conjunctiva of the globe, hemicrania, and even vomiting, &c. Now-a-days it is known that these symptoms are owing to increased intraocular pressure arising from the swelling of the lens, and that they can be controlled, if at all, not by bleeding, cold lotions, mercurials, &c., but only by atropine, letting off the aqueous, iridectomy or linear extraction, together with or without iridectomy. They can best be avoided by making only a small opening in the capsule, and by taking care not to break in pieces the lens itself as was formerly advised. In this way we best prevent the too sudden swelling of the lens. If we apply to the case of extraction what is observed in discision, we can anticipate what may take place if portions of the lens of considerable size remain, with the large opening in the capsule, and supposing the aqueous to continue restored. Clinical observation has furnished facts which accord with this supposition, or rather, which find their explanation in the theory obtained by observing the operation of discision.

[To be continued.]

HOSPITAL REPORT.—THE SACCHARINE TREATMENT OF
DIABETES MELLITUS.

By JOHN HUGHES, M.D., SENIOR PHYSICIAN TO THE MATER MISERICORDIÆ HOSPITAL.

THE saccharine plan of treating diabetes originated, I believe, in France, and so far back as 1845. Bouchardat gave saccharine fruits in diabetes, and bread made from gluten. Andral and Piorry tried a similar treatment, with some success. And the practice has been recently adopted in England, by Dr. Budd, of Bristol, who has published some cases (two, I think) in which he says the most marked amendment followed the use of sugar. Others have also recorded cases; but they do not exhibit so favorable a result as those of Dr. Budd. It would appear, however, that some practitioners who tried this plan have found it beneficial. Their patients grew fat upon it; and even this effect, in a disease where wasting is so prominent a symptom, is a very desirable result. They say, besides, that the practice is not an irrational one; for Bernard has shown that sugar taken into the stomach, in its passage through the liver, is converted into an emulsive substance, which tends to fatten patients; and he has also proved experimentally, and Andral and others practically, that sugar is secreted and found in the circulation in diabetes, whether the individual be fed upon nitrogenous or amylaceous substances: consequently our old-established plan of dietetics in this disease, with all its restrictions, is useless.

Dr. Budd, one of its earliest advocates in England, says he gives sugar in diabetes on the principle of supplying to the system the particular element which is running to waste, and the loss of which appears to be the principal cause of the damage sustained by the constitution as the disease advances. On all these grounds, then, it

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has been considered that the saccharine treatment of diabetes is worthy of a trial.

Amongst the many theories propounded concerning this intractable disease, modern researches incline to the opinion that the liver is the organ in fault—an idea long since entertained by Dr. Prout. Experiments by Bernard and Pavey tend to show that there is always present in the liver, located in the hepatic cells in considerable abundance, a substance which one calls the “glucogenic matter” of the liver, the other “hepatine;” that this substance is, with great facility, by a process allied to fermentation, converted into sugar; but that it seems to have the power, whilst located in the tissues of the living and healthy liver, to resist the transformation. In certain unnatural conditions, however, as well as after death, this power is at an end, and the blood becomes surcharged with saccharine principle.

If this be true, it would appear that the diabetic condition depends upon some functional derangement of the liver, which converts alimentary substances into this glucogenic matter in greater abundance than natural, and allows it to mix with the blood in large quantity, when it immediately becomes converted into sugar, and as such passes off with the urine.

I am not sure, even assuming all this to be correct, whether we are in a better position to decide upon the exact nature of this disease. Probably, however, it is to physiology we shall have to look, in the end, for a solution of this difficult question; for pathology is strangely barren of results in this disease; so much so that it is doubtful whether the presence of sugar in the system either necessarily depends upon, or produces, visible organic lesion of any particular organ. When organic diseases do exist, they are looked upon as merely concurrent affections.

However, it is not my intention to discuss the nature of diabetes mellitus; I merely wish to give a brief account of how this saccharine plan of treatment turned out in my hands, after a trial of more than four months.

Four cases of diabetes mellitus came under my care in hospital, almost simultaneously.

The first was a man named Thomas Ryan, aged 37, who had been diabetic for 13 months before admission, and had been under treatment for his disease during the greater part of that time. On admission he was voiding, daily, eight pints of urine, specific gravity 1049, and containing 22 grains of sugar in each ounce. He complained of great thirst, languor, and debility; the skin and mucous membrane were dry; the bowels confined; and all the usual symptoms of diabetes were present.

I treated this man with Dover's powder and the vapor bath, for a fortnight, when he left the hospital relieved in respect to the condition of the skin and mucous membrane; his thirst was abated, and the skin was somewhat moist; the quantity of urine varied with

the amount of fluid drunk, but its condition was unaltered. He thought he was growing weak, and wished to go home. He told me his father had a complaint similar to his own.

This man returned on the 18th January, and was then voiding 10 pints of urine daily, of a specific gravity 1041, 24 grains of sugar in each ounce. He said he drank a large quantity of beer, one day, at home, and was not as well since. I now determined to put him on the saccharine treatment, and ordered him six ounces of barley sugar daily; diet of fresh meat, with green vegetables and bread; also a moderate quantity of lime-water and milk. He continued this plan steadily for three weeks; and at the end of that period his condition was, to a certain extent, improved. The quantity of urine passed was seven pints, the specific gravity 1041; each ounce contained 24 grains of sugar; and he had gained two pounds in weight. The skin was somewhat moist, thirst abated. He was again anxious to return home, and left the hospital.

The second case was a man, aged 40; but as he was not in hospital more than a week, and was treated with sudorifics (Dover's powder) alone, and almost an exclusively animal diet—I will only refer to his case. In fact, he would not submit to the abstinence from fluids, and the variety of food which I enjoined. He left without any apparent change. There was one fact connected with him of interest—he told us his father had the same ailment he was laboring under, and died of it.

The next patient was a man aged 32 (John O'Neill), who suffered from the complaint for 18 months before admission. On the 3d January he was voiding 15 pints of urine, of a specific gravity 1043, 18 grains of sugar to the ounce. He was very thin, and had all the symptoms of diabetes in an aggravated form. He was treated with sugar and a mixed diet, like the former patient; and at the end of six weeks his urine was reduced in quantity to six pints—the specific gravity remaining the same. All the other symptoms were greatly relieved, and he felt himself much better and stronger; in fact so well that he was anxious to go and resume his former employment (that of a shopman). Yet, on weighing him, we found he had lost four pounds in weight since his admission, and his urine contained 22 grains of sugar to the ounce. We heard that he has since died of phthisis.

The last and most interesting case is that of Henry M'Nee. He was a married man, 30 years of age; tall, well-proportioned, and of a very athletic frame. He was always temperate; had no hereditary predisposition to the disease, and attributes his illness to profuse perspirations and alternate chills while working as a railway laborer. Five years ago, when employed in England, he first noticed his disease, and was treated for it at the Manchester Infirmary. After four months stay in that institution, he left at his own request, relieved sufficiently to resume his work, at which he continued for 11 months before admission. At that time he noticed the

aggravation of his disorder, which set in with great thirst, increased flow of urine, general weakness, and rapid loss of flesh.

On admission, all these symptoms had attained a great intensity. He said he was only the skeleton of his former self; for, when in health, he weighed more than 14 stone, and now he did not reach 12; which surprised him, when he could eat so much—four times his ordinary quantity—and he did not feel sick, only very weak. He was voiding 10 quarts of urine in 24 hours, of specific gravity 1049, and was obliged to empty the bladder every hour. He drinks about the same quantity of fluids within the same time. His urine has an acid reaction, is free from albumen, and each ounce contains 24 grains of sugar. As an evidence of his broken down health we found a large, chronic, indolent ulcer over the right external ankle.

I was determined to give the saccharine treatment an uncomplicated trial in this case; and, after an aperient, I put the patient on six ounces of sugar, daily, together with four ounces of treacle; bread, meat and green vegetables for diet; lime-water and milk for drink—with an injunction to limit the amount as much as possible.

At the end of a month he was somewhat improved. He had gained two pounds in weight; his thirst and appetite were diminished; the quantity of urine passed in 24 hours was reduced from 10 to 7 quarts; the specific gravity ranged from 1043 to 1045—26 grains of sugar to the ounce.

During the next month he had two attacks of sudden and violent sickness of stomach, accompanied with constant vomiting and cramps in the abdomen and legs. He complained, for a few days, of great nausea, and felt as if saturated with sugar; everything, he said, tasted sweet. He was, at the same time, weak. The urine was of a specific gravity of 1044—not lessened in quantity. The ulcer of leg was healed. The sugar treatment was discontinued.

After the lapse of a few days the sugar was again resumed; and his condition, at the end of another month, was as follows:—His weight, 12 stone 11 lb.; consequently he had gained nine pounds since last report. His urine is reduced to three quarts in 24 hours; and he is not disturbed more than once or twice to pass it during the night. His skin is moist; his bowels are regular; he has gained strength, for he is able to work at the force-pump of the hospital for an hour without resting. The specific gravity of the urine is 1035–9, but it contains a *greater amount* of sugar than before. According to Garrod's glucometer each ounce contains 40 grains of sugar. His appetite and thirst have decreased; the ulcer of the leg has broken out again.

After four months stay, he left the hospital in the month of May, and obtained employment as a porter, which obliged him to carry considerable weights; he remained at this work for six months, during which time I saw him occasionally; but at the end of that

period he was completely prostrate, and sought relief in another hospital. As the sequel of his case has been published, I will add some extracts from the report:—

He was admitted into Dun's Hospital, under the care of Professor Law, in the month of January, and was then voiding 16 pints of urine in 24 hours—specific gravity 1042. On the 10th of February the quantity of urine was 12 pints—specific gravity 1035–9, and contained 8.750 grains of sugar, or about 45½ grains to an ounce. On the 8th of March the quantity of sugar was 39 grains to the ounce, the amount voided being the same. On the 20th March the quantity of sugar declined to 34 grains; and on the 8th May the urine was reduced to 10 pints, and there were 38 grains of sugar in each ounce.

He left the hospital in July, but was again readmitted late in October, in an advanced stage of phthisis; and on the 10th November the *post-mortem* examination showed extensive tubercular disease in both lungs. “Both kidneys were very large; one weighed 12½ ounces, the other 11. Both were much congested, but exhibited no trace of disease or deviation from their normal structure. The liver was perfectly normal in size and appearance; and, on examination, did not contain a trace of sugar. It was, in fact, to the eye and to chemical analysis a specimen of a healthy liver.”

It will be seen from these cases in which the saccharine treatment has had a pretty fair trial, that, to say the least, it produced no permanent improvement. The specific gravity of the urine was not altered, and in each instance its saccharine quality was aggravated. 'Tis true the amount of urine voided within a given period was considerably diminished; but I think that result is very much within the control of the patient, exclusive of medicine. I mean, of course, if he checks his desire for fluids. The gain in weight and the increased strength may be more justly attributed to other causes than to the amount of sugar taken; and I am quite satisfied, so far as my observation enables me to judge, that the saccharine treatment of diabetes is not entitled to the credit which its advocates claim for it. All that can be said for it is, that it is vastly agreeable to patients, and is not positively injurious, as one might *a priori* be inclined to suppose.—*Dublin Quar. Jour. of Med. Science.*

THE ASTLEY COOPER PRIZE of 1500 dollars has been awarded to Dr. Edward Crisp, by the physicians and surgeons of Guy's Hospital, for his essay on Anatomy, Physiology, and Pathology of the Human Pancreas.

BRITISH MEDICAL ASSOCIATION.—The thirteenth annual meeting of this association was held in London on the 5th, 6th, 7th and 8th of August. We see by our late journals that the meeting was largely attended and was a highly interesting one, and that Professor Wood, of Philadelphia, and Dr. Ephraim Cutter, of Woburn, Massachusetts, were present.—*Medical News.*