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AN ACCOUNT OF
TWO CASES
OF THE
DIABETES MELLITUS;
WITH REMARKS,
&c. &c.

AN ACCOUNT OF
TWO CASES
OF THE
DIABETES MELLITUS:
WITH REMARKS,
AS THEY AROSE DURING THE
PROGRESS OF THE CURE.

To which are added,
A GENERAL VIEW OF
THE NATURE OF THE DISEASE
AND ITS APPROPRIATE TREATMENT,

Including Observations on some Diseases depending on
STOMACH AFFECTION;

AND A DETAIL OF
THE COMMUNICATIONS
Received on the Subject since the Dispersion of the Notes on the
FIRST CASE.

BY JOHN ROLLO, M.D.
SURGEON-GENERAL, ROYAL ARTILLERY.

WITH
THE RESULTS OF THE TRIALS OF
VARIOUS ACIDS AND OTHER SUBSTANCES
In the Treatment of the Lues Venerea;

AND
SOME OBSERVATIONS ON THE NATURE OF SUGAR, &c.

BY WILLIAM CRUICKSHANK,
Chemist to the Ordnance, and a Surgeon of Artillery.

—••*••—
IN TWO VOLUMES.

VOL. II.

—••*••—
London:

PRINTED BY T. GILLET,
FOR C. DILLY, IN THE POULTRY.

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P R E F A C E.

THE number and importance of the communications on the Diabetes Mellitus, since the dispersion of the notes on Captain Meredith's case; and the success of the first trials of the Nitrous Acid, and other substances, in the cure of the Lues Venerea, having determined to a continuance and repetition of them; this work has been extended beyond its original design.

However, it is expected that the value of the communications on the Diabetes, and the detail of the effects of the various new remedies so happily employed in the Lues Venerea, will prove a proper apology for any extension of performance, on which the Public may be solicited to bestow their attention.

In this Hospital, where there have been annually admitted for these three years past upwards of 300 patients with the venereal disease, the effects of the most guarded mercurial treatment have been observed in many cases to be so detrimental, as
not

not only to excite consumption, but bring other affections into action of a scrophulous nature, tending to death, and an unfitness for service, that any remedy proposed for the removal of the disease, destitute of these injurious effects, was likely to command proper attention, especially if this remedy was probably to turn out more effectual than mercury. How very frequently has the venereal disease returned, or rather its secondary state, after having been apparently cured, and that even by the best masters of the Healing Art!

The Chemical Lectures given by Mr. Cruickshank to the Royal Military Academy, in which he adopts the new system generally, having been attended by myself and the Surgeons of Artillery, our reflections have been directed to the new doctrines, and their application to medicine and surgery.

The success of the treatment in Captain Meredith's Case, wherein the chemical doctrines were engaged to illustrate; and the annunciation of Mr. Scott's paper on the efficacy of the Nitrous Acid in the Lues Venerea, naturally corroborated
our

our hopes of further improvement. After which Dr. Currie's testimony, and that of others, in favour of the Nitrous Acid, as an efficacious and certain remedy for the venereal disease, were communicated.

Under these impressions, I proposed a full and complete trial of it here; and in order that a good acid might be obtained, I applied to the BOARD OF ORDNANCE, who very readily directed their Druggist to supply it.

MARQUIS CORNWALLIS, *the Master General*, and the BOARD, have bestowed very liberal attention to the
medical

medical department, in the compliance with every requisition which has been made for the improvement of medicine, as well as for the comfort of the sick.

In this Hospital we form a medical meeting, we have anatomical preparations, and we are collecting a library and museum under the patronage of the BOARD.

A Clinical Ward is established, containing six patients, selected from the other cases in the Hospital, who are placed under the care of one of the Surgeons, a charge taken in rotation.

tation. This ward is supposed to be visited by all the Surgeons and their Assistants.

At this period Mr. *Cruickshank* took charge of the ward, and it was proposed to admit only primary cases of the Lues Venerea. But on the supposition that if mercury, according to Girtanner, or the nitrous acid, according to Scott, cured the disease by imparting oxygene to the system, it was suggested by Mr. *Cruickshank* to try other substances. He therefore selected the citric acid, the oxygenated muriatic acid, and the oxygenated muriate of potash,

as

as bodies very readily parting with their oxygene. His accounts of these trials I announce to the public with the greatest satisfaction, as an important acquisition to the practice of medicine. I have also added the testimonies of some of the other *Surgeons of the Artillery*, with regard to the efficacy of the nitrous acid; and have subjoined an account of a peculiar fore, as being connected with the other subjects, so far as the application of the new doctrines of Chemistry is concerned.

These different facts are extremely gratifying, as they hold up
remedies

remedies likely to turn out more generally successful, and less injurious than mercury in the cure of the Lues Venerea; and probably more extensively useful in other diseases, especially those arising from contagion, morbid and animal poisons. *The oxygenated muriate of potash merits a trial in Hydrophobia.*

Of these new remedies the oxygenated muriate of potash will no doubt be preferred. It has been found of superior efficacy in the Lues in its primary, and from some trials we have no doubt of its being equally so in its secondary state. We
have

have seen that it not only speedily removes the disease, but that the general health, instead of being impaired by it, seems to be invigorated. The venereal sores have healed under the action of these remedies on the system gradually and firmly, the favourable changes being daily conspicuous. This affords a well-founded prospect of a radical cure; and which is more convincing as no relapse of the disease has been yet discovered, though several of the patients have been cured upwards of two, and some almost three months. Hence two objections of the most essential nature

ture

ture to which mercury is liable will be removed.

On the whole we trust the work, voluminous as it has turned out, will not be felt irksome, but prove of some benefit to the science, whose improvement we are zealously and disinterestedly engaged to promote, and whose object leads to the extenuation of human suffering.

ROYAL ARTILLERY HOSPITAL,
Woolwich, July 14, 1797.

OF WHAT HAS BEEN COMMUNICATED TO US
ON THE
DIABETES MELLITUS,
SINCE THE
DISPERSION OF OUR NOTES
OF
CAPTAIN MEREDITH'S CASE.

THIS part of our subject is extremely satisfactory; and of course we enter upon it with peculiar gratification.

The most valuable of the communications have been received since the preceding part of the work has been in the hands of the Printer. Therefore, the view we have exhibited of the history, nature, and treatment of the disease, has derived no advantage from them. However, they must convey strong impressions of the correctness, and truth of our general principles. That these may become perfectly explained and established, we solicit a continuance of every communication tending to throw additional light

on the subject. The present shall be recorded separately, and without any remark; by which their own importance will appear more conspicuous. Any observations, or conclusions which may be thought necessary to offer, or draw from them, will be subjoined at the end, or deferred until another occasion.

We embrace this opportunity of acknowledging the obligations we are under to our respectable correspondents—and while we admit the honourable testimony most of them have conferred on us, the medical world must generally allow, and appreciate, the disinterested efforts they have manifested for the improvement of medical science.

From DR. DUNCAN, *Professor of the Institutes of Medicine, in the UNIVERSITY of EDINBURGH.*

Edinburgh, 13th Jan. 1797.

IN a case of Diabetes which I treated, about 20 years ago, I found that the use
of

of fat meat had a surprising effect in alleviating the thirst, and diminishing the quantity of urine. But the effect was temporary only, and I have not found it to hold to the same extent with other patients. The hepatifed ammonia will, I hope, attract the attention of medical practitioners, and obtain a fair trial.

From DR. FALCONER, of Bath.

Bath, 13th Jan. 1797.

I SAW, about six years ago, a case of Diabetes in a gentleman, who really got it by drinking a liquor compounded of treacle and essence of spruce, fermented with water and yeast, forming spruce beer, of which he drank largely to reduce a corpulent habit. I tried with him to increase the perspiratory evacuations by Dover's powder, and the warm bath; but did not succeed. Indeed he was not a very tractable patient. I would recommend this remedy with perhaps an increased quantity of ipecacuan to your consideration,

sideration, as it might produce perspiration, and check the canine appetite. Astringents I have seen tried, but with no advantage. Might not the mephitic alkaline water, impregnated with sulphureous gas, be of service? Might not a sulphureous ointment to the skin made with some rancid animal oil be a probable remedy? And might not a solution of sulphur in oil with some opiate, and mixed with starch or animal mucilage, be of service thrown up as a clyster?

From DR. BAILLIE, Lecturer on Anatomy and Surgery, and Physician of St. George's Hospital, LONDON.

March 2nd, 1797.

MY paper on Diabetes was written two years ago, and read at that time to a society of which I am a member. It was determined by the society that it should be published, and it became from that moment their property. I have, therefore, no right to comply with your request. I examined
not

not only the state of the kidneys, but of the stomach, the intestines, the glands of the mesentery, the liver, the spleen, and the pancreas, and I do not hesitate to mention to you generally, that I was induced to believe, from the morbid appearances in the kidneys, that the principal seat of the disease was in them. This examination was made with a view to the different theories which have been formed about the cause of this disease, and I have added upon each of them a few observations. The paper will be published, as it was written two years ago, and nothing will be subjoined in consequence of what has been done lately. It will make me very happy if a method of treating the Diabetes, which will commonly prove successful, shall be discovered, and my pleasure will not be diminished by thinking that the discovery has fallen into your hands.

*From MR. ABERNETHY, Assistant Surgeon
at St. Bartholomew's Hospital, and Lec-
turer on Anatomy and Surgery.*

London, 12th April, 1797.

I TOOK no notes of the diabetic cases which were in St. Bartholomew's Hospital, as they did not belong to surgery. I was only desirous of knowing if the kidneys could form sugar. Once I had an opportunity of examining the blood, and was satisfied with knowing that the serum was not at all sweet. I recollect that it was *turbid*. When the patients took milk, oranges, and sugar, the quantity of the latter matter voided was greatly increased.

From DR. BEDDOES, of Bristol,

Bristol, 10th Jan. 1797.

I LAST night read your case of Diabetes with the most eager pleasure, and have ever since reflected on it with the utmost

most satisfaction. It is a pledge of the advance of medicine towards scientific principles. I am curious to know the progress of the case, and also of Mr. *Cruickshank's* ingenious researches. I had not been satisfied with any thing in Diabetes; but I think your experiments, and practice, have thrown a ray of light on this obscure subject.

I have been long looking out for diabetic patients, and your obliging communication will renew my diligence. One patient only I knew intimately—he has been thrice cured by the water here. I did not attend him, nor can I learn whether his urine was sweet. But it is certain he had thirst, emaciation, redness, voracious appetite, excessive discharge of urine (probably 20 pounds in the 24 hours). He has thrice visited this place in 12 years, and each time been recovered in a fortnight. No medical man attended him, and his country doctor is dead.

April 14th, 1797.

YOU ask my present opinion on consumption. Allow me generally to say, I have now no chemical theory of any one disease. I never *held* any such opinion. In different ways (at lectures, and in publications), I started conjectures to be compared with facts; and now I think all those conjectures are shewn to be erroneous by facts. I used to think my hypothesis on scurvy very probable, and I was confirmed in this idea by Dr. Trotter. But I at present think we were both mistaken. Good, however, has arisen from these speculations, as they have brought forward observations which otherwise apparently would never have been made, and some of these observations are useful in practice. When I publish my view of the medical treatment to be pursued in the pneumatic institution, I will unfold what I here say, and add my reasons.

From

From DR. CURRIE, of Liverpool.

Liverpool, Feb. 20th, 1797.

IN the course of my practice, I have met with a few cases of the Diabetes: chiefly in the Liverpool Infirmary. I have seen it stopped in its progress by opiates, cantharides, alum and bark: but after the saccharine impregnation of the urine, I never knew it cured. One case I took much pains with about four years ago: but my register, and notes were purloined by some of the pupils, and I never could recover them. I used the tepid bath in this case, with milk, and with broth; but never could discover that the patient gained any weight during immersion, though I weighed him with the utmost accuracy before and after. In a case where, in consequence of an obstruction of the pharynx, the patient died of hunger, after subsisting without swallowing upwards of thirty days, I had occasion to make the same remark. In the diabetic patient to which I allude, I weighed the ingesta,

gesta, and the egesta (as far as they are capable of being weighed), and I found that the patient changed a seventh part of his whole substance every twenty four hours!

You will be pleased to hear that we have at present an opportunity of putting your practice into trial in a case of Diabetes now in our Hospital. It is under the care of my worthy colleague Dr. Gerard, to whom I have communicated your notes. From him or me you shall hear the issue.

I agree with you in the expectations you form of the benefit to medicine from the new chemistry. I may mention the application of the nitric acid to the cure of lues, communicated by Mr. Scott of Bengal to Sir Joseph Banks. I have proved this practice in various instances, and can assure you of its extraordinary success. I give one drachm of the acid daily in a pint and a half, or two pints of water. The success of the nitric acid in this disease, has induced me to propose its trial in the yellow fever
of

of the West Indies (in which mercury seems to be the only remedy on which any dependance is placed) and I have written to Sir Joseph Banks to request his taking measures to bring this remedy under the notice of Government. In the meantime I have written to the Windward Islands, and Jamaica, on the subject.

18th March, 1797.

The case which I mentioned to you of Diabetes has been strictly attended to by my friend Dr. Gerard, who has noticed all the particulars you would wish in a regular journal, which will be transmitted to you when the issue is known.

We wish much to have a small quantity sent by the coach of your hepatifed ammonia, as we are doubtful whether we have succeeded in making it here, and we think the patient is in a state to be benefited by it.

There is no question about the anti-venereal effects of the nitrous acid. That which
I have

I have used has been *nitrous*, not nitric; for I had not the latter by me, and I found the former succeed. Whether it is equally efficacious with mercury in all cases, &c. must be left to more extensive experience.

From DR. TROTTER, Physician to his Majesty's Fleet.

The communications of Dr. Trotter, contain a further account of our second case of Diabetes, subsequent to the reproduction of the disease by the use of fruits, wine, &c.; and it will be perceived, a return to our plan of treatment again removed the disease; but from another indulgence in forbidden things, the disease returned. The consequences to the patient may be very readily apprehended.

Portsmouth, 27th Jan. 1797.

I BEG leave to thank you for Captain Meredith's case, which has afforded me a fund of information and entertainment.

I think

I think with you on the subject of pneumatic medicine, and your able induction of its doctrine, in the masterly treatment of Diabetes, will give a vast support to the truths which it embraces.

3d April, 1797.

IT would have given me much pleasure to have returned you satisfactory answers to your queries concerning the urine of scorbutics; but such is the healthy condition of this fleet, from the effectual means of prevention, that scurvy has scarcely appeared for some months.

I have many objections to offer against former experiments on this subject, and I think the whole unsatisfactory. Where trials are to be made, they ought to be done in the advanced stage of the disease, and when the patient has for a day or two abstained from salted meat, and before recent vegetables are touched. The urine in scurvy is small in quantity, dark coloured, and may be called highly animalised; but its
chemical

chemical properties have never been exactly ascertained.

In scurvy there is little thirst. The appetite is generally good, even for salted meat; but fresh vegetables are always highly grateful.

Emaciation succeeds the use of the acid fruits when given in large quantities in inveterate cases, and the appetite declines. I have not seen the exhibition continued longer than a cure was necessary. The urine becomes pale, and larger in quantity than the liquids taken in.

In proportion to the quantity of lemon juice taken in, sometimes in a day or two, the blood regains its florid colour: I have known this colour, during the cure, brighter than in the natural state.

Nitre dissolved in vinegar, in 152 cases, by two able navy surgeons, did not produce any favourable appearances in scurvy.

Three

Three cafes of inveterate fyphilis, have been cured here by nitric acid, as described by Mr. Scott in Dr. Beddoes last work.

I have vifited your patient the GENERAL thrice. As foon as he returned to your plan of diet, the urine became natural in quality, and decreased from eight to three pints a day. Whether this relief fhould be permanent or not, it is decifive testimony of the efficacy of your practice, more efpecially when we confider the trial is in a cafe of fo many years ftanding.

I have never known a cafe of Diabetes among feamen, nor have any of my naval acquaintances.

You have thus added another triumph to the pneumatic phyficians, which blends with it relief to human mifery hitherto incurable.

P. S. Mr. Hatcher fends his compliments; he has juft feen the GENERAL, whose urine
the

the last 24 hours did not exceed one pint and a half.

16th April, 1797.

SINCE my last I think the GENERAL has gained some strength, and looks better. He has diligently persevered in the animal diet, and taken as much in a venison state as he could obtain. This being the case, and all kinds of wine, and malt liquors being left off, we cannot expect that relish for food which we observe in other conditions. Of his appetite, however, there is no reason to complain; his food certainly nourishes. His pulse in the right arm is about 84, of due strength; but at the other wrist it has always been different, probably you observed this at Woolwich. A slight clamminess is felt in the mouth; but no thirst. He takes an opiate and sleeps well; and gets out of doors in this fine weather. His cough is almost gone, and he expectorates with ease. His feet are now comfortably warm, and I think the skin begins to do its office; the scurf has fallen off. To-
morrow

morrow he will begin to take the following chalybeate pills.

R *Rubig. Ferri* ʒff.
Magnesia ust. gr. xx
Pulv. Zinzib. gr. x
Ol. Olivar. fi. mass. dividenda
in pil. No. xij—Sum. ij. ter die.

The GENERAL drinks a small tumbler of lime water three times a day; but the *hydrogeno-sulphurated ammonia* rather palled the stomach, and so he left it off. He also drinks a little hollands, or brandy and water, being spirits free from saccharine matter.

Things being in this train in a case of such long standing, the whole account is very flattering: suffice it to say, the patient thinks himself in paradise, compared with his former sufferings.

28th April, 1797.

IN my last I informed you that I had ordered a pill of the *Rubigo Ferri* for

the GENERAL. There appeared strong symptoms of a different disposition of body being induced, from that which attended the discharge of the saccharine urine. The fetor of the urine had become uncommonly offensive, a very short time after voiding it. There was unusual languor and anxiety for the vinous stimulus, I therefore thought it fair to try the oxyd of iron.

The urine, however, continues much the same in quantity, and quality; but still I think for a few days our patient has been losing ground; and though the appetite is not so deficient, the emaciation seems to increase. He has uniformly hankered after the forbidden cup, and though he is satisfied with the idea, that indulgence must be fatal, it is in vain to resist his importunities. For two days past he has taken a glass and a half-ful of Madeira wine—the urine has increased some ounces beyond the usual quantity.

I am

I am sorry that the fleet being ordered to sea will prevent me from detailing the future occurrences of this singular case. I have urged the plan to be continued, but doubt of its being carefully adhered to.

DR. TROTTER'S *doubts have, we are sorry to say, been fully realised, as the following extract of a letter shews.*

Portsmouth, 7th May, 1797.

THE GENERAL is gone to Portchester to try the effects of a change of situation; but it will be of no avail.

Since Dr. Trotter left him, he has returned to his favourite plan, and eats of every thing, as apple-pudding, tea with sugar, &c. and drinks wine.

His urine has increased, it has become pale, and sweetish; his thirst is returned; in short he has again relapsed into his disease. How much this is to be regretted!

We sincerely lament the apparent issue of this our second case of Diabetes Mellitus, especially as we have every reason to think it might have terminated more favourably. With extreme pleasure we communicate the following letter from Captain Meredith, as it shews the continuation of a full re-establishment of health; even under unfavourable circumstances in diet and exercise. We regret his return to wine, as it annihilates our prospects of the prevention of gout. We have only to hope, that he will be enough guarded, so as to obviate another attack of Diabetes.

From CAPTAIN MEREDITH.

Ireland, Youghall, 10 May, 1797.

I DID not experience the smallest fatigue by my journey from Woolwich to Plymouth, though I travelled two days and a night in the coach. I remained a month at Plymouth, where my duty was moderate, but where the civilities of my friends led me to frequent indulgencies at the table,
and

and was tempted to drink wine, though I never exceeded a pint of port. On the 20th April, I embarked in perfect health, and proceeded by sea to Ireland. I remained on board until the 8th instant. I was sick at sea, and frequently vomited a fourish matter. I disembarked on the 8th, in good health, and we marched eight miles, and next day seventeen miles; we have still 130 miles to go, and I shall walk every inch of the ground; for so far as we have gone, I have not been sensible of more uneasiness than what I usually experienced before my illness, after such a march. My appetite is good, but not keen; I have no thirst; sleep well; and feel every way in health. My urine never exceeds a quart in twenty four hours, its colour, smell, and taste are perfectly urinous. This morning I weighed $14\frac{1}{2}$ stone.

From MR. MARCET, at present of EDINBURGH.

Mr. Marcet is a zealous student in physic, and a candidate for a medical degree; the subject of his Thesis, Diabetes. Our mutual friend Dr. Woollcombe, conveyed to him an account of Captain Meredith's Case previous to the dispersion of the notes on it. Mr. Marcet announced it at Edinburgh, and at this time there was one patient with the disease in the Infirmary under the care of DR. HOPE, who adopted our treatment. An account of this case, by permission of DR. HOPE, Mr. Marcet has transmitted, as also an opinion of DR. RUTHERFORD'S with regard to the operation of the lungs in this disease. Mr. Marcet is entitled to our warmest thanks for the interest he has taken in the support of our ideas of the disease; an interest founded on his own anxiety for the promotion of medical science, as personally we are unacquainted. We hope he will permit us, in this manner, to make our acknowledgments.

Edinburgh,

Edinburgh, 14th April, 1797.

DR. RUTHERFORD has repeatedly expressed his regret, in never having had an opportunity of examining a diabetic body after death. He is persuaded that the changes have not been looked for where they might have been found. He believes that the lacteal absorbents, and the lymphatics of the lungs, would be found enlarged, and perhaps the texture of the lungs altered. The suppositions with regard to the lungs is founded on his notion, that the difference in the quantity of urine, beyond the fluids and even solids taken in during certain states of the Diabetes Mellitus, is to be accounted for, from the extraordinary production of water on the surface of this organ, which he supposes to be re-absorbed; and not from any absorption from the surface of the body by the skin.

4th May, 1797.

I SEND you an extract of the case of Walker, with Dr. Hope's permission, and you may do with it whatever you please.

The effects of the animal diet on the quantity and quality of the urine are perfectly evident, though the case could not be carried to an absolute termination, from the impatience and instability of the patient. In Hospitals, where patients see three or four times in the day every person about them eating vegetables, a trial of an entire diet of animal food can hardly be expected.

ABSTRACT of a CASE of DIABETES MELLITUS, in the ROYAL INFIRMARY, at EDINBURGH.

JAMES WALKER, a field-labourer, was admitted by DR. HOPE into the CLINICAL WARD, with a confirmed DIABETES, on the 1st November, 1796.

“ His appetite is voracious, and his thirst so urgent, as to make him desire from ten to sixteen quarts in twenty four hours. His urine is præternaturally copious, and he has a frequent inclination to pass it. It is limpid,

pid, of a light green colour, and having a slight sweet taste. He is much emaciated; and his feet and ankles swell towards evening. Pulse 96. Skin parched and rough. Body costive.

He recollects, on a frosty morning in December 1795, having slept some hours in an open cart. On the May following the above symptoms appeared, and have increased ever since. He has several times been the object of medical treatment; but without permanent relief.

2nd.

Milk daily, and as much drink as he chooses.

3d.

Urine 22 pounds. Ingesta 20 pounds.

4th.

Urine 13 pounds. Ingesta 17 pounds. The urine becomes turbid on the addition of lime water; when evaporated it affords an
extract

extract like molasses, which is sweet to the taste. This matter mixed with lime, exhales the odour of ammonia.

From this day to the 29th December, he remained nearly in the same state, the quantity of urine fluctuating between 12 and 18 pounds in 24 hours. During this interval he took some ferrum vitriolatum in the form of pills; used the cold shower bath, and took occasionally some emetics and laxatives;—the stomach being at times deranged, and the costiveness very obstinate. Under this treatment he seemed to get a little stronger, but without any important change in the general symptoms of the disease. It was agreed to try the effects of animal food, as lately given with success by Dr. Rollo at Woolwich, an account of which was transmitted by Dr. Woollcombe to Mr. Marcet.

December 29th.

DR. HOPE gave the following report. Ingesta 17 pounds; urine 13 pounds. Five pounds

pounds of this urine have afforded $5\frac{1}{2}$ ounces of a thick saccharine extract.

He has had for a month, an unpleasant sense of burning heat in the soles of his feet during the night.

He is directed to abstain from vegetable food in every shape.

To have two eggs for breakfast. Boiled meat and stakes alternately for dinner. Eggs, or cheese for supper. For drink eight pounds of weak beef tea, and two pounds of weak peppermint water.

30th.

Solid ingesta about two pounds; drink ten pounds; urine nine pounds.

Let him have two pounds of flesh meat for dinner; half a pound of cheese for supper, and three eggs for breakfast—drink as before.

31st.

31st.

Ingesta (drink, and food) ten pounds; urine five pounds, which exhales an unusually strong urinous smell. Had a partial sweat over the trunk and head in the night. Mouth moist; no sourness of stomach.

January 1st, 1797.

Solid ingesta as usual; drink nine pounds; urine eight pounds, more limpid than yesterday, and has a sharp acid odour. The breath has the same smell. The colour of the urine, however, is not changed, on addition of syrup of violets.

There is slight headach and sickness. The tongue appears much cleaner than usual. Has had a stool. Contin. diæta animalis.

2nd.

Solid ingesta the same; drink eight pounds; urine six pounds. No sickness or headach; tongue clear; the burning heat
of

of the feet as before. One loose stool.
Contin.

3d.

Drink 10 pounds; urine $7\frac{1}{2}$ pounds, of a deeper yellow than formerly; tongue natural. Contin.

4th.

Drink ten pounds; urine seven pounds.
Contin.

5th.

Drink nine pounds; urine $6\frac{1}{2}$ pounds, more yellow, with a peculiar (not urinous) odour. Contin.

6th.

No report, as last night he went out, and returned to the ward drunk, and his urine could not be measured.

7th.

Drink $7\frac{1}{2}$ pounds; urine 6 pounds, and it has the same peculiar smell.

8th.

8th.

Drink $7\frac{1}{2}$ pounds; urine 6 pounds; body costive. Contin. diæta animalis. Sum: statim pil. rhœi. comp. ̄1 et iterum cras mane.

9th.

Drink six pounds; urine four pounds; a copious stool this morning; strength not changed since he began the animal food. Contin. et habeat aq. menth. piper. lbiv pro potu. minuatur quantitas decocti carnis ad lbiv.

10th.

Solid food as formerly; drink seven pounds; urine five pounds; no stool. Sum: statim pil. rhœi comp. ̄1.

11th.

Drink six pounds; urine four pounds; three stools this morning. Contin. diæta animalis.

12th.

12th.

Drink six pounds; urine four pounds; two stools—he thinks his strength is somewhat impaired within these two or three days. Adeat cras mane balneum frigidum.

13th.

Drink seven pounds; urine five pounds; bore the bath well. Contin.

14th.

Drink eight pounds; urine six pounds. Contin.

15th.

Drink eight pounds; urine six pounds.

16th.

Solid food as before; drink eight pounds; urine six pounds, is of a light straw colour, and with the peculiar smell it has had for sometime.

The

The urine of the 14th being evaporated, afforded matter of considerable consistence, with a strong saline, but scarcely perceptible sweetish taste.

17th.

Drink eight pounds; urine six pounds; thinks he is weaker.

18th.

Drink eight pounds; urine $5\frac{1}{2}$ pounds. Contin.

19th and 20th.

Drink each day eight pounds; urine six pounds. Contin.

21st January.

Drink seven pounds; urine five pounds. He has left the Infirmary to-day by his own desire to return to the country."

4th May.

Dr. Hope told me a few days ago, that he had just then received a letter from Walker, who

who says that since he left the Infirmary he has become weaker; and there is some expectation of his returning soon to the Hospital to resume his treatment.

But it is doubtful whether when he was in the Clinical Ward he observed strictly the diet prescribed. At least he was accustomed to go about freely; and the nurse told me repeatedly, that she suspected he did not entirely abstain from indulgencies of eating and drinking out of the house.

From DR. CLEGHORN, Lecturer in Chemistry, and one of the Physicians to the Infirmary at Glasgow.

Glasgow, May 1, 1797.

SOME months ago I was honoured with your excellent pamphlet on Diabetes. At that moment I had two diabetic patients in the Royal Infirmary of this place, and I began instantly to treat them on your plan. They are both cured; and I have delayed so long to thank you for your po-

liteness, in the hope that I might be able to inform you of this new success.

CASE I.

JOHN M'LEAN, a Porter, *Æt.* 38.

December 9th, 1769, 6

FOUR months ago had a fever, after which, while yet weak, he began to work hard. Soon afterwards he observed his urine more abundant than usual, amounting daily to 24 pounds, or more.

Though his appetite be voracious, he becomes leaner from day to day, and is so weak that he cannot walk a few steps without panting. His mouth is parched, tongue red, thirst extreme, belly costive. Pulse 84.

A few days ago he had a slight cough, with pain in the right breast; but these complaints have abated.

The

The feelings about the stomach when he thinks himself hungry, differ from those he formerly had; they are more uneasy, and the uneasiness is less removed by taking food. He is often troubled with flatulence; and complains constantly of weakness or pain in the back and loins. Has used no medicines.

On examining the urine it was found limpid and very sweet. A pound of it yielded by evaporation more than an ounce of a thick brown extract, like treacle in appearance and taste.

December 10th.

He was ordered an ounce of castor oil, and the same quantity of compound tincture of fenna. His loins were directed to be rubbed evening and morning with anodyne balsam.

Equal parts of kino and rust of iron, formed into pills of five grains, with extract of chamomile, were to be given, two for a dose thrice a day.

D 2

His

His drink and urine were ordered to be measured daily, and the following reports, abridged from the Infirmary Register, shew the result.

11th and 12th.

One stool; urine 28 pounds; has drank about 14 pounds, besides the usual allowance of beer and broth.

13th.

Urine 27 pounds; drink 8 pounds; has had double allowance of food. Belly natural. To take 8 pills daily.

14th.

Feels himself a little easier and stronger. To drink a pint of alum whey daily at different times. To have the oil and tincture of fenna when costive.

In this course he persevered till the 17th of January, 1797. The quantity of his urine diminished daily. On the 16th December it amounted only to 20 pounds;
next

next day to 18, next to 15, next to 13; but on the 20th it rose to 16 pounds, without any cause that could be pointed out, unless the increase proceeded from costiveness. Next day it fell again to 13; on the 24th it rose to 15: after which it varied from 13 to $7\frac{1}{2}$ pounds. This was the quantity voided on the 17th January. It never fell below $7\frac{1}{2}$; most commonly it was between 8 and 10 pounds. Meantime the patient considered himself as cured. He slept comfortably, sometimes not rising during the night, never oftener than once. The feelings about his stomach were more agreeable; his countenance looked less ghastly, and he felt his strength returning apace. On examining his urine, however, I had the mortification to find it nearly as sweet as ever. I considered the cure therefore as very incomplete, and I expected that the urine would soon begin to increase, as it had uniformly done in every case that I have hitherto seen, and I have seen a considerable number.

While under this painful apprehension I received Dr. Rollo's pamphlet, which seemed to me to contain a more distinct theory, and a more reasonable practice than I had ever met with before.

As I could not immediately procure the hepatifed ammonia, I ordered him to use for drink 4 pounds of water containing a drachm of *lixiva sulphurata*. The alum whey to be continued.

January 18th.

Urine 8 pounds, with very little sweetness. Thirst increased, as he thinks, by the solution. The solution was omitted. Four drops of hepatifed ammonia were added to a pound of water. Of this he was directed to use from 2 to 6 pounds daily, (for the sake of brevity I shall afterwards call this the ammoniated water.)

19th.

Has taken about 4 drops of the amm. hep. Remarkably sleepy. Urine 7 pounds.

Omit

Omit the alum whey ; continue the ammoniated water.

20th.

Urine 8 pounds, sweet. Has used vegetables and milk freely. Took 3 pounds of the ammoniated water.

The necessity of abstaining from vegetables was explained, and enforced, and he was ordered to continue the water.

21st and 22d.

He took only 2 pounds of the ammoniated water. Urine 8 pounds.

Two drops were added, making 6 to each pound of water.

23d.

Urine about 7 pounds, less saccharine ; has drank 4 pounds of the water.

From this date to the 30th the urine was daily 7 or 8 pounds, and it was less sweet,

D 4

though

though still perceptibly so. On the 30th, 7 drops were mixed with each pound of water, and given as formerly.

From the 1st February the patient came under the care of Dr. Richard Millar, who resolved to go on with the same experiment. On the 3d the urine fell to $6\frac{1}{2}$, but was still sweet.

February 6th.

Ammoniated water 4 pounds; urine 7 pounds, still sweetish.

Besides the medicines, he was desired to drink a pound of lime water daily.

7th.

Ammoniated water 2 pounds; lime water 1 pound; a very good night; no thirst; urine $5\frac{1}{2}$ pounds, sweet.

8th.

Ammoniated water 3 pounds; no lime water; urine 6 pounds, sweet. Gripping and tenesmus. The oil to be repeated.

9th.

9th.

Urine 7 pounds, still sweet; ammoniated water 3 pounds; no head-ach; but there is a little pain in the belly.

10th.

Ammoniated water 3 pounds; urine nearly 7 pounds, not so sweet.

11th.

Ammoniated water 2 pounds; lime water 1 pound; urine $5\frac{1}{2}$ pounds, less sweet.

12th.

Ammoniated water 2 pounds; no lime water; urine 6 pounds.

13th.

Ammoniated water 2 pounds; urine 7 pounds, still sweet.

14th.

Ammoniated water 2 pounds; lime water 1 pound; urine above 6 pounds, not so sweet.

15th.

15th.

Ammoniated water 3 pounds; urine $6\frac{1}{2}$ pounds, less sweet. Eight drops of the hepatised ammonia to each pound of water.

16th.

Ammoniated water 3 pounds; no perceptible effect from the additional drop; urine about 6 pounds, still sweet.

17th, 18th and 19th.

Ammoniated water 3 pounds; urine daily $5\frac{1}{2}$ or 6 pounds, less sweet.

He was directed to take 5 drops among a little water every second hour, and to swallow them immediately after mixture.

From the 19th to the 23d, the urine was from 5 to 6 pounds, much less sweet.

24th.

Several loose stools of a natural smell, which were checked by a grain of opium in the morning; urine about 3 pounds. The
 medicine

medicine was omitted for this day, and the opium ordered to be repeated, if necessary.

25th.

Looseness returned with violent griping, and was relieved by a grain of opium and by fomenting the belly. Slept well; urine 3 pounds, of a natural smell, and hardly sweet.

The ammonia hepatisata and lime water were repeated; the opium omitted.

26th.

Purging returned. Took a grain of opium at 12 o'clock last night, since which he has had 2 loose stools. Urine $3\frac{1}{2}$ pounds, natural. Omit the medicines, repeat the opium, if necessary.

27th and 28th.

Urine 4 pounds, nearly natural. Medicines to be repeated.

March 1st—3d.

Urine 5 or $5\frac{1}{2}$ pounds, nearly natural.

4th.

4th.

Urine 5 pounds, not so natural.

The ammonia hepaticata never produced head-ach; it excited merely a sense of heat for a few minutes in the region of the stomach extending to the right side. Desired to take 50 drops in the day.

5th and 6th.

Urine $5\frac{1}{2}$ pounds, not so natural.

7th.

Urine 5 pounds, neither of a natural smell, nor is it very sweet. Directed to take 60 drops daily.

8th and 9th.

Took 66 drops. Urine 5 pounds, less natural.

10th.

This morning took 15 drops at once, with no other effect than a sense of heat in the stomach. Urine 6 pounds, less natural in taste and smell.

Finding

Finding himself strong enough, he asked leave to go home (to the suburbs of Glasgow) to manage some business which required his presence. He promised to abstain from vegetables, to take his drops, and to return if he became worse. I have seen him several times at work, and this day, being the 10th of May, I received from his own mouth the following account.

In 24 hours his urine is about 5 pounds. He tastes it very often, and it has never been sweet, but after getting little animal food for days together (which has happened more than once) it has sometimes been of a sour smell. Formerly he could carry on a wheelbarrow three hundred weight; at present he carries one hundred weight, and he can walk as well as ever. Two days ago he went express to Paisley, received an answer to the letter he carried, and returned to Glasgow in three hours and a half (about $14\frac{1}{2}$ miles.) Occasionally he has taken 60 drops a day of the hepatised ammonia, which he likes, because it gives him an agreeable

agreeable feeling of warmth, and never produces any inconvenience. For two weeks, however, he has had none, since which his urine has not increased in quantity, has not been sweet, and when evaporated lately by himself, and by a neighbour of his, whose curiosity he has excited, it yielded no sugar. The residuum could not be distinguished from that of an equal quantity of healthful urine, evaporated at the same time with great care and sagacity.

The only kind of animal food that he can procure in sufficient quantity is blood, which he mixes with fat and a little meal. Even this homely fare he finds it difficult at present to procure regularly.

He was always lean, and is now rather more so than before his fever; but though he works very hard, he thinks himself stronger, and more fleshy than when he left the Infirmary. He sleeps well; is regular in his belly, and free from every complaint, except occasional pains about the muscles of
his

his breast and arms, arising obviously from the intense colds to which he has been very much exposed, as he plies near the river from morning to night. He is the father of several children, but since he has been seized with Diabetes—Coitus nullus. Erigitum nunquam : ne quidem semel rigescit.

About a month before he left the Infirmary, the other patient gave the same account of himself.

CASE II.

JOHN ROGER, *Æt.* 40, a *Shoemaker*.

January 10th, 1797.

FOR two months his urine has been profuse, amounting daily to 20 pounds or more. It is limpid and sweet, yielding by evaporation an ounce of thick sweet matter, like treacle, from every pound.

He

He is thin and weak; habitually thirsty; for some days past has felt pain between his shoulders, and for a week his legs have been œdematous. Appetite keen; pulse and belly natural.

Knows nothing to which he can attribute his complaint. Has used bitters, and other medicines, without material benefit.

The astringent pills, and alum whey, were ordered for him, as for M^rLean.

12th.

Urine 36 pounds.

13th.

Urine 30 pounds.

14th.

Urine 23 pounds.

15th.

Urine 20½ pounds.

16th.

16th.

Urine $21\frac{1}{2}$ pounds; thirst excessive; sleeps ill; pulse full and hard.

The medicines were omitted. He was directed to drink a solution of lixiva fulphurata, one drachm to four pounds of water, and to use animal food.

He got castor oil, with tincture of fenna, and at bed-time had a draught, with 25 drops laudanum, and 30 of antimonial wine.

17th.

Rested well; urine 21 pounds; likes the drink.

18th.

Three stools; was sick, and vomited after supper; thirsty; urine 9 pounds, still sweet.

The solution was omitted, and the draught repeated.

19th.

Urine 14 pounds, very sweet. No stool. The draught was omitted, and 4 drops of the hepatifed ammonia were given in a pound of water as for M'Lean.

Of this ammoniated water, he drank daily from 2 to 5 pounds, using castor oil when necessary.

On the 24th his urine amounted to 8 pounds only, and was almost natural. Next day it was 14 pounds, and varied from 10 to 13 pounds, being sometimes more, sometimes less sweet, till January 31st, when my attendance at the Hospital having ceased, Dr. Millar took charge of this patient also. The following reports will shew the effects of the medicine, &c.

February 5th.

Urine 13 pounds, still sweetish; 2 pounds of ammoniated water. Has head-ach and giddiness, more or less severe, according to
the

the quantity of ammoniated water that he drinks.

6th.

Ammoniated water 3 pounds; urine 14 pounds, still sweetish.

To drink a pound of lime-water daily.

7th.

From the 22d to the 30th of January, each pound of water contained 5 drops of amm. hep. from the 30th of January to this day, each contained 6 drops.

Ammoniated water 2 pounds; urine 12 pounds, not so sweet; thirst abated by the lime-water. To-day weak; appetite bad; skin warm; pulse natural; no stool since the 5th to have the castor oil immediately.

8th.

Ammoniated water 3 pounds; urine $7\frac{1}{2}$ pounds, still sweet; head confused and uneasy.

In this state he continued until the 11th.

Ammoniated water $1\frac{1}{2}$ pound; lime-water 1 pound; urine $8\frac{1}{2}$ pounds, more like natural urine in taste, smell, and appearance.

12th.

Ammoniated water 2 pounds; no lime-water; urine 9 pounds, sweeter. For some days has been squeamish, with little appetite, and a tendency to diarrhoea. Together with the usual medicines he was ordered to take thrice a day, two ounces of infusion of quassi, and a little tincture of rhubarb.

13th.

Ammoniated water 2 pounds; urine 9 pounds; appetite better.

16th.

Squeamish in the morning. Ammoniated water $3\frac{1}{2}$ pounds; urine $9\frac{1}{2}$ pounds, not so sweet. To have 8 drops of the hepatifed ammonia to each pound of water.

17th,

17th, 18th and 19th.

Took daily of the ammoniated water from 2 to 3 pounds; urine 8 or 9 pounds, less sweet. Five drops of the hepatifed ammonia, mixed with a little water, were ordered every two hours. The urine never fell below 8 pounds a-day; the sweetness diminished, but never ceased entirely.

March 5th.

He was ordered to take 50 drops of the hepatifed ammonia daily. Urine $8\frac{1}{2}$ pounds.

The next morning he was seized with griping and purging. The medicine was omitted, and he was directed to use an astringent with opium, if the purging or pain should become excessive: the astringent, however, was not needed.

13th.

Ammonia hepatifata 60 drops; drink 4 pounds; urine 9 pounds.

In order to ascertain the effect of volatile alkali without hepatic gas, the former medicine was omitted, and 20 drops of the pure water of ammonia were ordered to be taken thrice a day in beef tea. It was gradually increased to 120 drops. The urine continued from 9 to $9\frac{1}{2}$ pounds, never entirely free from sugar, but more so than formerly.

25th.

Drink $2\frac{1}{2}$ pounds. Aq. ammon. puræ gt. 120. Frequent vomiting. Urine rather increased, very sweet, and of a morbid smell.

The medicines were omitted, and he was directed to take half a grain of opium immediately, and the same quantity when the sickness or vomiting returned, until he had taken 2 grains.

26th.

The sickness abated without opium; urine $9\frac{1}{2}$ pounds; medicines still omitted. For
some

some days he used no medicine, except a quantity of lime-water for drink; and there was no change in the urine.

30th.

Drink $3\frac{1}{2}$ pounds; urine 8 pounds; a feeling of weakness, and lassitude in the region of the kidneys—a small blister was applied over each kidney.

31st.

Sweated much during the night. Says he is less troubled than usual with *enuresis*. Pulse about 115. Drink 4 pounds; urine 9 pounds, of unnatural smell, but not sweet.

April 3d.

Issues by means of caustic were ordered to be formed over each kidney. He was directed to drink sparingly, and chiefly lime-water, and his diet was regulated with more care. For it was found, that all along he had used a great proportion of vegetables for food, and had been guilty of irregularity also in drinking. He was ordered to get no

E 4

vegetables,

vegetables; however he was allowed one roll a day; the rest of his diet consisted of soup, blood-puddings, and butcher meat roasted, or boiled as he chose.

5th.

Drink 5 pounds (3 of which lime-water); urine $8\frac{1}{2}$ pounds, free from sugar, of a bitterish taste, but unnatural smell. Had violent head-ach last night (from the issues he thinks), but is easy to-day.

7th.

This morning had nausea, heart-burn, and head-ach, which are now gone. Drink 4 pounds ($1\frac{1}{2}$ of which lime-water); urine hardly 8 pounds, almost natural. He was desired to take a scruple of ipecacuan, and after the vomiting a grain of opium.

8th.

What he vomited yesterday had a sweet taste, belly bound; was giddy this morning; pulse 100; drink about 8 pounds (no lime water); urine 6 pounds, of more natural

tural smell, but less salt than yesterday. To have immediately 15 grains of jalap, with 8 of cinnamon.

9th and 10th.

The jalap did not move him, and he had only one costive stool after an ounce of castor oil. Thirst much abated; urine from 5 to 6 pounds a day, nearly natural. Ordered an ounce of castor oil, and one of tincture of jalap; one half to be taken instantly, and the other after three hours.

11th.

Three stools. Feels himself stronger, and in better spirits. Pulse 80. Drink 3 pounds (no lime-water); urine $6\frac{1}{2}$ pounds, nearly natural.

12th, 13th and 14th.

Thirst abated; urine from 6 to 7 pounds, of natural taste and smell, when evaporated it yielded no sugar. Thus he continued free from thirst, though his mouth was parched and dry during the night; he gained strength
and

and flesh; his urine never exceeded $6\frac{1}{2}$ pounds, and seemed perfectly natural till the

30th.

When it again became sweet; having been strictly questioned, he confessed that he drank a quantity of small beer yesterday afternoon, and we have found that he has committed several other irregularities.

May 1st.

Urine again natural. This day he left the Infirmary, having promised to persist in the use of animal food, and to return if he should relapse. He is gone to Irvine, about 30 miles distant, and nothing has been heard of him since.

These patients were examined daily in the Royal Infirmary of Glasgow, and the reports were dictated before the Students, of whom many examined very scrupulously the changes of the urine, and all other circumstances respecting a disease to which their attention was strongly attracted both by the
novelty

novelty of the treatment, and their having seen a case which ended fatally not long ago. In copying the reports I have omitted every circumstance that seemed unessential, and I have abridged the language so far as I thought consistent with perspicuity. I have dropped the Latin form of prescribing, though it gave me some trouble to express the prescriptions shortly in English (and many of them look awkward enough), because I was desirous of making the cases intelligible to those who do not practise physic, as I hope this very interesting inquiry will soon excite the attention of the public.

After stripping the cases of every necessary detail, I shall not load them with many additional remarks. *They seem to me very strong confirmations of your doctrine*, in every point, except what regards the hepatifed ammonia. At first perhaps it was not properly prepared, after a little while, however, it was; and it seemed to have very little power over the urine. In one patient (but he was querulous and fanciful), it seemed to affect the head;

in

in the other, it seemed to act like common volatile alkali, by producing an agreeable sensation of warmth in the stomach. Our patients, indeed, were in many respects different from yours; and it is very common to find the operation of medicines strangely modified by the varying habits and susceptibilities of patients.

The alum whey (formed by boiling a drachm of alum in a pint of milk) seemed to produce considerable effect, at least in reducing the quantity of urine. The castor oil appears to be the most useful laxative; but no medicine was of any permanent advantage without the *aid of animal food*. This is more powerful than any medicine, and very probably this alone, properly managed, may be found sufficient for the cure in many cases.

Whether the cure in our two patients be complete or not, is a question which I shall not labour to decide by argument. For my own part I think they are cured, though
they

they may never perhaps be so strong as they were, and both may probably relapse; because, being poor, they are exposed to the double risk of severe labour, and improper food. Besides, on many other occasions, a tendency to relapse is not considered as a proof of imperfect cure. Is an intermittent not cured, because one who has had it this spring, will be found very subject to it next season, if he shall be exposed to the cause which commonly produces it?

Glasgow, May 22, 1797.

I COULD not see the gentleman who prepared our hepatifed ammonia till this day, and from his account I imagine your conjecture is well founded. Ours was very different from your preparation. Some of the hepatic gas was procured by pouring marine acid on sulphur and iron filings merely rubbed together: but the greater part was obtained from the iron and sulphur melted together in a crucible and then powdered. In both cases, the smell and taste of
the

the volatile alkali continued very strong. I am satisfied, therefore, that no inference respecting the real effect or activity of this preparation can be drawn from our experiments.

The diabetic patient who died, was not opened. She died at home, and was buried very soon, and secretly, in order to prevent all application.

Since the cases were transmitted to you, *John Roger* has returned from *Irvine*. He continues well, but has a greater appetite than usual. His urine is salt, and in a natural quantity. He is able to work.

*From *****.*

MR. ASHLEY COOPER, at ST. THOMAS'S HOSPITAL, having mentioned in one of his anatomical demonstrations our views of the nature of diabetic disease, a young gentleman present, who had a relation in the country with
the

the complaint, expressed a wish to be more particularly informed, and was referred to us. He gave a concise account of the Patient; and it was suggested, as the Patient was so far advanced in life, an immediate application of our treatment to its whole extent might not be advisable, the gradual adoption of it was therefore recommended. As the Patient, however, had been a Physician of long practice, though now retired, and being immediately under the charge of a respectable Physician in extensive business, we requested our opinion generally might be conveyed along with the printed notes of Captain Meredith's case. This was on the 19th March, 1797. The following account, written by the Patient himself, we received on the 18th May, being only a period of two months.

Guy's Hospital, 18th May, 1797.

SIR,

THE inclosed account is drawn up by my friend the patient himself. I think it incumbent on me to return my best thanks for your kind and ready advice, from
which

which the patient has derived so much advantage.

I am, Sir,

yours, &c.

G. B.

DR. ROLLO may make what use he pleases of the under described case, provided he does not insert the name of the Patient, or that of his Physician.

A gentleman far advanced in life, being now in his 77th year, and during greatest part of that time in pretty uniform good health, except some attacks of Erysipelas about mid-age, and latterly a chronic rheumatism in the loins, occasioning more of stiffness than pain. He was accustomed to live after the common mode of sober persons, or if prone to any excess, it was chiefly in the use of sugar. He began about two years ago to feel a great increase of general debility, to which was soon adjoined an unusual frequency of discharge by the bladder, amounting on the whole to rather more than

than one third of the liquor taken in, and it was voided with a forcing kind of pain, both at the commencement and close of the emission; made mostly in small quantities at a time. These calls became soon so multiplied in the night as greatly to disturb natural rest; and the mouth and fauces grew so dry as to oblige the patient to keep small pebbles rolling continually in the mouth during the day time. The inspissation of the saliva was such as to make it difficult to spit out, unless previously diluted. The hands shook to such a degree that rendered it dangerous to shave, and hardly possible to write legibly, while the lower limbs felt as if scarce able to support the trunk of the body; the feet and ankles swelled considerably; the thirst was intense, but there was very little shew of fever by the pulse.

Under these circumstances the opinion of an eminent Physician in the neighbourhood was asked, who recommended lime-water, earth of alum, afterwards pills of catechu, alum, and a small portion of vitriolated zinc.

By these remedies the forcing at the neck of the bladder was a good deal relieved; but the very distressing dryness of the mouth and fauces still continued, and was by nothing so much soled, as by moistening with milk and water. The urine remained, as it had always been, well coloured, frothy upon first emission, and favouring strongly of that sweetness, to scent and taste, characteristic of diabetic urine.

Upon receiving from a young friend, pupil at the Hospitals in Southwark, Dr. Rollo's notes on a case of this sort, the Patient and his Physician agreed to avail themselves of his plan of treatment, with some accommodation to the circumstances of the individual, and they have found reason to be satisfied with the adoption of it.

Vegetable articles of diet had been long discarded; and the use of pure sugar, since the excellent hints in that communication, had been entirely laid aside. Rancid fats and putrescent flesh could not be admitted

even

even in idea, without inducing nausea: instead of these were employed fresh mutton, animal gluten, mucilage, &c. At breakfast he takes milk, with some cocoa, or chocolate; for supper, calves feet jelly with milk, and sometimes an addition of sweet almonds. A moderate allowance of wine has been continued, as indispensibly necessary for support; but the least acid foreign wines have been used, and a gradual reduction is making in this hitherto necessary indulgence. Of medicines, the saturated solution of soda, and Schweppe's soda water, have been only employed: from the last there is every reason to believe a share of the amendment may be attributed. *See Dr. Falconer's letter to us, where he points out the mephitic alkaline water as likely to be of advantage in this disease.*

The urine does not now considerably exceed the liquid taken in. In the day time it is voided frequently, but without pain; the night calls are diminished to one, very rarely two occur. Its colour is good, and

its sweetness can hardly be said to be perceptible. The excessive dryness of the mouth and fauces, that depraved the taste for any aliment, particularly bread, and in consequence impaired the appetite, is nearly removed. The feet and ankles swell a little at times, which may be in some measure owing to the large proportion of the *υυχθημερον*, during which, though the days are so long, yet the patient is unrecumbent sixteen or seventeen hours at least.

With this hasty sketch you will please present my best compliments and thanks to Dr. Rollo.

From DR. GERARD, Liverpool.

*The following case is that mentioned in Dr. Currie's letter to us, and we communicate it with the greatest pleasure to the public, as being drawn up with the utmost accuracy, and containing details of procedure of the utmost importance towards perfecting our views of the
nature*

nature and treatment of the disease, and of confirming them.

THE CASE.

JOHN CLARKE, *aged* 38, was received into the LIVERPOOL INFIRMARY under DIABETES, on the 9th February, 1797.

He was a soldier in Lord Darlington's Light Horse when they were reduced in February, 1796.

At that time he was in good health; thinks he might then have weighed about 140 pounds in his clothes; he is 5 feet 7½ inches in height; has dark hair and grey eyes. He always enjoyed good health, but was subject to Pyrosis, and accustomed to perspire much. Happening to reside near the sea coast, he has from a boy been used to bathe frequently during the summer months, not for any indisposition, but merely for gratification; sometimes he went

into the water twice the same day, and staid in it 10 or 15 minutes; being always of a costive habit, he also drank of the water occasionally. He discontinued the practice of bathing, however, whilst the weather still continued warm, as early, he thinks, as the beginning of August; his habitual perspiration lessened afterwards by degrees, and he continued in good health till about the end of November, 1796, when the perspiration entirely ceased, and the cuticle became unnaturally dry, harsh, and rough, and is now to all appearance dead, and incapable either of perspiration or absorption, or any kind of transmissiion. About this time some head-ach also came on, and the bowels became in general more costive, though he was sometimes troubled with a lax for a few days.

With the preceding symptoms he was afflicted with a most distressing thirst, which was not to be satisfied. His appetite was increased, and yet he lost flesh daily, and grew weaker very fast, particularly in the
thighs

thighs and small of the back, attended with pain in the region of the kidneys. He also observed, that he made much more urine than usual, and that the quantity increased from day to day.

It should be remembered, that having no other means of getting here, he was under the necessity of walking from 5 to 8 miles each day, for 3 successive days, before he reached Liverpool; but this was a whole day's work, and a great fatigue to him.

Considering this to be a case, that from all former experience might almost be deemed incurable, I wished to consult my *Colleagues*, DR. BRANDRETH and DR. CURRIE; therefore I only ordered him a dose of castor oil, to remove the costive state of the body.

Those gentlemen saw him with me on the 11th *February*. At this time *Dr. Currie* had just received a publication from *Dr.*

Rollo, Surgeon General to the Royal Artillery, at Woolwich, of a case of Diabetes that he had treated with success; he had not read it; but he understood that much was attributed to animal diet.

On this authority our patient was ordered to live chiefly on flesh and milk; he was also directed to use the warm bath, and with a view of ascertaining whether the generally received opinion that absorption takes place in this disease be true, he was desired to be weighed naked, both before he went into it, and upon coming out. Dr. Currie had observed in a case of a different nature, that no absorption took place in the warm bath. The pulse to be counted; and the heat of the body ascertained by placing a thermometer under the tongue, and to note the whole down.

February 12th.

He went into the bath for the first time, when

The

The pulse was,

before bathing, 75, after it, 85.

Heat of the body 91, ——— 95.

Weight of body 112lb. 4oz. — 112lb. 6oz.

He continued in the bath 12 minutes, which having been as high as 116 degrees of Fahr. may have acted as a stimulus sufficient both to quicken the pulse and increase the heat. The 2 ounces he appears to have gained after having bathed, is not to be attributed to absorption, but to water remaining amongst the hair, and adhering to the body; for he had unintentionally been over the head, and the body had not been wiped dry.

15th.

He used the bath a second time, the temperature was 110, below which he felt it cool.

The pulse, before

bathing, was 90, after it, 115.

Heat 98, ——— 99.

Weight 108lb. 14½oz. — 108lb. 14½oz.

He

He remained in the bath 12 minutes, and was rather faint.

The quantity of urine daily has not been before ascertained; but in the last 24 hours it amounted to 17 pints, which yielded, on evaporation, two and a half pounds of a saccharine extract, resembling treacle or molasses in colour and consistence, having a very sweet taste, though somewhat saltish, but wanting the urinous smell. During the same time he took two pounds and a half of animal food, and twelve pounds of liquids, including milk, beer, and water. The directions for his living on animal food having been misunderstood, he has hitherto had only one meal of flesh daily, and with it a portion of potatoes and bread.

16th.

The urine was reduced to 15 lb. 12 oz. and on evaporation it yielded a less proportion of the saccharine extract, viz. 1 lb. 5 oz. it was besides of a paler colour, and more like thin honey; after standing till the next day,

day, a kind of crystallization, or granulation, appeared, adhering to some parts of the basin it had been put into, forming prominent points; this increased so fast, that in 48 hours after, it became one solid mass, of the consistence of beef fat that has been melted and become cold again, and in colour much like suet, feeling unctuous, but dissolving entirely in cold water, and in a moderate heat melting again, and forming a transparent substance very like barley sugar, but somewhat browner; it is of a mixed smell, betwixt urinous and saccharine, but chiefly of the latter.

17th.

The urine was only 14 lb. 8 oz.

18th.

He used the bath again, in which he remained 12 minutes.

The pulse was,

before bathing,	90,	after it,	95.
Heat	95,	————	100.
Weight	105lb. 8oz. —	105lb. 8oz.	

I saw

I saw him this day about an hour after he had been in the bath, when his face appeared moist and oily as from perspiration, and he said he had felt a general moisture or softness like perspiration for about 10 minutes, and the pain in his back was gone.

19th.

He made 15 lb. of urine.

20th.

Having read Dr. Rollo's publication, he was ordered this day to live entirely on animal food and broth, without either bread, beer, or any vegetable matter, and to persist in that plan without taking any medicine whatever; for as diet appeared to have had a principal share of the success experienced in Dr. Rollo's case, we wished to try whether that plan only was capable of effecting a cure.

21st.

He went again into the bath, the temperature of which was 105, and he remained in it 15 minutes.

The

The pulse was,
 before bathing, 73, after it, 74.
 Heat 98, ——— 98.
 Weight 107lb. 4oz. — 106lb. 8oz.

The circumstance of his being lighter when he came out of the bath seemed extraordinary, and suggested the probability of his having made water whilst he was in it, which upon enquiry was found to be the case, and accounts for the difference as satisfactorily as on the 12th; and it is worthy of remark, that no observable difference has taken place in the weight of the body, before and after bathing, excepting in those two instances.

He took beef and broth; he made 8 pounds 4 ounces of urine in the last 24 hours; his thirst is not so excessive.

22d.

Urine only 6 pounds 4 ounces, it had a more urinous smell, and deposited a light coloured

coloured sediment; on evaporation it yielded 9 ounces of extract, of about the same consistence as the former, but not so sweet: some of the dead cuticle begins to come off: he has gained 1 pound 12 ounces in weight since the 18th.

23d.

The urine voided weighed 9 pounds 8 ounces. The pain in the back has entirely left him, and while he lies in bed he feels himself almost well; yet he is unable to walk about much, or even to sit up very long; his thirst is also much abated, for though he could drink with pleasure, he has not the same avidity; he complains for the first time of some sickness, but it appears to be the mere effect of his plan of diet, which he begins to be tired of. He was allowed a little beer.

24th.

Urine 8 pounds, which had still a more urinous smell, and a copious white coloured sediment,

sediment, amongst which I plainly discovered distinct red grains, that were evidently gritty to the feel.

He used the bath, the temperature of which was 100, and he remained in 14 minutes.

The pulse, before

bathing, was	88,	after it,	88.
Heat	98½,	———	98.
Weight	109lb. 2½oz.	109lb. 2½oz.	

He continues to gain weight. He complained of sickness through the day, with an aversion to his food. He took two pounds of beef, and 6 pounds of broth.

25th.

The dead cuticle is peeling off, and he is obviously improving in every respect, and gaining weight.

In future it is to be understood that the temperature of the bath will be 100, and that

that the patient will remain in it 10 minutes.

Pulse to-day, before

bathing, was	90,	after it,	90.
Heat	98,	—————	98.
Weight	111lb. 4½oz.	—	the same.
Ditto yesterday	109	2½.	

Difference gained 2 2.

He continues the diet of animal food, with the daily allowance of a pound of beer. He has had regular stools these three days past, which have been deeper coloured, more lax, and more feculent. The quantity of urine, 5 pounds 5¼ ounces.

26th.

The pulse, before

bathing, was	72,	after it,	76.
Heat	97,	—————	98.
Weight	108lb. 8½oz.	—	the same.
Ditto yesterday	111	4½.	

Difference lost 2 12.

Urine

Urine 5 pounds 14 ounces.

He says his appetite has been worse for want of beer, which had been omitted by mistake. Complains of pain in the head and back, sickness and griping, and has had several loose stools.

27th.

The pulse, before

bathing, was	80,	after it,	76.
Heat	98,	————	98.
Weight	114lb. 1oz. —	the same.	
Ditto yesterday	108	8½.	
	<hr/>		
Difference gained	5	8½.	

The animal food is continued, with a pound of beer.

The pain in his head and back are abated; but the sickness remains, also the griping and looseness; the appetite, however, is rather better.

Urine 4 pounds 3½ ounces, it is almost of a natural smell, but it has no sediment.

28th.

The pulse, before

bathing, was	78,	after it,	80.
Heat	98,	————	98.
Weight	118lb. 4oz.	—	the same.
Ditto yesterday	114	1.	

 Difference gained 4 3.

He took an emetic, which has relieved his sickness. Urine made, $3\frac{1}{2}$ pounds, it has a natural smell, and deposits some sediment. The dead cuticle is coming off very fast, and that underneath seems soft and natural. He petitions for some bread.

March 1st.

The pulse, before

bathing, was	69,	after it,	7 .
Heat	98,	————	98.
Weight	117lb.	————	the same.
Ditto yesterday	118	4oz.	

 Difference lost 1 4.

Urine

Urine $6\frac{1}{2}$ pounds. The sickness is gone, but the gripings continue; he fancies he gets cold with bathing.

2d.

The pulse, before

bathing, was	66	after it,	70
Heat	$98\frac{1}{2}$	————	$98\frac{1}{2}$
Weight	118lb. 7oz.	—	the same.
Ditto yesterday	117		

Difference gained 1 7

Urine 6 pounds $5\frac{1}{2}$ ounces. The animal food, with the beer, has been persisted in.

I have hitherto thought the griping and looseness were accidental, but as they continue, they may perhaps be owing to the great change made in his diet; on that idea, therefore, I have allowed him half a pound of bread daily, and have ordered him 30 drops of laudanum at bed-time.

He feels himself considerably stronger, and can sit up much longer at a time. He has no extraordinary thirst; the urine has neither sediment nor smell.

3d.

The pulse, before			
bathing, was	66,	after it,	68.
Heat	98,	————	98.
Weight	118lb. 3oz.	—	the same.
Ditto yesterday	118	7.	
	<hr/>		
Difference lost		4.	

Urine 6 pounds 3 ounces.

Diet, animal food, with a pound of beer, and 8 ounces of bread.

The griping was relieved by laudanum; but it returned in the night, attended with several loose stools.

4th.

4th.

The pulse, before			
bathing, was	66,	after it,	66.
Heat	98,	————	98.
Weight	116lb. 4oz. —		the same.
Ditto yesterday	118	3.	
<hr/>			
Difference lost	1	15.	

Urine 6 pounds 5 ounces. The looseness and griping continue; the laudanum was accidentally omitted. The appetite is more craving.

5th.

The pulse, before			
bathing, was	63,	after it,	66.
Heat	98,	————	98.
Weight	115lb. 12oz. —		the same.
Ditto yesterday	116	4.	
<hr/>			
Difference lost		8.	

The griping is relieved, but he complains of head-ach; he is not so thirsty, nor is the

appetite so keen as yesterday; the diet is continued. The urine 4 pounds 13 ounces, it deposits a light brown sediment, and is of an urinous smell.

6th.

The pulse, before			
bathing, was	66,	after it,	66.
Heat	98,	————	98.
Weight	114lb.	————	the same.
Ditto yesterday	115lb. 12oz.		
	<hr/>		
Difference lost	1	12.	

Urine 5 pounds 9 ounces. The thirst and appetite increase.

The griping and looseness do not abate by the admixture of vegetable matter, on which idea only the bread, as it may be remembered, was allowed. He loses weight daily. This reverse of the success we experienced in the beginning, would prompt me strongly to have recourse to the sulphurated kali, or hepatised ammonia; but the circumstance
of

of his having gained so much advantage, and so rapidly, while he lived on animal food entirely, and the wish to try what that diet alone would effect (which should be remembered was the plan we set out upon) determines me to return to it again, especially as it may enable us to decide whether it is alone equal to the cure. I therefore ordered both the bread and beer to be discontinued; and to rely on the laudanum, absorbents, &c. to correct the diarrhoea. He was allowed milk in place of the beer.

7th.

The pulse, before

bathing, was	66,	after it,	68.
Heat	98,	————	98.
Weight	113lb. 12oz.		the same:
Ditto yesterday	114.		

Difference lost 4.

The old dead cuticle does not come off so rapidly as it did sometime since. Appetite strong; but the thirst is abated; the grip-

ing is relieved. The quantity of urine 2 pounds 10 ounces, it has no sediment ; and although it is so much reduced in quantity, very little is mixed in his stools, as he makes all the water he can before he goes to stool.

8th.

The pulse, before			
bathing, was	60,	after it,	60.
Heat	97,	————	97.
Weight	113lb. 14oz.	—	the same.
Ditto yesterday	113	12.	
	<hr/>		
Difference gained			2.

Ordered the bath to be used every other day ; but the body to be weighed daily.

He has little or no thirst ; tongue very clean and moist ; appetite satisfied ; the griping returned about 7 o'clock in the evening, at which time he took 30 drops of laudanum, it was repeated at 9, and he took 30 drops more in the cretaceous mixture, in
all

all go in the course of the night: notwithstanding which he had 9 or 10 stools.

Urine 2 pounds $3\frac{1}{2}$ ounces, it has little smell, tastes salt, and not at all sweet; it is rather higher coloured, but deposits no sediment. On being evaporated it produced 2 ounces of extract, which had a sweetish smell, but to the taste it was salt and bitterish.

9th.

Pulse	—	64.
Heat	—	98.
Weight	—	112lb. 8oz.
Ditto yesterday		113 14.
		<hr/>
Difference lost		1 6.

Urine 2 pounds $12\frac{1}{2}$ ounces.

The griping returns at intervals, but has not been so violent; has been sick and vomited a little; he continues the laudanum with

with the cretaceous mixture, and the diet of animal food.

10th.

The pulse was,

before bathing,	58,	after it,	58.
Heat	96,	————	97.
Weight	110lb. 12oz.—	the same.	
Ditto yesterday	112	8.	

Difference lost 1 12.

Urine 4 pounds 9 ounces; it has a more natural smell than any he has before made.

Notwithstanding the looseness continues, and he loses weight, he feels himself sensibly stronger; his appetite and thirst are moderate.

11th.

Pulse	—	65.
Heat	—	98.
Weight	—	108lb. 8oz.
Ditto yesterday	110	12.

Difference lost — 2 4.

Urine

Urine 5 pounds; it has deposited no sediment lately. The griping still returns at intervals, but with less feverity; feels a little sickish.

12th.

The pulse was,

before bathing,	58,	after it,	60.
Heat	98,	————	98.
Weight	111 lb. 6 oz.	—	the same.
Ditto yesterday	108	8.	

Difference gained 2 14.

Urine 4 pounds 11 ounces.

The griping and sickness are abated; in other respects as yesterday. He continues the diet.

13th.

Pulse	—	61.
Heat	—	97.
Weight	—	111 lb.
Ditto yesterday	111	6 oz.

Difference lost 6.

Urine

Urine 5 pounds 7 ounces.

Continues much the same.

14th.

The pulse was,

before bathing,	80,	after it,	80.
Heat	97,	————	97.
Weight	112lb. 8oz.	—	the same.
Ditto yesterday	111.		

Difference gained 1. 8.

Urine 5 pounds 2 ounces.

He is rather more thirsty; his appetite is not so good, being fatiated with animal food; he was allowed an onion to his meal.

15th.

Pulse	—	80.
Heat	—	97.
Weight	—	112lb. 4oz.
Ditto yesterday	112	8.

Difference lost 4.

Urine

Urine 4 pounds 3 ounces.

He has had no broth these two days; the griping is abated, but he complains of flatulency.

Three days urine, taken about the 20th of February, amounting to about 40 pints, had some yeast added to it. It fermented strongly for 14 or 15 days, when it was distilled, and yielded 6 pints of spirits. It was then rectified, and the spirit obtained had some dry alkaline salt added to it, after digesting some time it was again rectified, and gave 9 ounces and 3 drachms, by measure, of alcohol, and 2 ounces and 3 drachms of a spirit about proof.

16th.

The pulse, before

bathing, was	70,	after it,	70.
Heat	97,	————	97.
Weight	112lb. 8oz.	—	the same.
Ditto yesterday	112	4.	

Difference lost 4.

Urine

Urine 4 pounds.

He has continued the onion, but thinks it occasions him to make water oftener, though not more in quantity; his thirst and appetite he thinks are keener; the griping is abated, but the flatulency is troublesome.

17th.

Pulse	—	88.
Heat	—	99.
Weight	—	113lb.
Ditto yesterday		112lb. 8oz.
		<hr/>
Difference gained		℥ 8.

Urine 3 pounds 5 ounces.

He is still very uneasy from flatulency, but not troubled with griping; thirst, appetite, and appearance of the urine, as they have been for some time.

He has had 2 drachms of æther, and 5 grains of ammonia added to his draught.

18th.

18th.

The pulse was,			
before bathing,	84,	after it,	84.
Heat	96,	————	96.
Weight	114lb. 3oz.	—	the same.
Ditto yesterday	113	3.	

Difference gained 1 6.

Urine 2 pounds 14 ounces; it is somewhat sweetish.

The flatulency is relieved; the thirst and appetite lessened; the griping is quite gone.

19th.

Pulse	—	86.
Heat	—	97.
Weight	—	115lb.
Ditto yesterday	114	3oz.

Difference gained 13.

Urine 4 pounds 10 ounces.

He

He was hot after taking his draught, but did not sweat; he feels weaker to-day, particularly in the small of his back; appetite and thirst are a little increased.

Being desirous of gratifying my patient with any change of diet that could be indulged in without impeding the cure, I ordered him to have a meal of fish, two or three times a week, meaning at the same time to ascertain whether that deviation from the plan of animal diet might be allowed with impunity.

20th.

The pulse was,

before bathing, 72, after it, 72.

Heat 97, ——— 97.

Weight 114lb. ——— the same.

Ditto yesterday 115.

Difference lost 1.

Urine 4 pounds, 7 ounces; it is clear, but of a sweetish taste.

He

He disliked the fish, and said it was not so satisfactory to his appetite as the meat; he thinks his thirst and appetite are more craving. He had a very good night, with some perspiration over the whole body; griping quite left him; and flatulency greatly relieved.

It seems to be no longer necessary to continue the bath, for the purpose of deciding on the question respecting absorption, as by the foregoing account it appears, that in this case at least, no such thing has occurred. For in no one instance has there been any sensible increase of weight after bathing, except on the 12th February, when it is satisfactorily accounted for, and that must have happened if any absorption had taken place during his continuance in the bath. It therefore seems fair to conclude, that if it did not exist in that situation, it could not under the ordinary circumstances of the body.

Ordered the bath to be omitted, but the register of the weight of the body to be continued.

21st.

He weighed this day,	114 lb. 7 oz.
———— Yesterday,	114.

Difference gained,	—	7 oz.
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Urine 3 pounds, 14 ounces; it is clear, and not so sweet as yesterday.

He was very uneasy in the night, and got no rest, though he took two draughts, with 40 drops of laudanum in each. His appetite and thirst are increased. A few drops of blood, which was thin and florid, issued spontaneously from his nose, and it appears he was frequently subject to it when a boy, but has not been troubled with it for these 15 years past.

22^d.

22d.

He weighed this day,	112 lb. 4 oz.
———— Yesterday,	114 7.

Difference lost,	— 2 3.
------------------	----------------

Urine 5 pounds, 6 ounces, clear, and having a mixed smell, sweetish and urinous.

He has slept better, though he complains of aching pains in all his joints and small of the back, which commenced with chilliness, and has continued these two days.

23d.

He weighed this day,	112 lb. 8 oz.
———— Yesterday,	112 4.

Difference gained,	— 4.
--------------------	----------

Urine 3 pounds, 12 ounces.

He has had a disturbed night, was extremely hot, but did not sweat; his pains are easier, but he complains of fullness after

H 2

eating,

eating, and an acute pain across the stomach; was more flatulent and sick, even to vomit a little; thirst and appetite increase.

24th.

He weighed this day,	112 lb. 1 oz.
———— Yesterday,	112 8.
	—————
Difference lost,	— 7.

Urine 5 pounds 7 ounces.

The pain in his head and limbs continues, as also the sense of fullness at his stomach, which extends to the small of his back and shoulders, and is attended with almost constant eructations.

25th.

He weighed this day,	112 lb. 7 oz.
———— Yesterday,	112 1.
	—————
Difference gained,	— 6.

Urine 4 pounds, 6 ounces.

He

He was very much troubled with flatulency all night; his appetite is not so strong, but the thirst is more so. The pain he complained of in the back and joints is quite gone, and that in the head is easier, yet the pulse was 90, and the heat 100. Æther and ammonia were ordered in a mixture, portions of which were to be taken occasionally; and he was also directed to take an emetic.

26th.

He weighed this day, 111 lb. 14 oz.

———— Yesterday, 112 7.

Difference lost, — 9.

Urine 6 pounds $2\frac{1}{4}$ ounces. In order to decide more accurately as to the sweetness of the urine, than can be determined by the taste, I directed some yeast to be added to it, to try if it would ferment.

He has had a restless night, and vomited frequently till 3 o'clock in the morning;

H 3

his

his spirits are better, and he thinks himself stronger. He had a pudding made of milk, fuet, and eggs, for his dinner, which he was fond of.

27th.

He weighed this day,	112 lb.	12 oz.
————— Yesterday,	111	14.

Difference gained,		14.
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Urine 3 pounds, $9\frac{1}{2}$ ounces. A sensible fermentation commenced in the urine in half an hour after the yeast was put to it, and it continues.

The sickness is gone, but he was restless in the night, and slept little; the pain in his stomach continues, and his thirst increases; his appetite lessens, and he feels uncomfortable after eating, and is weaker. Pulse 90. Heat 100.

28th.

He weighed this day,	112 lb.	12 oz.
————— Yesterday,	112 lb.	12 oz.

Urine

Urine 3 pounds, 11 ounces.

The diet, with the pudding of milk, eggs, and fuet, were given as directed.

He has had a considerable and general perspiration last night; his thirst and appetite are moderate; and he is quite free from pain.

29th.

He weighed this day, 112 lb. 6 oz.

———— Yesterday, 112 12.

Difference lost, — 6.

Urine 3 pounds, 15 ounces.

He took a pudding composed of blood and milk, mixed whilst they were both warm with some fuet, but he did not like it. His stools have become much more natural since the milk he takes has been cooked.

H 4

30th.

30th.He weighed this day, 112 lb. 11 $\frac{3}{4}$ oz.

 Yesterday, 112 6.

Difference gained, — 5 $\frac{3}{4}$.

Urine 3 pounds, 5 ounces, clear, but not sweet.

He has had a good night, continues well, and perspires moderately.

31st.

He weighed this day, 113 lb. 13 oz.

 Yesterday, 112 11 $\frac{3}{4}$.

Difference gained, — 1 1 $\frac{1}{4}$.

Urine 5 pounds, 10 ounces; it is higher coloured, yet rather sweet; it deposits a light white sediment.

He continues better, and feels a more comfortable warmth than he has been accustomed

customed to do lately. His pulse has been from 85 to 90 for a week past. He is so tired with broth, that he has refused to take any for some time, and owing to his fondness for the eggs and milk, either baked or boiled with fuet, that he has eaten too little meat lately. I therefore ordered that he should at least eat one pound daily.

April 1.

He weighed this day, 113 lb. 12 oz.

———— Yesterday, 113 13

Difference lost, — 1

Urine 5 pounds ; it has no sediment.

He is much as yesterday.

2d.

He weighed this day, 111 lb. 7 oz.

———— Yesterday, 113 12

Difference lost, — 2 5

Urine 4 pounds, 8 ounces.

The

The griping, with some flatulency, has returned, and he has not slept quite so well.

The urine that was set to ferment on the 26th of last month still keeps a head of yeast upon it; it has become sensibly sour, but not putrid.

3d.

He weighed this day,	112 lb.	15 $\frac{3}{4}$ oz.
————— Yesterday,	111	7
Difference gained,	— 1	8 $\frac{3}{4}$

Urine 4 pounds, 6 ounces, it is sweetish.

The flatulency continues, and he was both vomited and purged in the night; he had some perspiration.

4th.

He weighed this day,	114 lb.	7 $\frac{1}{2}$ oz.
————— Yesterday,	112	15 $\frac{3}{4}$.
Difference gained,	— 1	7 $\frac{3}{4}$.

Urine

Urine 3 pounds, 14 ounces. To this urine I ordered some yeast to be put.

He was easier, and slept better last night; the diarrhœa and sickness are gone; the flatulency is abated; the appetite and thirst are moderate.

5th.

He weighed this day,	113 lb.	
———— Yesterday,	114	7½ oz.
		<hr/>
Difference lost,	— 1	7½

Urine 4 pounds, 1 ounce.

He feels much as yesterday.

6th.

He weighed this day,	113 lb. 14 oz.
———— Yesterday,	113
	<hr/>
Difference gained,	— 14

Urine 5 pounds, 13 ounces.

It

It becomes very irksome to keep him to animal food, even with a very large allowance of milk, and I learn that he takes the fuet off the milk when it cools. He feels himself better to-day. He continues the animal food with milk, eggs, &c.

7th.

He weighed this day,	111 lb.	14 oz.
————— Yesterday,	113	14.

Difference lost,	2
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Urine 4 pounds, 14 ounces; it is higher coloured, and not sweet. The urine which had some yeast put to it on the 4th, did not ferment, and the smell of volatile alkali is now become very pungent in it.

He used the warm bath to cleanse his skin, when a large quantity of the dead cuticle came off. Let him try the cold bath a few times.

8th.

8th.

He weighed this day, 114 lb.
 ————— Yesterday, 111 14 oz.

Difference gained, — 2 2.

Urine 4 pounds, 13 ounces ; it is not sensibly sweet.

He felt very warm, and comfortable after the cold bath, and rested well at night ; his appetite and thirst are moderate.

9th.

He weighed this day, 113 lb.
 ————— Yesterday, 114.

Difference lost, — 1.

Urine 5 pounds, 1 ounce, not sweet.

The diarrhoea returned in the night.

10th.

10th.

He weighed this day, 112 lb.

 Yesterday, 113.

 Difference lost, — 1.

Urine 5 pounds, 7 ounces. This was put to ferment.

He was troubled with griping in the night, and did not sleep well.

11th.

He weighed this day, 113 lb.

 Yesterday, 112.

 Difference gained, 1.

Urine 6 pounds. The urine set aside yesterday did not ferment in the least, and the effluvyium of volatile alkali from it, is already very pungent. I have ordered it to be tried in the same manner, every other day.

He

He rested better in the night, and was free from griping; in other respects much the same.

12th.

He weighed this day, 114 lb.

———— Yesterday, 113.

Difference gained, — 1.

Urine 4 pounds, 10 ounces.

He went into the cold bath again, and felt much refreshed.

13th.

He weighed this day, 115 lb. 4 oz.

———— Yesterday, 114.

Difference gained, — 1 4.

Urine 4 pounds, 5 ounces.

He continues much the same.

14th.

14th.

He weighed this day,	114 lb.	6 oz.
————— Yesterday,	115	4 oz.
		<hr/>
Difference gained,	—	14.

Urine 3 pounds, 15 ounces, it has a natural smell, does not ferment, and becomes alkalized very quickly.

He was troubled with flatulency and purging in the night.

15th.

He weighed this day,	116 lb.	6 oz.
————— Yesterday,	114	6
		<hr/>
Difference gained,	—	2

Urine 5 pounds, 2 ounces.

He appears to be in a better state than he has yet been, and has gained 4lb. 6 oz. in weight since the 10th.

16th.

16th.

He weighed this day, 116 lb. 7 oz.

Yesterday, 116	6
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Difference gained, —	1
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Urine 3 pounds, 2 ounces. This is set to ferment in two portions, one of which has yeast added to it, the other not; two portions of healthy urine are also put under the same circumstances. For, I apprehend that in the two last experiments that were made in this way, the urine became more highly alkalescent, volatile, and pungent, and in less time than healthy urine generally does; and though I did not think it likely to be the effect of adding yeast to it, but possibly that of its being placed in a warmer temperature, for the purpose of favouring fermentation, I thought the fact would only be decided completely by placing both the diabetic and the healthy urine with yeast, and without it, in the same temperature.

17th.

He weighed this day, 114 lb. 12 oz.

 Yesterday, 116 lb. 7

Difference lost, — 1 11

Urine 4 pounds, 4 ounces.

No fermentation took place in any of the four portions of urine, but the two diabetic ones are very pungent and volatile, with very little difference betwixt them and the portions of the healthy urine, neither of which having undergone much change.

18th.

He weighed this day, 115 lb. 8 oz.

 Yesterday, 114 lb. 12

Difference gained, — 12

Urine 4 pounds, 13 oz.

He went again into the cold bath, and felt refreshed as before.

19th.

19th.

He weighed this day,	115 lb.	8 oz.
———— Yesterday,	115	8

Urine 3 pounds, 1½ ounce.

The diet is continued.

20th.

He weighed this day,	114 lb.
———— Yesterday,	115

Difference lost,	—	1	8
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Urine 3 pounds.

21st.

He weighed this day,	115 lb.
———— Yesterday,	114

Difference gained,	1
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Urine 1 pound, 15 ounces; the urine of yesterday was set to ferment, but it has

I 2

shown

shown no appearance of it; it has become alkalescent, imparting a volatile smell.

22d.

He weighed this day, 111 lb. 12 oz.

———— Yesterday, 115

Difference lost, — 3 4

Urine 2 pounds, 12 ounces.

The diarrhæa and griping have returned, and they occasioned him to have a bad night.

23d.

He weighed this day, 112 lb.

———— Yesterday, 111 12 oz.

— Difference gained, — 4

Urine 2 pounds, 2 ounces; it continues to become alkalescent very rapidly, and will not ferment.

24th

24th.

He weighed this day, 111 lb. 12 oz.

———— Yesterday, 112

Difference lost,

4

Urine 2 pounds 5 ounces.

He has used the warm bath as a wash to the skin, which still rubs off.

25th.

He weighed this day, 114 lb.

———— Yesterday, 111 12 oz.

Difference gained,

2

4

Urine 3 pounds, 8 ounces.

Finding that he has upon the whole been losing weight since the 17th, I questioned him very closely about his getting other food than what was allowed him, but he denied it, and shewed much impatience about staying longer with us, saying that he

I 3

thought

thought himself well and strong again, and that he would rather go, as he was watched like a thief. Though I do not consider him to be so well as he thinks he is, yet as the quantity of his urine is so much reduced, and its former nature so entirely reversed, I have, notwithstanding his having lost weight, allowed him four ounces of flour in his pudding, and two ounces of bread with his meat; for fear he should run away, and leave us uncertain of the event.

26th.

He weighed this day,	116 lb.	3 oz.
————— Yesterday,	114	

Difference gained,	2	3
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Urine 3 pounds, 1 ounce.

27th.

He weighed this day,	115 lb.	4 oz.
————— Yesterday,	116	3

Difference lost,	—	15
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Urine 3 pounds, 12 ounces.

28th.

He weighed this day, 117 lb. 8 oz.

Yesterday,	115	4
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Difference gained,	2	4
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Urine 3 pounds, 7 ounces; it is set to ferment.

He continues the same; and was in the cold bath.

29th.

He weighed this day, 115 lb. 8 oz.

Yesterday,	117	8
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Difference lost,	2	0
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Urine 3 pounds, 3 ounces; yesterday's urine does not ferment.

He had a copious perspiration in the night, which continued about four hours.

I 4 . 30th.

30th.

He weighed this day,	116 lb.	14 oz.
————— Yesterday,	115	8
	<hr/>	
Difference gained,	1	6

Urine $3\frac{1}{2}$ pounds.

He perspired a little in the night.

May 1st.

He weighed this day,	115 lb.	12 oz.
————— Yesterday,	116	14
	<hr/>	
Difference lost,	1	2

Urine 3 pounds, 9 ounces.

He perspired much in the night, but it does not weaken him. He went again into the cold bath.

2d.

He weighed this day,	113 lb.	8 oz.
————— Yesterday,	115 lb.	12
	<hr/>	
Difference lost,	2	4

Urine 4 pounds, 1 ounce; it is again put to the test of fermentation.

He has perspired much.

3d.

He weighed this day,	113 lb.	
————— Yesterday,	113	8 oz.
		<hr/>

Difference lost,		8
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Urine 3 pounds, $5\frac{1}{4}$ ounces. Yesterday's urine does not ferment.

The diarrhoea is returned; the perspiration is moderate.

4th.

He weighed this day,	113 lb.	1 oz.
————— Yesterday,	113	
		<hr/>

Difference gained,		1
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Urine 2 pounds, 15 ounces.

He

He was in the warm bath, when much of the old cuticle came off; his skin has still a rough harsh feel, though much softer than it was at first.

5th.

He weighed this day,	113 lb.	8 oz.
———— Yesterday,	113	1
	7	
Difference gained,		7

Urine 3 pounds, 14 ounces.

He sweated none last night.

6th.

He weighed this day,	117 lb.	
———— Yesterday,	113	8 oz.
	3 8	
Difference gained,		3 8

Urine $3\frac{1}{2}$ pounds.

I have at length discovered, through the information of another patient in the same ward, that Clarke adhered rigidly to the regimen

gimen prescribed him, only for about 14 days at the first.

In the course of the disease we have often had reason to suspect that he was deviating from our plan, and three or four times the necessity of a strict attention on his part was particularly insisted on. After these cautions he attended to his regimen strictly for a day or two, but again relaxed, through the almost irresistible propensity to more or less of vegetable diet, which seems to be one of the characteristic symptoms of this disease. With these exceptions, it appears that he has generally partaken with the other patients in the common mixed diet of the house, and that he has drunk water when thirsty if he had no milk. I cannot learn that he ever gave any part of the flesh meat to the other patients.

It is extremely vexatious to have been so much deceived, yet I don't think it lessens the inference, that animal diet has been the means of effecting the very great alteration
in

in the quantity and quality of his urine; for though he has eaten more promiscuously than was supposed, he has at all times taken a large proportion of animal matter, and a marked effect has at different periods of the disease followed the more entire use of it, particularly in the beginning, when his apprehension made him adhere rigidly to the plan.

The discovery, though vexatious, has perhaps made this a better case, in as much as it shews that an absolute exclusion of vegetable matter is not necessary, at least not for so long a time; and also as it proves that he is nearer being cured than he was thought to be, by the characteristic symptoms of the disease not having been reproduced by the superior quantity of vegetable matter he has eaten to what he was supposed to have done. Whether his appetite is so strong as to constitute it a remnant of the disease I know not; but from the impossibility of restraining him, and for the purpose of ascertaining whether the cure was

was

was complete, he is ordered to have the diet of the house only.

NOTE.—*From the discovery of the patient's deviations, the daily weight of each particular article of food and drink forming the ingesta, and the weight of the egesta, except the urine, have been omitted in the reports. Had he been correct, such an account would have made the detail of the case complete: they have been erased at the request of Dr. Gerard.*

7th.

He weighed this day, 115 lb. 10 oz.

———— Yesterday, 117

Difference lost, — 1 6

Urine 4 pounds.

His diet now consists in milk, meat, potatoes, and bread.

8th.

Having found the actual weight of the
body

body to differ so much from day to day, I ordered him to be weighed upon getting up each morning, instead, at 4 o'clock in the afternoon, conceiving that that difference might be occasioned by the additional weight of a more copious indigested meal one day than the other.

9th.

He weighed this day,	111 lb.	8 oz.
————— On the 7th,	115	10
	<hr/>	

Difference lost in 38 hours, 4 2.

Urine during 38 hours, 7 pounds, 10 ounces.

10th.

He weighed this morning,	110 lb.	10 oz.
————— Yesterday,	111	8
	<hr/>	

Difference lost, — 14

Urine 5 pounds, 12 ounces.

11th.

11th.

He weighed this morning, 112 lb.

Yesterday,	110	10
------------	-----	----

	1	6.
--	---	----

Urine 5 pounds, 6 ounces.

12th.

He weighed this morning, 112 lb. 8 oz.

Yesterday,	112	
------------	-----	--

	8	
--	---	--

Urine 6 pounds, 7 ounces; it has not been sensibly sweet for a long time past; it was put this day to ferment.

13th.

He weighed this morning, 111 lb. 12 oz.

Yesterday,	112	8
------------	-----	---

	—	12.
--	---	-----

Urine

Urine 6 pounds, 2 ounces. Yesterday's urine did not ferment; but it is become strongly animalized, more like healthy urine, and not so very pungent from the vapour of volatile alkali, as it was about the middle of April.

14th.

He weighed this morning,	113 lb.	4 oz.
————— Yesterday,	111	12
		<hr/>
Difference gained,	1	8

Urine 5 pounds, 7 ounces. For some days his allowance of bread has been one pound, it is now two pounds daily.

15th.

He weighed this morning,	113 lb.	6 oz.
————— Yesterday,	113	4
		<hr/>
Difference gained,		2

Urine 5 pounds, 6 ounces.

He

He has had more or less perspiration daily for some time past. He went into the cold bath.

16th.

He weighed this morning,	113 lb.	7 oz.
———— Yesterday,	113	6
	<hr/>	
Difference gained,		1

Urine 5 pounds, 6 ounces.

17th.

He weighed this morning,	112 lb.	
———— Yesterday,	113	7 oz.
	<hr/>	
Difference lost,	—	1 7

Urine 4 pounds, 10 ounces; it is neither sweet, nor in any over proportion to the fluids taken in, nor will it ferment although he has lived chiefly on vegetable matter, and milk since the 6th instant.

He has had copious perspirations these two nights past.

18th.

He weighed this morning,	112 lb.	4 oz.
<u> </u> Yesterday,	112	
		<u> </u>
Difference gained,		4

Urine 5 pounds, 4 ounces.

19th.

He weighed this morning,	111 lb.	1 oz.
<u> </u> Yesterday,	112	4
		<u> </u>
Difference lost,	—	1 3

Urine 5 pounds, 1 ounce.

20th.

He weighed this morning,	110 lb.	6 oz.
<u> </u> Yesterday,	111	1
		<u> </u>
Difference lost,	—	11

Urine

Urine 5 pounds, 6 ounces.

He gains strength, and improves so much in his general health to his own feelings, that he becomes quite impatient of confinement.

21st.

He weighed this morning, 111 lb. 2 oz.

———— Yesterday, 110 6

Difference gained, — 12

Urine 5 pounds, 8 ounces.

22^d.

He weighed this morning, 112 lb. 4 oz.

———— Yesterday, 111 2

Difference gained, — 1 2

Urine 4 pounds, 15 ounces.

K 2

23^d.

23d.

He weighed this morning,	112 lb.	12 oz.
———— Yesterday,	112	4
		<hr/>
Difference gained, —		8

Urine 5 pounds, 7 ounces.

24th.

He weighed this morning,	111 lb.	4 oz.
———— Yesterday,	112	4
		<hr/>
Difference lost, —	1	

Urine 5 pounds, 1 ounce.

25th.

He was discharged from the Infirmary to all appearance cured of the disease; which, to his own thinking, has long been the case; and to the opinion of his being *even cured* I have no hesitation in subscribing.

He was enjoined to come up to the Infirmary once a week (as he said he should endeavour

endeavour

endeavour to get work as a shoemaker in the town) to let me see how he went on ; but I have reason to suppose he set out for Newcastle, his native place, that very day ; --he can write however, and has promised to let me hear from him, and to mention what weight he was ; if he does so, I will not fail to inform you, should any material alteration ensue.

The following accounts of the Hepatified Ammonia are contained in different letters from Dr. Gerard.

BOTH DOCTOR CURRIE and myself think ourselves much obliged to you, and also to Mr. CUICKSHANK, for the phial of hepatified ammonia sent by him, although we have not used any of it in our diabetic case. I have, however, given a few doses in some others, which Dr. Currie has seen with me, and from the observations of one of my patients, I have learned that the first dose always produced a sensible effect, and was followed by sleep ; but not the subse-

quent ones that had been mixed longer. The same observation has been confirmed in a boy who took it, under psoas abscess. I have tried it more fully in a case that may, perhaps, be called hysteric insanity, and have got to 10 drops at a dose three times a day; but have perceived very little sensible effect, unless the becoming calmer, and more moderate in her behaviour for these three days past may be considered such.

WE have now got the hepatifed ammonia well prepared; and I have given the patient I mentioned before 17 drops at a dose, but without any sensible effect.

SOME REMARKS
ON THE PRECEDING
COMMUNICATIONS.

WE shall comprehend these remarks, under the causes, nature, and treatment of the Diabetes Mellitus, in order briefly to point out how far they go in extending and confirming the general account we have given of the disease.

Causes.

The only circumstances leading to fix on the predisposing occasional causes of this disease in the communications, are contained,

1st. In DOCTOR FALCONER'S letter, where a case of the disease is related, as having apparently been produced by excessive indulgence in spruce beer to reduce corpulency.

2d. In DOCTOR CLEGHORN'S first case, where the patient had worked hard while under convalescence from fever.

3d. In the case of the gentleman of 77 years of age, who had been much addicted to the use of large quantities of sugar.

4thly. In DOCTOR GERARD'S case, the patient had been subject to pyrosis, and liable to much perspiration previous to the diabetic attack.

Nature.

DOCTOR BAILLIE'S account, in the manner we have received it, furnishes no inference, but what may be referable to the sequelæ of the disease.

MR ABERNETHY found the serum of the blood *turbid*; and he observed that sugar taken into the stomach, increased the saccharine matter in the urine.

Treatment.

Treatment.

DOCTOR DUNCAN found in one case fat meats serviceable.

DOCTOR FALCONER recommends the mephitic alkaline water, and from the advantage the gentleman of 77 derived from SCHWEPPE'S soda water, it may be of service. There is no doubt it will relieve the acscency of the stomach. We would prefer the soda water, as we think it may act less on the kidneys than that made with the vegetable alkali.

DOCTOR BEDDOES mentions a case where the Bristol water cured the disease.

DOCTOR CURRIE has seen several cases of the disease; but never saw a case of it with sweet urine cured.

THE CASE OF WALKER, shews the effects of the animal food. It was begun on the 29th December, when the daily quantity of clear sweet urine amounted to 13 pounds;

pounds; on the 31st day, two days only, the quantity of the urine was reduced to 5 pounds, and it had acquired a strong urinous smell.

THE TWO CASES treated at GLASGOW by DOCTOR CLEGHORN, shew also the good effects of entire animal food, and of the influence of commotions in the bowels on the quantity of the urine.

THE CASE of the GENTLEMAN of 77 likewise shews the efficacy of animal food; but the MOST STRIKING CASE is that of CLARK, as related by DOCTOR GERARD.

This important case points out,

1st. That in this disease there is no absorption of fluids by the skin.

2dly. That animal food may alone, if duly persevered in, cure the disease, and such perseverance may probably be of a very limited duration.

HEPATISED

HEPATISED AMMONIA.

This medicine was given by Doctor Cleg-horn ; but he has acknowledged that it had not been properly prepared, and therefore he withdraws the opinion he had formed on its trial in his two cases.

Doctor Gerard has given it with sensible effect, though in one case to the quantity of 17 drops without any, yet this may have arisen from the gradual increase of the dose.

In our second case we could only go as far as 12 drops four times a day ; and in that of Captain Meredith very powerful effects were produced, but then he had taken accidentally and suddenly, without a gradual increase of the dose, a considerable number of drops, probably exceeding 20.

We are satisfied that it is a powerful medicine ; but it must be prepared according to Mr. Cruickshank's method, and the ammonia

monia must be pure, and completely saturated with the hepatic gas. To produce its narcotic effects, full and sudden doses of it must be given, but these require judgment, and an acquaintance with the exhibition of the medicine. It should not be mixed up in draughts, or in any other form, as it is so readily decomposed; it must be dropped from the phial, at the time of using, into a proper vehicle (distilled water is the best) and taken immediately.

NITROUS ACID.

Doctor Currie is fully satisfied of the efficacy of this remedy in the treatment of the Lues Venerea.

Doctor Trotter mentions that three cases of inveterate syphilis had been cured at Portsmouth by the same medicine.

THE RESULTS
OF THE
TRIALS OF VARIOUS ACIDS,
AND SOME OTHER SUBSTANCES,
IN THE TREATMENT
OF THE
LUES VENEREA,
&c. &c.

BY
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THE RESULTS
OF THE
TRIALS OF VARIOUS ACIDS
AND SOME OTHER SUBSTANCES,
IN THE TREATMENT
OF THE
LUES VENEREA.

SOME years ago, Dr. GIRTANNER acknowledged, that the effects produced on the human body by the different preparations of mercury, were entirely owing to their combined oxygen, and that it was on the disengagement of this principle, which had a powerful action on the constitution producing the mercurial disease, that their antivenereal effects depended.

We do not find, however, that Dr. Girtanner had ever put this assertion to the proof,

proof, by substituting other substances, containing a large proportion of oxygene, in place of mercury, in the lues venerea.

MR. W. SCOTT, Surgeon at Bombay, having, in 1793, made some trials with the nitric acid in diseases of the liver, was struck with the similarity of its effects to those of mercury, more particularly in its affecting the mouth, and producing salivation. From these and some other circumstances, he was induced to try it in the lues venerea, and found that it was not only equally efficacious, but in several respects even superior to mercury, having succeeded where this had failed. *See Duncan's Medical Annals, 1797.*

With a view to satisfy ourselves of the antisyphilitic property of the nitrous acid, and at the same time to discover how far this might be owing to its oxygene, the following trials were instituted.

The

The first substances employed were acids, such as are known to contain much oxygen, and which parts with it readily; those already used have been the nitrous, oxygenated muriatic, and citric acids. It is well known that the basis of these are different, and the only thing which they have in common is oxygen, if therefore they should all produce the same, or nearly the same effect, on this disease, as well as on the constitution, the natural inference is, that this must depend upon their common principle.

The only other substance which we have yet tried is the oxygenated muriate of potash, a neutral salt, containing much oxygen, and which parts with it very readily. We mean, however, to extend our researches farther, when a proper opportunity shall offer, and to make trials with some of the other acids, the black oxyd of manganese, &c.

In detailing the following cases, we shall satisfy ourselves with describing the symp-

toms at the commencement, and any remarkable change which afterwards occurred during the cure; with enumerating the doses of the different medicines employed, and their effects in general on the disease and constitution; and with giving the final result and duration of the treatment. A more particular or daily account, (although such was regularly kept) would be tiresome, and could not afford any additional information or satisfaction.

It may be proper to observe that most of the patients whose cases are here related, were kept in a ward set apart for the purpose, and where it was impossible, from the nature of a military hospital, they could procure any medicines, but such as were given to them. The cases were also selected, being primary affections, and such as were strongly and distinctly marked, and where no mercurial remedies had been employed.

C A S E S
IN WHICH
THE NITROUS ACID
WAS EMPLOYED.

CASE I.

March 15th, 1797.

BATTERSBY, a Bombardier in the Royal Regiment of Artillery, aged 23, had a chancre on the glans near the frænum, which made its appearance three or four days before his admiffion, and was decidedly vênereal. From his own account he had taken no medicines, nor indeed was there the leaft appearance in the mouth to render it probable he had.

He was defired to take a drachm of the concentrated nitrous acid, diluted with 20 oz. of water, in the courfe of the day, and to wash the chancre frequently with a weak folution of the acetite of lead, confifting of 1 gr. of the acetite to 2 oz. of

L 2

water;

water; the only intention of which was to keep the parts clean.

On the 15th, Finding no very sensible effect from the acid, he was desired to take ʒiss in the day.

On the 16th, He was sensible of a foreness in his mouth, which he compared to that produced by mercury; he also complained of being griped; the chancre looked much cleaner, and was evidently disposed to heal; he thought he made more urine than usual. To obviate the effects apparently produced by the acid on the bowels, he was ordered a grain of opium at bed-time.

On the 17th, His urine was measured, and found to amount to $3\frac{1}{2}$ pints in 24 hours; it was clear, and without any remarkable smell; his tongue was white, but the pulse natural; he had no return of the griping since he took the opium.

On

On the 19th, The chancre was completely healed; he now perceived no sensible effect from the acid, except a temporary one on his teeth and mouth; the griping had not returned.

On the 21st, The acid was diminished to one drachm in 24 hours, and this he continued to the 28th, when it was omitted.

He was discharged cured on the 3d April, and he continued free from any appearance of disease on *June 10th*, being 10 weeks from the time the chancres were healed.

CASE II.

SMILEY, a Gunner in the Regiment, aged 20, with fair hair, and every mark of a scrophulous constitution, was admitted *March 12th*, with several venereal chancres on the glans and prepuce, accompanied with phymosis. He had taken no medicines,

cines, although the chancres had made their appearance for 8 days.

He was ordered to take a drachm of the nitrous acid, diluted with 2 pounds of water, in the course of the day, to use a very weak solution of the acetite of lead, as a lotion, and to confine himself mostly to bed.

On the 13th, The phymosis rather increased, and was extremely painful.

On the 14th, The quantity of acid, as it had no sensible effect, was increased to ʒiſs daily.

On the 15th, The swelling had greatly abated, and the chancres looked much cleaner; he was certain that he made much more urine than usual, but perceived no other sensible effect from the acid, except a temporary one on the teeth and gums.

On the 16th, The swelling had entirely disappeared, and the chancres seemed disposed to heal.

On the 18th, The chancres were nearly healed, the quantity of urine which he passed yesterday being measured, amounted to $3\frac{1}{2}$ pints; it was of a light straw colour, with scarcely any urinous smell; the only sensible effect which he now perceived from the acid, was an increase of appetite; his tongue, however, was white in the middle, and he had a greater inclination for drink than usual.

On the 20th, The chancres were completely healed, but he continued to take the acid in the same quantity until the 28th, when it was omitted, and he was discharged cured on the 3d of *April*.

On the 25th, (3 days before he left off the acid) 3 ounces of blood were taken from his arm, which shewed a slight inflammatory crust on the surface. During the whole

cure, nothing like salivation was perceived; the gums indeed looked a little florid, but this appearance of the gums was ascribed to the local action of the acid.

CASE III.

March 18.

SNEED, belonging to the Corps of Drivers, was admitted March 18th, with a large chancre on the prepuce, which he had perceived for about eight days, there was likewise a flight discharge from the urethra, accompanied with scalding, his eyes and general appearance indicated a scrophulous habit. He had taken no medicines.

He was ordered a drachm of the concentrated nitrous acid, diluted with about a quart of water, which was to be taken at different times in the course of the day, and the chancre to be washed frequently with the weak solution of the acetite of lead already mentioned.

On

On the 20th, A chronic inflammation of the eyes, to which he had for some time been subject, rather increased, accompanied with head-ach. He was desired to diminish the quantity of acid to half a drachm, and to take an ounce of the magnesia vitriolata.

On the 22d, The inflammation in his eyes had considerably abated, and the appearance of the chancre was much more favourable; he was ordered to increase the quantity of the acid to $\mathfrak{z}\text{iss}$ daily.

On the 26th, The chancre looked perfectly clean, and was free from pain; four ounces of blood drawn from his arm this day, had a healthy appearance. He had no preternatural thirst, but his tongue was white, and he made a larger quantity of urine than usual.

On the 29th, The chancre, although clean, did not seem disposed to heal, the acid was therefore increased to $\mathfrak{z}\text{ij}$ daily.

On

On the 3d April, The chancre began to skin; feeling no very sensible effect from the acid, it was increased to ʒiʒs daily, this quantity he continued to the 14th, when the sore appearing to be stationary, it was again increased to ʒiij.

On the 16th, He complained much of thirst and temporary fits of sickness, his pulse was now quick, and his tongue furred, he made about three pints of urine in 24 hours; these symptoms being ascribed to the acid, it was diminished to ʒiʒs daily.

On the 19th, The chancre was nearly healed; the thirst and white tongue continued, but in other respects he was much better. The gonorrhœa had now entirely disappeared.

On the 22d, The chancre was completely healed, but he continued the acid to the 30th.

On the 2d May, He was discharged cured.
This

This patient, although he took the acid regularly for such a length of time, (being in all 44 days) never perceived any thing like mercurial salivation, nor were his gums or teeth affected in any sensible degree, except now and then locally.

CASE IV.

March 15th.

MIDDLETON, a Gunner in the Regiment, aged 19, and apparently of a scrophulous habit, was admitted with a large venereal chancre on the prepuce, of several days continuance; according to his own account he had taken no medicines, nor used any external applications.

He was directed to take a drachm of the concentrated nitrous acid, diluted with the usual quantity of water, in the course of the day.

On the 18th, He complained much of griping in his bowels, in consequence of which,

which, the quantity of the acid was diminished to half a drachm, and he was ordered a grain of opium at bed-time.

On the 20th, The affection of his bowels being removed, the quantity of the acid was increased to a drachm daily. The chancre now looked much cleaner, and was free from pain.

On the 22d, Feeling no sensible effect from the acid, the quantity was increased to ʒiſs daily.

On the 30th, The chancre was nearly healed; he was not now sensible of any effect from the acid, except a temporary one on his teeth, immediately after each dose.

April 10th, The quantity of acid was increased to ʒij daily, and feeling no sensible effect from this, it was augmented on the 12th to ʒiſs .

On

On the 14th, He took zij of the acid in the course of the day, without being sensible of any very remarkable effect from it. The chancre was now very nearly skinned over.

April 18th, The chancre was completely healed, but he continued the acid to the 26th, and was discharged cured on *the 28th*. He remained perfectly well on *June 12th*.

C A S E S

IN WHICH

THE OXYGENATED MURIATIC ACID
WAS EMPLOYED.

CASE V.

HALLIDAY, a Gunner in the Regiment, aged 24, was admitted into the Hospital on the 12th March, with several venereal chancres on the prepuce, of eight or nine days continuance; from his own account, he had taken no medicines nor used any external application.

He

He was ordered to take five drops of the oxygenated muriatic acid, diluted with about an ounce of water, three times in the day, and to use the weak saturnine lotion already mentioned.

On the 14th, The medicine having no sensible effects, and the chancres remaining much the same, he was desired to take six drops four times a day.

On the 16th, The chancres looked cleaner, and some of them seemed disposed to heal; he was desired to increase the acid to eight drops four times a day.

On the 18th, The chancres were nearly healed; he complained that his gums felt tender and his teeth on edge; he now made four pints of clear urine in the day. He was desired to increase the acid to 10 drops four times a day.

20th, The chancres were completely healed; he still complained of his mouth,
but

but his gums had nothing of that appearance produced by mercury, nor was his breath in the least offensive. He was ordered to increase the acid to 15 drops four times a day; this he continued to the 28th, when it was omitted, and he was discharged cured *April 3d.*

A few days before he left off the oxygenated muriatic acid, four ounces of blood were taken from his arm, which did not in its appearance differ in any respect from healthy blood.

CASE VI.

GRAY, a Gunner in the Regiment, aged 23, was admitted March 12th, with a deep venereal chancre, seated partly on the glans and partly on the prepuce, it began to make its appearance on the 4th of the month, about eight days before. He never had the venereal disease, and said he had taken no medicines.

He

He was ordered to take six drops of the oxygenated muriatic acid three times a day, and to use the weak saturnine lotion.

On the 16th, The chancre being much the same, he was desired to increase the acid to eight drops four times a day.

On the 18th, He complained that the acid affected his mouth, the chancre, however, being much the same, it was increased to 10 drops four times a day.

On the 19th, The dose was augmented to 15 drops, and on the 20th to 20 drops four times a day; the chancre now looked much cleaner, and was free from pain.

On the 22d, Although the chancre looked clean, it had no appearance of healing, the dose of the acid was therefore increased to 25 drops, and on the 23d to 30 drops four times a day.

On

On the 25th, He complained of thirst, his tongue became a little white, but his pulse was not quickened; he made during the last 24 hours nearly two quarts of limpid urine; four ounces of blood taken from his arm this day appeared to be natural, or very nearly so.

On the 28th, The chancre shewed a disposition to heal; he still complained of thirst, and his tongue was a little furred; the acid was increased to 35 drops four times a day.

On the 30th, The chancre not being completely healed, the dose of the acid was increased to 40 drops.

On the 1st of April, It was completely healed, leaving a considerable indentation. He continued the medicine, however, several days longer, and was discharged cured on the 11th.

Although Gray complained frequently of his teeth and gums, the latter had never the appearance produced by mercury, nor was there the least tendency to salivation.

He remained perfectly free from disease on *June 10th*.

CASE VII.

COWEN, aged 19, belonging to the Corps of Drivers, was admitted *March 18th*, with several venereal chancres on the glans and prepuce; there was likewise an incipient bubo in the right groin.

He was ordered to take eight drops of the oxygenated muriatic acid four times a day, and to use the very dilute saturnine lotion already mentioned.

On the 20th, The chancre and bubo remaining much the same, the quantity of
the

the acid was increased to 20 drops four times a day.

On the 21st, A manifest fluctuation was perceived in the bubo: he was desired to continue the acid, and to apply an emollient poultice to the bubo three times a day.

On the 23d, The bubo had burst and discharged a considerable quantity of pus; the chancre looked much cleaner; the dose of the acid was increased to 25 drops.

On the 25th, He began to complain of thirst and a slight degree of head-ach; his tongue was white, but his pulse natural; the dose of the acid was increased to 30 drops.

On the 26th, The head-ach increased, accompanied with much languor, a white tongue, quick pulse and great thirst: 12 ounces of blood were drawn from his arm, on the surface of which, after cooling, there

was a thick crust of coagulable lymph; the dose of the acid was diminished to 25 drops.

On the 27th, He was much easier, being greatly relieved by the blood-letting.

On the 28th, The chancre and bubo remaining stationary, the quantity of the acid was increased to 30 drops four times a day.

On the 30th, The chancre and bubo looked very clean, and disposed to heal; he still complained of thirst, but felt no other sensible effect from the medicine; the dose of the acid was increased to 35 drops.

On the 1st of April, The quantity of the acid was further increased to 40 drops, four times a day.

On the 3d, He complained much of foreness in his mouth, but there was little or no redness in the gums, and no disposition to spit.

On

On the 5th, The appearance of both chancre and bubo was much more favourable, and although he complained of his teeth and gums, the dose of the acid was increased to 45 drops.

On the 7th, The bubo was nearly healed, and on the 9th was entirely closed up; the chancres likewise were perfectly clean and free from pain.

On the 10th, The quantity of the acid was increased to 50 drops four times a day. He still complained of thirst, but felt no other inconvenience from the acid.

On the 17th, The chancres shewed a disposition to heal; his thirst continued, and he made about 3 quarts of pale urine in 24 hours.

On the 19th, The chancres were nearly healed, and on the 22d were perfectly skinned over. He continued the acid, how-

ever, to the 30th, and was discharged cured *May 5th*.

CASE VIII

KILPATRICK, aged 20, belonging to the Corps of Drivers, was admitted March 18th, with chancres on the glans and prepuce, accompanied with phymosis, and an enlargement of the glands in the left groin. He had taken no medicines.

Eight drops of the oxygenated muriatic acid, diluted with an ounce of water, were ordered to be taken three times a day.

On the 20th, The dose of the acid was increased to 12 drops four times a day; and he was ordered to wash the chancres with the weak solution of the acetite of lead already mentioned.

On the 22d, The swelling of the prepuce was considerably diminished, and the tumor
in

in the groin remained stationary. The acid was increased to 20 drops four times a day.

On the 24th, Feeling no sensible effect from the acid, the quantity was increased to 25 drops four times a day.

On the 26th, He began to complain of thirst, and thought he made more urine than usual; his tongue was likewise white in the middle, and the pulse quicker than natural.

On the 28th, The appearance of the chancres was much the same, although the swelling of the prepuce had diminished; the lymphatics on the back of the penis were considerably inflamed, forming a hard cord; the dose of the acid was increased to 35 drops.

On the 31st, The appearance of the chancres, &c. continuing much the same, the quantity of the acid was increased to 40 drops four times a day, and on the 3d of *April* to 45 drops.

April 6th, He began to complain of his teeth and gums, but the latter were not inflamed, nor was there any appearance of salivation; the white tongue and thirst continued, or rather increased.

April 9th, The chancre looked much cleaner, and the inflammation of the lymphatics on the back of the penis was greatly diminished; the quantity of the acid was increased to 50 drops four times a day.

On the 12th, The cord formed by the lymphatics could not be perceived, and the discharge of the chancres had greatly diminished; the thirst and white tongue rather increased.

On the 15th, The chancres looked perfectly clean, but he complained much of thirst, and an acute pain in the right side of his chest, which affected his breathing, accompanied with cough; he was desired to diminish the dose of the acid to 40 drops, and to lose 8 ounces of blood from the arm.

April 17th, The cough and pain in the chest were almost entirely removed, being immediately relieved by the blood-letting; the blood drawn was cupped and remarkably fizy.

On the 18th, The quantity of the acid was increased to 45 drops four times a day.

April 22d, He was ordered 50 drops four times a day, and on the 28th the quantity was increased to four drachms daily. By this time the chancres were very nearly healed.

May 4th, The chancres were completely healed, leaving very deep indentations; but he continued the acid to the 12th, when he was discharged cured.

On June the 10th, He remained perfectly free from any complaint.

The obstinacy of the disease in this case must no doubt have been owing to some peculiarity

peculiarly of constitution. What would have been the effect of mercury in such a case: and would the cure have been more or less tedious?

C A S E S

TREATED BY

LEMON JUICE, OR THE CITRIC ACID.

CASE IX.

CLARKE, a Gunner in the Regiment, aged 21, had a chancre on the glans, apparently of no long continuance, and for which he was admitted into the Hospital *March 12th*.

He was desired to take an ounce of lemon juice, diluted with two or three ounces of water, three times a day, and to use the weak saturnine lotion.

March 15th, The chancre looked somewhat cleaner; not being sensible, however,
of

of any effect from the acid, the quantity was increased to an ounce four times a day.

March 17th, The chancre was partly healed, and perfectly free from pain; he now made more urine than usual, and the quantity, during the last 24 hours, amounted to two quarts, and a little better; his appetite was likewise improved.

On the 20th, The chancre was completely healed; he continued the lemon juice, however, to the 28th, and was discharged cured on *April 3d*.

A few days before he left off the acid, some ounces of blood were drawn from his arm; this did not materially differ from healthy blood, except in being a little more florid. This case upon the whole was slight, but the sore had nevertheless all the characteristics of the true venereal chancre.

CASE X.

CAMPBELL, a Driver, aged 24 years, was admitted into the Hospital *March 12th*, with several chancres on the prepuce and glans, and which he had perceived for eight or ten days; there was also a slight degree of paraphymosis: from his own account he had taken no medicines.

He was ordered to take an ounce of lemon juice, diluted with two ounces of water, three times a day, and to keep the parts clean with the usual weak saturnine lotion.

On the 15th, The chancres looked a little cleaner; perceiving no sensible effects from the acid, the quantity was increased to an ounce four times a day.

March 17th, The chancres were evidently cleaner and less painful, but a tumor began to make its appearance in the right groin, in consequence of which the acid was increased

creased to five ounces daily, and cold applications, consisting of a solution of the acetite or sugar of lead were frequently applied to the tumor.

On the 19th, The tumor in the groin had greatly diminished, and was much less painful; his appetite was now considerably increased, and he was sensible that he made much more urine than usual.

March the 22d, The chancre looked perfectly clean and disposed to heal, and the tumor on the groin was less painful. He was desired to continue the lemon juice, with the cold applications, and to have a number of small electric sparks drawn from the tumor once a day.

On the 26th, The chancre was nearly healed, and the tumor in the groin greatly diminished; he still continued the lemon juice, cold applications and electricity.

On

On the 29th, The chancre was healed, and the enlargement of the glans in the groin hardly perceptible. He never perceived any sensible effect from the medicine, except an increase in the quantity of his urine, and some improvement in his appetite.

On the 31st, The tumor in the groin entirely disappeared, but the lemon juice was continued to April 6th.

April 13th, There appeared an excoriation in the place where the chancre was, and the tumor in the groin began to return. The acid was resumed, and cold application had recourse to as before.

On the 19th, The excoriated part was completely skinned, and the enlargement of the glands rather less. The quantity of the acid was increased to eight ounces in the day.

On

On the 22d, The tumor had entirely subsided, and he continued well in other respects. The acid was persevered in, however, until the 28th, when he was discharged cured.

On June 10th, He remained perfectly free from any venereal complaint.

CASE XI.

JOHNSTONE, belonging to the Corps of Drivers, aged 18, and apparently of a scrophulous habit, was admitted *March 18th*, with a large chancre on the glans, and a considerable enlargement of the glands in the right groin; from his own account he had taken no medicines, nor used any external applications. He was ordered to take an ounce of lemon juice, diluted with about two ounces of water four times a day, and to apply cloths wetted with a cold solution of the acetite of lead to the tumor frequently.

March

March the 20th, The appearance of chancres and bubo remaining much the same, the quantity of acid was increased to five ounces four times a day.

On the 22d, The chancres looked cleaner, but the bubo increased, and manifestly contained a fluid.

On the 26th, The chancre was healed, but the bubo increased, and seemed advancing towards suppuration.

On the 28th, An emollient cataplasm was applied to the groin twice a day, the tumor now evidently containing pus. The acid was continued as before.

On the 31st, The tumor burst, and discharged a considerable quantity of pus.

April 4th, The discharge from the bubo was considerably diminished, and the hardness of the surrounding parts entirely dissolved.

cuffed. Common dressings were now applied, and the acid continued.

On the 7th, The bubo was furrounded by a kind of erysipelalous redness, and was rather more painful to the touch than for some days past. Over the common dressings he was desired to apply a cold poultice containing half a drachm of the acetite of lead, to be renewed night and morning.

April 10th, The erysipelalous redness had in a great measure disappeared, and the fore was now free from pain. The discharge was thin and watery, mixed with a proportion of a curdled kind of pus, similar to that from scrophulous fores. The acid and saturnine poultice were continued. He has never perceived any sensible effect from the acid, except a temporary one on his gums and teeth; and has had no remarkable thirst, although the quantity of urine has been increased.

On the 14th, The eryfipelatous rednefs furrounding the bubo having entirely difappeared, the faturnine poultice was difcontinued, and nothing but common dreflings applied.

April 18th, The bubo was nearly healed. As he perceived no fenfible effect from the acid, the quantity was increafed to fix ounces daily.

On the 24th, The fore was completely healed, but he continued the acid to the 6th of May, and was difcharged cured on the 11th. A few days before he left off the medicine, fome ounces of blood were drawn from his arm, this, after ftanding a fhort time, fhewed on its furface a very thin coat of coagulable lymph, of a bluiſh white colour.

In this caſe, during the whole cure, there was little or no general affection of the fyſtem, nor was there any appearance in the
mouth

mouth fimilar to that occafioned by mercury. The forenefs which he fometimes complained of in his gums was temporary, and produced fimply by the local action of the acid.

C A S E S

TREATED BY THE

OXYGENATED MURIATE OF POTASH.

CASE XII.

BERRYMAN, a Gunner belonging to the Horfe Brigade, aged 17, was admitted *April 27th*, with feveral venereal chancres on the glans and prepuce, accompanied with a confiderable enlargement of the glands in the left groin; the chancres were perceived about ten days before his admiffion: from his own account, and other probable circumftances, he had taken no medicines.

He was defired to take three grains of the oxygenated muriate of potafh four times a day, and to ufe as a lotion a very weak folution of the acetite of lead.

On the 29th, The tumor in the groin rather increased, and was much more painful. Feeling no sensible effect from the oxygenated muriate of potash, the quantity was increased to four grains four times a day, and the tumor was electrified once a day, by drawing small sparks from it by means of a metallic point.

May the 1st, The chancres looked clean, and the tumor in the groin was considerably diminished; five grains of the salt were now given four times a day, and the electricity continued.

On the 4th, The chancres were nearly healed, and the tumor was much smaller; his tongue had now become white in the middle, and his pulse was considerably quickened, being nearly 90 in a minute; he also complained of thirst.

On the 6th, Appearances being much the same, the quantity of the oxygenated muriate of potash was increased to six grains
four

four times a day. A little blood drawn from his arm the day before was evidently fizy.

May 9th, The chancres were healed, but the tumor in the groin had increased; electricity was omitted, and a cold solution of the acetite of lead frequently applied to the tumor.

On the 13th, A manifest fluctuation could be perceived in the bubo; the cold applications were continued, and the quantity of the salt increased to seven grains four times a day; and on the 16th the dose was still further augmented to eight grains.

May 18th, The bubo burst, but did not discharge much pus, being now very circumscribed. His tongue was still white, and he complained much of thirst; the same quantity of the salt was continued.

On the 22d, The discharge from the bubo was very trifling, consisting chiefly of a thin

N 3

lymphatic

lymphatic fluid. There was no furrounding hardness, nor was it in the least painful.

On the 29th, It was completely healed; the oxygenated muriate of potash was, however, continued in the quantity of eight grains four times a day to *June the 4th*, and on the 7th he was discharged cured.

This man, during the whole cure, never perceived any affection of the mouth similar to that produced by mercury.

His appetite was at no period so keen as in those cases where the acids were employed, nor was the quantity of his urine augmented in any sensible degree.

CASE XIII.

BEATES, a Gunner belonging to the Regiment, aged 17, was admitted *May the 8th*, with a number of venereal chancres on the
glans,

glans, accompanied with phymosis, which had been discovered several days before his admission. He had taken no medicines.

Three grains of the oxygenated muriate of potash were ordered to be given four times a day, and the chancres to be frequently washed with a very dilute solution of the acetite of lead.

May 10th, He perceived no sensible effect from the medicine, and as the phymosis increased, he was ordered to take five grains of the salt four times a day, and to confine himself to bed.

On the 12th, The swelling of the prepuce was greatly diminished, so that it could be retracted, and the chancres were perfectly clean and free from pain. His tongue was white, but he did not complain of thirst. The quantity of salt was increased to seven grains four times a day.

On the 14th, The chancres were very nearly healed. He now complained of thirst, and his tongue was furred considerably in the middle; his appetite was not increased, nor did he perceive any augmentation in the quantity of his urine. The pulse was natural, or very nearly so.

May 16th, The chancres were completely healed, but he continued the oxygenated muriate of potash, in the quantity of half a drachm daily until the 26th; and on the 29th was discharged cured.

In this case there was no affection of the mouth similar to that produced by mercury,

CASE XIV.

PATNER, a Driver belonging to the Brigade of Horse Artillery, aged 20, was admitted *May 8th*, with several venereal chancres on the glans and prepuce, and the latter was considerably thickened. These had made
their

their appearance for two or three weeks before he applied to his surgeon. He had taken no medicines.

Three grains of the oxygenated muriate of potash were ordered to be taken four times a day, and the sores to be frequently washed with the usual saturnine solution.

On the 10th, Feeling no sensible effect from the medicine, the quantity was increased to five grains four times a day.

On the 42th, The chancres looked considerably cleaner, and were less painful; his tongue was a little white in the middle, but he did not complain of thirst; he was desired to take seven grains of the oxygenated muriate of potash four times a day, and on the 18th the dose was increased to eight grains.

May 22d, The chancres were nearly healed, and the quantity of the salt was increased to 36 grains in the day.

On

On the 29th, They were all completely healed, but he continued the medicine to the 4th of *June*, and was discharged cured on the 6th.

In this case there was no sensible effect produced by the salt during the whole cure, except a slight fur on the tongue, and at times a greater inclination to drink than usual.

CASE XV.

BABBE, a Gunner in the Regiment, aged 22, was admitted *May 25th*, with a venereal chancre on the prepuce of about eight days continuance. From his own account he had taken no medicines, nor used any external applications.

He was directed to take six grains of the oxygenated muriate of potash four times a day, and to make use of the usual weak saturnine lotion to keep the parts clean.

On

On the 28th, The chancre looked cleaner and was less painful; the quantity of the salt was increased to seven grains four times a day.

On the 30th, The chancre was perfectly clean and seemed disposed to heal; feeling no effect from the oxygenated muriate of potash, the quantity was increased to 32 grains in the day.

June 2d, The fore was completely healed, but he continued the salt in the same quantity to the 6th, and was discharged cured on the 8th.

In this case very little general action was produced in the system; the tongue, however, was at one time a little white in the middle, and there was more thirst than natural.

CASE XVI.

KING, a Gunner in the Regiment, aged 22, was admitted *May 8th*, with several large venereal chancres on the prepuce. These made their appearance about the beginning of the month, and had increased very rapidly both in number and size. He was manifestly of a scrophulous habit, having red hair and large scars from scrophulous ulcers on different parts of his body. From the peculiar situation in which he had for some been placed, it was impossible he could have taken any medicines.

Four grains of the oxygenated muriate of potash were ordered to be taken four times a day, and the parts to be frequently washed with the usual dilute solution of the acetite of lead.

On the 10th, No material alteration having taken place, the quantity of the salt was
increased

increased to 20 grains daily, and on the 12th to 28 grains.

May 15th, His tongue was now a little white in the middle, and he complained of thirst. There was likewise a little erysipelatous inflammation surrounding the chancres. In order to remove or limit this inflammation, a drachm of bark in substance was ordered to be taken along with the salt four times a day.

May 18th, The erysipelatous inflammation was less, but the appearances in other respects much the same; the quantity of the oxygenated muriate of potash was increased to 32 grains in the day, and the bark was continued.

May 22d, The chancres were much cleaner and less painful; he now complained greatly of thirst, and his tongue was considerably furred in the middle. The pulse was natural, the appetite good, and there
was

was no sensible increase of heat on the skin, nor, although the quantity of his drink was more than usual, was there any remarkable augmentation in his urine; nine grains of the salt were now ordered to be taken four times a day, and the bark to be continued.

May 27th, The chancres were now much less painful, and some of them beginning to heal; the erysipelatous inflammation had also in a great measure disappeared. The quantity of the salt was increased to 40 grains in the day, and the bark continued.

May 30th, Several of the chancres were healed, and the rest perfectly clean; he thought his appetite better than when in health, although the white tongue and thirst remained, or rather increased; 12 grains of the salt were ordered to be taken four times a day, and the bark omitted.

June 3d, The inflammation about the chancres had increased, in consequence of which

which the bark was again ordered, to the quantity of five drachms daily, and the salt continued as before.

June 7th, The erysipelatous inflammation had disappeared, and the chancres were nearly healed. The bark and oxygenated salt were continued.

June 10th, The chancres were very nearly healed. The bark was now omitted, and the oxygenated muriate of potash increased to 14 grains four times a day.

June 18th, The chancres were completely healed, but he continued the oxygenated salt to the *25th of June*, and was discharged cured, on the *30th*.

The chancres in this case healed more slowly than usual, but this may readily be accounted for from the scrophulous habit. A few ounces of blood drawn from his arm before he left off the oxygenated salt, did

did not differ sensibly in its appearance from healthy blood.

CASE XVII.

CROUCHER, belonging to the Corps of Drivers, aged 28, was admitted *June 11th*, with a large chancre on the prepuce, of several weeks continuance, accompanied with a very considerable enlargement of the glands in the upper part of the left thigh and groin. From his own account, and other corroborating circumstances, it did not appear that he had taken any medicines.

He was ordered to take six grains of the oxygenated muriate of potash four times a day, and to apply a cloth dipped in a cold solution of acetite of lead to the inflamed glands frequently.

On the 13th, Feeling no sensible effect from the medicine, the quantity was augmented

mented to eight grains four times a day, and the cold applications continued.

On the 16th, The chancre was perfectly clean and free from pain, but the tumor in the groin rather increased, and evidently contained pus. The dose of the salt was now increased to 10 grains, and on the 17th to 12 grains four times a day.

On the 18th, He complained of griping and purging, which he thought was owing to the medicine, it was nevertheless continued, and a grain of opium given at bed time.

On the 20th, The complaint in his bowels had disappeared, and the chancre was very nearly healed. The tumour in the groin was advancing to suppuration. The same quantity of the salt was continued.

On the 22d, The chancre was completely healed; and on the 23d the bubo burst, and discharged a small quantity of matter; it

was now perfectly free from pain, nor was there any hardness surrounding it. Simple dressings were applied, and the salt continued in the same quantity as before.

On the 25th, The discharge from the bubo was very trifling.

On the 28th, The bubo was very nearly healed; and on the 30th was completely so.

IN all the above cases no particular regimen or diet was prescribed, nor were any of the patients, except those with phymosis, confined, either to their beds, or wards. Their diet was of two kinds—The one consisted of milk, animal food, bread, and a pint of table beer; and the other of animal food, with a sufficient quantity of bread and vegetables, and a quart of table beer.

We think it necessary to observe, that should relapses take place in any of the foregoing cases, they shall be faithfully related at some future period.

OBSER-

OBSERVATIONS

ON

THE FOREGOING CASES.

IT would appear from the cases just related, that the nitrous, citric, oxygenated muriatic acids, and more particularly the oxygenated muriate of potash, are capable of removing the primary symptoms of the Lues Venerea, and that too without producing any thing like mercurial salivation. How far these cures may be permanent, or whether the secondary symptoms may not hereafter supervene, can only be determined by further experience and observation; as the primary symptoms, however, have not yet returned in any one case, we should suppose that these have been completely removed; the only doubt therefore which can reasonably remain, must relate to the secondary ones; but if in a few instances even these should make their appearance at

some future period, it can form no solid objections to this mode of treatment, as similar consequences frequently follow the use of mercury. (*See Hunter on the Venereal Disease.*)

In our first trials it was judged proper to confine ourselves to cases of primary affections; these being always less equivocal and doubtful; we intend, however, when an opportunity shall offer, to employ the same substances in the most advanced states of the disease, particularly where mercury has either failed, or had little effect.

Before we attempt to explain the *modus operandi* of these remedies, it may be proper to take a review of their effects on the constitution in general, as observed in the above cases.

The general effects produced by the acids, were an increase of appetite, an augmentation in the quantity of urine, more or less thirst, white tongue, and an increased action
of

of the whole system, most generally accompanied with fizy blood. The Oxygenated Muriatic Acid appeared to be the most active, and the Citric Acid the least so. The Nitrous Acid in a few instances likewise affected the bowels. The Oxygenated Muriate of Potash produced thirst, the white tongue and the increased action of the system, in a more remarkable degree than the acids, but there was less alteration perceived in the quantity of the urine, and the appetite. The effects therefore induced in common by these different substances, appear to be a general increased action of the whole system, accompanied for the most part with fizy blood.

That this increased action is occasioned by the disengagement of oxygene, is rendered highly probable from the following considerations.

1st. It is now sufficiently known that oxygene is the substance which imparts to

the different acids their activity, their tendency to combination, and other characteristic properties, their radicals being all different, and possessed of powers either opposite, or in no respect similar to those of the compounds or acids.

2d. The Oxygenated Muriate of Potash appears to be in fact, nothing more than the common muriate, combined with nearly half its weight of oxygene; for if this substance be exposed to heat in a retort, a very large quantity of the purest oxygene gas is disengaged, what remains undecomposed being the common Muriate of Potash, amounting to a little better than half the weight of the salt employed. Now it must be allowed that the common Muriate, at least in the doses given upon the present occasion, could not have produced the remarkable effects, which we have ascribed to the Oxygenated Muriate. This difference of effect must therefore be owing to its combined oxygene, a circumstance rendered the more probable when

when we reflect that a similar action is produced by the union of the same substance with the radicals of the acids.

3d. When oxygen gas has been inhaled into the lungs, a general increased action of the whole system has succeeded, and that sometimes to a very remarkable degree. (*See Beddoes on the Medical Qualities of Factitious Airs, &c.*)

From these considerations therefore we would infer, that the general or constitutional effects which have been observed to follow the use of these remedies, must be ascribed to the disengagement of their oxygen.

How then does this increased action cure the local sores produced by the venereal virus? Is it true that all general affections of the system suspend for a time the local ones, the consequence of this poison, or must we have recourse to some specific powers, as has generally been the case in explaining

the action of mercury? We are inclined to adopt the first hypothesis, and to suppose, with Mr. Hunter, that mercury, as well as the remedies under consideration, cure this disease by exciting a new action in the system, in consequence of which the syphilitic one is suspended; and this suspension being continued for a sufficient length of time, the whole of the virus, from the change which the fluids naturally undergo, is at last completely expelled from the body.

With regard to the last hypothesis, we may observe, that there can be little or no doubt that if oxygene could be applied directly to this poison, it would destroy it specifically, in the same manner as it destroys many others; but it is extremely difficult to conceive how this substance, so prone to combination, should, when taken in by the mouth, be applied in its pure state to a remote local sore, in a quantity sufficient to produce any sensible effect; and this objection applies still more strongly to mercurial remedies, because in some of these,

as the Mercur. Muriat. Corrosiv. and Mitis, the quantity of oxygene disengaged must be extremely small. From these considerations, therefore, we are inclined to adopt the opinion of Mr. Hunter, and to suppose that these different remedies produce their effects, by exciting a new disease, or action in the system; and that this action, for the reasons already given, is produced by the disengagement of their oxygene. If this theory be correct, we have no more reason to expect relapses after a course of these acids, &c. than after one of mercury; nay, if we should suppose the virus to be absorbed, and carried into the general mass of circulation, where it must be exposed to the action of the disengaged oxygene, the patient, upon the whole, might be considered as more secure, for there will be a greater chance in this case of its complete destruction and eradication. This is a point, however, which experience alone can determine.

If these remedies should be found, from further experience, to be adequate to the
cure

cure of this disease in all its stages, the advantages which they possess over mercury are so great and important, that they must soon supersede its use. They require no particular regimen, no confinement, are not accompanied with any disagreeable consequences during their operation, and they seem in general to produce their effects more quickly and certainly, particularly the Oxygenated Muriate of Potash. But what we consider to be of far greater importance is, that they do not appear to excite the action of other diseases, more especially scrophula; one of the greatest inconveniences attending a mercurial course, and by which many have lost their constitutions, and several their lives. Mercury, besides its occasionally bringing other diseases into action, has also very deleterious effects upon particular habits, and this has been so remarkable in certain cases, that, from the necessity of occasionally leaving it off, cures have been not only protracted, but the complaint has had an opportunity of running through all its different stages, by which the constitution

tution has too often suffered an irreparable injury. No disagreeable circumstances of this kind are likely to follow the use of these acids, or the oxygenated muriate of potash, for although they were given in several scrophulous habits, this disease was not brought into action, nor did the health suffer in the least, on the contrary, it in general seemed to be improved.

Although we suppose that mercury and the acids, &c. cure the venereal disease by exciting some peculiar action in the system, the nature of these we nevertheless conceive to be perfectly different; the mercurial action must no doubt be owing to the metal, and not to oxygene, for all the mercurial preparations, whether oxyds or combinations with acids, produce salivation, ulceration of the tongue and mouth, &c. very much alike; effects which we have shewn are not occasioned by oxygene disengaged under different circumstances. The mercurial action is also accompanied with an impaired appetite and general wasting, the
reverse

reverse of which takes place during the action of the other remedies. Indeed the white tongue and fizy blood appear to be the only circumstances common to both, for in all other respects they differ essentially. We know it has been said that the nitrous acid produces salivation, but this is certainly a mistake, which has probably arisen from confounding the local and temporary soreness in the gums and teeth, occasioned by the acid, with the inflammation and ulceration produced by mercury; for in no one instance, even where the common concentrated acid was given to the quantity of three drachms daily, did we perceive any thing like mercurial salivation. The mercurial action we therefore conceive must be owing to the metal rendered active by its union with acids, &c.; but that of the acids and oxygenated muriate of potash to the disengagement of their oxygene.

Of the different substances which we have yet employed, we would prefer the nitrous acid and the oxygenated muriate of potash;
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the first, because it may be readily procured, and seems in most cases sufficiently active, and the last on account of its being by far the most efficacious and certain, producing in most instances an almost immediate effect upon the disease, without injuring the constitution. The nitrous acid which we have hitherto used, has never been perfectly pure, nor highly concentrated, in short it was nothing more than the common fuming acid of the shops. The nitric acid has not been tried, nor do we conceive that it would possess any superior advantages. This medicine generally produces a sensible effect in 6 or 8 days, and frequently accomplishes a cure in 15 or 16. We have generally begun with a drachm in the day, diluted with about a pint and a half of water; but where the acid is only of the usual strength, and free from any metallic impregnation, a drachm and half, or even two drachms, we believe will seldom be found too much. We have never exceeded three drachms in the day, but we do not by any means suppose this to be the greatest quantity which can be given
with

with safety and advantage. Of the oxygenated muriate of potash, we have generally begun with three or four grains, although in general six or eight may be given at first four times a day; where it produces sickness or griping, (which is sometimes the case) the dose should be diminished. We have never yet exceeded the quantity of 15 or 16 grains four times a day, not but that more might have been given, had it ever been found necessary. In one very recent case this salt has succeeded where the nitrous acid appeared to have had little or no effect, although given for some time to the quantity of three drachms daily.

One of the greatest objections to the oxygenated muriate is, the difficulty of preparing and purifying it; nor is there any process yet known, by which it can be manufactured and sold at a low price; for these reasons we have no doubt that a very impure kind will be offered for sale, the consequences of which must be, want of success and disappointment to those who employ it.

Its

Its purity may be judged of by attending to the following circumstances; the crystals should be shining flat rhomboidal scales or tablets, without any mixture of cubes; they should have little or no taste, and when thrown upon red-hot coals should detonate rapidly, with a very vivid flame and without any decrepitation; but when the crystals feel rough, have a bitter saltish taste, and decrepitate much when thrown upon live coals, we may be certain that they contain a considerable proportion of the common muriate of potash, which is always formed in great quantity during the process. This salt, when perfectly pure, does not decompose the nitrates of silver or mercury. But this degree of purity is not necessary when it is to be employed as a medicine; only when completely or nearly freed from the common muriate, a smaller dose will be sufficient, and much less thirst excited.

The oxygenated muriatic acid appears likewise to be a very efficacious remedy in this complaint; but in the way in which it
is

is usually prepared, it always contains manganese, and not unfrequently lead, particularly when the manganese employed has been brought from Bristol, for the manganese from the Mendip-hills very generally contains more or less of this metal. In every case where either the oxygenated muriate of potash or oxygenated muriatic acid are prepared in a medicinal point of view, nothing but the purest crystallized manganese should be used, that from Upton-pine, near Exeter, is the best. The acid given in the four cases related above, was procured by adding the common muriatic acid to the oxygenated muriate of potash, by this means a very large quantity of the purest oxygenated acid may be quickly obtained; and it is this process we have been in the habit of using for some time, where a very pure acid for delicate chemical experiments has been required.

Instead of making the gas pass through water in the usual way, the oxygenated salt was sometimes simply added to the common
muriatic

muriatic acid, diluted with about an equal bulk of water; in this case the salt was slowly decomposed, and the acid converted into the oxygenated acid. About a drachm of the salt, when pure, was found to be sufficient for three ounces of the dilute acid: of this we have given to the extent of half an ounce in the day, always beginning, however, with a much smaller quantity.

We have thrown out the preceding observations on the nature of these remedies, and their supposed mode of operation, principally with a view to draw the attention of others to this important subject, and to induce them to watch their effects on the constitution in general, by which we may be led to try them in some other diseases, where, from their great activity, it is highly probable they may be found of very considerable utility.

SOME
EXPERIMENTS AND OBSERVATIONS
ON THE
NATURE OF SUGAR.

THE following observations are intended merely to explain the nature and formation of the saccharine principle as far as may be necessary to illustrate some of the most important points in the treatment of Diabetes; a complete investigation of its nature and properties would be foreign to the present subject.

Sugar has been supposed to be a substance intermediate between mucilages and vegetable acids, containing more oxygen than mucilage, and less than the acids: to ascertain this and some other circumstances, the following experiments were instituted.

Two ounces of refined sugar were introduced into a retort, and exposed to a heat gradually

dually increased until its bottom became red hot: there came over into the receiver 7 drachms of a sharply acid liquor, which required 132 grains of a solution of potash to saturate it; this liquor was mixed with a little empyreumatic oil; the charry residuum which remained in the retort weighed 7 drachms, the quantity of gas which escaped during the operation must therefore have amounted to two drachms; some of this was examined, and found to consist of a mixture of carbonic acid gas and hydro-carbonate.

Two ounces of gum arabic were introduced into a retort at the same time, and exposed to a heat in every respect similar; the quantity of acid liquor which came over into the receiver amounted to 7 drachms and 15 grains, this contained a little more empyreumatic oil, but was not so sharp as that obtained from the sugar, and required only 117 grains of the same solution of potash to saturate it; the charry residuum which remained in the retort weighed 5 drachms and 45 grains; the quantity of elastic fluid

or gas which escaped during this process must therefore have amounted to 3 drachms: it consisted, like the former, of a mixture of hydro-carbonate and carbonic acid gas, but towards the end of the operation the proportion of hydro-carbonate was more remarkable. From these experiments it would appear that sugar yields by distillation more pyromucous acid than gum, in the proportion of 132 to 117. The residuary charcoal of the sugar also exceeded that of the gum by 1-7th, but this may in some measure be accounted for from the greater quantity of the hydrocarbonate yielded by the latter. As oxygen is now allowed to be the universal acidifying principle, and as the acid yielded in both instances (viz. the pyromucous) was exactly of the same kind, it may be reasonably inferred that the sugar which afforded the greatest quantity of acid, contained likewise the greatest proportion of oxygen; for it is probable that both the carbonic acid, and the hydro-carbonate, were formed from the decomposition of the water by the carbons of these substances, as
neither

neither were produced in any quantity until near the end of the operation; the oxygene therefore contained in the former should not be considered as entering essentially into the composition of either the gum or sugar.

It is well known that vegetable mucilages, and fæcula are somehow converted into sugar by malting, we conceived therefore that it would throw considerable light on this subject, to observe with more attention than had hitherto been done, the particular changes and decompositions which take place during this process; it was with this view that the following experiments were made.

December 1st, 1796. A quantity of barley, after being soaked in water for 24 hours, was put into a wine glass and introduced into a jar containing common air, and inverted over water: the temperature in this and the following experiments was preserved between 60 and 70 as nearly as possible. At the end of 5 days it began to grow, and on the 28th the greatest part had thrown out

shoots at least half an inch in length. On February 7th, vegetation was still going on, and the air in the jar had somewhat diminished; the barley being now withdrawn, was found to be very sweet, and nearly converted into the state of malt. The air in the jar was found to consist of azotic and carbonic acid gas, in the proportion of 20 to 6, the whole of the oxygene being either absorbed or converted into carbonic acid.

January 19th, 1797. A quantity of barley, previously steeped in water for 48 hours, was introduced, as in the last experiment, into a jar containing oxygene gas, and inverted over water, to which sulphuric acid had been added. At the end of 3 days it began to grow, and this process went on to the 29th. The water had now risen considerably in the jar, the gas having suffered a diminution of about one third. The barley being withdrawn, smelled completely of malt, and tasted sweet. The gas in the jar, on examination, was found to consist of 64 parts carbonic acid, 32 azote, and 4 oxygene,

gene, from which it would appear that the air employed in this experiment had contained originally about 20 per cent. of azotic gas.

To be more certain of the nature of the change which the pure air undergoes in this process, the experiment was repeated as follows.

January 23d, A quantity of barley, soaked in water for two days, was introduced into a jar containing 46 measures of very pure oxygene gas, and inverted over mercury. At the end of three days the barley began to grow, and this process continued for 10 days, although very slowly; the column of gas remained exactly of the same height, so that it had undergone no apparent diminution or increase; the barley being withdrawn, the air in the jar was examined, and found to consist of carbonic acid gas, mixed with only 1-50th of its bulk of oxygene gas. The barley was partly converted into malt, the quantity of oxygene being insuffi-

cient to produce this change upon the whole.

Another experiment with common air was made at the same time, and exactly under similar circumstances. In this case the barley did not begin to grow until the end of the 4th day; and at the end of 10 days had made much less progress than that in the oxygen gas. It was now withdrawn, and the air in the jar, which had increased a little, examined, when it was found to consist of carbonic acid and azotic gas, in the proportion of 1 to 2 very nearly, mixed with a very small quantity of oxygen gas; a little of the barley tasted sweet.

Being now satisfied that during the evolution of the saccharine principle from vegetable mucilage, a quantity of oxygen was either absorbed or converted into carbonic acid; we wished to know if this process could take place in any degree without the presence of this gas.

In order to determine this point, the following experiments were made.

January 20th, A quantity of barley, soaked as in the former experiments, was introduced into a jar filled with and inverted over mercury. At the expiration of 12 days a very considerable quantity of gas was produced, at least five or six times the bulk of the barley; but nothing like vegetation was perceivable. The gas, on examination, was found to consist of carbonic acid, being entirely absorbed by lime-water. The barley had not the least sweet taste, nor did it appear to have undergone any sensible change.

On January 20th, Another portion of the same soaked barley was introduced into a wine glass, and placed in a jar containing nitrous gas, inverted over water. At the expiration of 10 days, the gas had undergone a slight diminution, but there was not the smallest appearance of vegetation. The barley being withdrawn and examined, was
found

found to have undergone no apparent change. The gas contained about 1-9th of its bulk of carbonic acid, the remainder being pure nitrous gas, as was manifest from the diminution it underwent when mixed with pure air. The nitrous gas which disappeared in this instance must have been absorbed either by the barley or the water; the carbonic acid which was found mixed with it, is accounted for by the last experiment.

Two other portions of soaked barley were introduced into jars, the one containing hydrogenous, and the other azotic gas, and inverted over mercury. At the expiration of 12 or 14 days there was not the least appearance of vegetation in either, but the gas in both had increased in bulk about 1-5th. The barley being withdrawn and examined, that in the hydrogenous gas tasted musty, but not in the least sweet; the portion in the azote appeared to have undergone no change. The gas in both jars contained from 1-3d to 1-4th of its bulk of
carbonic

carbonic acid, the remainder being the original gases not sensibly changed.

From these experiments, therefore, it is manifest that oxygen is absolutely necessary for the conversion of vegetable mucilage into sugar; as in no one instance was saccharine matter formed where this was not present, and the quantity of the former was always in proportion to that of the latter; for we found in all the experiments, that when the oxygen was consumed this process immediately ceased.

It may still remain doubtful, whether the oxygen is absorbed by the barley, or merely converted into carbonic acid; we are inclined to think that it is chiefly absorbed, although part may also be consumed in the formation of this acid; for we have seen that carbonic acid is formed without the presence of oxygen gas, and that in very considerable quantity, which we conceive must proceed from the decomposition of the water whose oxygen unites with the
carbonaceous

carbonaceous principle of the barley whilst its hydrogen is fixed, and may be necessary to the production of the saccharine principle. We suppose, therefore, that vegetable mucilage is converted into sugar by being deprived of part of its carbone, whilst at the same time it is combined with a greater proportion of oxygen, and probably also with hydrogen, from the decomposition of the water. Thus then, both from analysis and synthesis, it would appear that sugar contains more oxygen than gum or mucilage. From this hypothesis it should follow, that if sugar be deprived of part of its oxygen, it must lose its sweetness, and form something like a gum. To see how far this might be accomplished was the object of the following experiments.

A quantity of syrup was introduced into a jar filled with and inverted over mercury, to this was admitted about an equal quantity of the phosphuret of lime; a considerable production of phosphoric gas almost immediately took place, and the mercury descended

descended in the jar. At the expiration of eight days the syrup was withdrawn and examined; it had no sensibly sweet taste, but rather a bitter astringent one; when filtered, alcohol produced a copious white precipitate in flakes, very much resembling mucilage separated from water by the same substance.

This experiment was somewhat varied as follows: a little refined sugar was dissolved in alcohol, and to this solution a little phosphuret of lime was added, no phosphoric gas was disengaged, nor was there any apparent action produced. More phosphuret being added, the mixture was allowed to remain in an open phial for several days. The alcohol having now evaporated, some distilled water was added, but this produced no disengagement of gas, as the phosphuret had been decomposed, and converted principally into phosphat of lime. The mixture being filtered, and the clear liquor evaporated, there remained a substance extremely tenacious, and which had much the appearance of gum arabic; its taste was bitter,

ter, with a very flight degree of sweetness; when squeezed between the teeth it had exactly the feel of gum, but more tenacious. It did not appear to be soluble in alcohol, or at least in any considerable quantity; when thrown upon a red-hot iron it burned like gum, and left a bulky and insipid charcoal.

It would appear that the saccharine principle had been destroyed in these experiments, and converted into something resembling a gum; that this was effected by the abstraction of oxygen is rendered highly probable, from the nature of the substance employed, and the change which it was found to have undergone, for there are few substances which have so strong a tendency to combine with oxygen as the phosphuret of lime.

Some other trials of a similar nature were made, by mixing solutions of sugar with the different sulphurets, and by agitating them with nitrous gas in close vessels. The sulphurets, more especially that of potash, manifestly

manifestly destroyed the saccharine taste, but on account of the solubility of the different products, the particular change produced could not be so easily and accurately ascertained. The action of the nitrous gas was more doubtful.

In order to be satisfied how far the effects produced on the sugar in the former experiments might be owing to the abstraction of oxygen, I added to solutions of this substance in water both lime and pure potash, and boiled the mixtures for some time; the lime appeared manifestly to combine with the sugar to which it communicated a very bitter astringent taste, but it was still sweet; a little alcohol added to the filtered solutions produced a precipitate in white flakes, somewhat similar to that in the experiment with the sulphuret of lime, and which appeared to be a combination of sugar with lime. Some of the filtered solution being evaporated by a gentle heat, there remained a semi-transparent substance, much more tenacious than the thickest syrup, but not equal
to

to that produced by the phosphuret of lime, and it had a rough bitter taste, mixed with a certain degree of sweetness. The potash likewise appeared to combine with the sugar, the sweet taste being more completely destroyed than by the lime; but on the addition of sulphuric acid, sulphat of potash was formed, and this being precipitated by alcohol, the sweetness appeared to be completely restored. It may likewise be proper to observe, that when alcohol was added to a portion of the solution of sugar and pure potash, after it had been boiled to the consistence of a syrup, no union took place, but the alcohol, notwithstanding the mixture was completely and repeatedly agitated, still swam pure on the top; a circumstance which would seem to prove that a new compound is formed by these substances, which is not soluble in this fluid, although they are both completely so in a separate state.

Having found that sugar might be converted into a species of gum, by depriving
it

it of part of its oxygene, we conceived that gum might, by the addition of oxygene, be changed into a substance resembling sugar; but although several trials were made, with a view of combining oxygene in different proportions with gum arabic, no remarkably sweet taste was ever perceived, on the contrary, in every experiment it seemed to run very readily into the acid state, particularly when it was exposed to the action of the oxygenated muriatic acid gas.

Indeed when we reflect on the change which vegetable mucilage must undergo in the process of malting, the simple addition of oxygene does not appear to be sufficient, for it is probable, from the decomposition of the water, that some of its hydrogen is fixed whilst its oxygene disengages and unites with a certain portion of charcoal, forming the carbonic acid. Although, therefore, sugar and mucilage consist of the same principles, viz. carbone, hydrogen and oxygene, yet unless these are combined in certain determinate proportions, the former,

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SOME ADDITIONAL FACTS
IN TESTIMONY OF THE EFFICACY OF THE
NITROUS ACID
IN CURING
THE LUES VENEREA.

THESE FACTS have been communicated by the GENTLEMEN whose names precede them. To these GENTLEMEN we owe our thanks, and we trust the present publication will do them credit.

*From DR. IRWIN, Surgeon to the Brigade of
Royal Horse Artillery, 20th May, 1797.*

CASE I.

DRIVER M'VEY, Æt. 20, was admitted into the Hospital on the 23d March, 1797, with phymosis, and much discharge from between the prepuce and glans, attended

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with

with a small degree of inflammation at the extremity of the prepuce.

He was ordered one drachm of the nitrous acid, in a quart of water daily.

On the 5th day he could readily denude the glans, which was found to be much excoriated, but no chancre was discernible. He was directed to wash the part with a saturnine lotion three or four times in the day.

On the 31st March, He was discharged the Hospital cured.

The only sensible effects of the nitrous acid were, a white tongue, and accelerated pulse.

CASE II.

GUNNER BROWN, a stout healthy man, *Æt.* 23, was admitted into the Hospital on the *1st April*, with a large tumor in the
right

right groin, of the size nearly of a hen's egg; there was no chancre, or other complaint.

He was directed to take one drachm of the nitrous acid daily, and electric sparks to be drawn from the tumor every morning.

On the 18th May, He was discharged, the tumor having almost entirely subsided; a small induration merely perceptible to the touch remaining.

The same sensible effects were produced by the acid in this, as in the former case.

From DR. JAMESON, Surgeon to the First Battalion of Royal Artillery, 12th June, 1797.

ON our determining to try the nitrous acid in the venereal disease, in the Hospital at Woolwich, it was at the same time judged proper to select the most marked cases for the clinical ward, where the whole

of the medical gentlemen might have an opportunity of observing the progress, and effects of the medicines.

The more immediate care of that ward having devolved upon Mr. Cruickshank for the last three months, I have as yet had but few cases amongst my own patients deserving much attention, and of these I shall mention only the result, without relating the daily progress.

GUNNER SHERRAR, *1st Battalion*, admitted into Hospital, with bubo, *10th March*, 1797, began the acid the same day, and was discharged cured *26th of April* following.

GUNNER KAIN, *4th Battalion*, admitted *10th March*, with chancres, discharged cured *26th of May*.

GUNNER EVANS, *1st Battalion*, admitted *10th March*, with chancre, discharged cured *16th April*.

GUNNER

GUNNER MORE, *1st Battalion*, admitted 10th *March*, with chancre, discharged cured 19th *April*.

GUNNER CLARK, *1st Battalion*, admitted 10th *March*, with chancre, discharged cured 11th *April*.

On the day that the above men were admitted, there was a general examination at the Hospital of the men of the 1st and 4th Battalions, to detect venereals, which afforded an opportunity of selecting cases, and in the five which came under my care the disease was but slight; at the same time I think I may be allowed to say, after nineteen years military practice, that the appearances in each case were sufficiently characterised to leave no doubt of their being venereal.

I have reason to believe also that none of them had taken mercury previous to beginning the acid, as they affirmed that they had
not,

not, and upon examining them, it was not discernible from the gums or any other circumstance.

No internal remedy but the nitrous acid, or other external application was used but a little milk and water, which in the cases of chancre I judged necessary to cleanliness.

They all began the acid the day they were admitted, one drachm at first being diluted in a wine bottleful of water, which was given to each in the course of the day; but in Kain and Clark's cases, the quantity was gradually increased to two drachms.

White tongue, quick hard pulse, and other appearances of increased action, generally supervened about the 7th day.

I did not observe any foreness or other appearance in the mouth, than what might be expected merely from the sharpness or astringency of the acid.

Their

Their appetites seemed remarkably good during the time they were taking the acid, which produced no particular effect upon the bowels in the five cases I have already mentioned; but in Gibbs's and Buxton's, now in the Hospital under cure, it occasioned a sensation like heart-burn, or, as Buxton expressed himself, like scalding water in his stomach immediately after taking it; however it did not affect them in this manner until each of them had taken it several days; and though I diminished the quantity to less than half a drachm daily in both cases, I was at last obliged to omit it altogether.

Buxton had taken mercury for three weeks previous to beginning the acid; had a large ulcer in the groin, and was much debilitated, which induced me to substitute the acid.

Gibbs had also taken mercury above a month, and was much debilitated by a large suppurating bubo in the groin at the time
he

he began the acid. It did not produce any other apparent changes in either of them.

These two, with the five discharged cured, are the only venereal cases which have come under my care since I have had an opportunity of trying the nitrous acid.

I sent for the men who had been discharged, to ascertain whether the disease in any had returned, and re-examined them at the Hospital on the 10th of June, when they all continued apparently perfectly well.

Whether the acid acts specifically by giving out pure air, or inducing a new action in the system, or whether the disease when cured in this manner (agreeable to our present opinion) is liable to return after certain periods, must rest with future observation and experience, as our trials, though so flattering in the general results, cannot, in my opinion, as yet be admitted as decisive or sufficient tests; but so far as we have gone, I am happy in adding my testimony to the
others

others that have been adduced, of the singular advantages already resulting from the use of the nitrous, also from the citric and oxygenated muriatic acids, and from the oxygenated muriate of potash, in the clinical ward; and I have no doubt but that on many occasions they may supersede, and in future be found better adapted to many constitutions than mercury, which practitioners of experience know in some instances is productive of very deleterious effects, even in the safest hands, notwithstanding the best management.

From DR. WITTMAN, Surgeon to the Fifth Battalion of Royal Artillery, 12th June, 1797.

IN consequence of a letter published by Mr. Scott, at Bombay, in the East Indies, respecting the good effects of the Nitrous Acid in the cure of the Venereal Disease, I took the following patients, as they presented themselves at the Hospital, for the purpose

purpose of trial, and the sequel will prove how much we are indebted to that gentleman for his communication; particularly when we consider the mischief that frequently results, in some constitutions, from a long continued use of mercury, hitherto considered the only specific in that disease.

CASE I.

GUNNER KEMP, a soldier in the 5th Battalion Royal Regiment Artillery, had several venereal chancres upon the penis, about two weeks standing; he was taken into the Hospital *March 13, 1797*, to whom the nitrous acid was given, one drachm and a half in a quart of water, to be consumed in divided doses daily. The sores to be washed with a weak solution of cerussa acetata in distilled water.

April 3d, Chancres healed. Appetite improved, tongue white and moist, belly costive since the use of the acid, requiring occasional

casional aperients, urine pale straw colour,
contin. med.

April 9th, Remained well, discharged the
Hospital.

CASE II.

GUNNER PIGGOTT, a *soldier*, 5th *Battalion Royal Regiment Artillery*, had several venereal chancres upon the glans penis; was taken into the Hospital *March 16*, 1797. He was ordered the nitrous acid in the same manner as prescribed for Kemp; and the fores were kept clean by the saturnine lotion. He continued to take the acid until the *27th March*; the fores having been healed several days; and on the *3d April* he was discharged the Hospital cured.

CASE III.

GUNNER TAYLER, 3d *Battalion*, had a large venereal chancre upon the penis, of
some

some weeks standing, with bubo and gonorrhœa. He began to take the acid (two drachms daily) 20th *March*, 1797. Electric sparks were drawn from the bubo daily, and the fore washed with the saturnine lotion.

April 3d, Chancre healed; bubo suppurating; continue the acid, &c.

April 22d, Bubo painful; cont.

May 15th, Bubo discharges pus; cont. acid.

May 20th, Sore in the groin healed; continue the acid a few days longer.

26th, Being perfectly well, he was discharged the Hospital.

CASE IV.

GUNNER WARBURTON, 3d *Battalion*, was admitted into the Hospital on account of
of

of having venereal chancres upon the glans and prepuce of the penis; he had also a discharge from the urethra.

April 18th, 1797, He was ordered the nitrous acid, to take one drachm and a half daily, and to use an astringent injection and saturnine lotion.

May 1st, Chancres healed; cont. acid, &c.

8th, Remains well; omit the acid.

15th, Being perfectly cured both of chancres and gonorrhœa, he was discharged the Hospital.

CASE V.

GUNNER PATTERSON, *3d Battalion,* had several recent venereal chancres upon the glans penis, only of a few days standing.

April 15th, He took the acid, one drachm and a half daily; the sores kept clean as usual.

May 1st, Sores nearly the same; the glands in the left groin enlarged and painful; cont. acid.

May 7th, Bubo painful and suppurating; chancres have a healing appearance; takes two drachms of the acid daily, draw small electric sparks from the bubo.

May 14th, Chancres nearly healed, bubo suppurating; cont. acid and electricity.

May 17th, Chancres healed, bubo less painful, suppurated; cont. ut antea.

20th, Bubo discharges pus; cont. acid.

27th, Sore in the groin healed; cont.

31st, Remains well; omit the acid.

June 3d, Discharged the Hospital cured.

CASE

CASE VI.

GUNNER PILMORE, *5th Battalion*, was sent from Portsmouth to Woolwich Hospital, on account of some irregularities of conduct, as well as obstinacy of his complaints. Upon examination after his arrival, April 9, 1797, I found a large ill conditioned chancre, with very prominent, thick, and callous edges upon the penis, and several warts upon the glans; he had also a discharge from the urethra.

The patient says that eight months since he contracted the venereal disease, for which he had been taking mercury for a considerable time without effect; that his mouth had been made sore; although the mercury had been for awhile omitted, still his gums were sore.

April 9th, He was ordered the acid, one drachm and a half daily, to use an astringent
R 2 injection,

injection, and to keep the fore clean with lot. saturn.

April 20th, Chancre has a better aspect; discharge from the urethra less; cont.

May 1st, Chancre healed, right testicle painful and enlarged, discharge from the urethra abated; take an ounce of salts, apply lot. fat. to the testicle.

4th, Testicle painful and enlarged; take 12 ounces of the blood from the arm; cont. topical applications as before.

5th, The blood drawn yesterday was covered with a thick and tough coat of coagulable lymph; testicle rather better; repeat blood-letting and salts.

14th, Except a trifling discharge from the urethra, he is perfectly cured; cont. acid and inject.

June 9th, To be discharged to-morrow.

CASE

CASE VII.

GUNNER PERRY, *3d Battalion*, was admitted into the Hospital *April 19, 1797*; he had a recent venereal chancre upon the glans penis; he was ordered one drachm and a half of the acid daily, and the fore washed with lot. fat.

May 4th, Chancre healed; continue with the acid 7 or 8 days longer.

May 15th, He was this day discharged the Hospital cured.

CASE VIII.

I have now under my care in the Hospital, Gunner Ritson, a man of a scrophulous habit, who has had a very ill-conditioned ulcerated bubo in the groin, preceded by chancres upon the penis, which are healed, to whom I have given the cortex, along

R 3 with

with the acid. He has for some little time taken three drachms of the acid daily, has not used any mercury, and is in a very fair way of cure.

The foregoing are cases with primary symptoms of the disease.

I have had only two cases with secondary symptoms of the disease, since our beginning with the acid.

TO ONE OF THEM I gave the nitrous acid. This patient had venereal eruptions on the skin, painful enlargements of the lower jaw and nose, an ulceration of the schneiderian membrane, severe head-achs, a dreadful extensive ulceration in the throat, with sloughing of the tonsils, uvula, &c.

He took three drachms of the acid for three weeks, during which time the eruptions disappeared, the pain and enlargement of the jaw and nose were nearly gone; but unfortunately, from the great sloughing in
the

the throat, we were prevented from getting down any liquid whatever, and in attempting to swallow the acid, though much diluted, it was forced back through the nostrils, and produced much distress to the patient. Thus situated, we were obliged to abandon any further trial, and to have immediate recourse to mercurial frictions, which completed the cure.

The removal of the eruptions, and the great relief given to the pain and swelling of the jaw, &c. encouraged me to hope, that could the acid have been continued with, in a proper quantity, more good might have resulted from it.

Since the 13th March, 1797, I have not admitted into the Hospital a patient with symptoms of the venereal disease (except the last mentioned) to whom I have prescribed any other medicine, but the nitrous acid, nor administered it in vain.

THE SECOND PATIENT who appeared to labour under secondary symptoms of lues venerea, had nodous-like tumors upon the forehead, preceded by severe head-achs, and a painful enlargement of the head of the tibia. This man had venereal chancres about three years since, and took no medicine for their cure. I gave him the oxygenated muriate of potash, as suggested by Mr. Cruickshank, he has arrived at the dose of seven grains three times a day, without producing any disagreeable symptoms, except one day a trifling head-ach. While taking this medicine the patient was constantly flushed with heat, had a very white, but moist tongue, copious perspirations day and night, a quick and sharp pulse. Blood drawn before and after the medicine had been taken some little time, had very different appearances; namely, the former was nearly free from marks of inflamed blood, while the latter was covered with a tough and thick coat of coagulable lymph.

The

The patient is still under cure, one of the tumors have been relieved.

June 10th, The men discharged the Hospital have been examined, none of whom shew the least vestige of the disease upon them.

Remarks respecting the sensible Effects of the Nitrous Acid.

THE appetite was almost invariably increased.

The urine was increased in quantity, clear, and of a light straw colour.

Costiveness for the most part prevailed.

The mouth and tongue white and moist.

The soreness and change produced upon the gums appeared to me to be the effect of its local action. I did not perceive that
any

any thing like ptyalism was produced, as mentioned by Mr. Scott.

The blood drawn at different periods exhibited the same appearance as when under active inflammation, the coagulum being covered with a tough coat of coagulable lymph.

The patients to whom I have given the acid, (except Pilmore) had not taken mercury, and from the appearance of the blood drawn before the acid was employed, and the gums not discovering any marks of its action, strengthens this opinion.

A
SHORT ACCOUNT
OF
A MORBID POISON
ACTING ON SORES,
AND OF
THE METHOD OF DESTROYING IT:
BY
J. ROLLO.

A SHORT ACCOUNT
OF
A MORBID POISON
ACTING ON SORES,
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THE METHOD OF DESTROYING IT.

AFTER the formation of the *Brigade of Royal Horse Artillery*, many accidents occurred, especially in kicks on the legs of the men by the horses' feet, and being generally on the shin, very unpleasant sores were produced. The wound was sometimes small and punctured, having arisen from the turned up part of the horse's shoe as formerly practised. The bone was often laid bare. We seldom had less than 40 cases of sores at that time in the Hospital. At present we have very few, not exceeding 10 cases.

In hospitals two kinds of actions on sores have been described; the erysipelatous, and
the

the one peculiar to hospitals, each very distinct, and of very different natures. But at the time we allude to, which was in the beginning of 1795, we had a sore of a singular kind, and which did not seem to be referable to either. MR. ADAMS, the ingenious Author on Morbid Poisons, visited us; but then the sore had nearly disappeared; we gave him a verbal description, and shewed him some notes and drawings of the sore, and he acknowledged it appeared to him to be a new thing, which had not before come under his examination or observation.

We shall previously give a concise description of what we mean by a sore acted upon by the erysipelas, and by a sore acted upon by something peculiar to an hospital, or as it is commonly called, the Hospital Sore.

The

The Sore acted upon by the Erysipelas.

The distinguishing marks of this kind of fore we apprehend are the following.

Erysipelas as a distinct and primary disease, having been, or at the time in the hospital; the disease being epidemic, or common in the neighbourhood; the patient being affected with indisposition for a day or two, then with chilliness or shivering, succeeded by an increase of heat, thirst, &c.; and the fore at this time having a general change of appearance from a florid healthy redness, to a brownish or dusky red, from a white thickish pus to a thin yellowish discharge, with the erysipelatous inflammation extending and diffusing itself round the fore on the neighbouring skin, which in many cases are accompanied with reddish streaks or a single streak running to a lymphatic gland, which often becomes enlarged and painful; and the disease yielding to the bark.

The

The Sore peculiar to Hospitals, or Hospital Sore.

This sore appears in wards where there are many patients with sores; where there has not been, or at the time any primary erysipelas, either in the hospital or neighbourhood; it does not so readily yield to the bark as the erysipelatous sore, nor has it the inflammation so diffused; and it more generally assumes the appearance of phagedæna. (*Vid. Adams on Morbid Poisons.*) In this sore there is, as in the other, an indispotion for several days, and the sore puts on a pallid appearance, with a flattening of granulations, and having a smooth glossy surface, previous to the peculiar action.

We are now to describe the Sore acted upon by a new Species of Morbid Poison.

As has been already observed, we had, on the appearance of this sore, many sores in the hospital, some of which were the effects
of

of kicks on the shins. Several of these took on distinctly the erysipelatous action, and formed very extensive sores, not unfrequently with denuded bone. After sloughing and cicatrizing very favourably, this new poison seemed often to arise. But it was not confined to these sores, as blistered parts, and any sores with considerable discharge, were liable to it.

When this sore engaged our particular attention, and from the rapidity of its progress and effects, very watchful examination was bestowed, it was found that a sore of any extent (some were very considerable, as 3 or 4, by 5 or 6 inches, and others small,) in the promising state of healthy cicatrification, was liable to have a solitary ulceration on its edge, of unequal dimensions, the size varying, being smaller or larger than a pea. This distinct little ulcer was of a darkish colour, its edges jagged, its bottom unequal and rugged, and discharged a thin matter, having a peculiar smell. Such was the earliest state in which it was perceived, but

probably it might have been distinguishable sooner. The disappearance of the sore in the hospital deprived us of a more minute and early inquiry.

The day after the little ulcer had been discovered, it had acquired the size of a sixpence or a shilling, extending itself every way, even on the skin as well as on the surface of the former sore; the discharge was now changed, having become thickish, of a whitish colour, intermixed with dark shades, and adhering strongly to the surface of the part; the peculiarity of the smell continued, and was become more offensive.

In another day the ulcer had spread farther; and on other parts of the former sore might probably be perceived small ulcerations of the same appearance and kind as those of the first discovery, and which went on extending until they united.

Five or six days from the appearance of the small ulcer, or ulceration, when it had

had extended (or, by its union with the other ulcerations,) over one third of the former fore, with pain and redness in the course of the lymphatics, and the glands through which they led, with enlargement of them, general indisposition of body became evident. This consisted in nausea, loss of appetite, heat of skin, a very small and quick pulse, extreme irritability, a whitish tongue, and thirst. When these symptoms took place the ulceration rapidly went on, extending beyond the limits of the former fore, and destroying the adjacent parts. In this state of the fore the parts were puffed and bloody, accompanied with much uneasiness, having a burning and lancinating sensation, and the action frequently terminated in apparent gangrene. Sometimes, however, the ulcerating part remained covered with the thick adhesive matter, and gradually, without any other apparent change, assumed the healing state.

The operation of the poison in slowness or rapidity, probably depended on some con-

stitutional circumstance, as it was not in all of equal degrees of facility. These sores, which spread rapidly and extensively to sloughing, and even to gangrene, from one, two, or more small ulcerations very likely happened in those who might be said to have a constitutional susceptibility; while on the contrary in those where the ulcerations continued distinct, and remained covered with a thick, whitish and adhesive matter, without acquiring the sloughing and gangrenous states, their constitutions had no favourable tendency to the operation of the poison.

The first favourable change was in the appearance of suppuration on the edges of the sore, with a separation of dead parts, which went on until the whole were thrown off, and then healthy granulation, and cicatrification took place.

The most singular phenomena in the progress of this sore consisted in the various actions, which were not unfrequently perceived

ceived in it at the same time, and which seemed to depend on constitutional differences. We have seen the ulcerating, suppurating, and cicatrizing states going on at the same time in one sore. It was not unusual for the ulcerating process to be checked before it had extended over the whole sore, when the former cicatrizing parts went on without interruption, and the ulcerating part having assumed the disposition to healthy action, arrived at the cicatrizing point, and proceeded with the others to skinning.

The smallness of the ulcer, the appearance of its edge and base, its ulcerative tendency, the absorption of its matter affecting the lymphatic vessels and glands, and then the whole system, pointed out the operation of a morbid poison.

The action of this poison seemed to be limited and confined to specific effects, the first were local, producing only general affection by a more extensive operation on the

fore, and which in a certain time terminated in the healthful separation of parts, granulation and cicatrification, and a state of constitutional convalescence.

Sores having specific actions, as the venereal, scrophulous, and variolous, resisted this poison, and in the hospital were not affected, though such patients were in the same wards.

Some men in quarters, one with a blistered part, another with a cut on the outer ear, and another with a sore on the leg, besides several others were affected with this poison. The men in the same wards were not generally affected with it; those with specific sores, or with sores of small extent, and having little discharge, though laying within two feet of the men under the action of the poison, escaped.

From the very serious ravages of this poison, we were induced to make the most particular inquiries. Being fully persuaded
it

it was neither the sore acted upon by erysipelas, nor the sore described as particular to hospitals, we found ourselves involved in considerable difficulty. We consulted every thing that had been written by the ancients or moderns within our reach, and we found nothing resembling our sore. We saw, however, similitudes in some of its stages to phagedæna, especially as it is described by Mr. Adams, in his account of Morbid Poisons. But the local attack on the sore, its progress, and the consequent general indisposition, and changes on the sore, remained new, and to us unnoticed and unexplained.

Impressed strongly with the notion that a morbid poison was applied locally to a part of the sore, which, like the venereal poison, had the power of assimilation, and thus augmenting its power; as also of being absorbed, producing general effects on the system, and a re-action on the sore, we were determined to adopt local means of treatment, consisting in the chemical destruction of the

poison, and parts under its direct action, and in exciting a new action.

We were led to propose an early and vigorous treatment of the local operation, from observing that when the constitutional effect took place, any plan of cure was inadequate, the disease then going on, and apparently ceasing of itself; but not until very extensive destruction of parts had been accomplished.

The oxygenated muriatic acid, and the nitrates of silver and mercury, were the applications employed, and laterally the oxygenated muriatic acid gas, as formerly described in Pages 62 and 63 of Vol. I.

When either of those were applied four or five times, the little ulcer soon put on the suppurating state, and granulated. They did not give pain in any degree, and it was of short continuance. While the ulcer was directly touched with the nitrated silver, the
whole

whole sore was moistened with a dilute solution of nitrated mercury, or a mixture of the oxygenated muriatic acid in distilled water, after which the whole was covered with lint that had been previously moistened by either. Or, the oxygenated muriatic gas was applied to the ulcer, and over the sore the dilute solution of nitrated mercury in distilled water.

By these means, diligently persevered in, the poison and ulcer were destroyed, and the sore went on cicatrizing. The only failures were in those cases where the ulceration had so extended, that the nitrated silver, oxygenated muriatic acid or gas, could not be completely employed. It is necessary to mention that washing the sore with warm water was always previously performed.

The success of this treatment afforded additional strength to the opinion we had formed of the existence of a poison, its locality, and that it possessed, like other poisons,
the

the property of assimilation, or producing matter similar to itself.

Having gained thus much, we were prepared to make some inquiry into its origin.

From the local commencement of the poison, and the power we had of destroying its peculiar nature, and consequent action, by a direct application, and at the same time considering the circumstances of the sore previous to its appearance, we entertained the notion that the poison was formed on the surface or edges of the sore.

In all these sores on which the poison shewed itself, both in and out of the hospital, the discharge from them was considerable; they were most generally dressed with an ointment of wax and oil spread over coarse linen, and when dressed the matter was seldom cleaned off, by which it formed incrustations about the edges, or at a little distance from the sore. This arose from the opinion of some, that the washing of sores,
if

if it did no harm, was at least superfluous, and from the great number of sores at that time to be daily dressed, by which less attention was probably given than might have been otherwise required and bestowed.

We suspected, however, in a few cases, that the poison was propagated from one sore to another by means of the sponge employed in the occasional wiping or washing; the same sponge having been unguardedly used for different sores.

The discharge of a sore remaining confined, or some of it suffered to adhere long on the edges of the sore, may undergo such changes as to produce a matter possessing new properties of apparently a poisonous nature and effect. On several sores, but one in particular, where a considerable quantity of finely powdered nitrated mercury had been sprinkled, in 12 hours, the time of the next dressing, the mercury formed a shining crust, was firm, and appeared as if a portion of the mercury had been revived. This
might

might be owing to hepatic gas on the surface of the fore.

DR. CRAWFORD, in the 80th volume of the *Philosophical Transactions*, has made such experiments on the matter of cancer, that there can be little doubt of chemical changes and combinations being produced on fores. This is a subject, however, that has not been carried on since then as it ought to have been. We trust it will gradually appear a subject of great importance, especially as the discovery of the changes the discharge of a fore undergoes will probably point out at the same time the remedy for the fore. We should be happy to see Dr. Crawford's valuable paper republished, so as that it might be more generally known.

In the mean time we shall insert from these experiments the following opinions.

“ It appears from the experiments which have been recited, that in cancerous and other malignant ulcers, the animal fibres
undergo

undergo nearly the same changes which are produced in them by destructive distillation. The purulent matter prepared for the purpose of healing the ulcer is, in such cases, mixed with animal air and volatile alkali. The compound formed by the union of these substances, which may perhaps not improperly be termed hepatised ammonia, decomposes metallic salts, and acts upon metals; for we have seen that when it was placed in a jar over mercury for several days, the surface of the mercury acquired a black colour, and that it instantly occasioned a dark precipitate in a solution of nitrated silver. These facts seem to afford an explanation of the changes produced in metallic salts, when they are applied to malignant ulcers. The volatile alkali combines with the acid of the metallic salt, and the animal hepatic air revives the metal, either by imparting to it the inflammable principle, or by uniting with the pure air which the salt is supposed to contain. The metal, thus revived, is probably in some cases again corroded by the hepatised ammonia, which communicates

communicates to it a black colour. Thus we may account for the dark incrustation frequently formed upon the tongue and internal fauces, when venereal ulcers of the throat are washed with a solution of corrosive sublimate. And hence also the dark tinge which is frequently communicated by ill-conditioned ulcers to poultices made with a solution of sugar of lead. The action of the hepatised ammonia likewise explains the reason why the probes are frequently corroded when they are introduced into sinous ulcers, or applied to the surfaces of carious bones. To the same cause it is probably owing, that polished metallic vessels are quickly tarnished when they are exposed to the effluvia of putrid animal substances."

" From the foregoing experiments it moreover appears, that animal hepatic air imparts to the fat of animals recently killed a green colour; that it renders the muscular fibres soft and flaccid, and increases the tendency to putrefaction. It is therefore a septic principle; and hence it is extremely probable,

probable, that the compound of this fluid with volatile alkali, which is found in the matter discharged by the open cancer, produces deleterious effects: for although the mischief in cancerous ulcers seems principally to depend on a morbid action of the vessels, whence the unhealthy state of the matter discharged by such ulcers is supposed to derive its origin, yet from the corrosion of the larger blood vessels, and the obstruction in the contiguous glands, there can be little doubt that this matter aggravates the disease. The experiments recited above appear to prove, that the hepatised ammonia is the ingredient which communicates to the cancerous matter its putrid smell, its greater thinness, and in a word, all the peculiar properties by which it differs from healthy pus."

"From these considerations it was inferred, that a medicine which would decompose the hepatised ammonia, and destroy the fetor of the animal hepatic air, without at the same time increasing the morbid action

tion of the vessels, would be productive of salutary effects. The nitrous acid does not destroy the fetor of hepatic air, unless it be highly concentrated; and in this state it is well known that it speedily corrodes animal substances. But the fetor of hepatic air quickly disappears when it is mixed with the dephlogisticated marine acid, even though the latter be so much diluted with water as to render it a very mild application. I have found that this acid, diluted with thrice its weight of water, gives but little pain when it is applied to ulcers that are not very irritable; and in several cases of cancer it appeared to correct the fetor, and to produce a thicker and more healthy pus. It is proper, however, to remark, that other cases occurred in which it did not seem to be attended with the same salutary effects. Indeed some cancerous ulcers are so extremely irritable, that applications which are at all of a stimulating nature, cannot be ventured upon with safety. And hence, if the observations which I have made on the efficacy of this acid as an external

ternal application, should be confirmed by future experience, it must be left to the judgment of the surgeon to determine both the degree of its dilution, and the cases in which it may be employed with advantage."

"The dephlogisticated marine acid, as is generally known, has the power of destroying the colour, the smell, and perhaps the taste, of the greater part of animal and vegetable substances. We have seen that it corrects the fetor of putrid flesh. And I have found that, when it is poured in sufficient quantity upon hemlock and opium, these narcotics speedily lose their sensible qualities. As it appears, therefore, to possess the power of correcting the vegetable, and probably many of the animal poisons, it seemed not unlikely, that it might be useful as an internal medicine. Conceiving that its exhibition would be perfectly safe, I once took 20 drops of it diluted with water. I soon afterwards, however, felt an obtuse pain, with a sense of constriction in my stomach and bowels. This uneasiness, notwithstanding

withstanding the use of emetics and laxatives, lasted for several days, and was at length removed by drinking water impregnated with sulphureous hepatic air. I afterwards found that the manganese, which had been used in the distillation of the acid, contained a small portion of lead.”

“ Dr. Ingen-houfz informed me, that a Dutchman of his acquaintance, some time ago, drank a considerable quantity of the dephlogistated marine acid: the effects which it produced were so extremely violent, that he narrowly escaped with his life. If, therefore, this acid should hereafter be employed as an internal medicine, it would be necessary to prepare it by means of manganese that has been previously separated, by a chemical process, from the lead and the other metals with which that substance is usually contaminated.”

At our request Mr. *Cruickshank* made some experiments on the matter of this fore, and the following account contains the result,
with

with his remarks, as communicated to us in April 1795.

“ The matter of this sore is sparingly soluble in water, but readily diffused through it, producing a milky appearance. Pure volatile alkali first reduces it to a transparent jelly, and after some time dissolves the greatest part; a similar effect is produced on pure pus. These solutions are but partially precipitated by acids, particularly the sulphuric. The tincture of litmus and of Brazil wood are not changed by this matter, it does not therefore possess either acid or alkaline properties. If to the filtered solution of this matter in distilled water, a little nitrated silver be added, a whitish coloured precipitate will be produced. Similar precipitates, but much more copious, are occasioned by nitrated and muriated mercury. When pure pus is treated in the same manner, these precipitates, particularly that by muriated mercury, have somewhat of a different appearance, which it would be difficult to describe. The fetid smell is some-

what changed by lime-water, but not destroyed; the sulphuric acid rather increases it; a similar effect is produced by alcohol, and by the alkaline solution of arsenic. A decoction of the Peruvian bark does not destroy the fetor. This, however, is effected by the nitrates and muriates of mercury, by the nitrous acid; but most completely by the oxygenated muriatic acid, and gas. Nitrated silver produces very little change either on its colour or smell, a circumstance the more remarkable, as this salt possesses the property of destroying most offensive smells, even that of the matter of cancer.

“ It must be allowed that the offensive smell of the matter of this sore is produced by that part of the discharge which is altered from the nature of pure pus; for we know that every ill-conditioned discharge has more or less smell, while good pus has none. It is a known fact in chemistry, admitting of few exceptions, that a substance cannot have its smell totally destroyed or altered, without having its properties changed
at

at the same time. If therefore this peculiar matter, by the addition of nitrated or muriated mercury, the oxygenated muriatic acid, &c. should have its smell completely destroyed, there is every reason to believe that its peculiar properties will be so also; and should it be capable in its original state of producing an ill-conditioned action in sores, the addition of such substances might prevent this mischief. If it should be supposed therefore that an acrid matter somehow produced on the surface of sores, were capable of inducing ulceration of a specific kind, and that this ulceration, like the venereal, should generate more matter of a nature similar to itself, capable of extending the mischief, and even of bringing on a general affection of the system, some important conclusions might be drawn from these experiments.

“ 1st. It is easy to see, that a sore once clean might be preserved from the effects of the matter alluded to, by washing it at every

T 3

dressing

dreſſing with a weak ſolution of nitrated mercury, or the oxygenated muriatic acid, and that even the generation of ſuch matter might be entirely prevented by the ſame means.

“ 2d. After the action has taken place, and before a general diſpoſition is formed, it might be poſſible to put a ſtop to its progreſs by very active topical applications, ſuch as ſhould be capable not only of deſtroying the ſpecific nature of the matter generated, but alſo the action itſelf. From the experiments already related, it is evident we would prefer in this caſe the moſt active mercurial preparations, ſuch as red precipitate not entirely deprived of its acid, or the muriated mercury; and if an actual cauſtic were to be employed, we ſhould have reſort to the ſtrong nitrous acid, applied in Mr. Humpage’s method, rather than the nitrated ſilver, eſpecially as it may have alſo the effect of changing the nature of the diſcharge; this conſiſts in dipping a little lint in the acid, and applying it to the part: it
communicates

communicates less pain than any other caustic, except the nitrate of silver.

“ With regard to the action of the different substances on sores, and as caustics, they may be thus arranged :

“ 1st. Substances exciting action, and producing death in parts by the excess of that action ; as,

Arfenic,

Muriated Mercury.

“ 2d. Substances acting simply by burning or destroying the part, and whose actions are always limited ; as,

Nitrated Silver,

———— Mercury, and

Nitrous Acid.

“ 3d. Substances acting by dissolving the part, and whose action is so diffusive that it is difficultly limited ; as, Common Caustic, or the mixture of Potash and Lime.

T 4

“ 4th.

“ 4th. Substances acting chemically on the part by decomposition; as, Oxygenated Muriatic Acid, in the form of gas, or combined with water.”

ON THE WHOLE, though we have supposed the formation of a new morbid poison, on the surface of certain sores, under peculiar circumstances or management, yet we are rather inclined to change the appellation *new*, to a poison which has been probably *overlooked*. We have seen the commencing ulceration remain some days stationary; we have seen it extending, while the other parts of the former sore were cicatrifying, and the constitutional effects not taking place until the ulceration had occupied a large part of the sore; and we have seen that the painful state and extreme sensibility did not occur until the system was affected. Therefore it may be presumed the early ulceration has been unattended to, and the state of the sore remarked only by Authors after it had assumed the appearance

ance of Phagedæna. For when the ulceration had so spread as to produce the constitutional affection, and the consequent rapid changes on the sore, the character of the virulent sore described as phagedæna was formed.

The account we have given of this sore may excite more attention to the state of a large sore in an hospital with a considerable discharge, and lead to a trial of the applications pointed out; to forward cicatrification, and prevent any untoward changes from the production of a poison on the surface of the sore.

Since the attention and manner of treating sores as described have been pursued in this Hospital, we have had none such, nor even the hospital sore, indeed this we cannot possibly have, as ventilation and the destruction of general contagion are so carefully and unremittingly performed. We have had, however, three very remarkable
sores

fores following bubo in the groin, and chancre on the penis, which terminated fatally. These cases occurred before the adoption of the new remedies, and were treated by mercury, and appeared to be the effect of the mercurial disease on a peculiar constitution. The fores were irritable and sloughing, and the only favourable changes were produced by the use of opium, the hepatised ammonia, and the application to the fores of the hydrogenous, hepatic, and carbonic acid gases.

The fore which has been described and noticed by us at the beginning of this account as peculiar to hospitals, though well marked by many, yet we have our doubts, but that many of these were this peculiar fore, and owing to the poison we have suggested. Whatever it may be, it adds another fact in corroboration of the advantages both Medicine and Surgery are likely to derive from the new doctrines of Chemistry.

We

We have already seen the utility of substances readily parting with their oxygene, applied to irritable sores, and also of the hydrogenous, hepatic and carbonic acid gases to irritable sores. See Vol. I. Page 62, and which was contained in the Notes of the first Case of Diabetes, dispersed in January last. In Page 61 of the same volume it is observed, that the oxygenated muriatic gas was found to destroy the offensive smell of sores, that it destroyed specific contagion, and could be easily obtained, and very safely used. We had therefore given it a preference to other things, and in order that it may be more generally tried, we insert Mr. Cruickshank's manner of procuring and using it in the wards of this Hospital.

This consists in intimately mixing two parts of common salt, and one of crystallised manganese, previously reduced to powder. Two ounces of this compound are introduced into a small basin; about an ounce of water is then added, and afterwards

wards an ounce and a half of the concentrated vitriolic or sulphuric acid at different times, so as to preserve a gradual discharge of the oxygenated muriatic acid gas. One of these basons is sufficient for a ward or room containing five or six beds, and more must be employed according to the size of the apartment.

VETERINARY

VETERINARY SCIENCE.

IN the first part of this account of the Morbid Poison acting on Sores, we observed, that the Shoes of the Horses of the Brigade of Royal Artillery on its formation being turned up, as then commonly practised, was the occasion of the punctured wound which often penetrated to the shin-bone, and produced a very troublesome sore. The change which has since taken place in the form of the horse's shoes, has rendered any accidents so comparatively trivial, as to come under the description of simply contused wounds, with a little skin rubbed off.

This alteration has arisen by the direction of MR. COLEMAN, Veterinarian Professor, and Inspector of the Horses belonging to the Ordnance; an appointment made by MARQUIS CORNWALLIS, the MASTER GENERAL, and which has been of infinite service
in

in the prevention of disease, as well as in the treatment of sick horses in that extensive department.

We have had frequent opportunities of attending to the conduct pursued in this rising science, and are perfectly satisfied with its manner, and fully persuaded of the utility which will be derived from its extension.

Independent of the benefit to horses and cattle in general, the knowledge of the human subject in health and disease will be improved by its progressive advancement. Such progress may be expected while it continues under the direction of one, uniting ingenuity with zealous application.

F I N I S.

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