there had not been a dejection from the bowels for three days. Effervescing medicine with hydrocyanic acid, and a castor oil draught, were prescribed; and water ices, and brandy occasionally taken.

July 13th. The exhaustion had increased. She threw herself about with her arms extended. The sickness was greater. The bowels had been relieved; during the effort she fainted, and a large clot of blood passed from the vagina, but the continued stream had quite stopped since yesterday. The stomach was unable to bear nutriment. Cold beef tea, thickened with arrowroot, was injected into the lower bowel, and a teaspoonful of brandy in water was frequently administered.

Evening. Depression was not so extreme as in the morning. The blood effused was brighter in colour, but still not of an arterial character; more clots had passed, and a great pulsation was felt along the course of the abdominal aorta; it was strong and jerking, and raised the hand placed on the abdomen. No bruit was to be heard. The pulsation of the arteries of the head and extremities was feeble; at the wrist 160. I proposed, as the bleeding had recurred, that the vagina should be plugged by a sponge wetted with the tincture of matico; but, before doing so, I had the advice of Dr. Murphy. On examination, he found the os uteri slightly open, but not sufficiently to induce him to believe that the bleeding came from the uterine cavity. The vagina was now plugged with pieces of sponge moistened with the matico tincture, and an ether mixture was prescribed.

July 14th, 8 a.m. The patient had objected to taking the ether, disliking the smell. Early in the morning the bleeding had returned, and the prostration had been extreme. Large quantities of brandy and other stimulants had been used during the night to keep her from sinking. I removed the vaginal sponges, which were covered with clotted blood and had a slightly putrid fœtor, and replugged the passage to such an extent that the patient complained of a desire to evacuate the bowels.

11 a.m. Dr. Murphy again visited the patient, and we decided upon applying pressure over the abdominal aorta, and the last resort of transfusion was agreed on. On the operation being explained to the parents, they expressed a desire that Dr. Ashburner should be called in consultation. At 12 o'clock he arrived; the previous as well as the present state of the patient was described to him, and he named some drugs that might be beneficial in such a case. We now entered the patient's room, and Dr. Ashburner immediately sat on the bed and commenced Mesmerising her by pressing the last phalanx of his thumbs tightly against hers, and looking steadfastly into her face. He continued in this attitude a few minutes, and then made perpendicular passes with his hand before her face. The exhausted sufferer tossed herself from side to side with the arms extended and cast about in a listless and unconscious manner. Her contracted features, the blanched face, the dilated pupils, and her general restlessness, were too indicative of her dangerous state. I immediately considered it right to request Dr. Ashburner to retire into another room where we might discuss the proper measures. Dr. Ashburner said if we were hurried we might leave him for an hour; but on our declining to do so he acquiesced in withdrawing with us. Dr. Murphy and myself of course objected in the most decided manner to sanction Mesmeric treatment. Dr. Ashburner expressed the greatest confidence as to the favourable result to be derived from a continuance of it; and doubtless with sincerity. There being no chance of any reconciliation of our opinions, it was deemed best to explain fully to the parents our different views, and leave it to them to decide which mode of treatment was to be adopted under the circumstances. Dr. Ashburner had spoken so decidedly of the effect he anticipated from Mesmerism, that the parents were anxious he should be permitted a few hours for his treatment, Dr. Murphy and I asserting our readiness to resume the charge of the patient when called on.

At three o'clock in the afternoon, when the time expired which Dr. Ashburner requested for his treatment, the family expressed themselves perfectly satisfied with it. At a quarter past 5 I was sent for by Dr. Ashburner, who was anxious that I should be convinced by my own observation of the improvement he conceived had taken place. The pulse was hardly to be felt; the jactitation continued; the features more sunken and paler if possible; the pupils were dilated to the utmost; and the intellect was wandering;—in fact, all the appearances were presented of pending death, which I (to the astonishment of Dr. Ashburner and the friends) declared to be fast approaching. In the strength of his hopes the doctor replied, "All that

is now required is a continuance of manual labour to complete the recovery." I left the patient with the conviction that she was sinking fast, attributing the cerebral phenomena wholly to the loss of blood. She breathed her last at half past six o'clock.

At 8 o'clock on the morning of July 16th I made a *post mortem* examination in the presence of Dr. Murphy. I had previously sent word to Dr. Ashburner of the proposed inspection, but unfortunately he was unable to attend. The surface of the body was anæmic to the last degree, apparently as if all its blood had drained away. The abdomen and pelvis were the only cavities examined. The intestines were distended with flatus; all the abdominal organs were of healthy structure. The liver, kidneys, spleen, and remaining viscera were empty of blood. The uterus with its appendages and vagina were removed. The uterus was not enlarged, but of a natural size; its cavity was empty and unstained with blood, as were also the Fallopian tubes. The os uteri was closed; and the vagina was filled with the sponge that had been introduced during life. It was saturated with blood, and many clots were in the passage. On removing the contents there was presented a general softened state of the mucous lining; in some parts it was quite removed from the adjacent muscular coat, and this structure was pale and easily separable by the edge of the knife; ecchymosed spots of blood were seen under it in many parts. There was no appearance of vascular erosion or of injury from violence; indeed, the diseased state of the lining of the vagina, which was general, negatived such a presumption. The abdominal aorta and vena cava were nearly empty; their coats were healthy.

REMARKS. I should have laid the details of this remarkable case before the Society and recorded it earlier, if it had not been so much opposed to my general experience, and to the notice of authors, as to induce me to wait for a further illustration and explanation of it in practice or the observations of others. But I have as yet failed to meet with any exemplification of it by my friends or in books, and I am disposed therefore, as at its close, to regard it as an unique case, both as relates to the cachexia or blood disorder, which must have favoured such a profuse and irremediable hæmorrhage, and the limitation of it to the mucous surface of the vagina; for though we cannot but consider the approach of puberty as the determining cause of the seat of hæmorrhage, it assuredly did not come from the uterine cavity or the Fallopian tubes, nor was it the result of ovulation. What the exact change be of the nutrition, or structure of the vaginal lining that was clearly indicated by the inspection, and of its circulation and capillaries which caused the great exudation of blood from these, and what the peculiarity of the blood itself which prevented the arrest of bleeding in the usual way that nature provides, must be left to the demonstration of future observers, and of such as may be afforded the opportunity of establishing the conditions by the aid of the microscope and of chemistry. Certainly no recognised state of purpura, or of the hæmorrhagic diathesis, or of mere menorrhagia, can suffice to explain the phenomena of this very interesting, anomalous, and melancholy case. The antecedents of the child's history and appearance are not in accordance with any common or usual causes of a bleeding that was altogether rare and peculiar.

Gulstonian Lectures:

ON

DIABETES AND SACCHARINE CONDITIONS OF THE URINE.

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS,
FEBRUARY 25TH, 27TH, AND MARCH 4TH, 1857.

By ALFRED B. GARROD, M.D., Fellow of the Royal College of Physicians; Professor of Materia Medica, Therapeutics, and Clinical Medicine, at University College; and Physician to the Hospital.

LECTURE III (*concluded*).

5. MUCH has been said within the last few years of the value of the alkaline plan of treatment in diabetes, and of the influence of certain alkaline mineral waters, more especially those of Vichy. Many patients suffering from this affection flock there annually during the summer months both from this country and from the continent; so that I trust it may not be considered

altogether unprofitable to lay before you certain results which I have obtained from this treatment, as well as my own experience of the utility of the Vichy waters, when taken at the spot or as imported into this country.

M. Mialhe considers that glucose sugar undergoes changes in the blood in health by reason of the *alkalinity* of that fluid, and that when this is not *sufficient*, as he imagines to be the case in diabetes, the transformation cannot be effected, and consequently sugar must be thrown out by the kidneys; he therefore proposes to *administer alkalies*, to induce the patients to *avoid the causes* which previously diminished the alkalinity of the blood, and in this manner cure the disease.

M. Mialhe details a case in which he appears to have observed a remarkable and sudden disappearance of sugar from the urine, and of which the following is a short summary.

M. Garafollini, an Italian professor of music, had resided in Paris for several years; he formerly enjoyed excellent health, but latterly had been suffering from pain in the renal regions and from colic, causing frequent desire to pass urine, and likewise some tenesmus. He occasionally took Vichy water, which rapidly removed the symptoms, and within a month his health *appeared* to be re-established. He remained well for two years; but after that time, during the intense heat of the summer, he was tormented with great thirst, to allay which he drank a very large quantity of acid drinks and partook of acid fruits, but without relief to the thirst or the constant dryness of the mouth. The desire to pass water became more frequent, and the urine much larger in quantity, appearing even more in bulk than the liquids taken during the same period of time; there were also a feeling of general illness and great muscular debility, progressive emaciation, feebleness of vision, loss of virile power, and obstinate constipation; he then came under the cognisance of M. Mialhe. The urine was at once examined, and found to have a density of 1040; heated with potash, it gave a dark brown coloration, indicating the presence of a large amount of sugar. He was ordered to abstain entirely from acidulated drinks, and to take during the twenty-four hours, 20 *grammes* (308 grains) of bicarbonate of soda, and 5 *grammes* (77 grains) of calcined magnesia; also two bottles and a half of Vichy water. The next day, the urine had only a density of 1026, in place of 1040, and did not show a trace of sugar. Under the influence of the alkaline treatment, not only did the sugar not reappear in the urine, but the vision improved, and within two days became perfect. In four or five days, the bowels ceased to be constipated, and some diarrhoea and bilious vomitings ensued, which recurred for a few hours: in each following day there was a marked improvement, the thirst became appeased, the urine less copious, the strength and virile power were restored, and after this time the patient was re-established in health, nor did the urine on several examinations give any trace of sugar. He was able to support all kinds of fatigue, and did not restrict himself to diet, but partook equally of animal and vegetable substances, avoiding only all acid drinks. M. Mialhe considers that in this patient the exciting cause was the excess of these acid drinks, and thinks that when it so happens, the disease is more easy of cure, than when it arises from suppressed perspiration.

The above case, quoted from M. Mialhe, was published by him in 1849. In 1856, a new work was published by the same author, entitled *Chimie appliquée à la Physiologie et à la Thérapeutique*, but no more recent cure is announced; although the plan of treatment proposed is said to have furnished practical results of the most satisfactory character.

A few years since, feeling desirous to ascertain whether there was any truth in M. Mialhe's theory, I gave the alkaline treatment a fair trial; the result of which I will now lay before you.

In a patient under a certain diet, chiefly animal, and taking a small quantity of opium, the average of seven days urine was as follows:

Quantity of urine, 105 fluidounces.

Specific gravity of ditto, 1027.

Quantity of sugar, 1237 grains, or 2 oz. 362 grains avoirdupois.

When, in addition, he took bicarbonate of potash in one drachm doses six times a day for four days, the averages were:

Quantity of urine, 138 fluidounces.

Specific gravity of ditto, 1030.

Quantity of sugar, 2049 grains, or 4 oz., 300 grains.

For the next three days, a drachm of bicarbonate of soda was substituted for the same quantity of the potash salt, with the following results:

Quantity of urine, 148 fluidounces.

Specific gravity of ditto, 1030-7.

Amount of sugar, 2255 grains, or 5 oz., 67 grains.

During the following eight days, the bicarbonate of soda was administered as before, but, in addition, half a drachm of burnt magnesia was added to each dose, that is, six times a day, and the daily average was:

Quantity of urine, 135 fluidounces.

Specific gravity of ditto, 1029-8.

Amount of sugar, 1662 grains, or 3 oz. 350 grains.

Every care was taken in this case to ensure accurate results, and the numbers cannot be looked upon as in the slightest degree favourable to the alkaline plan of treatment when pursued in this manner. In fact, it would appear that its effects were, to increase the amount of urine to some considerable extent; to augment the density—though this might, to some degree, be owing to the presence of the salts of soda or potash; and also to cause a notable rise in the quantity of sugar passed in the twenty-four hours, for, in place of 1237 grains, the average under the diet and opium, we find 2049 grains, 2255 grains, and 1662 grains, as the daily amounts under the potash, soda, and soda and magnesia treatments.

I believe that almost any saline given in large doses would act in a similar manner, as I shall have occasion to show in a few minutes; but in order more clearly to demonstrate that this increase arose from the effect of the drugs, and was not due to any change in the condition of the patient, I will point your attention to the state of the urine after they were discontinued, an interval of a few days being allowed to intervene. The average of three days was:

Quantity of urine, 98 fluidounces.

Specific gravity of ditto, 1032-5.

Amount of sugar, 1520 grains, or 3 oz., 208 grains.

Quantities much smaller than when the patient was under the influence of the potash or soda.

I do not wish it to be understood for a moment, that because I found no good effects follow M. Mialhe's plan, therefore I consider the administration of these drugs altogether useless; on the contrary, I believe that they are often of advantage when given in *small* doses, either in the form of weak artificial solutions, or as the Vichy waters; the good effects, however, are then not *simply*, if *at all*, due to the increased alkalinity in the blood thus produced; but possibly, if M. Bernard's hypothesis be correct, they may act as sedatives, and diminish the excessive glycogenic function of the liver. Those who have had most experience of the effects of Vichy waters, and who have published the results of their practice, certainly do not consider them in the light of direct curative agents. Thus, for example, if we examine carefully the work of Dr. Charles Petit, we do not find proof of any positive cures, although some of his patients appear to have lost the sugar from their urine for a time, a result not unfrequently occurring independently of any treatment; and Dr. Durand Fardel, inspecting physician of the Hauterive sources of Vichy, remarks, that although the thermal treatment usually diminishes the amount of sugar in the urine, yet this is not persistent; and in cases where the sugar has entirely disappeared at Vichy, it always shows itself again, but in most cases, not in such large amounts, sometimes indeed not till several months after the patient has quitted the place. Dr. Fardel leads us to think that other mineral waters, not containing the alkaline bicarbonates, possess an equal power of relieving the affection; and he gives successful results obtained by the use of the sulphur waters of Allevard, and of the waters of Balarue.

The waters of Vichy are doubtless potent agents either for good or harm; and this holds good when they are either taken internally or used in the form of bath. Under their use, the system soon becomes impregnated with the salts, and the urine alkaline in reaction, and this is the case when the waters are drunk, and also when they are employed as a bath. At the end of last summer, I tried at Vichy the effect of a bath under half an hour in duration, and at a time very remote from the influence of food; before immersion the urine was distinctly acid, but on coming out of the bath it was *strongly alkaline*, but again became acid after about two or three hours. I cannot say I have ever seen a diabetic patient lose the sugar from the urine when at Vichy; and in one case in which it was stated to have been absent, I was able to detect sugar readily the day after the patient quitted the place. From my own experience, I should consider these waters as worthy of a trial in certain cases of diabetes, especially when the disease attacks robust subjects, and where evidence exists of disturbance in the portal circulation; but where much emaciation and debility are present, I should

fear that their employment might be injurious, or even dangerous. I believe that the thirst, which forms so troublesome a symptom, is often much relieved by weak alkaline solutions, and the Vichy waters are then a convenient form for administration; the source of Hauterive, and also the source des Dames, and source de Lardy, are sometimes particularly indicated as containing, in addition to the alkaline bicarbonate, very notable proportions of iron; this is more especially the case with the source des Dames and source de Lardy.

Lastly, there is one point in connexion with Vichy to which I would wish to direct your attention, in case any of you should be induced to try the plan at home: it is this, that the salts which are sold under the name of the *Vichy salts*, and either added to ordinary baths or made into lozenges, etc., are composed *simply* of bicarbonate of soda, and have no further relation to the Vichy waters than this—they are prepared from the waters; but the process is such that every other ingredient is carefully removed. Any effect, therefore, produced by them, can certainly be obtained from the use of bicarbonate of soda, made equally pure, and sold at a much lower rate in this country. Having seen every step of their preparation at Vichy, I can vouch for the correctness of my statement.

Before bringing to a conclusion my observations on the influence of drugs in the treatment of diabetes, I would wish to allude to the action of pepsine—a substance at present occupying the attention of the medical profession, and extolled as a remedy for diabetes, amongst numerous other diseases. I have myself as yet had no opportunity of trying its effects; but my friend Dr. Parkes, a few days since, made trial of it upon a boy affected with the disease, with the following result:—

Daily average of sugar for thirty-three days, under a prescribed diet and warm bath, 1281 grains.

Under a similar diet and warm bath, and pepsine given three times a day, the average of sugar for six days was 1667 grains.

So that, in this case, the drug, to say the least, produced no beneficial influence.

To sum up in few words my opinion of the effects of treatment in diabetes, I may remark, that I consider attention to *diet* of the utmost importance; and, without this, I believe that other means are almost if not entirely useless. In certain stages of the disease, the diet is advantageous in proportion to its freedom from amylaceous or saccharine matters; the nearer it can be obtained free from these, the greater is the benefit likely to accrue to the patient. The nitrogenised matters should not be excessive in quantity, at the same time that due allowance must be made for the inability of the patient to assimilate amylaceous principles. In consequence of the appetite being generally above the healthy standard, and also to prevent the disgust which a rich animal diet is apt to produce, it is most desirable to introduce certain non-nutritive materials into the diet, which give bulk to the aliment, satisfy the hunger, and at the same time make the azotised and fatty matters more palatable and acceptable to the patient. To effect this, I know of nothing equal to the bran bread I have shown you to-day. In addition to the bran or gluten bread, I consider that certain green vegetables, as water-cress, greens, and lettuces, may be advantageously allowed in small quantities; as a diet quite free from vegetables, if continued for any length of time, will inevitably lead to the production of scorbutic symptoms.

The liquid portion of the diet should also be kept as low as possible; and diabetic patients often derive much comfort from holding small pieces of ice in their mouths, instead of drinking copious draughts of water. The washing out of the mouth also with cold water sometimes effects the same object. Alcoholic liquors should be used sparingly; perhaps the best is a little good bitter ale, or small quantities of pale brandy freely diluted.

With regard to the administration of drugs, I believe that in many cases but little advantage is derived from them; if, however, the nervous system is irritable, small quantities of opium may be useful; if there is any *anæmia*, iron preparations, as the metallic iron in the form of the *fer redut*, or the ammonio-citrate or phosphate of iron should be administered; and if the skin remains harsh, ammonia salts in small doses, combined or not with other remedies, as the warm bath. If the emaciation be great, or phthisis threaten, cod liver may likewise be used; for, although I have shown you that these drugs, when given in large doses, and for a limited period only, produce no sensible diminution of the saccharine secretion, yet we may regard it as a fact, that everything which leads to an improvement in the health, by removing any other abnormal state that may be present, tends, in the long run, to ameliorate the

diabetic condition; hence great advantage is derived from change of air and scenery, relaxation from business, and other such hygienic means, especially the avoiding of cold east winds, the use of the flesh brush, and warm clothing. I have said that in certain cases I believed that weak alkaline drinks, as the Vichy waters, or alkalies given in other forms, are occasionally of advantage, especially if the functions of the liver be disturbed or any amount of irritation of the stomach be present.

In conclusion, Mr. President, I must observe, that although I fear your patience must have been somewhat taxed by listening to the numerous details and familiar facts which have been brought under notice, still the subject has by no means been exhausted; and, had time permitted, I could have drawn your attention to many other interesting and important topics in connection with the pathology and treatment of diabetes.

In the present lectures, there are certain points upon which I have treated, and to which I trust I have been enabled to add somewhat to the previously existing knowledge. I more particularly allude to the determination of the relative amounts of urea and uric acid in the urine of diabetic patients, and the total quantities of the eliminated sugar; the occurrence of certain symptoms in cases where the urinary secretion, although saccharine in character, is but slightly augmented; the frequent supervention of gangrene in this disease; and, lastly, the measurement of the effects of diet, and of the absolute value to be attached to many proposed therapeutic agents. I feel conscious, Mr. President, that I have most imperfectly executed my task, yet trust that the time so kindly spent in listening to these lectures has not been altogether in vain.

Periscope.

PSYCHOLOGY.

TREATMENT OF THE INSANE IN OUR LARGE ASYLUMS.

THE following are additional extracts from the article in the *Quarterly Review*, from which a quotation was made in last week's number.

"These dens, for we can call them by no softer name, are the only remaining representatives of old Bedlam. They consist of dismal, arched corridors, feebly lit at either end by a single window in double irons, and divided in the middle by gratings more like those which enclose the fiercer carnivora at the Zoological Gardens, than anything we have elsewhere seen employed for the detention of afflicted humanity. Here fifty male lunatics are herded together without regard to their previous social or moral condition. Thus the unfortunate clergyman, the Rev. Hugh Willoughby, who fired a pistol two years since at the judge at the Central Criminal Court, is herded with the plebeian perpetrator of some horrible murder. Side by side with the unfortunate Captain Johnson, of the ship *Tory*, who, in a fit of extraordinary excitement during a mutiny on board his vessel, cut down some of his crew, but is now perfectly sane, sits perhaps the ruffian who murdered the warder in cold blood at Cold Bath Fields—a villain brought in mad by a tender-hearted jury, who shrunk from the responsibility of hanging him. Here also poor Dad, the artist who killed his father whilst labouring under a sudden paroxysm of insanity, is obliged to weave his fine fancies on the canvass amidst the most revolting conversation, and the most brutal behaviour. Those who contend that all criminal lunatics should be treated alike, do not consider the vast difference between the tone of mind in an abandoned wretch who has lived a life of villany, and the gentleman who has committed a casual offence. As the former advances towards sanity, the brutal disposition which early training and vice and dissipation has engraven upon his nature comes into strong relief; whilst the good breeding which is natural to the latter, and which was but temporarily eclipsed in him, resumes its sway. Nay, nothing is more certain than that the previous habits and manners of the lunatic are to a great extent unaffected by his unfortunate malady, even when it is at its height. The disgrace of thus caging up together the coarse and the gentle, the virtuous and the abandoned, rests wholly upon the shoulders of the Home Secretary. The governors of the hospitals, the medical officers, and the lunacy commissioners, have over and over again remonstrated against