety dare offer the inoculation of the cowpox, as the only certain means to escape the danger of the small pox.

Fatal instances, like those above related, always make a deep impression upon the human mind, ever prone to look to the dark side of the question: it has given rise to a superstition against the inoculation of the small pox, which time has not yet effaced: the consequence is, that the inoculation of the small pox is not generally but only partially practised; hence mankind in general has derived no benefit at all from its practice; for from the extremely contagious nature of the smallpox, wherever inoculation is introduced, thousands of those that were not inoculated, fall victim to this dire disorder in the natural way, in so much, that yearly as many persons die of the smallpox since the introduction, as ever before.

Such dreadful, and to humanity fatal consequences do
not

not attend the inoculation of the cowpox; for experience has fully determined, that the cowpox is not at all contagious; for children and even adults labouring under the cowpox have slept with others, that never had either the cowpox or smallpox, without infecting them; nay, nurses affected with the cowpox, have never communicated the disease to their children.

This is a circumstance worthy our most serious attention, and which puts the inoculation of the cowpox in point of preference far above that of the small pox, but has never been duly estimated, and therefore I cannot insist enough upon it.

The great mortality indeed, which is occasioned by the introduction of inoculation of the small pox, mankind have in general overlooked, and have paid their sole attention to the comparatively small number that die in a given quantity of those that are inoculated: but let us consider this, and put it in the fairest point of view.

Dr.

Dr. WILLIAM HEBERDEN inform us, that he inoculated a few years ago, at Hungerford 800 persons, without a single case of death.*) Dr. WOODVILLE relates that of the last 5000 persons that were inoculated in the inoculation hospital in London, one person only died out of 600; such instances however are rare, and as I have shown on a former occasion,**) can only be attributed to certain favourable states of the human body, existing at particular times. Indeed the number is in general much greater: sometimes considerably. In ANSPACH in 1798 out of 76 persons that were inoculated 8 died.***) This very year, there has raged a very fatal smallpox through Germany. According to Dr. de CARRO, last spring even the inoculated smallpox has proved fatal to some children at Vienna,†) so that if we take into consideration conjointly unfavourable as well as

*) Pearson on the Cowpox.

**) Bemerkungen über die gegen Einimpfung der Kuhpocken von einem ungenannten Verfasser in Berlin angebrachten Gründe.

***) Neues Hannöversches Magazin 58tes Stück.

†) Do.

68tes Stück.

favourable epidemics, and estimate one death in 200, our calculation is very fair and moderate.

Let us now consider the number of persons, dying in a given quantity, of those that have been inoculated for the cowpox. In a letter from London dated the 3d of August, Dr. Ash informs us that in England already 15000 have been inoculated with the cowpox.*) In Germany 700 have already undergone this operation**); and of all these only one case has proved fatal: this is the case recorded by Dr. Woodville, of which I have stated my doubts already; and I must repeat here, that no physician could with certainty ascribe its fatal event to the inoculation.

If therefore, the comparatively small number of fatal cases has been a recommendation to the small pox in-

*) Neues Hannöversches Magazin 58tes Stück.

**) Do.

oculation, how much more so must it be for that of the cowpox, which presents us with the flattering prospect, of either not proving fatal at all, or at least less so, than the small pox inoculation.

Perhaps it may be objected, that experience does not warrant us to draw this conclusion; but if you please, I will suppose the contrary, and take for granted that future experience would show, that in a given number, more persons would die of the inoculated cowpox, than of the inoculated smallpox; still as the cowpox are not contagious, their inoculation ought to be preferred to that of the small pox, since it would lessen the mortality by thousands, and even have the prospect of extinguishing the most fatal disease that ever has attacked the human species; and this benefit will accrue to society, without even the introduction of a new disease, as from the nature of the cowpox we will have it always in our power to avoid and prevent its dissemination.

By the present partial inoculation of the smallpox, it is impossible to extinguish that disorder; it is therefore an object, well worthy the attention of Magistrates and Governors of a people. If they would take a serious interest in the behalf of that society of which they are the Guardians, by establishing proper institutions for the inoculation of the cowpox, with a prohibition of the inoculation of the smallpox, they could not fail of extinguishing a disorder which proves fatal to no less than 40 millions of souls each century. At such a deed humanity would smile; in the annals of the world it would be recorded in golden letters; and posterity would bless their memory.

Thus we have endeavoured to show, that the disease, which follows the inoculation of the cowpox, is not only extremely slight and void of every danger, but that at the same time, it is not in the least contagious; and that on this account it ought to be preferred to the smallpox inoculation: we shall therefore now proceed to consider, whether from the two mentioned properties the cowpox inoculation

is likewise preferable, to that of the smallpox under particular circumstances.

In every large city the smallpox contagion rages more or less throughout the whole year, and it is frequently impossible to guard against the exposure of the contagion; this, often happens even under very unfavourable circumstances, and even where the inoculation of the smallpox would not lessen the danger. Thus during pregnancy a woman who never had the smallpox may unfortunately happen to be exposed to the infection: she will be advised to submit immediately to inoculation, to avoid taking the disease in the natural way, and to give her every possible chance of being saved; *) but alas! sad experience has taught us that

*) Here in Germany, I find it is a vulgar notion, that, when a person has been exposed to the small pox infection, and is under the apprehension of having caught the disorder, inoculation is very dangerous—This is however a false notion; for experience has long taught us, that when exposed to the contagion the only means to obviate a severe disease is to have immediate recourse to inoculation,

the smallpox, natural or inoculated is so commonly fatal to the unborn child, at every period of gestation, and so generally to the mother in the advanced state, that indeed a prudent practitioner in such unfortunate cases is at a loss how to act. Under such circumstances a trial with the cowpox is justifiable, and from its mildness we have every hope of saving the life of the mother and perhaps of her child.

For the same reason while a child is teething or labouring under the measles hooping cough etc. which in general

and is at present universally practised in Britain even under very unfavourable circumstances. One striking instance I shall relate here. About two years ago, the child of an eminent Physician in

Edinburgh while labouring under the chin cough, unfortunately happened to be exposed to the smallpox infection. As soon as the father heard of the accident, notwithstanding the unfavourable condition his child happened to be in at the time, he performed the inoculation, and the child went safe through the disease: whereas had the inoculation not been performed, and the child had caught the disease naturally, it could not have failed of having proved fatal.

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occasion a severe disease in the inoculated smallpox, when exposure to the infection is unavoidable, experience warrants us to prefer the cowpox inoculation to that of the smallpox. We have seen the happy success of the case above related, in which Dr. Jenner inoculated a child that the day before has sickened for the measles: since that period it has been proved that the cowpox is equally harmless under other unfavourable conditions. In the London inoculation hospital, there is no choice of patients, and persons of all ages and different constitutions are inoculated. *) Drs. STROMEYER and BALLHORN of Hannover inform us that they have inoculated healthy and unhealthy subjects, children and adults, in every condition of life. And yet a severe disease has never followed the inoculation of the cowpox. **)

Even in families where children labour under teething, measles, or any other disorders, if circumstances should require it, the cowpox inoculation may be performed on

*) Neues Hannöversches Magazin 43tes Stück.

**) Do. 68tes Stück.

one individual of a family since from the nature of the cowpox, there exists not the least danger of the rest being infected; this is an advantage which the cowpox has above the smallpox, and I often have seen very fatal consequences happen on account of the inoculation not having been performed when circumstances required it: thus I remember a father who unfortunately having been exposed to the smallpox infection was prevented from inoculation on account of his children labouring under the chincough: he caught the disease: the children when the alarm was taken being sent to the country escaped it. The father died. —

In the smallpox inoculation, even when the disease produced is apparently slight, and terminates successfully it not unfrequently rouses latent diseases which render such persons miserable for life. This most particularly happens in families, in which there exists an hereditary predisposition to scrophula. In such families the children appear in general very stout and healthy, but immediately
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after having gone through the smallpox they are attacked with this most dreadful malady. To examine such a case an opportunity was afforded to me last year by Dr. MONRO, the celebrated Professor of Anatomy and Surgery in the University of Edinburgh; as I have already laid before the public a particular account of this case in my inaugural dissertation, I shall not repeat it here; it will be sufficient here to mention that a child enjoying perfect health before passing through the inoculated smallpox, was attacked immediately after, with a most dreadful disorder, supposed to be of a scrophulous nature, in which almost every bone of her body was affected: some, with what is called NECROSIS, others, with CRIES. When I saw this child it had already laboured for upwards of two years under this disorder, and still the disease went on in its progress from bone to bone, one ulcer being scarcely healed, but another broke out; rendering her one of the most miserable creatures that can be imagined to exist. *)

*) Dissertatio inauguralis de Necrosi ac Callo. Ed. 1799.

In those families therefore where such an hereditary predisposition is suspected, or known to prevail, the inoculation with the cowpox may prove of considerable benefit; as no latent disease, as far as experience goes, has ever been induced by it.

In some families, the smallpox either natural or inoculated is always very mild; in others, on the contrary, very severe; and indeed it not unfrequently happens, that we find families, in which all the children have died of smallpox. Sometimes we meet with families in which several of the children have fallen victims to the smallpox, and in which only one surviving child remains. The parents in such cases are for ever under the disagreeable apprehension, that their child will catch the disease in the natural way, and from what has happened they are deterred from inoculation; to such a family therefore, I would recommend the inoculation of the cowpox.

There are some persons whose habits are unsusceptible of the inoculation of the smallpox, and who, tho' frequently inoculated never have caught the disease. These persons notwithstanding, labour under the constant apprehension of being infected in the natural way, and therefore through life are obliged to fly from place to place to escape this disorder. — The inoculation of the cowpox perhaps might free them from this disagreeable incertitude; as I do not think it improbable, that a person might be susceptible to the cowpox infection, while he is not so, to the variolous infection; a trial at least might be made, without any danger or risk being incurred.

The last circumstance I shall take notice of, is that the inoculated smallpox frequently leaves behind marks and pits upon the skin, which are always considered as a deformity, and which it is not in the power of the physician to obviate; This circumstance however is of great importance to several, and therefore most desirable to

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be remedied ; which by the inoculation of the cowpox will certainly be effected, on account of its producing few or no eruptions.

Here I finish my remarks on the comparative merits of the vaccine and variolous inoculation: how far I have succeeded in my endeavours to persuade the public in favour of the former, a very short time will decide. From the manner in which they have hitherto received it, I dare flatter myself that the period is not far distant, when it will entirely supersede the smallpox inoculation. — We have seen the rapid progress of it in England. Till the beginning of this last summer only 5000 persons had been inoculated*) but in August the number had amounted to 15000 **). The practice of this inoculation is now no longer confined to Britain, but has been introduced into several parts of the Continent. In Germany in particular this inquiry has been prosecuted with great ardour. Drs. STROMEYER and

*) Neues Hannöversches Magazin 43tes Stück.

**) Do. 71stes Stück.

BALLHORN of Hannover have been very indefatigable with the inoculation of the cowpox in their city; and their labours have hitherto been crown'd with success; they likewise have been very zealous in introducing the cowpox inoculation in various parts of Germany, by distributing the matter for inoculation to several physicians. For a particular account of their labours I refer my readers to the Hannover new Magazine No. 68, 69, 70, and 71, in which he will find much useful information concerning the inoculation, and much sound judgement, these eminent men have displayed in the prosecution of their experiments.

I must not forget to take notice here, that several physicians in Germany have been particularly active to discover the cowpox among the cattle, and they have been so fortunate as to find it at several farms of Holstein and Mecklenburgh, and have tried experiments with it on the human subject. It is to be wished, that their success may excite emulation in those practitioners, who shall have opportunities to examine the cattle in various parts of the Continent,

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and I am sure that the cowpox will be found a disease, not so uncommon as perhaps it is supposed to be.

In France likewise the inoculation of the cowpox is carried on with great success. Dr. Woodville is gone on purpose from England to Paris, to perform the inoculations. From Holland a Physician has been sent to Paris, to examine the results of the experiments, which are there instituted, no doubt with the intention of introducing it in that country. But whether it was necessary to send so far as Paris to examine the cowpox, I am inclined to suspect; since the province of Holland almost consists of dairy farms, and if proper inquiries were made, it is not improbable, but the cowpox would be found there also.

According to our late accounts, this discovery has already crossed the Atlantic and is now likewise practised in America. In short it is to be hoped, that the joint labours of those medical men who have taken a serious interest in this most useful inquiry, will soon meet their just reward.

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One circumstance however is absolutely necessary for its success, and in a former part of this Essay, I have already touched on the point; which is, the patronage of Magistrates.—In England and France institutions for the cowpox inoculation, and which Government supports, are already set on foot.*) Of such institutions however in Germany I have not yet heard.—Should however Government think it worth while to engage in such a philanthropic undertaking, and my poor endeavours could by any means be subservient in the execution of such a plan, I offer myself to their service, and I shall not think my time or labour lost, should it be in my power, to contribute to the welfare and happiness of that nation, by which I have been received with such distinguished marks of attention, and from the confidence which several have honoured me with, during the short time I have been in this country, I cannot but acknowledge, that it has surpassed my most sanguine expectations.

*) See an account of this institution in London in the Neues Hannöversches Magazin 58tes Stück.

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With respect to the interest I have hitherto taken in this important subject, and my endeavours to introduce in this city the inoculation of the cowpox, I can say, that I have been excited by such motives only as arise from a firm conviction of its utility.

An honest ambition to excel in a difficult profession is certainly laudable; nay, it is "thought criminal in every man, to lock up his talent, whatever it may be;" and if I have been actuated by a sincere wish, to employ mine, tho' never so small, for the benefit of my fellow creatures, and the improvement of that profession in which chance has placed me, I hope my humble endeavour, will meet with the approbation of an indulgent public.

And you, ye anxious fathers, and fond mothers, whose distresses, I have too often witness'd, and whose fears for the fate of your beloved offspring have too often rent my soul; 't is the heart-breaking pangs you endure, that have excited my efforts, and the earnest desire to
relieve

relieve them, that has guided my pen. Could I dry up your tears, and appease your throbbing hearts, my most ardent wish would be accomplish'd: Your thanks would constitute my pride, and the inward satisfaction of having contributed to diminish the sum of human misery be the highest recompense that heaven could bestow.