A case of diabetes, with an historical sketch of that disease / [Thomas Girdlestone].

A

CASE

OF

DIABETES,

WITH AN

HISTORICAL SKETCH

OF THAT

DISEASE.

BY

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Yarmouth:

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ERRATA.

Page xv—For Savauge, read *Sauvage.*
2—For nozology, read *nosology.*
5—For his, read *this.*
13—For Libye, read *Libyæ.*
14—For Lucan, read *Lucian.*
18—Change the first period into a *colon:*
18—After *drink*, add *any liquid.*
28—For vifica and vificam, read *vesica, vesicam.*
28—For mucous, read *mucus.*
30—For sympton, read *symptom.*
34—For is, read *are.*
56—For Liften, read *Lister.*
60—For Vallanovanus, read *Villanovanus.*
60—For hæmatitas, read *hæmatites.*
66—Add a comma after *rice*, and convert the period into a colon after *&c:*
68—After *milk*, convert the period into a *colon:*
71—For was, read *were.*
82—For was, read *were.*
82—For Wattman, read *Wittman.*
87—After *fame*, convert the period into a *colon:*
92—For *Macet*, read *Marcet.*
93—For had, read *have.*
95—For mucous, read *mucus.*
97—For look, read *looked.*
99—Convert the period after *hours* into a colon:

PREFACE.

THE annexed caſe of diabetes is due to the ingenuity of Dr. Rollo and Mr. Cruickſhanks.

But as amidſt the multiplicity of the correſpondents of Dr. Rollo, he ſeems, by his publication on diabetes, to have overlooked ſome parts of my letters to him concerning my former patient Capt. M. and certainly did not rightly underſtand in what manner Capt. M. had been for three months under the care of a ſurgeon and phyſician, "without* the circumſtance of increaſed urine being known" to them, it is but juſtice to Mr. Penrice the ſurgeon, and myſelf, that that part of the retroſpect of Capt. M's caſe, which has been

 omitted

* Vide Dr. Rollo's Preface.

omitted by Dr. Rollo, ſhould precede the detail of my preſent diabetic caſe. Capt. M. by his convivial habits, had induced feelings which led him to take repeated doſes of two ounces of common purging ſalts. Some time after that he applied for a heat in making urine, to Mr. Penrice, who firſt gave him nitre, and afterwards calomel, and the patient thought himſelf well for ſome weeks. Not long after Capt. M. called upon me, and finding by his account the common ſymptoms of intemperance, I ordered him a grain of calomel in a pill, to be ſwallowed every night for ſix nights, and limited his quantity of wine to one pint a day, and his diet to that which I thought would be eaſieſt of digeſtion, ſuch as animal food without any raw vegetables, pickles, pie-cruſt, or ſweetmeats. I ſaw him him once or twice within the firſt week, and being informed by him, that he thought himſelf much better, I only deſired him to repeat one of his pills every ſecond, or third night, for two or three weeks longer, and to adhere to his regimen. I occaſionally afterwards uſed to meet Capt. M. as I walked my rounds in

Yarmouth

Yarmouth, when he always acknowledged to me, the very great benefit he had received from his medicine. In no other manner had I any farther converſation with Capt. M. until a day or two before his departure for London, when after a ride from a dinner in the country, he had been expoſed to a very heavy ſhower of rain, and was attacked the next day with an inflammation of the tonſils. Being then ſent for to him, for what he ſuppoſed a new diſeaſe, I ordered him a purgative doſe of caſtor oil, which he had in the houſe, to be taken immediately, and wrote a preſcription for a gargle with muriatic acid, and a ſudorific doſe of laudanum and antimony to be taken at bed-time. The next morning he appeared free from fever, his ſore throat was gone, and he proceeded either that afternoon or the day after for London and Woolwich. Theſe were the only two preſcriptions I ever wrote for Capt. M. prior to his diſeaſe being detected by Dr. Rollo. The preſcriptions were not put up by Mr. Penrice, but at a chymiſt's. Mr. Penrice had never met me at Capt. M's, nor known from Capt. M. that

I had ſeen him as a patient. And I never underſtood that Capt. M. during any part of thoſe three months, had ever conſidered himſelf ill enough to be abſent one ſingle day from his duty as an officer.

Capt. M. was naturally fat, his make round, and his features ſmall, and as his clothes were made to go very tight about him, and I had no knowledge of his perſon until he became my patient, he appeared to me a very ſtout man: but to Dr. Rollo, who had known him many years before he had any diabetes, he ſeemed ſo ſhrunk, as to excite thoſe enquiries which led to the diſcovery of his diſeaſe. I received a letter from Dr. Rollo, by the return of Capt. M. to Yarmouth, to inform me, that he had diſcovered the urine of Capt. M. to be diabetic, and to requeſt me to mark the progreſs of the ſymptoms, as he had ſome peculiar ideas on the treatment of diabetes. As I found Capt. M. had been ordered only tincture of bark and a milk diet, I was anxious to learn what were the ideas which led Dr. Rollo to direct a liquid diet in a diſeaſe which I had always conſidered as accompanied with more

more or leſs of local affection of the kidnies. Dr. Rollo's letters were not written any more than my own for the preſs, but I ſhall take the liberty of annexing ſome parts of our correſpondence, as they give the ſymptoms as they aroſe before I became acquainted with his ideas on the diſeaſe.

Though Capt. M. was exceedingly punctual in every thing which related to his duty as a ſoldier, yet I could not make him, for any length of time, exact in aſcertaining the quantity of his drink, or of his urine. The ſpruce beer which he drank, and the fruit which he ate, were not with my approbation. He was evidently worſe whenever he tried them, though he uſed to declare that he thought they leſſened both the quantity and the ſweetneſs of his urine. But before we indulge in any ſeverity on theſe, or the ſimilar ſelf-deceptions which Dr. Rollo has recorded of Capt. M. it is neceſſary to remember, that the moſt accurate of the old writers on diabetes, have remarked how much the reſolution weakens in this diſeaſe. Nor can we wonder, if under the perpetual cravings

which

which are excited by a diabetes, the moſt reſolute ſhould ceaſe to pay any regard to medical reſtrictions. Dr. Rollo ſuppoſes all that has been ſaid before his work on diabetes, may be learned from Drs. Cullen, Dobſon, Home, and Richter. Though Dr. Cullen has referred only to twelve authors, Dr. Dobſon to none, Dr. Home to ſeven, and Dr. Richter to four, on this diſeaſe, yet there can be no doubt but they have all read much on the ſubject. The ſpeculations of Dr. Cullen and Dr. Beddoes, have led Dr. Rollo to experiments which will give great credibility to the random cures of diabetes, that are to be met with in books, and to the adoption of a treatment which will ſometimes cure, and always, probably as long as the diet can be adhered to, ſuſpend the diſeaſe. But as a ſyſtematic writer, Dr. Cullen is defective on the diabetes, in not mentioning the heat, and ſometimes pain in making urine, which Aretæus and other old writers have noticed. As the proximate cauſe of diabetes has varied with the theories of medicine which have prevailed in the different ages, it may appear deſirable

ſirable to a ſpeculative reader, that no opinion of this diſeaſe be altogether overlooked. And as it is not always eaſy, by reading, to determine the gradations of the ſweet, the inſipid, and the cæliac, diabetes from each other, I have directed the attention of the reader to thoſe varieties of the diſeaſe, which I have been able to collect from authors.

I cannot pretend, from the ſcanty reſources of a country collection of books, to enumerate all the authors on diabetes, though in ſearching for the particular ſymptoms which I met with in Capt. M. I have glanced at the opinions and caſes that are ſcattered through many works. But from the want of ſeveral of the original productions, I have been obliged to take the opinions of ſome, from the quotations of others: And as I have found inaccuracies in the works of Bonetus, and ſimilar compilers, on comparing them with the original productions which I poſſeſs, a more perfect hiſtorical ſketch of this diſeaſe, may doubtleſs be eaſily produced from a larger library. It is alſo but decent for me to confeſs, that though ſome of the authors

whom

whom I have noticed may derive additional celebrity from the diſcovery of Dr. Rollo, yet they cannot be ſaid in the ſmalleſt degree to detract from the utility of his work as a practical publication: And that I ſhould not have thought of offering the tribute of this caſe to him in the ſhape of a pamphlet, could I have communicated it without noticing ſome paſſages in his book, relating to the retroſpect of Capt. M's diſeaſe. The digreſſions which are blended with the hiſtorical compilation on this diſeaſe, and the few objections which are made to ſome parts of Dr. Rollo's theory, I muſt entreat the reader to conſider as only conjectures ſubmitted to the mercy of his criticiſm.

Mr. T—, having directed his whole life by a ſyſtem of piety and benevolence, is one of the moſt reſpectable of the people called methodiſts.

He

He has been thirty-two years a water drinker, and is in the fifty-fifth year of his age. His face is uncommonly florid; his eyes are blue; his eye-brows are ſhaded with a yellowiſh red hair; and his ſkin is naturally much inclined to perſpire. He contracted an aſthma thirty-four years ago, by remaining ſome time up to his loins in the ſea; and he continued to baffle the hopes of his friends, and the art of medicine for two years, when being directed to drink only water, his appetite became ſo exceedingly keen, that, though he is only five feet two inches in height, he arrived at the ſtandard weight of eighteen ſtone* nine pounds, and ſo far re-eſtabliſhed his health, as to render his aſthma a mild diſeaſe, alternating with piles.

I was deſired to viſit him at Loweſtoft, with Mr. Arnold his ſurgeon, on the 9th of May, 1798, when the ſymptoms which were diſcovered were theſe. He had made that day ſeveral pints of ſtraw-coloured urine, which had a violet ſmell, and a taſte ſo ſweet, that it could ſcarcely be diſtinguiſhed from a

 ſolution

* Fourteen pounds to the ſtone.

folution of honey and water. His nights were ſleepleſs; his bowels were exceedingly coſtive; his pulſe was quick; his ſkin was uncommouly dry and hot. He loathed all ſorts of food. His gums and his tongue were of a dark ſhining red colour, beſpangled with viſcid ſaliva, but he was not ſenſible of any acid taſte. He deſcribed a burning feveriſh-feeling throughout all his viſcera, ſome feebleneſs, but no pain, about his loins, and great tremor and debility along the muſcles of his thighs. He did not know till I had aſked the queſtion, that he had any phymoſis. Naturally his prepuce was not tight about his penis, but upon attempting to denude the glans penis he found it was impoſſible, and that the blood was ready to ſtart upon the trial. The phymoſis was preciſely like that, which I had accidentally diſcovered in my two former diabetic patients, and which I deſcribed in a letter to Dr. Rollo in the year 1796.* Mr. T. had never perceived either

* See the firſt letter in the Appendix to Dr. Rollo.

either the thirſt, or any extraordinary quantity of urine, until the 2d of April, 1798, when after a journey of twenty miles in a cart, which ſhook him very much, he drank fourteen pints of ſleeted milk in the twenty-four hours, and he believes he evacuated fully that quantity of urine; and from its quantity he was led to diſcover its ſweetneſs.

For ſome weeks before his journey, he had ſhrunk much about the thighs, and felt himſelf unuſually weak, and as he had been in the habit of weighing himſelf frequently, he was able to ſay, that within the laſt three months he had loſt twenty-four pounds in weight.

He was deſired to live on animal food and toaſt and water, with as little bread as poſſible; to have his food and his perſon daily weighed, and his urine meaſured; and inſtead of drinking much at a time of toaſt and water, to keep ſome of it conſtantly in his mouth, and to ſpit it into a baſon, in order that the daily quantity of drink which ſhould be ſwallowed might be alſo preciſely aſcertained. I had ordered him the kali ſulphuratum in pills; but as he

had a dread of taking medicine, and it was evident that neither kali ſulphuratum, nor the hepatized ammonia, had any power to counteract the effects of an apple in Capt. M's caſe, I did not enforce the neceſſity of any medicine but caſtor, or ſallad oil, to keep the bowels open, provided he would adhere to the diet.

Theſe rules he ſtrictly complied with, and from the journal which he kept, and the obſervations which he made on thoſe deviations of diet, which he was ſometimes tempted to commit, when he thought he had ſubdued the diatheſis, the following remarks are taken.

1ſt. That the ſhrinking was detected before any thirſt or increaſe of urine was known to the patient.

2d. That though the urine within the firſt twenty-four hours from the commencement of the animal diet changed to a urinous taſte, and became every day more urinous, and did not amount to the quantity of liquid ſwallowed by a pint a day, yet the patient continued to ſhrink a pound a day for the firſt three days he was under the regimen.

3d.

3d. The firſt great alteration for the better in his feelings, aroſe on the third night after taking a pint and a half of animal jelly, which increaſed his weight the next morning two pounds.

4th. The eating of crabs or any other ſhell-fiſh always relieved his thirſt and other diabetic ſymptoms, ſtill more powerfully than any other animal food; but that whiting and all other fiſh not of the ſhell kind, reproduced the thirſt, &c. as rapidly as any vegetables.

6th. That the diet of animal food took away the aſthma.*

7th. That the patient continued to make repeated trials with vegetables, &c. at the diſtance of ſix weeks after he thought himſelf well; but the experiment always immediately reproduced the dryneſs of the ſkin and limpid urine. He therefore gave up farther experiments until the month of November, when I requeſted him to try fried eggs, parſneps, and cabbages,

* Savauge has taken notice that diabetes and aſthma will ſometimes alternate with each other.

cabbages, all of which agreed exceedingly well with him. In January 1799, he tried tea, and it did not diſagree with him. In February, he tried a little porter, which did not diſagree with his ſtomach: but as he thought it rather reproduced the aſthma, he declined taking any more of that drink. When the aſthmatic ſymptoms ſubſided, he determined to try two or three glaſſes of port wine after dinner. The ſecond day of this experiment reproduced all the ſymptoms of diabetes. He then rigidly reſumed his diet of animal food, and in the month of May, he had remained ſeveral weeks free from relapſe. But though he could at that time eat with impunity, many things which he could not at the commencement of his diſeaſe, yet the diabetic diatheſis did not appear to be completely ſubdued.

8th. Mr. T's weight in May 1798, was only ſeventeen ſtone eleven pounds and a half, before he entered upon the diet of animal food; and in May 1799, it was eighteen ſtone ſeven pounds, which is within two pounds of what had

had been his ſtandard weight for many years before his attack of diabetes.

By the unavoidable delays of a country preſs, this caſe, which was intended to have been printed in May, has been poſtponed till July, and I am therefore enabled to extend his report beyond his original journal. In the month of June, the patient fancied he was able to eat acids without producing a relapſe, but he very ſoon found that he was miſtaken. And though he has again ſubdued the diabetic ſymptoms, by a return to his regimen, yet his aſthma is returned.

Probably the chemical properties of country bread differ from thoſe of London, for the bread of Loweſtoft was the firſt vegetable ſubſtance that this patient was able to eat without reproducing the diabetic ſymptoms.

While this caſe was printing, Mr. Adams, a ſurgeon of Northwalſham, has given me an account of a female patient with diabetes, who drinks fifteen pints of liquid and diſcharges ſixteen pints of urine, in the ſpace of every twenty-four hours. With theſe ſymptoms ſhe has great itching about the meatus urinarius,

which

which is conſiderably enlarged and diſcharges mucus.

Mr. Borrett, a ſurgeon in this town, has alſo called me to ſee a female patient of his, who with the diabetic diſcharge of urine, has alſo the ſorenefs and itching about the meatus urinarius. So that it will appear, that out of nine caſes of diabetes mellitus, which have been noticed in this part of the country, eight of them were diſeaſed about the urethra.

HISTORICAL SKETCH

OF

DIABETES.

THE diabetes, hydrops matellæ, profluvium urinæ, dipſacon, morbus ſitibundus, or diarrhea ad urinas, is not a very common diſeaſe in any climate.

And though we have from the Greek or Arabian writers, what is commonly thought to be but a very imperfect hiſtory of this diſeaſe, yet it has probably been a very ancient one in the Eaſtern regions. If Hippocrates or Proſper Alpinus have taken no notice of the diabetes, Theophilus, Actuarius, Aretæus, Ætius, Paulus Ægineta, Trallianus,

Avicenna, and Galen have, and the following paſſage from Cælius Aurelianus Siccenſis ſhews that there were other writers on this diſeaſe, whoſe writings have not come down to us. "Item Appollonius Memphi-
"tes alium dixit fieri hydropem cum re-
"tentione, ut ſi quis biberit, ſine dilatione
"tanquam per fiſtulam tranſire egeratur:
"Ejus autem quem cum retentione fieri
"dixit, ſecundum plurimos tres iſſe differen-
"tias affirmat. Sed melius Demetrius Apa-
"meus ab hydrope deſcrevit, eum qui ſine
"dilatione potum liquorum per urinam egerit,
"diabeten appellans, ſicut ſpecialiter de ipſo
"ſcribentes docuimus."—Lib. 3, cap. 8.

It is not ſurpriſing that Dr. Cullen in his nozology, ſhould doubt whether many of the caſes, which ancient writers have deſcribed, be thoſe of true diabetes. The caſe publiſhed by Fernelius, where the patient drank ſixteen pounds of medicated water in an hour, and evacuated by urine every portion of it as faſt as it was drunk: that given by Scribonius, where the patient made four times the quantity of

urine

urine more than of liquid which he drank; and that related by Cardan, where the patient made ſeventeen hundred and forty pounds of urine in ſixty days, and was cured in a month afterwards, are all very doubtful caſes of true diabetes. And the caſe, which is publiſhed by Sir Kenelme Digby of the Nun, at Rome, who for ſome weeks diſcharged more than two hundred pounds of urine in every twenty-four hours, is quite incredible.

The caſes given by Ballonius are all very ſuſpicious.

In the one caſe, the urine was ſometimes bloody and diſcharged involuntarily; and after death, in the left kidney a ſtone was found, and the right kidney was waſted. In the ſecond caſe, the lungs were found black, and two ſtones were in each kidney; but before death the patient had thirſt and made pale urine. That the bladders of diabetic patients ſhould be found after death contracted, as mentioned by Ballonius, Dr. Cullen might alſo doubt. But it is aſtoniſhing that he ſhould heſitate whether Aretæus had

ſeen the true diabetes. Except the ſaccharine taſte of the urine, he has deſcribed the diſeaſe in both its acute and chronic ſtage, with great accuracy. If Dr. Cullen did not conſult the Greek itſelf of Aretæus on diabetes, he might have been led into his doubts by the tranſlators, who, intent on making the Latin pure, rather than the deſcription clear, have all taken the liberty of changing the nominative caſe to the verb παροιδεουσι, and thus rendered a ſentence doubtful to an anatomical reader. παροιδεουσι οσφυν ορχιας και ισχια are thus tranſlated in Boerhaave's edition, and in all the authors who have quoted the paſſage from Aretæus, "*intu-*" "*meſcunt lumbi teſtes et ilia.*"—Lib. 2, cap. 2, περι διαβετεω.

The ſuppreſſion of urine only for a little time, is not very likely to make the teſtes ſwell, though in the diabetes it may cauſe the bladder to diſtend downwards, ſideways, and upwards. Now if *they*, meaning *the ſick*, be conſidered as the nominative caſe to παροιδεουσι, and the accuſative caſes οσφυν ορχιας ισχιά be admitted as governed by the pre-

poſition,

poſition, which is compounded with the verb, then *tumeſcunt circa lumbos teſtes et iſchia*, only mean the utmoſt diſtention of the bladder, which would certainly take place under a retention of urine in the diabetes.

The firſt Latin tranſlation of Aretæus was publiſhed in 1552, by Junius Paulus Craſſus, a phyſician of Padua.

Heniſchius adopted the verſion of Craſſus, and in the above paſſage the commentators ſeem to have followed each other. It is not to be wondered at, that thoſe commentators, who were ignorant of anatomy, ſhould not ſee the neceſſity of diſtinguiſhing between *a ſwelling near to parts*, and *parts themſelves ſwelling*. But one could ſcarcely have ſuppoſed that ſuch medical men as Petit, Wiggans, and Boerhaave, could have adopted the Latin of this ſentence without making on it a ſingle comment.

I am aware, that ſcholars may ſay an accuſative caſe coming after a neuter verb, may be referred to the ellipſis κατα, and that in tranſlating ſuch a ſentence, the accuſative

euſative caſe is commonly conſtrued as a nominative one to the verb. But they muſt be alſo aware, that *Verba cum præpoſitionibus compoſita regunt vi præpoſitionum.* And that Aretæus meant παροιδεουσι, ſhould have the ſame power over the nouns in this ſentence, as if he had written it οιδεουσι παρα I conclude from the preceding chapter of his on the dropſy: for when he deſcribes the anaſarca of the prepuce and ſcrotum, (where he might naturally enough ſuppoſe the teſtes themſelves to be ſwelled) he uſes the uncompounded verb, and makes the prepuce and teſtes the nominative caſes to the verb Οιδεουσι ορχεις τε και ποσθαι which the commentators have tranſlated "*intumeſ-*
"*cunt teſtes et preputium.*"

Whoever will take the trouble to read Aretæus, will find that author was too well acquainted with the anatomy of the kidnies, ureters, and bladder, to ſuppoſe that the ſuppreſſion of urine only for a little time, would make the teſticles ſwell. In this country, the retention of urine has ſo overdiſtended the bladder, as to deprive it of its action,

and

and to render a catheter neceſſary where even no diabetes exiſted.

Can we then doubt in the diabetes, where ſo much urine is ſecreted, whether a temporary retention of it would cauſe the patient to ſwell about the loins, teſtes, and hips? The ſenſe of diſtenſtion about the kidnies, bladder, and perinæum, under retentions of urine in the bladder, is noticed by Foreſtus, and theſe are the parts which Aretæus appears to have deſcribed by the above ſentence, for παρ ορχιας and perinæum ſeem ſynonymous terms.

The following is the deſcription which Aretæus gives of the acute and chronic diabetes.

" Mankind is not very ſubject to the won-
" derful diſeaſe called diabetes, which is a
" falling away of the fleſh and members into
" urine. Like the dropſy of the ſkin, it
" has coldneſs and moiſture for its origin;
" but the accuſtomed paſſage is the kidnies
" and bladder: Not only they evacuate the
" urine without intermiſſion, but the canals
" are alſo relaxed, and the diſcharge is with-
" out

" out ceaſing. There is a daily renewal of
" this diſeaſe, and it is born for a long time.
" But ſhort will be the life of that man
" in whom this diſeaſe has been eſtabliſhed.
" For ſwift is the waſting, and ſudden death
" ſometimes takes place, or life becomes
" loathſome and vexed with pain. The thirſt
" is intolerable, the increaſed quantity of
" drink not correſponding with the ſtill
" greater quantity of urine which is diſ-
" charged. Nor can any one prevent the
" ſick from drinking, or diſcharging urine.
" The moſt ardent thirſt prevails, and if the
" patients be prevented only for a ſhort
" time from drink, their mouths dry up,
" their bodies parch, and they themſelves
" think their bowels burn up with heat.
" They loath all things, are irreſolute about
" every thing, and can ſcarcely be ſaid to
" be more lifeleſs after death. *But what

means

* James, under the article of diabetes, has given a tranſlation of what Aretæus has ſaid upon this diſeaſe: And though in the following ſentence, he has preſerved the no-

" means could compel them to reſtrain their " urine? Or what ſenſe of ſhame ſtronger " than their pain? If the patients have re- " tained their urine only for a ſhort time, " they ſwell about the loins, teſtes, and hips: " And when they evacuate, they pour out " the urine with heat; the ſwelled parts ſub- " ſide, and the exundation flows to the blad- " der.* When the diſeaſe is arrived at this " ſtate

minative caſe, which appears to me to be the right, to the verb παροιδεουσι, yet he has done equal injuſtice with the Latin tranſla- tors to the author, by the manner in which he has finiſhed the paſſage, αππουρεειν δε τις αν επισχοι τροπος. η τις αισχυνη πονου κρεσσωνι. αλλα κην ες μικρον εγκρατεες γενωνται, παροιδεουσι οσφυν ορχιας και ισχια. James thus tranſlates, " No " reaſon can induce, nor ſhame prevail upon " them to reſtrain their water, for both ſub- " mit to a ſenſe of pain: And upon the " leaſt ſuppreſſion, they are afflicted with a " tumour of the loins, teſtes, and hips."

* This paſſage alſo tends to prove that Are- tæus meant by the former part of the ſen-

" ſtate, all eaſily diſcover it. But when it
" is about to commence, the mouth is de-
" prived of moiſture: the ſaliva is white
" and frothy, and at times the patients are
" thirſty. But they have not yet begun to
" drink immoderately. They have a ſenſe
" of weight about the præcordia, and as the
" diſeaſe advances, they complain either of
" heat or cold proceeding from the belly to
" the bladder. The thirſt is conſtant, but not
" yet vehement. As the diſeaſe increaſes,
" not only a ſlight heat, but an inherent gnaw-
" ing, ariſes in the viſcera. The abdomen is
" wrinkled, the veins ſtand out, and the whole
" body becomes ſlender, the overflow of urine
" and the thirſt are remarkably increaſed,
" and when the ſenſation of the diſeaſe has
" reached the penis, the urine is immediately
" evacuated. And, therefore, the appellation
" of diabetes appears to me to have been de-
" rived from *a ſtraining through*, as you may
" ſay, becauſe the moiſture remains not in
" the

tence, only to deſcribe the diſtention of the urinary ducts and bladder.

" the body, but wherever it had uſed to be
" collected, it ſlides away. The patients, in-
" deed, laſt ſome time, though not very long;
" for they urine with pain, and the waſting
" becomes violent. Not only the extraor-
" dinary quantity of drink which is taken is
" evacuated, but a great quantity of the fleſh
" is diſſolved into urine. Some acute diſeaſe
" may be the cauſe of this debility, which,
" having made its attack upon this part, has
" depoſited by criſis, the peculiar malignity
" of its lurking poiſon. It is not improba-
" ble, alſo, that this moſt pernicious poiſon
" has ariſen, from thoſe things which effect
" the kidnies and bladder, and produced this
" diſeaſe. For, if any one be bitten with
" a dipſas, ſuch an effect follows the bite.
" The dipſas is a fierce ſerpent, who ſtrik-
" ing any one, kindles up a thirſt which is
" not to be born, and the patient drinks moſt
" copiouſly, and cannot cure his thirſt though
" he diſtends his belly with moiſture: ſo in-
" explicable is the deſire for drink. But, if
" on account of being pained with the diſ-
" tention of the belly, and oppreſſed with

" the quantity of fluid, he abſtain a little time
" from drink, he thirſts again, and drinks
" moſt copiouſly. And this is the change of
" evils, for thirſt and drink by turns relieve
" him. There are ſome alſo who cannot diſ-
" charge any urine, nor have any other eva-
" cuation of what they drink. Therefore,
" with inſatiable deſire of drink, inundation
" of fluid, and diſtention of belly, at laſt
" they ſuddenly burſt."

Dr. Home* thinks very differently of Aretæus' account of the diabetes from Dr. Cullen, but he doubts what Aretæus ſays of the ſerpent dipſas, becauſe Lucan takes no notice of the ſuppreſſion of urine. Dr. Home probably

* " 4. That the bite of the ſerpent dipſis
" occaſions diabetes and violent thirſt. Are-
" tæus aſſerts this; yet it ſeems doubtful, as
" he adds, that ſome of thoſe infected did
" not paſs any urine, and as Lucan, who
" accurately mentions the other ſymptoms
" which attend its poiſon, ſays nothing of it."
—Home's Clinical Experiments, 1ſt edition, p. 313.

probably quoted from memory, and therefore forget that Lucan has neither taken notice of a ſuppreſſion, nor of an increaſed ſecretion of urine. He chiefly dwells upon the tears forſaking the eyes, the ſweat the ſkin, and the thirſt being ſo great, that no rivers can quench it.

Signiferum juvenum Tyrrheni ſanguinis Aulum
Torta caput retro dipſas calcata momordit:
Vix dolor, aut ſenſus dentis fuit, ipſaque lethi
Frons caret invidia, nec quicquam plaga minatur:
Ecce ſubit virus tacitum carpitque medullas,
Ignis edax, calidaque incendit viſcera tabe:
Ebibit humorem circum vitalia fuſum,
Peſtis et in ſicco linguam torrere palato
Cœpit: deſeſſos iret qui ſudor in artus
Non fuit. Atque oculos lacrymarum vena refugit:
Non decus imperii, non mœſti jura Catonis
Ardentem tenuere virum, quin ſpargere ſigna
Audere totusque furens exquireret agris
Quas poſcebat aquas ſitiens in corde venenum
Ille vel in Tanain miſſus Rhodanumque Padumque
Arderet, Nilumque bibens per rura vagantem.
Acceſſit morti Libyæ fatique minorem,
Famam dipſas habet terris adjuta per uſtis.
Scrutatur venas penitus ſqualentis arenæ:
Nunc redit ad Syrteis et fluctus accipit ore

Aquoreus

Aquoreus placet, ſed non et ſufficit humor,
Nec ſentit fatique genus mortemque veneni:
Sed putat eſſe ſitim: ferroque aperire tumenteis
Suſtinuit venas, atque os implere cruore.
Lucan's Pharſal: lib. ix. line 740.

Nicander, in his Theriaca [illegible]: confirms the opinion of Aretæus on the effects which are produced by the poiſon of this ſerpent.

Αυταρ ὅγ αυτε ταυρος απερ πολεμοῖο νεμηται
Χανδον αμετρητον δεχεται ποτον εισοκε νηδυς
Ομφαλον εκρηξειε χεει δ' υπεραχθεα Φορτον.

Lucan has written a whole letter (which he has called the dipſades) to his friend about this ſerpent of Lybia; where, after deſcribing the violent thirſt which is excited by the bite of the dipſas, he elegantly compares himſelf to a perſon who is bitten with that ſerpent: for the more he drinks of, the more he thirſts for, the pure ſtream of his friends converſation.

Ardoynus, who ſeems to have read almoſt all ancient authors on the ſubject of poiſons, gives

gives the following account of the ſerpent dipſas.

Dipſas ſeu ſitula ſeu ſerpens ſitire faciens, eſt ſerpens cujus longitudo eſt palmi unius: et ſuper corpus ejus ſunt veſtigia nigra plurima, et caput ejus eſt parvum, et collum ipſius groſſum, et incipit creatura ejus ex collo groſſo uſque ad caudam, ſubtilem: et forma, ejus eſt forma viperæ et color ejus uſque ad caudum, ad nigridinem eſt declivis et incedit conquaſſando caudam ſuam et habitat in littoribus maris, et invenitur ut plurimum in regione Lokiati et Aſſem. Dicitur autem Græcè dipſas, quod Latinè idem quod ſitire faciens; et dicitur ſitula quia adeo ſitire facit quod ſitula indiget. Accidentia conſequentia morſuram ejus ſunt aduſtio ventris et inflammatio et appetitus vehementiſſimus bibendi precipuè aquam uſque ad mortem, quamvis nunquam ſatietur abſque exitu rei alicujus per urinam vel per ſudorem: quare inflatur venter ejus totus et currit aqua in venas ipſius: et tandem cum ſiti vehementiſſima moritur, ut hydropicus niſi ei debite ſubveniatur. Cauſa

omnium

omnium præfatorum accidentium eſt præfata veneni ſerpentis prædicti natura, quæ ſui exceſſiva et conſequentur aduſtia caliditate, ventrem adurit et inflammat, et ſui venenoſa proprietate inſatiabilem appetitum bibendi precipuè aquam inducit et corpus adurendo ſeu inflammando et conſequenter exiccando et corrugando, ſicut corium ab ignis caliditate vias urinæ et corporis poroſitates conſtringit et conſequenter oppilat quare retinetur urina et prohebetur ſudor: propter quod aquoſitas tranſmittitur ad ventris concavitatem et conſequenter venter ipſe inflatur et tumefit et pars etiam aquoſitatis currit cum ſanguine in venas ipſius: quare tandem cum ſiti vehementiſſima moritur niſi ei debite ſuccuratur.—Vide Ardoyni opus de Venenis, p. 356.

And as diuretics are recommended by Avicenna, for the cure of the bite of this ſerpent, it may be inferred, that Aretæus meant, if the dropſical diſtention from the bite of the ſerpent dipsas was not relieved by a critical evacuation of urine, the patient would ſuddenly burſt; or if this evacuation took place, it might eſtabliſh a diabetes, and ſo at laſt end fatally.

Galen

Galen ſays, that he had never ſeen the diabetes but twice; that the patients are conſtantly thirſty, and drinking and diſcharging that which is drunk, unchanged in its quality, and that this diſeaſe of the kidnies is like to the lientery.*

Theophilus ſays, a profuſe and rapid diſcharge of clear pale urine denotes a diabetes, which ſome learned phyſicians have called, a *diarrhea ad matulam*, and the moſt excellent of all phyſicians, dipſacus.† But Theophilus has left us to gueſs who this moſt excellent phyſician was.

Actuarius ſays, much urine becomes a diſeaſe, which, from the celerity of the evacuation and its conſequences, is called *ſitibundus*, *diabetes*, and *fluxus urinæ:* And that the urine is clear, as it is in all daily malignant evacuations of the belly, blood, or urine.‡

§ Alexander Trallianus ſays, when an im-

 moderate

* Galen, lib. vi. cap. 3.

† Theophilus περι ουρων.

‡ Actuarius, lib. i. de Jud: Urin:

§ Lib. viii. cap. 8.

moderate quantity of urine is diſcharged, it is called a diabetes. Sometimes, as ſoon as the patients drink, it is diſcharged as food is in lienteric patients, who cannot retain what they eat, one moment in their ſtomachs: that there are ſome who not only call this affection of the urine diabetes, but alſo *diarrhea ad urinas*, on account of the quick paſſage of the drink: And that on account of the immoderate thirſt and evacuation of all moiſture, others call this diſeaſe *dipſacus*, or *morbus ſitibundus*.

Fernelius, Langius, and Riverius agree, that the diſeaſe diabetes is ſo called from the rapid paſſing through of the urine; and that, therefore, the name of diabetes is given to a ſyphon, becauſe that inſtrument is found to draw off the waters.*

Rabbi Moyes ſays, that he had never ſeen nor

* " Naturali enim ſpiritu omne alimentum " virentis, quaſi quædam anima per medullam " trunci veluti per ſyphonem, quem Diabeten " vocant Mechanici, trahitur in ſummum.— Columella de re ruſt: lib. iii. cap. 10.

nor heard of the diabetes from any of the oldeſt phyſicians of the Weſt; but within ten years reſidence in Ægypt, he had ſeen more than twenty diabetic patients, which he thinks may be attributed to their drinking of the waters of the Nile.

The ſimilarity between the urinary and perſpirable ſecretions, and the tendency which the increaſe of the one ſecretion has to diminiſh the other, are well known. The ſudden check which the perſpirable veſſels are expoſed to, both from the great variation of the temperature of the air between the meridian and nocturnal hours, and the practice of cold bathing in the hotteſt parts of the day among the natives of the Eaſtern countries, with their practice of drinking cold ſherbet, and living much on figs, plantains, dates, tamarinds, and other ſaccharine productions, may be all ſuppoſed from our preſent knowledge of diabetes, as much prediſpoſing cauſes of this diſeaſe, as the waters of the Nile.*

 This

* Dapportus attributes the diſeaſes of Alexandria to the air being impregnated with the

This ſaccharine beverage and diet will alſo account for the ancient writers not taking any notice of the honey-like taſte of the urine of diabetic patients.

And as it was generally the practice of the Italian and French phyſicians to preſcribe in moſt diſeaſes, ptiſans ſweetened with honies or ſyrups, it is not to be wondered at, that Willis was the firſt phyſician who poſitively noticed the honey-like taſte of the urine in the true diabetes, as ariſing from a change which the drink had undergone. He was probably led to the detection of the ſweet urine in the diabetes, by the following remarkable paſſage in Trincavella, who, after deſcribing the caſe of a Lady Abbeſs, who died with the diabetes, proceeds to another fatal caſe, in the following words.

Alter vero vir erat et ille quidem nobiliſſimus

exhalations of the river Nile, to the ſtagnant and impure waters of the cyſterns, to drinking the turbid waters of the Nile, the eating ſweet crude fruits, and the uſe of baths.—See Fred. Hoffman on Endemial Diſtempers, page 29.

mus frater Reverendiſſimi Cardinalis Piſani; hic cum febre laboraret et eâ ſatis malignâ atque ſitis, quæ neque etiam multa erat, eſſet impatiens, bibere nolebat, niſi gelida ferè eſſet aqua, et reliqua, quibus in potu utebatur, quæ quidem jubebat in puteis demiſſa urceis perpetuo ſervari: Unde ad eam imbecillitatem renes devenere, ut potus omnino immutatus redderetur, ſervans eundem colorem, conſiſtentiam, ſaporemque et odorem. Utebatur autem primàm propter febrem Julep: Roſaceo diluto ex aqua; et urina quæ paulo poſt a potu mingebatur, eadem omnino videbatur, quæ prius erat in cyatho antequam biberetur, eundemque referebat colorem aſpicientibus, et odorem olfacientibus. Sed et quidam, qui illi miniſtrabant, guſtare voluere, qui affirmarunt, neque in ſapore ullam factam immutationem.*

The experiments which were made by thus taſting the urine of this patient, were very likely

* Vide, lib. x. cap. 11, Trincavellæ de Ratione Curand: Partic: humani corporis affectus.

likely to ſuggeſt to a reader, the neceſſity of varying them, by imparting a bitter or ſome other flavour to the drink of a diabetic patient. But, that the urine of a diabetic patient was not exactly like the drinks which were ſwallowed, Aretæus evinces by his definition

Σαρκων και μελεων ές οῦρον ἡ ξύνιηξις.

And Van Helmont, long before Willis, had ſaid, that the blood of a diabetic patient is changed to a whey like urine. "Atque in "diabete totus cruor mutatur in lotium lac-"teum."*

Long before Willis was born, Hercules Saxonia had diſtinguiſhed the true from the ſpurious diabetes, by the ſmell, colour, and taſte of the urine. "Mictio depravata ratione "quantitatis et temporis poteſt ſub diabetis "nomine comprehendi, dummodo duplicem "conſtituamus diabeten: Legitimam unam; "Spuriam alteram.

"Eſt

* Scholarum Humoriſticarum Paſſiva Deceptio.—Cap. ſect. 38.

" Eſt autem *Legitima Diabetes excretio rei*
" *potulente prorſus non mutatæ in odore, colore,*
et ſapore per vias lotii.

" *Spuria Diabetes* quam Arabes multitudi-
" nem urinæ appellarunt, *eſt excretio urinæ in*
" *tanta copia quæ longè ſuperat quantitatem rei*
" *aſſumptæ humidæ.*"—Page 223.

Theſe definitions clearly prove that Hercules Saxonia knew the urine of the true diabetes was ſweet; but that he, like his friend Trincavella, had attributed the ſmell, colour, and taſte, to the ſweetened ptiſan which the patient had drunk.

The effects of the cold drink in Piſan's brother's caſe, correſpond with the obſervations of ſome of the recorders of diabetes, who have traced this diſeaſe from the ſudden application of cold to the body, whilſt it was much heated. And the habits of the Italians, of drinking water cooled with ice, and of eating iced acids, will explain why this diſeaſe is more noticed by the Italian, than by any other of the ancient phyſicians. But draughts of cold water are probably not ſo conſtantly in this climate diuretic, as thoſe of warm water,

ſince

ſince there are more inſtances of diabetes having been induced by the drinking of tepid, than of cold water.

There are ſcarcely any perſons, who in health, have drunk the warm waters of Bath or Buxton, who do not acknowledge to have felt from them diuretic effects. And as the cuſtom of drinking punch in this country, was more common when Willis, Liſter, and Blackmore wrote, the diabetes was then probably here a more frequent diſeaſe, than it is in the preſent times.

Theophilus, Actuarius, Trallianus, Zacutus Luſitanus, Rolandus, and others, have thought that the increaſed diſcharge of urine is prior to the thirſt, yet in Liſter's third caſe, (Sampſon) the thirſt was prior to any diabetes, and in my laſt patient, the ſhrinking preceded both the thirſt and increaſe of urine.

Many of the old writers have agreed, that the diabetes often exiſts for ſome time before it is detected; and they deſcribe caſes where it had become the fatal criſis of fever. Here it may be ſuſpected, the fever had ſometimes been that ſort of fever which always more or

leſs

leſs accompanies the diabetes, and that in conſequence of the diabetes increaſing, the fever had increaſed ſo as to lead to the detection of the original diſeaſe.

Vidus Vidius and Soldanus attended a patient, who after being recovered by them from a fever, which was accompanied with livid exanthematous eruptions and other ſymptoms, fell into a diabetes and died within a fortnight.

Hollerius had ſeen the diabetes as an endemic diſeaſe, with a continued fever which proved fatal. Sydenham ſays, that the diabetes follows intermittents, eſpecially where much bleeding had been uſed. And Dr. Cullen, after a long fever in an old man, found the urine ſweet. Rondeletius had ſeen the diabetes three times in a father and a daughter, as an hereditary diſeaſe. Morton has given caſes of Mr. Petit and his ſon, who had this diſeaſe: He alſo gives the caſe of a Maſter Wheeler, whoſe father had loſt all his male children (except this child who recovered) with a conſumption, ariſing from a diſcharge of ſaccharine-taſted urine during dentition.

But, as Mr. Wheeler had three female children alive, they either had eſcaped the diſeaſe, or had it in ſo mild a degree, as to have recovered without any medical aſſiſtance.

And Dr. Storer and Mr. Thomas in Dr. Rollo's ſecond edition, have given additional proofs of this diſeaſe being ſometimes hereditary. In Mayerne's* works, a caſe is deſcribed with the diabetic thirſt, where the copious diſcharge of urine was ſometimes mixed with a little blood. Hildanus gives a caſe of a child, who had an immoderate diſcharge of urine firſt, then a colic and purging, who was at laſt ſeized with a retention of urine. Liſter gives nearly a ſimilar caſe of a girl who recovered. This girl's caſe was induced by the drinking of the ſulphureous waters of Knareſborough. Liſter gives alſo the caſe of an officer, where a violent catarrh preceded the diabetes. Bartholinus and Hoeferus ſpeak of red wine having paſſed unchanged in its colour from the bladder.

Bauhinus

* Vide Opera Meyernii Studio Joſephi Browne, page 208.

Bauhinus was witneſs that Capellus ſaw milk diſcharged from the bladder of a woman. Nicolaus Florentinus declares, that he knew a young man, who daily diſcharged much milky urine without any inconveniency.

Hildanus, Timæus, and many other writers, have taken notice of this ſort of diabetes. Mercatus mentions a caſe of a diabetic diſcharge with ptyaliſm and difficulty of urine.

Kundenrick's father-in-law, from debility of the ſtomach had pallidneſs of countenance, acidity of ſtomach, ptyaliſm and a diſcharge of milky urine.—Vide Opera Timæi, page 114.

Cardan ſays, that he has ſeen eleven phyſicians of Milan, die with a diſcharge of urine: Such as heat, diſcharge, and retention as from ſtone in the kidnies, till with a profuſe evacuation of urine they died. This he attributes to the conſtant riding, and frequent aſcent and deſcent through that uneven city.

Cardan ſays, that he himſelf laboured for forty years under a diſcharge of urine, from ſixty to an hundred ounces a day, without

being thirſty. And Gradus ſays, that ſuch diſcharges are very common in Italy.

Sennertus, Foreſtus, Hercules Saxonia, Lotichius, Dodonæus, Zaccharus, Riverius, Muſitanus, and ſome other writers, ſince Aretæus, have mentioned a ſuppreſſion of urine as ſometimes taking place in the later ſtages of diabetes. Some of the old writers* have taken notice, that the diabetes affects the penis, though they do not poſitively deſcribe the phymoſis which is apt to accompany this diſeaſe. Liſter obſerves, "Renes quidem et "viſica et ipſe coles afficiuntur, idque non "ſine aliquo doloris ſenſu;" and in another part he ſays, "Deinde viſceribus ſemel in-"flammatis vitium per habitum corporis ad "ipſos renes, viſicam et penem transfertur." Dolæus has ſtill more nearly deſcribed the phymoſis in theſe words, "Sic et viſica cum "intermediis et utriſque communibus urete-"ribus et aliquando urethra imo ipſæ ner-"voſæ, et membraneæ partes has vel illas "ambientes et cingentes."—Page 653.

That the mucous which defends the bladder

* Aretæus, Vidus Vidius Jun.

der and urethra ſhould be ſometimes waſhed away as faſt as the glands of thoſe parts can ſecrete it, and leave them in a ſtate of irritation cannot be wondered at in this diſeaſe. Nor can we wonder, if at other times, from the irritation and inflammation, the ſecretion of the mucous glands ſhould be ſo much increaſed as to bring on a gleet, as happened to the patient of Dr. Home. And when we conſider the increaſed activity of the abſorbents of the ſurface of the body in the diabetes there is no great difficulty in explaining why in this diſeaſe, the prepuce ſhould ſometimes become thickened, dry, and chopped, or that the meatus urinarius of females ſhould be ſimilarly affected as the male prepuce. Dr. Rollo ſuppoſes the phymoſis to ariſe from the ſugar in the urine. But De Haen gives the caſe of a boy of ſeven years of age, with calculus, who made bloody and highly alkaleſcent urine, and had excoriation of the prepuce.* Though I am inclined to believe, that thoſe

* De Haen Experimenta in Calculoſis, p. 206, vol. i.—The urine was but little leſs al-

thoſe authors, who notice a ſwelling of the teſtes, have taken this ſymptom rather on the ſuppoſed authority of Aretæus, than on their own obſervations, yet I can ſee no reaſon why inflammation of the proſtrate gland may not ſometimes ariſe in the diabetes, ſo as to cauſe a pain and ſwelling of the teſtes.*

Dr. Home's patient had no cramps, yet this ſympton is often the effect of the debility which is induced by a diabetes. But Willis ſeems

kaline than De Haen's firſt caſe, where he ſays, "Ut momento mictus ipſo cum acidis "efferveſcat; et Syrup: Violacei in viridiſ- "ſimum vertat." Murray alſo gives inſtances of phymoſis, in his chapter *de Materia arthritica ad verenda aberrante.*

* I have ſeen two or three inſtances in acute dyſentery, where the difficulty of making urine, which ſometimes accompanies that diſeaſe, was alſo attended with inflammation of the teſtes. Inſtances of hernia humoralis from ſiphilis, have ſometimes occurred, whereon the ſame ſide an acute pain of the knee accompanied the inflammation of the teſticle.

ſeems to think, that ſpaſmodic affections are very apt to precede the ſymptoms of this diſeaſe.

The inſenſibility of the ſtomach to emetic medicines, which is deſcribed in ſome of the diabetic caſes, in Dr. Rollo's ſecond edition, probably exiſted in thoſe patients, before they had any of the ſymptoms of diabetes, and can ſcarcely, without additional facts, be conſidered as a ſymptom of the diſeaſe. Notwithſtanding the general dryneſs of the ſkin in the diabetes, yet partial veſications and ulcerations are common effects of this diſeaſe.

It is difficult to explain ſatisfactorily, why the ſaccharine urine ſhould attend diabetes, and not the other diſeaſes, where acid eructations prevail.

Acidity of the ſtomach is common to gouty patients, yet their urine has generally the brick-duſt ſediment, and all the marks of being highly charged with lixivial ſalts. In phthiſis pulmonalis the bulimous appetite is common, yet the urine has generally a brick-duſt ſediment. The paroxyſm of fever in this diſeaſe, ſometimes terminates by an increaſe

creaſe of expectoration, ſometimes by a diarrhea, ſometimes by a profuſe perſpiration.

When the fever in phthiſis terminates by a diarrhea, the urine is often without any ſediment; but when it goes off by perſpiration, the ſediment is very great, and the urine is ſo highly charged with animal ſalts, as not unfrequently to give great pain and difficulty in the evacuation. It may be anſwered, that in the phthiſis pulmonalis, the ſaccharine matter is carried off by the ſweat, diarrhea, or expectoration.

A *ſweet-taſted expectoration, is not uncommon in diſeaſes of the lungs. The experiments of Baglivus,† tend to prove the exiſtence

* Hippocrates, Liſter, and many other authors, particularly notice this ſymptom in diſeaſes of the lungs.

† Diſtillata ſaliva juvenis ſani, ac jejuni relinquit in fundo ſalino-acidum ſedimentum in parva copia. Ex quibus aliiſque brevitatis gratia prætermiſſis experimentis inducor, ut credam, ſalivam continuere in ſe ſal nitro-ſalinum univerſali ſali analogum ob eximias,

tence of oxygene in the ſaliva of a healthy man. And Galen* has obſerved among the preternatural taſtes, that the ſweat, the ſaliva, the matter expectorated from the lungs, or vomitted from the ſtomach, will each ſometimes become ſweet to the taſte. Guidott, when he was a ſtudent at Oxford, and only eighteen years of age, attributed the ſaccha-

 rine

ac prorſus mirabiles ſuas vires, quas ſolvendo, fundendo, abſtergendo, et licet inſipida videatur, potenter penetrando in fermentatione ciborum, purificatione chyli, ejuſdemque in ſanguinem mutatione, coctioneque abſolvit.—Baglv: de Salivæ Natura uſu et Morbis.

* "Tertio ad hoc ſymptomatum genus, et "qualitates corporis mutatas, refert Galenus "etiam ſapores præternaturales, cum ſilicet "ſudorem in os aliquando defluentem guſta-"mus, aut ſalivæ mutatam qualitatem percipi-"mus; ſicut et eorum quæ ex pulmone eji-"ciuntur, aut e ventriculo evomuntur, quæ "aliàs auſtera, aliàs acida, aliàs ſalſa, aliàs "amara, aliàs *dulcia* apparent."—Sennertus, tom. 1, lib. ii. cap. x. de symptomatibus quæ in qualitatibus corporis mutatis conſiſtunt.

rine taſte of diabetic urine, to an imperfect aſſimulation of the chyle.

The bulimous appetite which ſometimes attends the diabetes, is thought by Dr. Rollo, rather to precede than ſucceed the immoderate evacuation of urine. As the greateſt number of diabetic patients appear to have been of very perſpirable conſtitutions, prior to their having any diſeaſe, it is probable, they had originally more appetite than the generality of people. Almoſt all perſons newly arrived in an hot climate, if they remain free from acute diſeaſes, may be ſaid to labour for ſome months under a cutaneous diabetes. And the taſte and ſmell of the perſpiration, is generally, as Dr. Moſely obſerves, acid in tropical climates. There the appetite, while the perſpiration goes on, is exceedingly keen, but during thoſe hours that the hot winds prevail, the perſpiration and the appetite are both ſuſpended. As ſoon as the ſea breeze returns, the perſpiration becomes copious, and the appetite ravenous. And as a perſon becomes ſeaſoned, that is leſs perſpirable, the appetite is more moderate.

Future

Future facts muſt determine whether ſailors be exempted from this diſeaſe.

But as neither thirſt nor a copious flow of urine is likely to make a ſailor conſider himſelf ſick while he is feeding on ſalt proviſions, it is not improbable that the ſcorbutic ſymptoms (which almoſt always will appear towards the decline of a diabetes) are the firſt ſymptoms which drive a ſailor to his ſurgeon: And a navy ſurgeon very naturally looking with a ſcorbutic eye at his patient, may have conſidered many a diabetic caſe as that of a true ſea ſcurvy. Dr. Harbeck's patient was a maſter of a ſhip, but whether his voyages from Briſtol were long or ſhort, neither Gidott nor Harbeck have noticed.

Avicenna remarks, that the eating of quinces brings on diabetes. Paſchalius gives a caſe of a patient who died of a diabetes which was brought on by lithontriptic medicines: And another who had this diſeaſe from the eating of quinces.

Dodonæus mentions a caſe of diabetes being brought on by drinking of the waters of the fountain of Leodienſis.

Tulpius, gives a caſe of diabetes which was induced by an infuſion of nettles in wine; Amatus, by ſamphire, and Loſſius, by the drink of the ſpawn of frogs. Schenkius mentions, that this diſeaſe has been brought on by the ſuccus betulæ, and Grimmius, by the uſe of tea. Dolæus relates the caſe of his uncle, who in one night's time, brought on a diabetic diſcharge by the drinking of cyder.

John Baptiſt: Theodoſius ſays, he had ſeen the true diabetes only in two women, which diſeaſe they had induced by the abuſe of Roman wine.

Dr. Home knew the chylous ſpecies of diabetes, " brought on by too frequent doſes " of jallap and mercur: dulc."

Dr. Falconer obſerves, that the Japaneſe* are ſubject to diabetes and atrophy, from the uſe of tea: And that he knew a man, who induced

* Remarks on the Influence of Climates, by Dr. Falconer, (Printer, Dilly) p. 255.

induced a diabetes by the drinking of ſpruce beer.‡

Galen thinks the diabetes like the lientery may be called a *neceroſis* or death of the two powers *aſſimulation* and *attraction (abſorption.)** But in the other parts of his works he has written as if he thought the diſeaſe ſometimes aroſe from the kidneys.† Theophilus and moſt of the Galeniſts ſuppoſed that the kidnies in conſequence of a morbid heat in them attracted more copiouſly ſerum from the veins; that the veins imbibed from the liver; and the liver from the inteſtines and ſtomach, till the kidnies being oppreſſed by the weight, relieved themſelves by a diſcharge of ſerum to the bladder: And that hence aroſe the immoderate

‡ Dr. Falconer's Letter to Dr. Rollo in his Work on Diabetes.

* Το δε ουν παθημα τοιουτον εστιν, οιον εν τη περι γαστεραλειεντρια νεκρωσις ως αν ειποι τις αμφωτερων των δυναμεων αλλοιωτικης τε και παθελκτικης.—Galenus de Criſibus, lib. i. cap. iii.

† Galenus, lib. vi. cap. iii. de locis affectibus.

rate thirſt, the accumulation of drink at the kidnies, and the expulſion of it to the bladder. Actuarius thinks, that the diabetes is either a diſeaſe of the kidnies or the liver.

As I am not in poſſeſſion of Paracelſus's works, I ſhall give that author's opinion of the cauſe of diabetes, as I find it abridged in Dolæus. "Diabeticam paſſionem vero de-
"ſcribit Paracelſus, *quod ſit* ſal ſiccum reſo-
"lutum & ſciſſum et anguloſum per ingreſſum
"acuti ſalis poſitum in medio centro hujus
"membri principialis, hoc ſal eſt juxta ipſum
"chronicum, permanens & fixum."—P. 659, Dolæi.

Van Helmont thinks, that the diabetes is cauſed by an acid not being corrected by the bile: That the whole chyle becoming acid by the fermentation of the ſtomach, if unimpregnated with the bile, will be immediately changed into a ſalt, which if uncorrected, and conveyed with the fluids to the kidnies, will excite diabetes.

Marlianus ſuppoſes the cauſe of diabetes to be a converſion of the air in the arteries to water.

Eutachius

Eutachius Rudius thinks, that beſides a diſeaſed heat in the kidnies and liver, a morbid retention in the ſtomach is the cauſe of this diſeaſe.

Sennertus thinks an imperfect ſanguification from a weakened action of the ſtomach is the cauſe of diabetes.

Moebius thinks that the diabetes ſometimes ariſes from coldneſs, and ſometimes from heat, of the kidnies.

Sylvius de Le'Boe thinks that the diabetes lurks in the blood rather than in the kidnies: that volatile ſalt and fixed alkali form the poiſon which by mixing with the latent acid of the blood, forces a more copius ſerum.

Willis thinks the diabetes originates rather from the blood than from an affection of the kidnies: That as the blood melts it is poured off too copiouſly into ſeroſity: that the diſeaſe conſiſts in laxity and a too diſſolved ſtate of the blood: And that irregularity of diet, the conſtant abuſe of cyder, beer, and other acid wines, and perturbation of mind, tend to favour its production.

The opinions of Riverius on this diſeaſe, correſpond with thoſe of the Galeniſts.

Etmuller

Etmuller divides the diabetes into the vera, notha, and cæliaca. By the vera, he like Langius, means the inſipid diabetes, by the notha, the limpid ſaccharine urine, and by cæliaca, the milky urine. Etmuller thinks theſe diſeaſes ariſe from too much laxity and acids. And he refers to the ſtory of the coriander ſeed being taken by the ſtomach, and evacuated with the urine, as ſeen by Pigræus, as if he* ſcarcely doubted it.

Tulpius

* There are many other of theſe ſort of wonderful tales to be met with. As the five needles which were ſwallowed and diſcharged by urine, as related by Langius: The hair-pin the breadth of four fingers long, which after the death of the patient, was found in the bladder, as recorded by Alexander Benedictus: The ſmall key which had been ſwallowed, and was long afterwards extracted from the bladder, with the calculus which had formed round it, as related by Jo. Matthæus: The evacuation of grape's ſtones, melon ſeeds, &c. with the urine, as related by Georg: Hieron: Velſchius.

Tulpius thinks, that whatever induces weakneſs in the kidnies, may be the cauſe of this diſeaſe. And the works of Pawe, Morgagni, Ruyſch, Bonetus, Monro, Bailly, &c. agree in having found the kidnies of diabetic patients in a very lax ſtate. But Dr. Rollo thinks the diſſections which are given in his 2nd edition, tend to prove that the ſeat of diabetes is not in the kidnies. It muſt not, however, be forgotten, that in Mr. Thomas's caſe he ſays, "upon the under ſurface of the right kid-"ney, a ſmall collection of pus was found "(ſomewhat like a ſcrophulous tubercle ſup-"purated.)" P. 344, of Dr. Rollo's 2nd edition.

Liſter ſeems to think, that the medicines which firſt injure the ſtomach and inteſtines, and next the kidnies and bladder, excite this diſeaſe: and he gives caſes where ſudorific doſes of antimony, where honey, opiates, turpentines, acids, ſulphurated and other medicinal waters have each induced the diabetes.

He thinks that wines medicated with the fumes of arſenic or ſulphur, or medicated ſpirits, or waters either of the muriatic or ſul-

phur kind, or which are otherwiſe medicated with ſalts, metals, or earths, may induce the diſeaſe, he ſuppoſing, that in diſeaſed habits, poiſons may be transferred from the ſkin to the kidnies, by emetics or purges.

Mead ſays, the diabetes is much akin to the jaundice, that in diſſections of diabetic patients, he has frequently found a ſteatomatous tumor of the liver, that the ſweetneſs of diabetic urine is derived from the bile: And that before death in diabetes, the urine will change from a ſweet to a bitter taſte. Dr. Home objects to the former part of this opinion, the diſſection of his patient who had no diſeaſed liver.

But Dr. Storer recollects ſix inſtances of a mild ſpecies of diabetes with ſaccharine urine, and with the greateſt number of them, a lumbago and hepatitis chronica, "concurred or "alternated with the diabetes." And though the diſſections in Dr. Rollo's 2nd edition, do not diſcover any liver diſeaſe, yet ſome of them confirm the obſervations of Mead, of the urine loſing the ſweet taſte before death.

In

In Dr. Cawley's patient, the liver was waſted and externally of an aſh colour, or nearly like pipe-clay, which might be moulded into any ſhape. But the colour of the liver when cut into, was natural, without any ſchirrous or ſteatomatous tumors.

Mead alſo thinks the drinking of warm water, and the ſudden changes from heat to cold, eſpecially after the body has been heated with ſpirituous potations, are very apt to induce this diſeaſe; and many of the modern caſes of diabetes, ſtrongly tend to ſupport his opinion.

As Dr. Darwin's caſe, which was ſuppoſed to be induced by checking the perſpiration of the hand with lime.

Dr. Hope's patient, who before his attack of diabetes, had ſlept in an open cart on a froſty morning.

Dr. Gerard's patient had been ſubject to perſpire, and much addicted to bathing.

Dr. Home's patient, Murray, imputed his diſeaſe to cold and dampneſs.

Dr. Home's patient, who after drinking

Dunſe ſpaw too plentifully in cold weather, was attacked with diabetes and gleet.

Dr. Marſhal's patient took a draught of cold ſmall beer, when in a profuſe perſpiration, and from that time became diabetic.

Dr. Richter's ſecond caſe of diabetes "had "been attacked with this diſeaſe, after being "thoroughly wet, while he was much heated."

Dr. Freer's patient, Maclean, thought his diabetes aroſe from expoſure to cold, while under a ſalivation from mercury.

Blackmore thinks, (page 219) "a diabetes "conſiſts in a depraved dilatation of the glands "in the kidnies, that filter the ſerum, and ſuch "a ſhattered and diſſolute ſtate of blood, that "make it apt to run off in a great profuſion "of unbrackiſh waters. And that the remote "cauſes are irregular diet, improper liquors, "and an inordinate uſe of cyder, ale, and "acid juices of the grape, particularly rheniſh "and all other thin ſharp white wines, which "cauſe the coagulation of the blood."

Muſitanus attributes the diabetes to imperfect digeſtion, whence too much acidity is

diffuſed

diffuſed through the body, and irritates the kidnies.

Dr. Cullen has ſeen twenty caſes of diabetes; he believes, by the teſtimony of authors, that ſome caſes, though ſeldom, have been cured: But he doubts whether the cures were performed by the remedies to which they were aſcribed. He inclines to the opinion, that in moſt caſes of diabetes, the proximate cauſe is ſome fault in the aſſimilatory powers, or in thoſe employed in converting alimentary matters into the proper animal fluids: And though he has his doubts of Ballonius's caſes in the German Ephemeris, yet he does not altogether reject the idea of a calculus in the kidney, being ſometimes the proximate cauſe of a diabetes.

Dobſon thinks that our ſweats are frequently chylous; that the acetous fermentation is ſubſequent to the excretion; that the ſour taſte in diabetes admits of the ſame explanation; that the gnawing hunger of diabetic patients ariſes from acidity in the ſtomach; and that the cure ſhould be attempted by ſtrengthening the digeſtive powers, in order to promote

mote a due ſanguification, and a perfect aſſimulation through the whole œconomy.

Dr. Home ſays, (page 318) " were I to " give a theory to explain the nature and " ſymptoms of this wonderful diſeaſe, I ſhould " ſay, that it ariſes from a defect of the animal " or aſſimilatory proceſs, by which the aliment " is converted into the nature of our body. " I have long looked on the exceſs or defect " of this proceſs, as a ſource of many diſor- " ders. All putrid diſeaſes, the ſcurvy, &c. " ſeem to be owing to its exceſs, acidity of " the ſtomach, &c. to its defects. Among " the latter, the diabetes may be arranged. " For 1. The remote cauſes ſhew it. It ar- " riſes from what debilitates the body, as " moiſture, preceding diſeaſes, great evacua- " tions, &c. by which it becomes incapable to " aſſimulate the food. So Sydenham thought, " Aſſimulandis ſuccis protinus impar eſt. 2. " The white chylous matter which is often ſe- " creted with the urine, ſhows, that the vege- " table part of the chyle is not aſſimulated. " The dilatation of the urinary excretories " cannot alone, account for this, as the ſerous

part

" part of the fluids would then eſcape too,
" which does not happen. 3. Sugar is found
" in diabetic urine, Sweet chyle is the firſt
" product of the ſtomachic and inteſtinal di-
" geſtion; as chyle, in the thoracic duct, and
" milk which is a ſpeedy ſecretion of it,
" contain much ſaccharine matter. This is
" changed in ſome hours, by the animal pro-
" ceſs, into an ammoniacal ſalt, which is that
" found in all the excretions. But the ſac-
" charine ſalt ſtill remaining in the urine,
" which is the moſt perfectly animalized fluid,
" ſhews, that there is great defect in the ani-
" mal proceſs. 4. Urine being of a ſeptic
" nature, runs faſt into putreſcency. But the
" diabetic urine turns acidulous; and with,
" and often without yeaſt, undergoes the vi-
" nous fermentation. Theſe peculiarities
" ſhew its vegetable nature; as vegetable
" juices, alone, are capable of the vinous
" and acetous fermentations.* It likewiſe
" ſhows

* If meat be roaſted without any flour or ſalt, will it not acquire a ſaccharine taſte about all the parts which are brown? And if this

" ſhows, that it is the ſaline parts alone " of bodies that ferment; for the fire muſt " have coagulated the mucilaginous parti- " cles, had there been any in diabetic urine. " Theſe vegetable ſalts ſhow a defect in the " animal proceſs. Theſe arguments appear " more convincing than any of the former. " But it may be objected to them. 1. That " animal food ſhould cure it, which it did not. " 2. That ſeptics, which brought on putrid " eructations, made no change.* 3. That the proportion

brown part be waſhed off with water, will it not undergo fermentation?—See Plenck's Hygrology.

* Dr. Moſeley obſerves, (page 91, 2nd edition) that " acids in all climates endanger " the ſweetneſs of the breath." The patient, whom I mentioned in my letter to Dr. Beddoes, after living entirely on the acid of lemons for ſome weeks, had his breath become exceedingly offenſive. It may, therefore, be doubted, whether putrid eructations be a ſufficient criterion, that a perſon has lived entirely on animal food, or whether, as Dr. Ge-

" proportion of ſaccharine matter is much " greater in their urine, than in milk. But " milk has not, perhaps, the whole ſaccharine " ſalts of the chyle."

The late ingenious Mr. Charles Darwin ſuppoſed the retrograde motions of the lymphatics, from their valves being diſeaſed, to be the cauſe of the diabetes. But the experiments of anatomiſts do not favour this opinion.

Richter thinks the diabetes is of a ſpaſmodic nature, and that a ſtimulus irritating the kidnies, is the cauſe of this diſeaſe, which he thinks reſembles the lientery.

Dr. Rollo thinks " a morbid condition of " the ſtomach, and a general diffuſion of ſac- " charine matter, with probably, ſome change " from that of health in the fluids of the " ſyſtem, are the immediate cauſes of diabe- " tes:" That (page 231) " the voraciouſ- " neſs or keenneſs of appetite, with the very

quick rard obſerves, an hoſpital patient will for any length of time, give Dr. Rollo's plan of diet a fair trial.

" quick returns of it after eating, mark an in-
" creaſed action of the ſtomach. " (page 60)
And that " By means of the ſtomach and ge-
" neral regimen, the ſyſtem may be hyper-
" oxygenated, may be de-oxygenated, and
" may be confined to its neceſſary oxygenated
" ſtate." But as a voraciouſneſs* or keeneſs of appetite is by no means a conſtant attendant of this diſeaſe, many may prefer the term of *a ſtomach not being in perfect force*,† to an *increaſed*, or *peculiar action* of *the ſtomach*. Where the food was thrown up undiſſolved, there may be no objection to the term of

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* See Dr. Fothergill's patient's caſe by Dr. Dickſon, in the Medical Obſervations and Enquiries, vol. iii.

† In the caſe which is publiſhed in Dr. Rollo's 2nd edition, of a man who died, and had been originally under the directions of Mr. Thomas and Dr. Rollo; Mr. Thomas remarked, that no ſaccharine urine was ever induced in this patient, by the eating of parſnips; but that bread always reproduced ſweet urine.

a peculiar or increaſed action *in the ſtomach*, though there is as much objection to an increaſed action *of the ſtomach*, as there would be to ſay the action of a caſk was increaſed, when its contents were fermenting into vinegar. Indeed, the beſt proofs of the action of the ſtomach are, when it is able to prevent thoſe chemical changes from going on, which always do take place in mixtures of ſaccharine matters and liquids, if expoſed to heat, where there is no life.

Dr. Rutherford thinks, that the lacteals, abſorbents, and the lymphatics of the lungs, would be found enlarged in the diabetes: And that the extraordinary quantity of water on the ſurface of the lungs, is produced to be reabſorbed, to ſupply the extraordinary quantity of urine. But in Dr. Cawley's caſe, the patient died of a maraſmus, not from the increaſed quantity, but from the altered quality of the urine.

Dr. Brec thinks, the diabetes may be ſometimes induced by a diſtended ſtomach from dyſpepſia, or gluttony; by which diſtenſion, a

compreſſion on the veſſels bringing blood from the lower viſcera, determines a larger portion of ſerum to the kidnies; in the ſame manner as the exhalent veſſels of an artery, pour out a larger quantity of moiſture, when ligatures are ſo made round a limb, that its veins cannot return the blood to the heart; or as an enlarged viſcus, by preſſing upon the great veſſels, cauſes a dropſical effuſion.—Bree on Aſthma, page 226.

Though the etymology of the word diabetes may admit of every immoderate diſcharge of urine being called diabetes, yet, by the definitions of a number of writers, it ſeems to be juſtifiable to reject all thoſe caſes of immoderate diſcharges of urine, as caſes of diabetes, which are not accompanied with thirſt; and to ſtate the diagnoſtics of this diſeaſe, to be great thirſt, and ſhrinking, and dryneſs of the ſkin, with increaſe of ſaccharine or inſipid taſted urine. A great quantity of urine in diabetes, is often not obſerved, when the thirſt, ſhrinking, and even ſaccharine urine have been detected. And, as there is

reaſon

reaſon to believe, that the phymoſis* is often the only ſymptom which has excited the attention of the patient, that ſymptom, with the ſenſation of heat in the urethra on making urine, ought to be noticed in the noſological definition of this diſeaſe. On the prognoſis of

* Not long ſince, converſing with my friend, Dr. Lubbock of Norwich, he informed me, that a perſon had called upon him to be relieved from a phymoſis, which had troubled him for a few weeks, and for which he had been previouſly under the direction of a medical gentleman for ſome time; that, upon finding the phymoſis did not yield to the applications commonly uſeful in ſuch caſes, Dr. Lubbock began to ſuſpect it was connected with the diabetic diatheſis, and upon enquiry, found that the patient diſcharged eight pints of urine in twenty-four hours, ſweet to the taſte, and readily paſſing into the vinous fermentation; he was in apparent health, and had made no complaint of general diſeaſe. And it is, with Dr. Lubbock's permiſſion, that this fact is publiſhed.

of diabetes, authors have obſerved that the inſipid diabetes is very rarely a fatal diſeaſe. But in the ſaccharine diabetes, the event has generally been reckoned dangerous, as often ending fatally in fevers, or ſome other untractable diſeaſe, eſpecially in the old, or after fevers, or in thoſe who had been previouſly weakened by fatigues, or venery: though when this diſeaſe took place in young ſubjects and was ſoon diſcovered, they might recover. Willis, after giving his method of cure, confeſſes, that though he cured patients with this diſeaſe, they were very ſubject to relapſes, and that the diatheſes generally remained for life. The urine, as Dr. Pearſon obſerves, may contain ſugar, even in the inſipid diabetes. And it is probable by the letter of Dr. Storer, and the various hiſtories of caſes that are to be met with in Dr. Rollo's ſecond edition, that there are diabetes with ſaccharine taſted urine, which are not fatal diſeaſes, whether they happen in the old or young; or have been ſooner or later diſcovered: While other caſes which had been early diſcovered, and dietetically treated,

ed, had the ſymptoms for a time ſuſpended, but could not be cured.* Probably in ſuch caſes, a paralytic torpor ſeizes on ſome of the glands, which are neceſſary to chyliſication; hence loſs of appetite, maraſmus, ſcurvy, anaſarca, and partial deaths about the throat, cheſt, &c. lead on to the death of the whole body, and prove that the term *necroſis* is ſometimes not too ſtrong, which Galen has given to this diſeaſe.

With the variety of opinions about the cauſe of diabetes, the method of cure, of courſe varied. Aretæus, who ſuppoſes the diſeaſe to ariſe from coldneſs and moiſture, thinks that it requires a ſimilar treatment to the

* I have been told, that Dr. Gillam, who accompanied Lord Macartney to China, laboured under a diabetes, and that the diſeaſe was ſuſpended for ſome months, by Dr. Rollo's plan. But whether Dr. Gillam died in conſequence of the regimen ceaſing to have any effects over the diabetes, or from his no longer having the reſolution to adhere to the diet, the gentleman who informed me of his death, had not aſcertained.

the dropſy. With him, the firſt object is to attempt the cure by aſſuaging the thirſt. This, he ſays, is not to be done by drinking, as he thinks it is from the ſtomach that the incentives to thirſt ariſe. He recommends hiera* to be ſwallowed, epethems and cataplaſms of ſpikenard, maſtich, and oils, to be externally applied, and the patient to uſe water boiled with autumnal fruits; and his aliment to be of the ſorbile kind, mixed with farinaceous ſubſtances, milk, garlick, and aſtringent wine, for reſtoring the tone of the ſtomach: He forbids ſalt as exciting thirſt: but he approves of ſweet urine which reſtores ſtrength by generating blood, and he recommends theriaca, methredate, and other opiate and ſtrengthening medicines. It is doubted by ſome, whether all the writings of Aretæus have been preſerved on this diſeaſe, becauſe Ætius ſays, Aretæus recommended

* As the ancients had a variety of medicines by the name of hiera, the compoſition of this, which Aretæus means, can be only conjecture. —See Liſten and Scribonius Largus on this Subject.

recommended ſudorifics, which remedies are not mentioned on the diabetes in his preſent works.

Ætius, Alexander Trallianus, Paulus Ægineta, and many others, who ſuppoſed that this diſeaſe aroſe from exceſs of heat, recommended bleeding, tamarinds, caſſia, the juice of crane's bill, an infuſion of pears, barley water with ſugar of roſes and ſorrel, and the topical application of oils, to refrigerate the kidnies.

Ætius alſo recommended emetics, in which practice he was followed by Horatius Augenius, Bendelius Epiphanius Ferdinandus, Platerus, Riverius, Zacutus Luſitanus, and many others.

In order to underſtand the practice of Sylvius de Le Boe, it is neceſſary to recollect his ſyſtem. It is not, perhaps, very eaſy to do juſtice in a few pages, to an author, whoſe opinions are diverſified through above a thouſand propoſitions. The following are ſome of the leading points of his doctrine, which ſtrongly reſemble Dr. Rollo's idea of oxygenating or diſ-oxygenating the habit by acids and alkalies.

All things are ſubject to change. The greateſt change that man is ſubject to, is that from life to death. A man dies, when in himſelf, the innate fire of the heart is extinguiſhed or killed; when it is unſupplied with the convenient food, or deprived of proper air by inſpiration. The proper food for this fire is good blood. Blood is ſupplied by the aliments taken by the mouth, conſiſting of ſolids and liquids. The change which the food undergoes, is called chylification by ſome, but by Sylvius, fermentation. There are two ſorts of diſſolutions ariſing from mixture, the one may be called diſtruction, the other diſſolution. That with a ſudden and evident diſſolution by fire, is called burning. The other happening through water, without evident loſs of parts, is called fermentation, and when the fermentation is accompanied with fætor, it is called putrefaction. There is a double union of mixture; the ſtrongeſt is ſalt, the weakeſt is oil, water weakens the force of the firſt, fire changes or deſtroys that of the ſecond.

The freſh expreſſed juice of fruit, with a proper degree of heat and air; corn, honey,

or raiſins, boiled with water, and expoſed in convenient veſſels to the air; maſſes preſerved from flour, with a proper degree of air, water, and heat, are all ſaid to be fermented. This proceſs, according to Sylvius, is ſimilar to chylification, which is totally different from the ebullition, which is excited by the mixture of quick lime with water, or from effervescence, which he calls a battle of lixivial ſalts with acids. The lixivial ſalt of the bile, according to him, is poured out from the liver to effervesce, with the acid of fermented food, and the acid of the blood, to produce the vital effervescence or phænomina of life. Moſt diſeaſes ariſe from a deficiency or an exceſs of effervescence, which may ariſe from a deficiency or an exceſs of alkali from the liver. And an abolition, either of the alkali or of the acid, is an abolition of vital effervescence, which is death. But, as this hypotheſis is accompanied with no experiments, his method of cure is different from that of Dr. Rollo's. Sylvius recommends blending oily things with the acrid, offending volatile alkali, as emulſions of bar-

ley, almonds, white poppies ſeed, melons, cucumbers, &c. the ſweet milk of cows, ſheep, women, or aſſes; he recommends not only acids, but volatile ſpirit mixed with them; the ſpirit of ſalt, &c. in ſome convenient drink, as broth, &c.

Benedictus recommends large doſes of coral, camphor, amber, and gum ſanginis draconis: Arnold: Vallanovanus, camphor troches with roſes: Langius, preparations of coral and iron: Wedelius, an extract eſſence and ſyrup of plantago: Grulingius, a tincture and ſalt of corals: Hartman, a tincture of pearls: Glauber, lapis hæmatitas artificialis, terra ſigillata, aqua calcis: Willis, aqua calcis, tincture of antimony, an opiate at bed-time: Etmuller, a decoction of orange peel, antihecticum Poterii, terra ſigillata, lime water, an opiate at bed-time, ſaccharum Saturni, lapis hæmatites: Platerus, bleeding, the mucilage of fleawort, infuſion of gum tragacanth ſweetened with ſugar: And Arnold: Weichardus, the gizard of fowls and the head of hares, of each half an ounce, and five drachms of bees, all of which are to be

burnt

burnt to a powder with maſtich, and half a drachm to a drachm to be taken for a doſe. Sydenham recommends a variety of boles and aſtringent medicines with theriaca Androm: an anti-dyſpetic diet, as animal food and Spaniſh wine after each meal, without fruits or vegetables. Dr. Briſbane recommends the tincture of cantharidis. Dr. Darwin, roſin and opium.

Eraſtus aſſerts, that he cured a boy ſolely by a decoction of the inner bark of the oak.

A boy, who had induced the diabetes with the Greiſbacenſis acids, Hildanus cured with almond milk and capon broth, mixed with yolks of eggs, and a decoction of roſes, burnt hartſhorn, and coral. But when the boy departed from his diet, he ſuffered a relapſe, which proved fatal.

Rulandus cured a woman with a bath of of ſweet water, in which, heated iron had been extinguiſhed, and a decoction of milk and water with iron.

Achilles Gaſſerius has ſeen a diabetes cured with a decoction of river crabs and maſtich, ſweetened for common drink.

Father

Father Angelus, in his tranſlation of the Perſian Pharmacopeia, gives the following preſcriptions, which are uſed by the Perſians in the diabetes.

R. Baccarum Myrti
Seminis Oxalidis Mundate, ana drachmas duas
Gum: Arabici
Amyli, ana drachmam unam
Pulverata & mucillagine Pſyllii excepta, reducantur in paſtillos: doſis drachmæ duæ

R. Spodii ſue Tabaſchir
Rob: Liquorit: ana drachmas decem
Seminis Lactucæ, drachmas viginti
Seminis Portulacæ, drachmas quindecim
Roſarum
Coriandorum Siccorum, ana drachmas quinque
Acaciæ
Santali
Bol: Armenæ

Camphor:

* Florum Granatorum, ana drachmas duas
Camphor: drachmam dimidiam
Trita & cribrata reducantur in paſtillos
doſis, drachmæ tres, ex aquâ granato-
rum acidorum.

Baglivus recommends pills with catechu and other aſtringent medicines.—Schroder the polygonum minus.

Donatus cured two patients of diabetes, with warm baths, and drinks of torrified barley with ſugar of roſes and ſorrel.

The remark which Ariſtotle† has made, that all fat is hot, and that the kidnies are more

* Thoſe who are only acquainted with the aſtringent powers of the pomegranate bark, may be ſurpriſed to learn, that the bloſſoms of this fruit is one of the moſt draſtic purges, and a ſingle bloſſom is often given by the Aſiatics, with ſucceſs, in obſtinate dyſenteries. But even this ſmall doſe is ſaid to act ſo violently, as to occaſion ſometimes fainting under its operation.

† Cap. ix. περι νεφρων.

more accuſtomed to heat, becauſe they are more than any other viſcera ſurrounded with fat, influenced many of the older practitioners to give a greaſy diet and oleaginous medicines, in almoſt all the diſeaſes of the kidnies.

In the year 1557, Foreſtus cured Nicolaus, a prieſt, who appeared to Foreſtus, ſhrunk as one who had laboured long under a diabetic diſpoſition. Nicolaus had pain in the loins, weakneſs of the kidnies, a copious diſcharge of pale greaſy urine, with ædematous legs. Foreſtus forbad this patient all acids, acrids, ſalts, and old wine, and put him on that ſort of diet, which he recommends in hectics and tabes, ſuch as fat Guinea fowls, capons, lamb, fat fleſh, fat kid, veal, poultry, the yolks of freſh eggs, the teſtes of fowls, fat broth made with fat poultry, fat veal or ducks, and the uſe of marrow, &c.* Every morning, the patient took ſheep's milk with a little ſugar, and every evening, almond emulſion prepared with the four greater cold ſeeds and thoſe of white poppies.

* Omnia exſiccantia, quæ hic damnantur, ſalſa, acuta, acetoſa, et auſtera interdixi &

poppies. His medicines conſiſted of conſerve of violets and poppies, with a decoction of lettice: an oleaginous liniment for the loins, and fomentations to the feet. As it is not noticed, that Nicolaus had thirſt; and as greaſy urine is not a very common ſymptom of true diabetes, (though it is noticed by Et-

I

muller)

vinum vetus:

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* * * *
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Quod ad cibum attinet, omnia humectantia admiſi, quæque hecticis, & tabe confectis alias ſcripſimus convenire & quæcunque corpora replent, ut gallina pinguis, capi quoque & agnina caro pinguis, hædina, vitulina, gallinacea, et jocinera ova recentia (non hypenemia, id eſt, ſubventanea et citra coitum edita Plino dicuntur Zephyria ova, lib. 10, capt lx.) teſtes-que gallinacei, ſi haberi poſſunt, juſcula pinguia, adipe gallinaceo, aut vitulino pingui reddita aut anſerino adipe recente.—Opera Foreſti, page 442.

muller) this is a caſe which cannot poſitively be called a diabetes.

But Joan: Colle, in his works, has deſcribed the ſymptoms of a true diabetes in the caſe of a Venetian nobleman, whom he cured with ptiſans of roſes, with rice myrrh, garlick, and pomegranate tincture, and cookery from turtle, pea fowls, calves' feet, pork, &c. The curd of milk without the whey, cheeſe without ſalt, almond emulſion, and every morning freſh eggs with a ſcruple of prepared pearls, corals, &c. and red aſtringent wine iced, with a variety of other aſtringent and ſorbile medicines, a ſudorific at bed-time, and frictions of oils about the loins. Colle, in a ſimilar manner, cured another patient with a diabetic diſcharge of urine and pain of the ſtomach.

In Fuller's Hiſtory of Somerſetſhire, it is ſaid, that Dr. Samuel Ward, of Sidney College, Cambridge, was cured of a diabetes by the Briſtol waters.

Harris cured one patient with white and yellow ſaunders, rhubarb, and cardamon ſeed ſteeped in red wine.

The

The nobleman, who was a patient of Drs. Michelwait, Wicherly, and Willis, was cured in a month's time, by a diſtillation of cypreſs tops, eggs, and milk, to which gum arabic, gum tragacanth, and ſaccharum penidium, were added. His diet conſiſted chiefly of milk, and he took every night an opiate draught. He afterwards relapſed, and then was cured by a ſimilar plan, and the addition of lime water. James, in his medical dictionary, ſays, that Willis gives "the hiſtory of a "woman of about fifty years of age, and of a "full habit of body, who ſo long laboured "under a diabetes and ſalivation ſucceeding "each other alternately, that her ſtrength was "highly exhauſted: For this patient, he pre-"ſcribed an infuſion of rhubarb in Canary "wine; a few days after, he ordered her Ful-"ler's decoctum catechu compoſitum, every "night: And for common drink, Florence "wine diluted with Briſtol waters; by which "means, both diſorders were effectually re-"moved in two or three weeks, and the pa-"tient enjoyed perfect health for ſeveral years "after." But in the edition of Willis's works

by Blaſius, I cannot find this caſe. And as Willis died many years before Fuller printed his Pharmacopeia, this cure is probably extracted from ſome other author, and by miſtake attributed to Willis.

Liſter cured one of his patients by potations of almonds and milk. And his other, by giving him wine boiled with ginger; draughts of milk, and chicken broth.

Morton cured Maſter Wheeler, who had the honey-taſted urine, with milk, the Iſlington ſpaw, and diacodium. But, until dentition was completed, this patient did not remain free from relapſes of diabetes.

Morton cured alſo Mr. Petit of a diabetes mellitus, with a milk diet, an aſtringent, julep, and electuaries of bole and gum tragacanth, and the patient had remained five years free from relapſe, when Morton publiſhed. He had alſo cured the ſon of Mr. Petit of this diſeaſe, with a milk diet, aſtringents, and the Tunbridge water, who had remained ten years without ſuffering any relapſe.

Dr.

Dr. Harbeck,* in a letter to Guidott, deſcribes a caſe of diabetes in a Mr. Alexander, the

* Domine Egregie,

Expetis a me obſervationem *Diabetis* Potu Aquarum fontis Sancti Vincentii Curatæ, in Nauclero quodum, nomine Alexandro, hujus Civitatis, & breviter hic habes. Vir prædictus imprimis urinæ profluvium per aliquot tempus paſſus, cui ſenſim febris lenta ſupervenit, et brevi in *Diabetem* incedit confirmatam & deploratam; mingebat etenim, Mirum dictu! Urinæ limpidæ dulcentis circa tres congios ſpatio horarum 24. Tanta Virium proſtatione, ſpirandi difficultate et ſiti inextinguibili laborabat, ut lecto affixus moribundus videbatur: Sub veſperam ad conſulendum cum Doctore Chancey qui prius ægrum curaſſet, accerſebar; inter alia remedia præſcripſimus potationem aquarum fontis St. Vincentii ad libitum quod ægro fuit *gratiſſimum*; dictum & factum; quid tandem? Illa nocte circa libras 24. ingeſſet tantundemque per Urinas reddidit: Propediem invenimus omnia ſymptomata *Mitiora:* Sitis

the maſter of a ſhip, who in 1690, had re-remained cured by the Briſtol waters two years, without ſuffering any relapſe; though he had made about three gallons of limpid ſweet urine in the twenty-four hours during his illneſs, and could not raiſe himſelf from the bed, without appearing to be dying.

Dr. Fothergill* cured his patient, who made ſweet

& febris *imminuta*, reſpiratio liberior & pulſus multo *melior* cum blanda diaphoreſi. Indies deinde concedimas Aquæ *tantum* quantum ſiti reſpondere valeret, (cum idoneâ victus ratione) de die & de nocte, a paſtu & antepaſtum indiſcriminatim, quotieſcumque libueret. Sic intra dies quantuordecim, vel eo circiter, diluta eſt Diabetes & vires quoquomodo reſtitutæ: Sed æger perſtitit in Aquæ potatione per longum tempus imo vice potus ordinarii et jam per biennium Sanus evaſit.—Vide Epiſtolam Thomæ Harbech: D. D. ad Thomam Gidott in ejus obſervationibus de thermis Britanicis, page 385.

* Vide Vol. iii. Medical Obſervations and Enquiries, page 139.

ſweet urine, by a blifter over the ſacrum, calomel and rhubarb, lime water, alum whey, and ſudorifics.

Dr. Brockleſby† cured his patent, who had palpitation of the heart and interrupted pulſe, firſt by bleeding, rhubarb, ſteel and aſafœtida, and afterwards alum whey.

Burſerius cured one of his diabetic patients, (who was above ſeventy years of age, and had been attacked with the diabetes after a hemiplegia) by bleeding him in the foot, and the long uſe of a milk diet and bark. Burſerius's other patient had either a ſuppuration of the kidnies or bladder, whoſe difficulty of breathing, and pain of the back, was relieved by bleeding.

Dr. M'Cormick* cured two caſes of diabetes with Dover's powder.

Richter recommends camphor for this diſeaſe, and gives an account of four caſes of diabetes.

The

† Vide Vol. iii. Medical Obſervations and Enquiries, page 274.

* Duncan's Commentaries for 1783.

The firſt was of a month's ſtanding after a fever, and was cured with a ſingle emetic.

His ſecond caſe, was firſt cured by antimonials and a warm bath. The diſeaſe returned in a fortnight, and was again cured with the antimony, warm bath, and bitters. But, in another fortnight, the diſeaſe returned, and increaſed with the ſymptoms of ſcurvy. The patient was then ordered wort; "by the uſe "of which, the diſeaſe, by degrees, diſap- "peared for ever.

The third caſe, Richter cured with emetic tartar and valerian.

In his fourth caſe, as often as his patient had thrown up the contents of the ſtomach from the effects of ipecacuanha, the diabetes diſappeared for twenty-four hours. But Richter does not ſay, whether this caſe was cured. He ſays, "Stoeller (V. Boebatch) cured a patient with peruvian bark and opium: Dobſon (Med: Obſ: and Inquir:) by warm baths: M'Cormick (Med: Com: vol. ix.) by Dover's powder. The following concluſion of Dr. Dobſon, on his diabetic patient, will prove what

what pretenſions that caſe had to be claſſed with the catalogue of cures.

" He continued in the hoſpital ſeven " months; during ſome part of which time " he was ſo far recovered, as to paſs only " fourteen pints of urine every twenty-four " hours; his ſkin became moiſt and ſoft, and " he gained fleſh and ſtrength. The follow- " ing were the remedies, by which he was " moſt benefited; they were frequently, how- " ever, changed and varied, as it was found " that none of them produced their good ef- " fects for any conſiderable length of time. " The bark in ſubſtance, with ſmall doſes of " rhubarb. The decoction of the bark, with " the acid elixir of vitriol. The cold infuſion " of the bark, of which he drank from a quart " to three pints daily. Dover's powder. Alum " whey. Lime water. Antimonials combined " with tinctura thebaica. The warm bath was " occaſionally uſed, whenever the ſkin was re- " markably hot and dry, and the patient com- " plained of reſtleſſneſs and anxiety. The " tincture of cantharides was likewiſe tried, " but he could never take more than twenty-

" five drops to a doſe, without exciting great
" uneaſineſs in the bowels. The body was kept
" conſtantly open, either with rhubarb, or
" infuſion of ſenna joined with rhubarb. He
" had for common drink, barley water, rice
" water, lime water and milk, lime water
" alone, ſage, balm, or mint tea, ſmall beer,
" ſimple water, and water acidulated with the
" vitriolic acid. About the end of May 1793,
" as he ſeemed to gain little further advan-
" tage from being in the hoſpital, I was deſi-
" rous that he ſhould have an opportunity of
" drinking the waters of Matlock. I provi-
" ded, therefore, for the expences of his jour-
" ney, and recommended him, at the ſame
" time, to the charitable attention of a gen-
" tleman upon the ſpot. The patient, how-
" ever, never went to Matlock; and, whether
" he was aſhamed of having miſ-applied what
" was given for his relief, or he relapſed into
" the more dangerous ſtages of the diſeaſe, I
" could never learn, as he came from a re-
" mote part of the country."

A caſe, which was only ſo far recovered, that the patient evacuated fourteen pints of urine

urine in the twenty-four hours, ought not to be referred to as a cure.

Frank cured his patients by a generous plan of diet, and belladonna and tonic medicines.

Dr. Ferriar's patient had the thirſt and ſweetiſh urine of a true diabetes, and was cured by vitriolic acid and the bark.

Dr. Peter Shee's* patient had been a glazier; and with the ſymptoms of diabetes, he had a paralytic affection of the right ſide. Dr. Shee ſuſpended the diabetes for nine months, with gum kino, camphor, and flores zinci, ſimarouba, valerian, and catechu, and a generous plan of diet. The patient reproduced his diſeaſe by intemperance and died.

Mr. Scott, in his letter to Sir Joſeph Banks, ſays, that he cured the only two inſtances of diabetes which he met with in India, by mercury, after many other remedies had been tried; that one of these patients relapſed, and he cured him with nitric acid. But it is

 doubtful

* Duncan's Annals of Medicine, vol. i.

doubtful whether theſe were the diabetes mellitus.

Dr. Storer removed the diabetic ſymptoms in a gentleman, for eight or nine weeks, by keeping up a ſoreneſs of the gums with mercury. But after the mercury was laid aſide, the diabetic ſymptoms recurred.

Dr. Rollo, by the daily chemical examination of Capt. M's urine, diſcovered that a diet of animal food prevented the appearance of any ſaccharine matter in the urine, and that the eating of any vegetable food, reproduced ſugar in the urine in a very few hours. By a ſtrict adherence to a diet of animal food, and by the kali ſulphuratum, and hepatized ammonia, Capt. M. and many other diabetic patients have been cured.

REMARKS.

ON the perusal of Dr. Rollo's work, the great improvement of his practice, appeared to me to have arisen from the daily experiments which were made on the urine of his patient. By which experiments, Dr. Rollo has clearly proved, that almost all vegetable substances contain more saccharine matter, than the organs of digestion of a diabetic patient can assimulate: And, thus he has enabled practitioners to explain, why the eating of a piece of apple might defeat the plan of cure, which had succeeded with the patients of Forestus, Colle, Willis, Sydenham, and other writers. But, I am inclined to deny, that either the symptoms which Capt. M. had, or the blood which was first drawn from him, or the quantity of sugar which was daily detected

detected in his urine, were any proofs of a ſuper-oxygenated ſtate of his ſyſtem. The copper-coloured blotches on Capt. M's ſkin, which preceded any other ſymptoms of diſeaſe, and the ecchymoſis which he had about the toes upon the preſſure of them, only from walking croſs a room, ſoon after the detection of his diſeaſe, were certainly no ſigns of a ſuper-oxygenated ſyſtem.

The firſt-drawn blood from this patient, whatever pretenſions it might have to inflammatory blood, yet it wanted that red colour which Dr. Beddoes has defined to be the characteriſtic of ſuper-oxygenated blood. Perhaps, it was the want of humidity, and not the exceſs of oxygene in Capt. M's blood, which prevented it from becoming putrid. For, if oxygenated ſubſtances kept longer from putrefaction than diſ-oxygenated ſubſtances, then raw meat would keep longer from putrefaction than boiled or roaſted meat, which I apprehend is not the fact. Nor, is it a fact, that fiſh will keep longer from putrefaction than other fleſh, though in the diabetes, almoſt

moſt all fiſhes which are not of the ſhell kind, affect the urine like vegetables.

The quantity of ſugar detected in the urine of Capt. M. was calculated at twenty-nine ounces in the twenty-four hours, which, one would think, was more than the whole quantity of food ſwallowed would yield; therefore, the greateſt part of the ſugar muſt have been derived from the air; and the kidnies muſt have robbed the whole ſyſtem of oxygene, and left the patient in that ſtate of diſ-oxygenation, which ſhould have cured the diabetes.

The beſt marked caſe of Richter's, is that, where the patient relapſed three different times. But, though the ſymptoms of ſea ſcurvy appeared with the laſt relapſe of diabetes, yet it was taken away by ſweet wort, which, according to Dr. Rollo's theory, ſhould have cured the ſcurvy and increaſed the diabetes.

In Dr. Marſhall's caſe, the blood had loſt all the red colour, and the urine had ceaſed to be ſweet, yet the intolerable thirſt continued to the laſt.

Dr. Rollo ſuppoſes the mercury to oxygenate the blood, and ſcurvy to be a diſeaſe

where the blood is in a ſtate of diſ-oxygenation. Mercury cures the copper-coloured blotches in ſyphilis, why then does not mercury cure a true ſea ſcurvy? Suppoſing the animal ſyſtem to be as much governed by chemical laws, as Dr. Rollo imagines, is an acid eructation from the ſtomach, or an acid taſte in the mouth, a proof of the ſurcharge of oxygene in the habit, when the fact is admitted, that the more oxygene is added to the muriatic acid, the leſs acid it becomes? There are many practitioners* beſides myſelf, who have had patients with acid eructations, which were not to be ſubdued by alkalies, or the moſt diſ-oxygenated animal food.

Hippocrates† ſays, they who have an acid eructation, are not ſubject to pleuriſy. This aphoriſm I have always thought exceedingly valuable, as it diſcriminates thoſe pains which cannot bear general bleeding, from thoſe which abſolutely require it. But Dr. Rollo, notwithſtanding the conſtant acid eructations

which

* See Richter's, &c.

† Lib. vj. aphor: xxxiij.

which Capt. M. complained of, has the following remark, after the firſt time that Capt. M. had been bled.

" We think it proper here to obſerve, that " the blood-letting ſeemed to relieve the pa- " tient, as he felt the evening of the ſame day, " according to his own expreſſions, lighter, " cooler, and more cheerful, and had leſs pain " about the kidnies, and this was on the eigh- " teenth, the day before this particular treat- " ment was commenced.

By *the murmuring of the patient*, at the propoſal of the operation of a ſecond bleeding, it would ſeem, as if the pleaſant feelings after the firſt bleeding, were not of many hours duration. For Dr. Rollo, in his book, ſays, " The patient was averſe to the operation, " and could not help declaring, that his phy- " ſician at Yarmouth, had told him when I " had adviſed blood-letting, that unleſs he " met with a criminal having the diſeaſe, no " requeſt or opinion could induce him to " perform that operation in ſuch a caſe. I " anſwered, that he would ſoon return, ſhould " his duty lead him, and inform his phyſician

" that he had been twice bled, and was cured.
" He then ſubmitted without any further mur-
" muring, to the operation, which was per-
" formed by Dr. Wattman."

The bark and alum, which was firſt ordered for Capt. M. ſoon increaſed the heart-burn ſo much, that I was obliged to ſubſtitute bark, opium and calomel, and under that plan, his diabetes aſſumed ſuch a chronic form, as enabled him to perform the duty of Brigade-Major to Gen. Loftus, for ſeveral weeks. And Capt. M. did not reproduce the ſymptoms of debility, until he had danced at an aſſembly, and accompanied on horſeback Gen. Loftus to and from Norwich, and afterwards rode to Beccles and back again, which journies were both performed in the courſe of a few days, and amounted to more than 70 miles. As ſoon as the diſeaſe took on a more active appearance, I recollected Dr. Rollo's original requeſt, and haſtened Capt. M. to Woolwich. My reaſons why I had not ordered Capt. M. to be bled, were ſtated to Dr. Rollo, and acknowledged by him, as may be ſeen in the letters which form the appendix. A Captain

of

of the Oxford militia, was quartered at that time in Yarmouth, whoſe father had been cured of a diabetes, by the Briſtol water. I had alſo informed Dr. Rollo of the caſe of Dr. W——, near Bury, in Suffolk, who had been three times cured of this diſeaſe, by drinking the Briſtol water on the ſpot. And, as I had found by my reading, that in the time of Leigh, Short, and Blackmore, Briſtol water was conſidered as a ſpecific in the diabetes, I had adviſed Capt. M. if his diſeaſe was not in the courſe of a few weeks removed, to go down to Briſtol, and to depend entirely on that water for his cure.

Though the additional number of patients, which the connections of many militia regiments and a fleet drew about Yarmouth at a very ſickly ſeaſon of the year, left me no leiſure to enter upon experiments on the blood of Capt. M. yet, I do not heſitate to ſay, I would not ſacrafice the immediate ſafety of any patient, ſo far to curioſity, as to order him to be bled under the rapid increaſe of debility, which was deſcribed in my firſt letter to Dr. Rollo, to oblige him, or any phyſician in the kingdom.

By a ſet of very ingenious experiments, Mr. Cruickſhanks has proved, that the acid of milk, or ſaccholactic acid, is different from the oxalic acid of diabetic urine. But, had he extended his experiments to that morbidly ſweet milk, which takes place in many women before they can be prevailed on to wean their children, probably he would have found its chemical properties differ but little, if at all, from the ſaccharine urine of a diabetic patient. Under this ſort of atrophy, a ſinking, dragging ſenſation, is deſcribed between the breaſts. The milk is almoſt tranſparent, and unnaturally ſweet.

The patient becomes exceedly thirſty, and daily loſes her appetite, ſpirits, and ſtrength.

A dryneſs of her fauces and trachea, gives her the repeated ſenſations of foreneſs of throat, and difficulty of reſpiration, until a cough and fatal phthiſis ſucceed.

Thus far I had proceeded before Dr. Ontyd's ingenious treatiſe had reached me.

In

In that work, he has beſtowed on Dr. Rollo's treatiſe on diabetes, many pages of criticiſm, which will prove highly worthy of the conſideration of medical readers. Dr. Ontyd has diſcuſſed three of the cauſes, which have been by different writers, ſuppoſed the proximate cauſe of diabetes; viz. Whether it be a general diſeaſe of the ſyſtem, or an imperfect aſſimulation from a local diſeaſe of the ſtomach, or whether it ariſes from a local diſeaſe of the kidnies? Dr. Ontyd, after examining them all, comes to the following concluſion. "Diabetes, therefore, is by no "means a diſeaſe of the ſyſtem in general, or "of the ſtomach, but it is a local diſorder of "the kidnies: and the ſaccharine matter "which is found in the urine of thoſe, who "labour under diabetes, is an effect of a ſpe-"cific reaction of theſe organs, produced by "the morbid ſtimulus," page 606; and at page 614, he ſays, "The proximate cauſe of "diabetes thus, in my humble opinion, con-"ſiſts in a certain degree of debility of the "kidnies, combined with morbid increaſed "irritability of theſe organs."

He

He thinks, that the women who give ſuck, and the patients who labour under diabetes mellitus, part with larger quantities of ſugar in the twenty-four hours, than the quantity of the food which they had ſwallowed in that time would yield; and, on this account, and the glandular ſtructure of the kidnies, the diabetic diſcharge ought to be called a ſecretion, and not a ſeparation.

Dr. Ontyd, from the caſes of Drs. Frank, Oſterdyk, Dickſon, and Rollo, aſſerts, that the bulimous appetite does not always attend the diabetes. Oſterdyk's patient, who had no appetite, died on the tenth day of the diſorder. Dr. Ontyd thinks, that while the appetite keeps up in this diſeaſe, it may remain in a chronic ſtate; but, that where there is no appetite, the diſeaſe is apt to become rapidly fatal.

He thinks the principles of animal food are hydrogene, carbone, and oxygene: that the principles of vegetables are carbone, hydrogene, oxygene, and in ſome plants, azote: that hydrogene, carbone, and a conſiderable portion of oxygene, are both in blood and in

ſuet,

ſuet, and therefore, he cannot ſee how blood, ſuet, or milk, which Dr. Rollo uſed with his diabetic patients, could be ſaid to diſ-oxygenate the ſyſtem.

Dr. Ontyd is aware of the utility of a diet of animal food, becauſe he thinks a ſpecific ſtimulus is brought on by a vegetable diet, the conſequence of which, is ſweet urine. And, he thinks animal food by a different ſtimulus, puts a ſtop to the ſecretion of ſweet urine: But that the diſeaſe is not always cured, when the ſweet urine is ſtopped.

Dr. Ontyd thinks alſo, that after this diſeaſe has continued for ſome time, it may be more difficult of cure from the change which the kidnies may have undergone by its duration.

He thinks, it is not proved by facts, that diabetic blood is generally buff-coloured: nor that a diet of animal food has produced a propenſity to diſſolution of the blood: nor that the ſtomach has the power of producing ſugar.

He thinks, by Dr. Rollo's noſological arrangement, inflammatory blood, and hyper-oxygenated blood, are conſidered as the ſame.

And,

And, that as Capt. M's blood had the appearance of inflammatory blood, and he was cured by animal food, &c. &c. then, according to ſuch an arrangement, animal food, opium, &c. &c. ſhould be preferred in phlegmonous inflammations, to vegetables, acids, &c. whereas acids and vegetables are found preferable to animal food and opium, in all truly inflammatory diſeaſes.

Dr. Ontyd refers to Whyte's works, to the 9th volume of Duncan's Commentaries, to the 6th volume of Sandifort's Bibliotheca, and Dr. Rollo's works, to prove, that a repelled gout, a retropulſed itch, a ſuppreſſed perſpiration, &c. have each produced a diabetes.

He thinks, as diabetes may ariſe from very different cauſes, there is no ſpecific in this diſeaſe. "Diabetes," he ſays, "may ariſe "from various other cauſes, but its two chief "ſources, are a morbid ſtate of the primæ "viæ, and preternatural affection of the lym-"phatic ſyſtem: for, though it has been a miſ-"taken notion of Dr. Rollo, that the ſeat "of diabetes is in the ſtomach, yet, the re-"mote cauſe of the diſeaſe is frequently to

"be

" be looked for in the primæ viæ. Dr. Rich-
" ter cured diabetes, originating from a bi-
" lious matter in the ſtomach, by giving an
" emetic. And vomits are truly uſeful in dia-
" betes in many reſpects, for in all caſes,
" where the cauſe of diabetes is in the ſto-
" mach, by taking away the cauſe, they re-
" move the diſorder itſelf."—Page 619.

This paſſage is exceedingly at variance with itſelf, as well as with the former quotations on the ſeat and proximate cauſe of the diſeaſe: Firſt, it aſſerts, that the diabetes may ariſe from various cauſes, which, undoubtedly, is granting that the proximate cauſe may alſo vary: Secondly, it makes the diabetes moſt frequently a diſeaſe of the lymphatic ſyſtem, which is ſurely acknowledging the diſeaſe to be a general one: Thirdly, it ſays, Dr. Rollo is miſtaken about the ſeat of the diſeaſe, for the remote cauſe only is to be looked for in the primæ viæ: Laſtly, it refers to Dr. Richter's caſe, to prove that the ſeat of the diſeaſe was in the ſtomach, for by taking away the bilious matter of the ſtomach, the cauſe was taken away, and with the cauſe the diſorder.

Is not this the very definition of a proximate cauſe, notwithſtanding the aſſertion, *that it is only the remote cauſe which is to be looked for in the primæ viæ?*

Indeed, the confuſion which there is in the above quotation, is ſo unlike the good ſenſe which runs through the reſt of the pages on the diabetes, that I am inclined to think, the tranſlator in that part, has done great injuſtice to the meaning of Dr. Ontyd.

Dr. Ontyd obſerves, a ſpurious inflammation of the throat or lungs, often carries off a diabetic patient.

For the cure of a diabetes, he ſays, if the diſeaſe be produced by ſuppreſſed evacuation, that evacuation is to be excited: if by repelled cutaneous eruptions, theſe are to be brought back: if by ſuppreſſed perſpiration, antimonials and opiates are to be given with the warm bath: if from fordes in the inteſtines, he recommends cleaning the bowels with calomel and rhubarb, and emetics where the debility is not great; but where it is, they ought to be wholly omitted. But, as aſtringents often convert the diabetes into an

aſcites,

aſcites, as they lately did in a patient of Dr. Babington's, of Guy's hoſpital, Dr. Ontyd adviſes medicines which diminiſh irritability, ſuch as kali ſulphuratum, hyoſciamus, hepatized ammonia, and cantharides, as beſt calculated to check the increaſed action of the abſorbent veſſels: And, as debility of the kidnies and their organs exiſts in this diſeaſe, he recommends, where the debility is not great, cicuta, belladonna, mercury, extractum hyoſciamus, and above all, cantharides, hepatized ammonia, kali ſulphuratum, animal food, and tepid baths; and afterwards, tonics to prevent relapſes.

Dr. Ontyd approves of ſetons and other local drains, where the diſeaſe aroſe from ſuppreſſed eruptions, dried-up ulcers, &c. but not otherwiſe, eſpecially if much debility prevail. On the ſubject of bleeding, he thinks in caſes of local inflammation only, it ought to be recommended; but in general, he thinks this operation, as only tending to weaken, ought to be omitted.

I would beg leave to refer thoſe, who wiſh to gratify their curioſity farther on this diſ-

eaſe, to the original works which I have noticed, and to the following authors, whom I had no opportunity of conſulting; Sylvaticus, Genathius, Brunerius, Jungken, Joubertus, Salmuth, Myers, Metz, in the 4th volume of Haller's Diſputations, the 1ſt volume of La Medecine Eclairee, Oſterdyk, Frank, Macet's Theſis: And to the conſideration of the reader, I ſubmit the annexed query.

As diabetic patients ſeem often to have been carried off by ſome acute diſeaſe, after the diabetes had been ſeemingly cured, are the deaths of ſuch patients occaſioned (as Dr. Cleghorn ſuppoſes) merely by the inflammatory diatheſis which their diet of animal food had induced? Or are they killed by a ſpecific poiſon falling upon ſome other part of the body? Or do they die from their organs of digeſtion continuing to be unable to aſſimulate a ſufficient quantity of ſugar to nouriſh the body?

APPENDIX.

The Copy of Dr. Rollo's firſt Letter to Dr. Girdlestone, dated Woolwich, 16th June, 1796.

SIR,

CAPT. M. having conſulted me, but at the ſame time, wiſhing to be back with his family, I had not adviſed any plan of treatment, more eſpecially as he has got a diſeaſe whoſe nature and cure are at preſent not well underſtood. The diſeaſe is diabetes. The urine is ſweetiſh, and when ſubjected to experiments, gives the uſual reſults. I am much intereſted about my friend, and hope, therefore, ſhould you not ſucceed in removing the diſeaſe, or ſhould he not get much better in a few weeks, that you would adviſe him to return

turn with his family to Woolwich, where he can avail himſelf of any additional opinion in London.

I ſhall eſteem it a favour to write me how he goes on, and I will thank you to inform me of the appearance of the diſeaſe when you ſaw him, as, from his account, I have reaſon to think, there were ſome ſymptoms leading you to ſuppoſe liver affection.

The ordnance chymiſt is to ſubject the urine to ſome experiments, to aſcertain more ſatisfactorily its nature, and, if poſſible, to find out whether we are poſſeſſed of any ſubſtance that decompoſes it, and can be taken in ſuch a ſtate with the ſtomach. I have ſome peculiar ideas on this ſubject, which, ſhould you not ſucceed in the treatment, I may trouble you with, as they point out a treatment very different from what has been hitherto followed.

With much reſpect,

I am, Sir, yours, &c.

JOHN ROLLO.

Dr. Girdleſtone's Anſwer to Dr. Rollo, in June 1796.

SIR,

BY the favour of your letter concerning Capt. M. I am made acquainted with ſymptoms which he never related to me. When Capt. M. firſt applied to me, he complained of a conſiderable loſs of fleſh, appetite, ſpirits, and complexion, attended with coſtiveneſs, thirſt, tumid abdomen, and heat and diſcharge of mucous about the penis. To this account he added, that the civility of this town and neighbourhood, had expoſed him to ſeveral months of intemperance. But as he took no notice to me, either of pain of the loins, or of any increaſe of urine, I had no reaſon to aſſign the common ſymptoms of intemperance, to ſo uncommon a diſeaſe, as that of the diabetes. I, therefore, only limited his quantity of wine to that of a pint a day, and gave him a grain of calomel every night for ſix nights.

This

This plan reduced the ſize of the abdomen, increaſed the ſpirits, removed the coſtiveneſs, and cleared the complexion. And, as he thought himſelf getting well, after I had made him two or three viſits, I only recommended him to perſiſt in the ſame plan of diet, and to take a grain of calomel once or twice a week, as he might find occaſion. I ſaw no more of him until a few days before his departure for London, when he had been expoſed to a very heavy rain in the evening, after a dinner in the country, which brought on a ſlight inflammation of the fauces, chillineſs, coſtiveneſs, &c. A doſe of caſtor oil in the morning, with a gargle of muriatic acid, and a ſudorific doſe of vin: antimon: and tinct: thebaic: at bed-time, carried off this ſlight attack. Since I have been in this town, I have ſeen only two caſes of diabetes. The one was of a young female of about nineteen years of age, who was cured by a few weeks perſeverance in tinct: cantharid: and vin: ferri. She made treble the quantity of urine more than the quantity of liquid drunk. The urine was limpid and ſaccharine, the legs œdematous, and the

the countenance bloodleſs, like that of a chlorotic patient.* The other was more ſtrikingly marked: It was in a poor man who had come to me ſome miles from the country.

He complained to me of a ſlight drain from the penis, with thirſt, pain of the loins, and incapability of retaining his urine many minutes, which was both limpid and ſaccharine. His body was extremely waſted, but his eyes look vivid, and his complexion florid. As he mentioned a drain from the penis, and as I had often found the benefit of not relying upon the account which private ſoldiers gave of themſelves, when diſeaſed in the urinary paſſages, I deſired to have an inſpection of the penis: and, was ſurpriſed to find, that with all the ſymptoms of a diabetes, there were an elongation of the prepuce, and diſco-

 coloration

* This girl has remained ſeven years without ſuffering any diabetic relapſe. While ſhe took the ſteel her complexion grew florid, but ſhe now, without acknowledging any feelings of diſeaſe, has as bloodleſs a look as ſhe had when ſhe firſt became my patient.

loration of it, and the glans penis very different from the phymoſis which accompanies a recent venereal inflammation. The redneſs was dull and opaque, approaching to that of raw beef. I tried ſudorifics, zinc, iron, anguſtura, and a variety of aſtringent medicines, to no purpoſe, for many weeks. He at laſt declined coming to me, and I was unable to learn afterwards what became of him. Your letter, and the recollection of this caſe, made me anxious to advert to the heat which Capt. M. had complained of about the penis. Upon examination of the penis, I found that he had the ſame ſort of redneſs of the glans penis and phymoſis, as that, which I have juſt deſcribed in the caſe of my former patient.

There is only this difference, that the phymoſis is ſo complete in Capt. M. that he can but juſt expoſe the point of the glans: whereas the other patient could, with ſome difficulty, denude the glans. But this difference ſeems to have ariſen, merely from the original difference in the formation of the two prepuces. Capt. M. could, however, prior to the diabetes, denude his glans penis. And, although this

this redneſs and phymoſis have not been mentioned by authors, I think it is very probable, that theſe appearances may be found to accompany this diſeaſe. Beſides the above ſymptoms and diabetes, Capt. M. has had two other ſymptoms take place upon his journey to this town. The one was a veſication of the leg, which has broken into a flat livid ulcer, of the ſize of a ſhilling. The other is a livid-looking and pulpy-feeling tumor under the lower jaw, of the ſize of the largeſt hen's egg, which is extremely painful, and looks as if it would ulcerate in a few days. I obſerve, alſo, that the ſkin the whole length of each tibia is of a browniſh yellow colour, as in ſea ſcurvy, &c. and that his legs are varicoſe. Indeed, he appears to me to be ſo weakened and ſhrunk ſince his expedition to London, that I ſhould wiſh to avail myſelf of any theory which you may have formed towards relieving this diſeaſe. I am giving him an electuary of equal parts of bark and alum, in the quantity of a nutmeg, every four hours. And confining him to a pint of wine a day, and as dry a diet as poſſible, forbidding at

the ſame time, his drink to be warm, or the quantity of drink to exceed two or three ſpoofuls at a time. And, in order to allay the ſenſation of thirſt, I permit him to amuſe himſelf by keeping cold water in his mouth, as often as he likes.

By this plan, the quantity of his urine has been reduced within theſe laſt twenty-four hours, to the quantity of liquids ſwallowed, although it before exceeded the drink by three quarts a day. And ſince this reduction of the quantity of urine, the ulcer of the leg has put on a better appearance. You muſt excuſe the blunders of this epiſtle, which is written at a very buſy ſeaſon of the year,

With Sir,

Your very reſpectful humble servant,

THOMAS GIRDLESTONE.

Dr Rollo's ſecond Letter, dated 3d July, 1796, to Dr. Girdleſtone.

Sir,

I am extremely obliged to you for your letter regarding Capt. M's diſeaſe, and ſhould have anſwered it immediately, had I not been unavoidably prevented. I wiſh I could give a new theory leading to a more ſucceſsful practice; as a rational theory muſt be formed from obſervation, our facts in this diſeaſe are ſtill too few. Any theory muſt, therefore, be ſpeculative; ſpeculative, as the opinion I have formed, may now be, it may by your aſſiſtance become more rational, but even ſpeculative as it is, it comprehends chiefly the opinion of Cullen, with ſome variety; however, I ſhall reſerve it until I again hear from you. I wiſh you could direct

rect three or four ounces of blood to be taken, and obſerve the appearance and the taſte of the ſerum, and the ſpontaneous changes it undergoes by a few days expoſure to the air. In the caſe I ſaw at Edinburgh, the ſerum was ſweetiſh, and the blood ſhewed no appearances of putrifaction a long time. Dobſon of Liverpool, obſerved the ſame thing, but Home and Darwin obſerved differently. It is a material point to aſcertain fully, though I have no doubt of it from what I ſaw, the patient had had, however, the diſeaſe eight months. Be ſo good to continue marking his caſe. I ſhall by and by give you the chymical refults of the urine, &c.

I am, Sir, yours, &c.

J. ROLLO.

The firſt part of this Letter relates to a poor woman, to whom, at the requeſt of Dr. Girdleſtone, Dr. Rollo ſhowed great humanity in attending her child, who after the natural ſmall-pox, had ulcerations and exfoliations of part of the bones of the upper extremities.

The buſy ſeaſon of the year which this has proved to me, has deprived me of the opportunity of marking all the variation of Capt. M's ſymptoms, with that accuracy which I could wiſh. However, I have marked the ſymptoms daily, until his diſeaſe took on a more chronic appearance, and which detail I can ſupply you with at a future period, if you wiſh to record his caſe.

In my firſt letter to you, I mentioned that beſides the diabetes and phymoſis, Capt. M. had a diſcoloration along the ſhins, a veſication on the inſide of the leg, terminating in a cutaneous

cutaneous ulcer, with a pulpy-feeling tumor under the lower jaw.

The day after I wrote that letter to you, Capt. M. had the additional ſymptoms of a gout on the great toe, with increaſed dryneſs of the tonge, cramps of the muſcles of the leg, and a deep ſeated ſenſation, of what he termed live blood, about the abdomen, correſponding with the direction of the emulgent and other large veſſels of the trunk. The ulceration about the leg increaſed to about two or three inches circumference. The tumor under the lower jaw broke and diſcharged a large quantity of cream-like matter, and ſkinned over as rapidly as a primary chancre; whereas, the ulcer on the leg dried into a ſcab like a ſecondary venereal ulcer. And he has two or three marks of theſe cutaneous ulcerations, where the ſcab and the diſcoloration ſtill remain. Theſe appearances ſeem to me, to be alſo theoretic difficulties. As the alum began to keep up a perpetual heart-burn, I ordered Capt. M. the bark by itſelf, in large quantities, and had ſuggeſted to him a deſire to excite perſpiration, in order to give the

kidnies

kidnies time to recover their tone. This led Capt. M. to attempt a remedy which he had often heard would excite perſpiration.

The remedy was a draught of cold water at bed-time: It produced perſpiration, a good night's reſt, and a conſiderable alteration in his motions. Until he took the cold water, the coſtiveneſs was ſo great as to occaſion pain with the loſs of blood at every effort to expel the fæces. Whereas, from the time of taking the water, the bowels were relieved daily by a motion, which was neither too lax nor too coſtive. By perſiſting in draughts of water, and the bark, he gained ſpirits and appetite, and the urine diminiſhed to the quantity of five pints leſs, in the twenty-four hours, than the quantity of liquids ſwallowed. And as the gout was gone, and the ulcers ſkinned over, or ſcabbed, he has from that time been able to take exerciſe, attend parade, &c. And he has ever ſince kept his diſeaſe in a more chronic ſtate.

But though the quantity of the urine is diminiſhed, I do not find that the ſweetneſs of it is much, if at all leſſened. Neither the ſkin,

nor the perſpiration has the leaſt tendency to ſweetneſs of ſmell or taſte. He has within theſe few days had ſome more diſcoloration under the ſkin of the leg, which dried into ſcabs exactly like the ſecondary venereal ulcerations.

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I cannot help thinking, but that any ſecreting gland ſtimulated to increaſed ſecretion, would be found to have taken on more or leſs of a ſaccharine ſecretion.

I have long thought from the treacle-like ſmell, which is blended with the ſtinks of ſalivation wards, that the ſaliva of the patients of ſuch wards would yield a conſiderable quantity of ſugar: And that the clammy ſweats of a dying perſon would alſo yield ſugar.

Mr. Holwell, when confined in the black hole at Calcutta, obſerved the pleaſant taſte of his own perſpiration. And gardeners are known occaſionally to haſten the ſaccharine ſecretion of fruit, by partly breaking the branch which ſuſpends the fruit; by which means, the fruit being weakened, it ſooner becomes

becomes acted upon by the ſtimulus of heat. At leaſt, ſo I would explain the fact. When a woman who has plenty of milk begins to wean her child, ſhe finds as the milk diminiſhes, the ſweetneſs of it alſo diminiſhes; and when the milk is very ſparingly to be extracted, it acquires a ſaltiſh inſtead of a ſweetiſh taſte. I have at preſent, a patient who may be ſaid to labour under a ſalivary diabetes. He is a pauper patient, a lad of about ſixteen or ſeventeen years of age. He looks very pallid, but complains of no pains. He eats, drinks, and ſleeps well. The ſaliva the firſt week I ſaw him had no unpleaſant or particular taſte, but the flow of it is immoderate night and day. I ordered him to ſwallow the ſaliva always when awake, and to take bark, ſteel, and ſmall doſes of opium, three times a day for a week. At the end of this week's plan, he ſaid that the flow of the ſaliva was as great as ever, and that its taſte was become ſweet. What adds to the ſingularity of this boy's caſe is, one of the teſticles lies at the abdominal ring. The ſympathy be-

tween the teſtes and the parotid glands, in the cynanche parotidea is well known.

I ſhould have been very happy to have aſcertained whether the ſerum of Capt. M's blood be ſweet or not, and to have marked the changes which the blood would ſpontaneouſly have undergone. But while Capt. M. remained ſo weak I could not propoſe bleeding, and now he feels himſelf ſo much better he would of courſe think it unneceſſary. Beſides at this ſeaſon of the year, I have no time to make a fair experiment on the ſpontaneous changes of the blood. To do that, I conceive that the like quantity of blood ſhould be drawn at the ſame time from a healthy perſon, in order that the blood of each may be expoſed preciſely to the ſame degree of heat, &c.

Yours, &c.

T. G.

Part of Dr. Rollo's Letter, dated 29th Auguſt, 1796, which relates to Capt. M's caſe.

Allow me to acknowledge my obligations to you for your farther account of Capt. M. I ſhould not wiſh as you may be perſuaded to injure him, and I think it would not do it to take away three or four ounces of blood—and as the ſpontaneous changes of healthy blood are well known, I do not think you have any occaſion to trouble yourſelf with a compariſon. Your theory is ingenious and the caſe of the ſalivary diabetes is curious; I ſhall certainly pay attention to increaſed ſecretions and examine their contents.

You know, however, that there are increaſed ſecretions of urine even of ſome continuance not ſweet. I ſhall be happy to hear farther of my friend the Captain when you have leiſure. Should he not get well and come up here, I ſhall of courſe obtain ſome further medical opinion for him in town, and

and of any ſtep you ſhall be made acquainted —I ſhould however be extremely glad you join the merit of a cure. I beg my reſpects to him, and believe me to be

Very ſincerely and reſpectfully yours,
J. ROLLO.

Dr. Girdleſtone's Anſwer to that part of Dr. Rollo's laſt Letter, about the ſweetneſs of the urine, was ſent on September 22d, 1796, in the following words.

"In order to generalize my ideas about "increaſed ſecretions, certainly the diminu- "tion of ſweetneſs ought to correſpond with "the diminution of urine. And I am ready "to grant, that there are increaſed ſecretions "of urine which have continued for ſome "time without diſcovering ſweetneſs to the "taſte. But that I do not think will prove "enough to deny the exiſtence of any ſugar "in ſuch urine."

POSTSCRIPT.

SINCE theſe ſheets were printing, my friend Dr. Lubbock has detected two more caſes of diabetes, by the affection of the prepuce. One of theſe patients was firſt an out patient, and afterwards an in one, in the Norwich hoſpital. This patient was of about fifty years of age, and naturally of a lean habit: His gums were ſore, his prepuce affected, his urine ſweet, and its quantity, alternating with a diſcharge by the bowels, varied from ten pints in the twenty-four hours to half a pint. Dr. Lubbock put the patient upon a diet of animal decoction, cold meat, and milk, and gave him ſmall doſes of opium, which plan mitigated the diabetic ſymptoms. Dr. Lubbock tried alſo the hepatized ammonia, without being able to diſcover from it any advantage. He alſo at my requeſt ordered this patient one day a diet of river fiſh, and the next day a whiting, or ſea fiſh. But,

contrary

contrary to the obſervations of my patient, very little alteration was obſerved from the firſt day's diet: And on the ſecond day of eating the fiſh, the quantity of the urine was diminiſhed. The patient on the ſecond day had a motion extraordinary, ſo that probably the diabetic ſymptoms were rather increaſed than diminiſhed, though they were not ſo evidently increaſed by this diet, as in my patient. Dr. Lubbock had intended to have omitted the milk in this patient's diet, and more rigidly to have confined him to animal food. But the temptation of drink, at the late Norwich election, cauſed the patient to deſert from the hoſpital, and prevented Dr. Lubbock from being able to extend his experiments on this patient, or to learn any thing more about him. Dr. Lubbock found in this caſe as he had done in two former diabetic patients, that no ſort of external application would relieve the phymoſis, but that it was always more or leſs ſevere, as the other diabetic ſymptoms were increaſed or diminiſhed.

FINIS.