An essay on the disease commonly called diabetes / by William Washington.

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Washington, William.
Humphreys, James, 1748-1810
University of Pennsylvania.
National Library of Medicine (U.S.)

Publication/Creation

Philadelphia : Printed for the author by James Humphreys, 1802.

Persistent URL

https://wellcomecollection.org/works/gmvrnnjg

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GPO 16—67244-1

AN ESSAY

ON THE

DISEASE

COMMONLY CALLED

DIABETES.

BY WILLIAM WASHINGTON,
OF ALEXANDRIA, VIRGINIA,
HONORARY MEMBER OF THE
PHILADELPHIA MEDICAL AND CHEMICAL SOCIETIES.

Multum egerunt qui ante nos fuerunt, ſed non peregerunt; multum adhuc reſtat operæ, multumq; reſtabit, neque ulli nato poſt mille ſecula præcidetur, occaſio aliquid adhuc adjiciendi.

SENECA.

PHILADELPHIA:
PRINTED FOR THE AUTHOR BY JAMES HUMPHREYS.
1802.

AN

INAUGURAL DISSERTATION

FOR

THE DEGREE

OF

DOCTOR OF MEDICINE,

SUBMITTED

TO THE EXAMINATION

OF THE

REV'D. JOHN EWING, S. T. P. PROVOST,

THE

TRUSTEES, AND MEDICAL FACULTY,

OF THE

UNIVERSITY OF PENNSYLVANIA;

ON THE 27th DAY OF MAY, 1802.

TO

DOCTOR JAMES CRAIK,

OF ALEXANDRIA, VIRGINIA,

THIS DISSERTATION

IS DEDICATED,

IN TESTIMONY

OF THE

RESPECT AND GRATITUDE

SO JUSTLY DUE

FROM HIS SINCERE AND AFFECTIONATE

FORMER PUPIL

THE AUTHOR.

TO

BENJAMIN RUSH, M. D.

PROFESSOR OF THE

INSTITUTES, PRACTICE,

AND OF CLINICAL MEDICINE,

IN THE

UNIVERSITY OF PENNSYLVANIA,

THIS ESSAY

IS ALSO INSCRIBED,

AS AN ASSURANCE OF MY HIGH ESTEEM FOR HIS

VIRTUES AND TALENTS,

ALSO

AS A TRIBUTE OF GRATITUDE,

FOR THE MANY MARKS OF POLITENESS CONFERRED ON

HIS MUCH OBLIGED FRIEND

THE AUTHOR.

TO ATTACK AN ERROR IS THE COMMON RIGHT OF EVERY MAN, IN MEDICINE IT BECOMES A DUTY, AND HE WHO IS CONSECRATED TO THE PRESERVATION OF HIS FELLOW CITIZENS, OUGHT NOT TO FEAR TO RAISE HIMSELF ABOVE PREJUDICES OF WHICH HE KNOWS THE DANGER, PARTICULARLY WHEN HE CAN SUBSTITUTE AN USEFUL TRUTH.

BLAIR.

AN

INAUGURAL DISSERTATION.

IN contemplating the variety of forms under which morbid action makes its appearance in the human body, and the conſequences and effects which reſult from its determination to particular parts, I am induced to believe, that its attack upon no part ought to claim more of our attention than the one which will conſtitute the ſubject of the following Eſſay.

Although it cannot now be ſaid to be a diſeaſe which occurs often, yet its appearance has become far more frequent than formerly. This, perhaps, has been with ſufficient reaſon aſcribed, by *Dr. Home*, to the more frequent and faſhionable uſe of ſpirituous liquors at the preſent time, than amongſt the antients;

which was in a great meaſure unknown to them, and is now acknowledged to be one of its moſt common exciting cauſes. It was ſo unuſual a complaint at the time of *Galen*, that only two caſes were noticed by him, and he even goes ſo far as to ſay, that it was conſidered almoſt a miracle. The diſeaſe to which I allude, has hitherto been deſcribed by moſt medical authors under the appellation of DIABETES, from the Greek word *Diabaino, to paſs off or through*. This term, although by no means conveying an accurate idea of the diſeaſe, I ſhall adopt, more for the ſake of conforming to cuſtom, than from a perſuaſion of its propriety. Dr. *Cullen*, in his Noſology, has placed it in his claſs *Neuroſes*, and order *Spaſmi*, from a belief in its connection with nervous and ſpaſmodic diſeaſes; but the impropriety of this muſt be evident, as the ſymptoms which induced him to claſs it among theſe are not uniform, but anomalous or accidental circumſtances.

The following is the definition which he has given of it; *Urinæ plerumque preternatu-*

ralis copia immodica profuſio Chronica, of which he enumerates *two* ſpecies; viz. *Diabetes Mellitus*, and *Diabetes inſipidus*; but as I am well convinced, that no real benefit can be derived from this diviſion, I ſhall include them both under one head, believing them, as I hope to prove hereafter, to be always the effect of one cauſe; and owing ſolely to a morbid or irregular action in the whole ſanguiferous ſyſtem, accompanied with a local determination to the kidneys.

There is ſcarcely any diſeaſe which has been looked upon in a more incurable light, or as being one more fatal in its termination. This was particularly obſerved by the illuſtrious *Cullen*, who, when treating of it, expreſsly ſays, "that out of twenty patients under his care "not one of them recovered." This circumſtance, as well as many others, induced me to make it the ſubject of my Diſſertation, as I hope to deliver a Theory of it, which will lead to a more ſucceſsful mode of treatment than it has heretofore met with, and reduce it as much under the power of medicine as any

other diſeaſe. Before I proceed, it may be thought neceſſary that I ſhould firſt declare, from whom this Theory was derived.

In doing this, I feel a pleaſure in acknowledging, that it was taught by the Profeſſor of the Inſtitutes of Medicine in this Univerſity, who, in his Pathological Lectures informs his pupils, that he had long wiſhed for a ſatisfactory Theory of its production, and had thought much on the ſubject; but was at laſt forced to reſort to the unity of diſeaſe for its explanation, and ſince adoption, it has been ſupported by the ſucceſs attending the practice founded upon it. Perſons of every age and ſex appear to be ſubject to it, but it moſt frequently attacks thoſe who are in an advanced ſtage of life. In purſuing this ſubject, I ſhall, *firſt*, give a general account of the ſymptoms with which it is accompanied; *ſecondly*, the different kinds of urine ſecreted; *thirdly*, the cauſes which uſually bring it on; and, *laſtly*, the proximate cauſe, under which head I ſhall conſider ſome of the moſt plauſible opinions which have been advanced to explain it.

HISTORY OF THE SYMPTOMS.

THE Symptoms which uſually point out the exiſtence of DIABETES, are a frequent diſcharge of an uncommonly large quantity of pale and colourleſs urine; much greater than the quantity of liquids taken in; exceſſive thirſt, which is often ſo uncommon as that ſeveral gallons of drink are required, and taken in, in the courſe of a day; pain in the region of the kidneys, with a retraction of one or both teſticles, accompanied with a pain extending along the thigh; coſtiveneſs; a voracious appetite has been ſaid by ſome authors, to be a conſtant attendant in this diſeaſe, from its commencement, others again take no notice of it; pains in different parts of the body, and particularly in the head, are not unfrequent; a white and furred tongue; fluſhed countenance; inflammation and ſwelling of the gums, putting on that appearance which they aſſume when under the influence of mercury, with a frequent

ſpitting of thin watery ſaliva; a hot and dry ſkin; a feeling harſh to the touch; excoriation and ſwelling of the prepuce of the penis, and a diſcharge of blood along with the urine often happens; ſtrictures in the urethra likewiſe ſometimes occur. Theſe, together with a full, quick and tenſe pulſe, are among the moſt prominent ſymptoms with which it is accompanied. In the courſe of the diſeaſe, however, the patient, in conſequence of the exceſſive diſcharge, becomes emaciated, and extremely feeble; the feet and legs become œdematous; and when it proves fatal, theſe ſymptoms are obſerved to become more violent.

The quality of the urine voided is not always alike. Many caſes are related, where no perceptible difference from that of its natural ſtate could be diſcovered; but in a majority of inſtances it is poſſeſſed of a ſweet taſte, which has been compared to a mixture of honey and water. This has been ſaid to be uniformly the caſe, and to be a certain characteriſtic of the diſeaſe; but very improperly, for we have many caſes recorded, where it could not be

perceived at any period of the complaint; and others, where it diſappeared in its courſe ſeveral times, although the quantity of urine diſcharged was not at all diminiſhed, nor could the exiſtence of the diſeaſe be doubted. Dr. *Cullen* relates a caſe in which it was perfectly inſipid. The quantity voided varies in different patients; in moſt caſes where adults have the diſeaſe, from ten to twelve pints is generally made in a day, but we have authority for aſſerting that it often much exceeds that quantity. *Cardanus* gives an account of one who diſcharged *thirty-ſix pints* every day for ſeveral months. It appears to be increaſed in proportion to the increaſed violence of the foregoing ſymptoms. By evaporation a ſaccharine extract has been obtained; from two pounds of Captain *Meredith*'s urine were afforded two ounces of this matter, which diſtilled with nitrous, was converted into the oxalic acid. In the experiments of Dr. *Dobſon* we obſerve, that when it was preſerved in an open veſſel, it paſſed through the *vinous*, *acetous* and *putrefactive* fermentations, from which we are convinced of the preſence of ſaccharine matter.

REMOTE CAUSES.

WITHOUT entering into a diſquiſition on the manner in which the remote cauſes act in producing Diabetes, I ſhall content myſelf with the bare enumeration of them. They appear to be nearly the ſame which generally excite other febrile diſeaſes. The following are the moſt common; to wit, the intemperate uſe of ſpirituous liquors; acid drinks; large quantities of water; exceſs in eating; alternate heat and cold; great fatigue from much bodily exerciſe; the too frequent uſe of diuretic medicines. Dr. *Willis* mentions a caſe which was brought on by Rheniſh wine, which ended fatally in twenty days. Dr. *Cullen* was of opinion, that it was frequently excited by calculi in the kidneys, from its attacking perſons ſubject to calcuculous complaints. The healing of an old ulcer has produced it. This was obſerved by Dr. *Sydenham*, who alſo ſays, that it often ſucceeded intermitting fevers. It

is often connected with gout. Medicines acting as ſedatives, and the debilitating paſſions of the mind.

PROXIMATE CAUSE.

HAVING briefly ſtated the ſymptoms of this diſeaſe, and the cauſes by which it is uſually brought on, I ſhall now take up the conſideration of ſome of the opinions which have been advanced by different authors to explain it. Many of them may with truth be ſaid to be as viſionary and hypothetical, as the opinion of *Paracelſus* reſpecting the compoſition of the human body, which he imagined to be Salt, Sulphur, and Mercury. To notice them all would be unneceſſary; as many of them are, in conſequence of the preſent improved ſtate of medicine, entirely exploded, and it would neceſſarily extend this Eſſay far

beyond its intended limits. I ſhall therefore only conſider ſuch as have attracted moſt attention, and have been moſt accredited. In the firſt place, that advanced by the ingenious *Darwin*, who has aſcribed its phenomena to a retrograde motion in a certain ſet of lymphatics, which, he endeavours to prove, form a communication between the ſtomach and bladder, is the moſt prominent and worthy of notice. He accounts for it in the following manner, by firſt aſſuming it as a fact, that the great quantity of urine made after drinking largely of water, or ſpirituous liquors, is owing to the urinary branch of abſorbents, which anaſtomoſe with the lacteals of the inteſtines, inverting their motions, and by that means conveying it directly to the bladder, which, if repeated often, at length gains an habit of doing it, and the chyle, by that means, is carried directly to the bladder, without entering the circulation. This explanation, although it has the uſual ingenuity of the author attached to it, does not, in my opinion, coincide with the ſymptoms of the diſeaſe, and before we can admit it, the exiſtence of theſe

lymphatics ſhould be proved to a demonſtration, and their power of taking on a retrograde motion, ſhould be eſtabliſhed by facts and experiments. In ſupport of this, the Doctor has brought forward the experiments of Mr. *Charles Darwin* and Doctor *Kratzenteen*, which he conſiders the very pillars of its ſupport. The circumſtance of theſe being doubted by ſome, and even ſaid to be proved erroneous by later experiments, was ſufficient to excite a ſuſpicion in my mind. I accordingly determined to repeat them exactly in the ſame manner that they are related. This was done, not becauſe I pretend to doubt the veracity of the perſons by whom they were made, but from a conviction of the fallacy, or rather uncertainty of experiment in many things, and well knowing, how liable we are to be deceived. Of this liability to error every candid perſon muſt be ſenſible. Scepticiſm and incredulity in medicine ought therefore to be admitted and rather admired than reproached. The duty we owe our fellow-citizens renders this abſolutely neceſſary. The reſult of theſe experiments as performed by myſelf, I ſhall now

give in full, from which the reader may draw his own concluſions. The firſt was conducted in the following manner: After having made a tolerable hearty dinner on roaſt beef and potatoes together with aſparagus, I prepared a ſufficiency of *punch* for the purpoſe of the experiment, of which I drank until I began to feel intoxicated; I then diſſolved three drachms of nitre in about half a pint of the punch, all of which I drank at repeated draughts: In the courſe of three hours I voided nearly three pints of pale colourleſs urine, into which I immerſed ſeveral ſheets of filtering paper. It was then put into the ſhade to dry, and after it had become ſo, one or two of them were burnt, but ſhewed no evidences of the preſence of nitre. Some gentlemen preſent obſerved, that they thought they heard ſomething like detonation, but this they were afterwards convinced, was nothing more than that which always accompanies the combuſtion of paper, which had been previouſly wetted and afterwards dried: However, to be certain on this point, we burnt at the ſame time, paper which had been dipped in urine made before the commencement of the

experiment, and, there was no kind of difference in the reſult. In this opinion the gentlemen preſent coincided. Not being diſpoſed however, to make up my mind from a ſingle experiment, I reſolved to try it again, and my friend Mr. *Hartſhorne* was ſo obliging, as to be the ſubject of its repetition. We conducted it in every reſpect like the former, except, that he drank *wine* inſtead of *punch*. It operated much ſooner on him than it did on myſelf, and he diſcharged a larger quantity of urine in a ſhorter time. We treated it in the ſame way as we did the former; but there appeared no circumſtance whatever which could induce us to think, that it contained any nitre. A portion of it was afterwards evaporated by Mr. *Hartſhorne*, and he informed me, he could not detect any in it. Finding from theſe experiments, that the opinion of a direct communication between the ſtomach and bladder was extremely improbable, I determined to repeat the one related by Doctor *Kratzenteen* in the Philoſophical Tranſactions of *London*, from which Dr. *Darwin*'s Theory has been ſuppoſed to derive additional ſupport; this was the

tyeing up of the ureters of a dog, which dog continued to diſcharge urine notwithſtanding. With the aſſiſtance of my friend Dr. *Jacobs*, I tied up the ureters of a bitch, at about half after ten o'clock in the morning, and preſſed out what urine was in the bladder; water was then given her, of which ſhe drank plentifully, but eat nothing of any conſequence. I watched her attentively for eight hours, and during that time ſhe did not void one drop. It being then very late in the evening, and inconvenient to attend to her, it ſtruck me, that if a ligature was put on the urethra, I ſhould aſcertain it to a certainty in the morning, by examining the bladder; but finding it inconvenient to get at the urethra, I tied up the mouth of the vagina, and left her until the next day; when I found her in appearance as well as ſhe was when I left her. I then killed her, and upon examining the bladder, it was found quite empty and contracted; the ureters were well ſecured, and diſtended to nearly double their natural ſize; the vagina and uterus were alſo examined, but they contained no urine. On cutting into the kidneys a quantity iſſued out, and they appeared in ſome degree inflamed.

From theſe experiments I think we may be warranted in aſſerting, that the notion of a direct communication from the ſtomach to the bladder, is erroneous, and that it has nothing but the high authority from which it comes to recommend it; conſequently, the explanation of Diabetes, cannot be accounted for upon this principle. But even admitting it, we ſhall find ourſelves as much at a loſs as ever. How ſhall we account for many of its ſymptoms? Why ſhould the kidneys be in every inſtance affected? That they are is undeniable; for one of the moſt prominent ſymptoms with which it is attended, is a conſtant pain in the region where they are ſituated. Pain is not the only proof we have of their being diſeaſed; it is ſufficiently evinced by the diſſection of perſons who have died of the complaint. The kidneys of the patient diſſected by Dr. *Home*, were found preternaturally enlarged; and many other caſes are recorded, which I ſhall relate in a ſubſequent part of this Eſſay. The analogy alſo between many of its ſymptoms, and thoſe which accompany other diſeaſes of the kidneys, adds additional ſupport to the opi-

nion of their being affected in Diabetes. Do not authors deſcribe a retraction of one or both teſticles, and a pain extending along the thigh, as accompanying calculous affections of the kidneys? They do;...and we have the ſame mentioned as attending Diabetes. They occurred in one of Dr. *Rollo*'s patients. Its affecting thoſe perſons ſubject to the gout, which often attacks the kidneys, and frequently ſucceeding a fit of Nephritis, would at leaſt render it probable, if there was no other circumſtance in proof of it. *Mead* mentions a caſe which ſucceeded a fit of Nephritis in a Mr. *Bullichius*, the chief magiſtrate of *Copenhagen*, who was ſubject for many years to a periodical Diabetes, which returned every month after a ſevere nephritic fit, at or near a full moon, when he made twenty-four pounds of urine, although he had not drank a pint. It is alſo admitted by Doctor *Cullen*, to be ſometimes connected with calculous complaints, and calculi have actually been found in the kidneys of thoſe who have died of this complaint.*

* Sepulchret. Anat. Boneti.

A more concluſive proof, however, of the inſufficiency of the explanation of this diſeaſe, upon the principle of a communication from the ſtomach to the bladder, may be drawn from the following circumſtance; viz. the diſcovery of ſaccharine matter in the kidneys: In proof of this we have the authority of Dr. *Home* and Dr. *Munroe*, who were both induced to think ſo, from a ſour odour being emitted from the kidneys of the patient before quoted, which muſt have been the conſequence of its being in a ſtate of acetous fermentation: This was alſo noticed by *Vanſweten*. He alſo obſerves, that particular pains were taken to ſee if any lymphatics could be diſcovered about the neck of the bladder, but there were none to be found. I might now go on to enumerate a number of other facts in oppoſition to the Doctor's opinion, which ſuppoſes, that the abſorbents poſſeſs the power of taking on a retrograde action, even admitting thoſe of the bladder anaſtomoſed with thoſe of the inteſtines and ſtomach, but as this part of the ſubject was very handſomely combated, and I

think ſucceſsfully refuted by Dr. *Bibb*, in his inaugural diſſertation, publiſhed laſt year,* I ſhall paſs over it unnoticed. I will, however, mention an experiment made by Dr. *Jacobs*, ſome time in the courſe of the laſt winter. This was, an attempt to inject the lacteals of the inteſtines of a young woman with mercury who died ſuddenly, and in whom they appeared very evident: In every attempt to force it in a contrary direction to their natural courſe, the reſiſtance given by the valves was ſo great, that the lymphatics were ruptured. My friend, Mr. *Grimes*, alſo informs me, that he found it impoſſible to force the chyle in the lacteals of a dog in a direction contrary to its natural courſe.

Preſuming, therefore, that theſe experiments and facts are ſufficient to refute Doctor *Darwin*'s opinion of this diſeaſe, I ſhall proceed to the conſideration of the opinion of Doctors *Cullen* and *Dobſon*, which ſuppoſes it to depend upon a defective ſtate of the aſſimi-

* Vide Dr. *Bibb*'s Inaugural Diſſertation on the Modus Operandi of medicines.

latory powers, or thoſe powers employed in converting alimentary matters into the proper animal fluids. The principal reaſons that induced them to take up this opinion were drawn from the following circumſtances; firſt, the difficulty of ſuppoſing, that the ſecretory veſſels of the kidneys could take on ſuch an action as to ſecrete urine poſſeſſed of ſaccharine properties; ſecondly, the diſeaſed ſtate of the ſtomach which ſometimes accompanies it; and laſtly, a ſweet taſte in the ſerum of the blood. With reſpect to the firſt, we can ſee no difficulty in accounting for it. It is well known, that by ſome myſterious law in the animal œconomy, morbid action ſometimes terminates in effuſion, or ſecretion of one ſubſtance, and ſometimes another. Morbid action in the liver is often followed by the ſecretion of green, black, and acrid bile; in the bowels, thin, watery, and inodorous ſtools; in the ſalivary glands, thin, watery ſaliva; in the joints, chalk ſtones or calcarious matter; in bones, boney matter; and in ſoft parts, pus, which often differs in its properties. The gonorhœal diſcharge, from being ſtopped frequently, produces a ſimilar ſecretion from the glands about the eyes, and the

menſtrual ſecretion has been performed by the ſtomach, noſe, and breaſts. From theſe circumſtances we may with equal propriety infer, that a gland may not only ſecrete a fluid, when labouring under diſeaſe, different from which it does in health, but it may alſo take on the ſecretion of another gland, and therefore, why may we not ſuppoſe, that the kidneys are poſſeſſed of the ſame power of having its ſecretions ſo altered, as to produce a fluid of a ſaccharine nature? To ſuppoſe that chyle could enter the blood-veſſels without being properly prepared, and circulated through the whole ſanguiferous ſyſtem, would be unphiloſophical, and incompatible with the laws of the animal œconomy. If death is produced by the injection of a few drachms of ſimple water, or pus, into the blood-veſſels, is it reaſonable to ſuppoſe, that ſuch a large quantity of ſaccharine matter as is generally ſecreted by the kidneys, could exiſt in them without being followed by the ſame fatal conſequences? no; certainly not. The knowledge we now poſſeſs of the abſorbent ſyſtem renders it pretty certain, that they do not take up any thing but what is properly aſſimilated. But even

admitting, that the chyle entered the blood-veſſels without being properly aſſimilated, would it not be robbing the kidneys of one of the moſt eſſential prerogatives belonging to all glands, to ſuppoſe, that a fluid could paſs through them without being altered in its properties? The ſerum of the blood and urine ſecreted, both in health and diſeaſe, are by no means alike, whereas, if the veſſels of kidneys were intended for no other purpoſe than that of a ſimple ſtrainer, both of them ought to be of the ſame nature. The urine of a patient afflicted with Diabetes does not coagulate when expoſed to heat, but the ſerum of the blood does, which I think proves, that it has undergone ſome change in paſſing through the kidneys. As to the ſerum of the blood being found ſweet by Dr. *Dobſon*, I am diſpoſed to think, he muſt have been deceived by ſome circumſtance or other; probably the ſenſe of taſte (the fallacy of which none of us can be ignorant of) was the cauſe, from its not being found ſo by later obſervations. Dr. *Home* ſays, that the blood of both his patients was not ſweet, although as much as two ounces of ſaccharine matter were obtained from thirty-ſix

of urine voided by one of them; is it therefore reaſonable to ſuppoſe, that ſo large a quantity could have exiſted formally in the blood, and not be diſcovered by the taſte? however, without perſiſting on this point, I ſhall proceed, to deliver the Theory of this diſeaſe which I have adopted, as it can be no objection to it, even admitting the chyle was carried into the circulation, without being properly prepared.

This, according to Doctor *Ruſh*, conſiſts in a morbid or irregular action in the whole ſanguiferous ſyſtem, or in other words, it is a ſtate of fever accompanied with a local determination to the kidneys. This is evinced by its being attended with all thoſe ſymptoms which are uſually the conſequence of other febrile ſtates of the ſyſtem; viz. pain, increaſed action in the pulſe, thirſt, increaſe of heat, and a fluſhed countenance. Theſe are all inſeparable from it, and it muſt be acknowledged that they are the effects of febrile action. Dr. *Ruſh* deſcribes the pulſe as being full, tenſe, and quick, in thoſe patients which he attended; and Dr. *Richter*, as being ſmall, tenſe, irritated, and quick. *P. D*'s. pulſe,

Dr. *Dobſon*'s patient, was, at irregular intervals, up to one hundred and fifteen, and one hundred and twenty ſtrokes in a minute. In one of Dr. *Rollo*'s patients it was at times one hundred and four in a minute. We judge it to be a ſtate of fever, likewiſe, from the appearance of the blood, which, is generally ſizy, and with an inflammatory cruſt on the top;* Doctor *Home* alſo deſcribes the ſame appearance, and Doctors *Rollo* and *Dobſon* furniſh two others in proof of it. I infer, alſo, that it is the effect of febrile action from the cauſes which produce it, being the ſame which produce other ſtates of fever; viz. intemperance in eating and drinking; viciſſitudes of the weather; and many more which it would be unneceſſary again to mention; and likewiſe, from its attacking thoſe conſtitutions moſt liable to fever. This opinion is alſo confirmed by diſſection. The kidneys of the patient before related diſcovered every mark of exceſſive action; they were preternaturally enlarged, and much ſofter in their texture than uſual. Mr. *Cruikſhank* alſo obſerved the ſame; he found

* *Ruſh*'s M. L.

the minute cryptæ which ſecrete the urine particularly ſo. The diſeaſed ſtate of the kidneys is alſo farther confirmed by the following quotation from a letter, written by Dr. *Bailey* to Doctor *Rollo*. Theſe are his words, "I have "examined not only the ſtate of the kidneys, "but of the ſtomach; the inteſtines, the "glands of the meſentery, the liver, ſpleen, "and pancreas, and I do not heſitate to men-"tion to you, generally, that I was induced "to believe from the morbid appearances in "the kidneys, that the principal ſeat of the "diſeaſe was in them." The exceſſive diſcharges of ſweat and ſaliva, and the ſecretion of urine being increaſed in proportion to the increaſed violence of its ſymptoms, affords additional proof of it, I infer it alſo, from its being frequently attended with dropſical ſymptoms, which are nineteen times in twenty the effect of fever. This opinion does not reſt upon theſe facts alone. The ſucceſs attending the practice founded upon it, alſo adds additional confirmation of it, proofs of which I ſhall adduce, when treating of the method of cure.

METHOD OF CURE.

FROM the view we have taken of the proximate cauſe of this diſeaſe; the indications of cure muſt be evident. As we have ſaid that it conſiſts in an exceſs, or rather a morbid action in the whole ſanguiferous ſyſtem, with a local determination to the kidneys; the firſt ſtep to be taken ſhould be to attempt its removal, which may be done by any of the ſeveral modes of depletion; in the firſt place, blood-letting, which ſhould be regulated, by the degree of action in the pulſe, and other ſymptoms: Then emetics ſhould be exhibited;...theſe may be either Tart. Emetic, Ipecacuanha, or *Turpeth Mineral*, which laſt I ſhould prefer, as two advantages would probably be derived from it; firſt, its action on the ſtomach as an emetic, and ſecondly, that of producing a ſalivation, which often follows its uſe when given ſimply

for the purpoſe of evacuating the contents of the ſtomach. After the febrile ſymptoms are in ſome degree ſubdued, mercury ſhould be given ſo as to excite a ſalivation. Dr. *Ruſh* informs his pupils, that by theſe remedies two patients have been cured, and a third was conſiderably relieved by them, and although he is now ſubject to returns of it, he always finds himſelf much benefitted by the abſtraction of a few ounces of blood; as a farther teſtimony of the propriety of blood-letting we have the authority of *Burſerius*. Capt. *M.* a patient of Doctor *Rollo*'s, was alſo very much relieved by the abſtraction of a few ounces, which were taken with a view to aſcertain whether the blood was ſweet; probably, had it been repeated, he would have recovered much ſooner than he did. Mr. *Scott*, in a letter to Sir *Joſeph Banks*, ſays, he has ſeen but two caſes of Diabetes, both of which were cured by mercury; one of them afterwards relapſed, but was again cured by the nitric acid, which produced a ſtate of the mouth ſimilar to that produced by mercury. A friend of mine likewiſe informs me, that his preceptor cured a little girl, eight

years old, of this diſeaſe, by means of ſaliva-tion. Theſe remedies have been uſed with e-qual ſucceſs in the Alms-houſe, and at the Diſ-penſary, as I am informed, by gentlemen now reſiding at both thoſe places. Medicines ex-citing perſpiration have been uſed with conſi-derable advantage; for this purpoſe *Dover's* powder may be uſed in the uſual way; one caſe is mentioned in the Med. Com. as ha-ving been removed by it. Fiſh Oil anointed on the ſkin is ſaid to be uſed with advantage in Scotland; it is uſed with a view of prevent-ing abſorption from the ſurface of the body, but I am inclined to think, that it does not produce its effects in this way, for from the ex-periments of Dr. *Roſſeau*, we are led to believe, that abſorption from the ſurface never happens. Dr. *Ruſh* thinks it has a kind of ſedative pow-er. The Sac. Sat. was highly recommended by Etmuller, and from its power over the pulſe, I ſhould ſuppoſe it a valuable medicine in this diſeaſe. For taking off the determination to the kidneys, iſſues or ſetons may be made on the lumbar region. After the febrile ſymptoms are removed, tonics ſhould be exhibited; for

this purpoſe, allum whey has been uſed with moſt benefit. With this I ſhall cloſe this imperfect Eſſay; it now remains for me, to return my moſt ſincere thanks to each of the Profeſſors of this Univerſity, for their politeneſs, and the valuable information received from them.

FINIS.