ON THE
JUVANTIA AND LÆDENTIA
IN
DIABETES.

BY
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COMMUNICATED BY
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Several eminent professional friends having done me the honour, from time to time, to make inquiries of me on points connected with the complaint under which I formerly laboured, I am induced to relate my case, in the hope that it may afford some hints which may be useful to the profession at large.

In November, 1844, (then in my fifty-fifth year,) I was prostrated by an attack of diabetes. The symptoms were well marked, and need not be detailed; the professional friends consulted did not expect that I should rally; and one of them went so far as to say, when asked to prescribe for me a particular remedy, that it would only be "smoothing my passage to the grave," and yet here I am, with urine varying from 1·016 to 1·020, instead of 1·040 and upwards, and although ten years older, seldom or never flinching from any professional duty.

There being no doubt as to the nature of my complaint, an altered diet was immediately advised, and a run to the Isle of Wight ; the latter I could take for a few days only, and that in the commencement of a cold, dreary winter, yet it assisted materially in arresting my downhill course, and time was gained for the effect of remedies and diet.

All my advisers (and I had several whose kindness can never be repaid) recommended meat, fish, and eggs, with the cruciferæ ; they differed, however, in minor points ; one advised coffee, another tea ; one wine, another brandy, &c. As a substitute for bread, cakes or biscuits made of washed flour and lard were at first recommended ; these soon quite disagreed. The gluten bread was next tried ; this latter, unpleasant as it was, I took as long as it could be borne ; but after a year or two, it became insupportable, and when passing a few days at Brighton, I availed myself of the advantages of change of air, and Sussex bread, to cast it aside, and have never resumed it. On returning to town, I did pretty well for a time, eating the ordinary bread very sparingly, but afterwards I relapsed, and was almost in despair. Having before this seen Dr. Prout occasionally, and now telling him of my dilemma, he suggested a kind of bran cake, which was immediately prepared according to his directions : it was by no means a pleasant composition, but that was not the worst, for the bran acted powerfully on the bowels, and it could not be continued in that form. We have all heard that "necessity is the mother of invention," and I immediately set a mill-maker to work to make me a mill which should grind the bran into a very fine powder ; this means, and careful sifting, overcame the difficulty, and enabled me to succeed in the preparation of a kind of cake which was continued for some years, and with the best effects.¹

¹ *Formula for Bran Cakes.*—Take a sufficient quantity (say a quart) of wheat bran, boil it in two successive waters for a quarter of an hour, each time straining it through a sieve, then wash it well with cold water (on the sieve), until the water runs off perfectly clear ; squeeze the bran in a cloth as dry as you can, then spread it thinly on a dish, and place it in a

I had before this been more rigid in my diet than directed by the doctor, who, to use his own expression, "tolerated things which he did not advise." My protracted sufferings, however, now determined me to put away everything saccharine or amylaceous to the utmost possible extent, and I therefore gave up wine, at the same time that the bran cake enabled me to discard entirely the use of bread. I now soon became decidedly convalescent, and have never had my diabetic symptoms return with violence. The cold of November still produces unpleasant feelings, and some anxiety, but has not for two or three years rendered necessary even a partial return to the bran cake; and for six or seven winters past, I have not required the double clothing, and the hot bottle in the carriage, which were sometimes indispensable. There can be no question as to this bran cake having greatly prolonged my life, as I was fast becoming a decrepid valetudinarian before its use, and

slow oven; if put in at night let it remain until the morning, when, if perfectly dry and crisp, it will be fit for grinding. The bran thus prepared must be ground in a fine mill and sifted through a wire sieve of such fineness as to require the use of a brush to pass it through; if grinding once is not sufficient, it must be ground again until quite soft and fine. Take of this bran powder 3 oz., two new-laid eggs, 1 oz. ($1\frac{1}{2}$ or 2 oz. if desired) of butter, and rather more than half a pint of milk, mix the eggs with a little of the milk, and warm the butter with the other portion; then stir the whole well together, adding a little nutmeg and ginger, or any other agreeable spice. Bake in small tins (pattipans), which must be well buttered, in a rather quick oven for about half an hour. The cakes, when baked, should be as thick or a little thicker than a captain's biscuit; they may be eaten with meat or cheese for breakfast, dinner, and supper; at tea they require rather a free allowance of butter, or may be eaten with *curds* or any of the soft cheeses.

This formula is the same in substance, but improved in detail, as that given to Dr. Pereira some years since, and which he published in a foot-note in the last edition of his 'Materia Medica.' I also furnished him with the name of my mill-maker, Mr. White, 266, High Holborn, and Mr. White informs me that he has made several mills in consequence; and I take this opportunity to express my hope that those who have used the bran cake, from having seen Dr. Pereira's account of it, will do me the favour to inform me by letter as to the result of their experience.

should, in all probability, have altogether broken down long since; and I am the more anxious to dwell on this part of my history, from the conviction that if the bran cake, or some modification of it, were made on a larger scale, it might be used in our hospitals, and patients might be supplied with it after their discharge, thus obviating one of the difficulties as to their diet, after temporary recovery.¹

At the present time I feel well, so far as the diabetes is concerned,² yet am of opinion that it would be no difficult matter to bring on a return; and believe that there are few who recover so perfectly as to be able to use the indiscriminate diet of former days. I am indeed acquainted with some who go so far as to take potatoes, and even sugar and fruit; but they do this very sparingly, whilst others have fallen speedy victims to imprudence in this respect; and I would never recommend any one to make the experiment without great caution.³ In my own person, the specific gravity has increased from 1·025 to 1·037, from taking a glass or two of fruity port wine, without any other assignable cause; and rice puddings, persisted in for a short time, would formerly produce the same effect. I say formerly, with regard to rice, for during the late epidemic, I suffered rather severely from choleraic diarrhœa, and scarcely know what would have been my fate, if restricted to my old diet of meat, greens, and bran cake: as it was, rice and

¹ I am quite aware that the use of bran is not a new idea; on the contrary, one of my earliest medical advisers mentioned it, but he had such an opinion of its unmanageableness as entirely discouraged me at the time from making a trial, and by his advice I took the gluten bread; my preparation has the advantages of being by no means disagreeable, does not disorder the bowels, and contains very little starch; some of the bran powder (not prepared for analysis), was put into the hands of Dr. Marcet, a short time since, who found it to contain only 2·52 per cent.

² Dr. Babington examined a specimen of my urine a short time since, the sp. gr. was 1·018, and he found no trace of sugar.

³ No experiment on diet should be made in the winter, particularly if the north-east wind prevail.

macaroni many days together, (without any fresh vegetables), produced no alteration of urine, though a sweet taste after meals sometimes reminded me of former days.

To return to the early history of my case.

Fat meat and eggs were more especially directed for me, and were taken without any immediate ill effects, but I am of opinion that they produced great biliary derangement, more especially the eggs, the free use of which has been laid aside long since.

Fish is a most important article of diet for the diabetic, but does not require particular notice, as its use only requires the ordinary cautions for those in moderate health.

I have never found it necessary to disallow the use of milk, the sugar contained in it certainly does not pass into glucose readily, or under ordinary circumstances; and this induces me to notice, that, as to farinaceous substances, their disposition to pass into sugar is not to be estimated simply by their proportions of gluten and starch, and it does not seem to me that anything but experiment, will determine the degree in which they do this. Some kinds of bread injure more than others; and in my own person brown bread has often produced greater sweetness in the saliva than that made of fine flour; and it is my opinion that unfermented flour in the various forms in which we use it, is less liable to pass into sugar than bread. I have not, however, had opportunity to test this on a sufficiently large scale to be certain of the fact. Genoa macaroni I believe to be one of the best substitutes for the bran cake; the finest macaroni not only contains more gluten than ordinary bread, but the long boiling in water which it ought to undergo before being prepared for the table, further diminishes the proportion of starch.

With regard to vegetables, I have almost confined myself to the cruciferæ, as they can be obtained in London during the greater part of the year; the young cabbage, is, perhaps, at once the cheapest and best for ordinary use. Cauliflowers, broccoli, Brussels sprouts, &c., give considerable variety. Seakail is excellent, but rather too expensive; the late Dr.

Pereira recommended sour kroust to me; but having fresh vegetables at hand I have never tried it. Since my recovery, I have taken French and scarlet beans, without injury; but should consider the cruciferæ highly preferable for the actually diabetic. Spinach is generally considered allowable, and indeed recommended, and those who reside in the country, might add to the list other plants of the same natural order, such as the *Chenopodium bonus Henricus*, and the younger leaves of the common beet, both of which I have tasted, and found them very agreeable. My friend, Mr. Ward, in conversation with him on the subject, suggested that the leaves of the *Beta Cicla* and *Maritima* may be used as pot-herbs; and perhaps the list might be still further enlarged.¹

As to tea or coffee, I have no hesitation in giving the opinion that, in a majority of cases, tea is to be preferred. Milk may be taken with it freely; cream sparingly.

As a beverage at meals, water or toast-water may be used, and, instead of wine or malt liquor, a small quantity of brandy and water, not above a table-spoonful of the former. Wine is better excluded, except claret, which is too expensive for common use. There are several other wines which may be allowable as being free from sugar, but of them I have no experience. The pale French brandy is, no doubt, the best; but I have tried the English *eau de vie* made in imitation of it, and found it to answer very well, and Dr. Bence Jones informs me that he has sometimes directed rum, which, being without sugar, is, *quoad hoc*, as eligible as brandy. Sponging with tepid water, followed by friction, has been so beneficial, in more than one case in which I have been consulted, as to call forth the highest encomiums. For myself, I have only practised sponging with cold salt and

¹ Another of the cruciferæ, the watercress, will help to make the breakfast agreeable, and I see no objection to other vegetable products, such as celery, endive, mushrooms, &c., when in season, if the stomach will bear them, provided we avoid starch, sugar, and the vegetable acids.

water in the summer, and an occasional warm bath in the winter: these I have used with great advantage.¹

Warm clothing,—a leather waistcoat, and gutta percha soles to the boots, in winter, are very important. It would be superfluous to descant on the advantages of change of air and occupation; but I may mention that, whilst at home, I constantly used the bran cake; if I left town for a time, and took the prepared bran with me, I seldom used it beyond two or three days, and never felt the worse for taking the liberty of substituting bread under the influence of change of air and scene. When I returned home I continued the bread, until warned by a partial recurrence of symptoms to have recourse to my bran cake. This took place several times before I was able altogether to discontinue its use.

It is not my intention, in the present paper, to go into details as to the *medical* treatment of diabetes. Nevertheless, I am unwilling to conclude without making some allusion to it, or entirely to omit noticing the effects of medicine on myself.

In the first place, I know of no specific remedy for the disease; and notwithstanding the successful issue of my own case, and that I have witnessed other cases which have recovered and stood their ground several years, I fear that there are many which will prove fatal, in spite of any means to which we can have recourse. Where the disease attacks the thin and delicate, with a disposition to tubercular or some other form of disease, in which the constitution breaks down, although change of air and appropriate remedies may check the disease, and sometimes enable us to overcome it, we shall often fail. In fact, we must expect this to be the case where we cannot remove the causes, whether original, or the result of the circumstances in which the individual is placed. On the other hand, where the complaint is

¹ I think it is important that the bathing should be followed by friction, and, if plain water is used, hair gloves should be employed, or some similar means of encouraging a sustained action on the skin.

simply a form of mal-assimilation, without serious organic mischief, and the case is one in which we can diminish or control the exciting causes, and the patient will submit to regimen, we may fairly hope for the best results. As a type of the latter, I may mention the case of a clergyman, who consulted me a few months since, a stout, large man, who had taken a free, mixed diet, and been, according to his own statement, "a great bread eater." His urine was upwards of 1·040, and the quantity considerable, and he is not sound on other points, besides being diabetic; yet he has no lung affection, and I believe the action of the kidneys to be merely eliminative, and that he may be restored to good general health, by treating his case as you would a modified form of dyspepsia, viz., denying those articles of diet which promote the disordered action, and at the same time invigorating the stomach and nervous system; and, in fact, two letters I have received from him detail his progressive improvement. As a case of the former class, that of a thin, delicate, young lady, highly nervous and excitable, whose sister had died of a similar disease, and who had lately suffered from intense mental anxiety, may be referred to. She had consulted one of our most eminent physicians some time before I saw her, who had enjoined a meat diet, ammonia, &c., which had been most strictly adhered to. In spite of these, the disease continued to gain ground, and when I became her regular attendant, two or three weeks before death, the whole system was in a state of the highest excitement, the pulse above 120, there was great emaciation, intense thirst, and almost constant sickness. The symptoms were, in a degree, tranquilised by effervescent and opiates; but as the stomach never regained its power to take nourishment, although she was allowed almost a *carte blanche* as to aliments, she sank rapidly. In this case, no remedy could have availed much. There was the constitutional disposition, and a source of anxiety and mental suffering which could not be removed.¹ It is scarcely necessary to observe, that there are

¹ In this case the urine, which had been a long time in very large

many cases not of so decided a character as either of the above, and in which the circumstances of constitution, occupation, &c. are so variously modified and combined, that each becomes more or less a separate study.

Instead of there being a specific for this disease, the cases of recovery which I have witnessed have occurred under the use of various remedies, and the same case has been greatly benefited by a change from time to time, keeping in view the great principles of building up the system, promoting the action of the skin, regulating the action of the liver, &c., and searching into, and as much as possible, removing the causes of the disease.

If I were to speak of one medicine more than others, it would be the citrate of ammonia in the effervescent form, generally combined with the citrate of iron. Bitters and alkalies did me great service at one period of my attack. Opiates are useful in some cases, where the quantity of urine passed is very great, to give a temporary check; beyond that, I think them objectionable. Cod-liver oil has been used in some of the cases with whose history I have been acquainted, but without any very satisfactory results. I am of opinion, however, that there are cases in which its use is indicated, and purpose, when I have one which seems suited, to give it a further trial, probably in conjunction with Vin. Ferri or Infus. Quassia.

I have already mentioned ammonia in the form of citrate. As to the sesquicarbonate, I cannot speak favorably of its effects in my own case. A kind medical friend, who saw me often in an early stage, recommended a steady perseverance in its use, and I continued it, in gradually

quantity, and containing only sugar as an abnormal ingredient, became albuminous towards the last, and increasingly so as the fatal termination approached. A specimen examined a few days before death contained sugar, albumen, torulæ, and a few casts, and the sp. gr. had fallen so low that, if I recollect right, the last examined was only 1.014, and was as albuminous as in ordinary cases of albuminuria; the kidneys were found large, flabby, and congested, but with no decided marks of disease or degeneration.

increased doses, a considerable time, but without any decided advantage. When, at length, the stomach could no longer bear it, he advised ammonia in the form of benzoate. This was too much for me, being perfectly nauseous, and after a few doses, I bade adieu to ammonia, except, in combination with Infus. Cascarillæ or camphor mixture, as an occasional remedy. In this way I found it very useful, and for some years carried about with me a small draught, of which I took an occasional sip. This and all other medicines I have left off long since, unless it can be considered as medicine, that I sometimes chew a little broken cascarilla bark, or quassia, when kept beyond the usual time for meals, or in any way the worse for wear.

So much, then, for the facts of my case, and the observations I have been able to make on those of others, and I feel afraid to venture beyond this. If disposed to enter into discussion on the disease itself, I should class it amongst the neuroses, believing that exhaustion of nervous power, or some deranged state of nervous system, exists in all cases; yet I cannot but think that diet is also concerned in many. Still less am I disposed to undervalue the effects of regimen, and the other non-naturals, as they used to be termed, in its treatment.

In my own case, two causes had long been at work: the wear and tear of a laborious profession, and a diet in which fruits, rice, &c. had too large a share; and the disease, which had no doubt been creeping on unobserved for some time, was brought to its acme by eating freely of apples, which the unnatural thirst rendered peculiarly grateful, and at the same time undergoing unusual fatigue, and this too in the month of November. During one night passed in watching a somewhat anxious case, the urine became very great in quantity, as well as abnormal in appearance, and the nature of the complaint was too obvious. My pallid cheeks and sunken countenance, then and for a long time afterwards, will not soon be forgotten by myself or my friends.

Although, previously to the observations of Dr. Prout, the kidneys had been too much considered in this disease,

and remedies accordingly directed to restrain their excessive action, without sufficient reference to other symptoms, I think that we must not consider them wholly faultless, particularly when the disease has lasted some time. Indeed, a chain of morbid actions is set up in the various organs:—the bladder is irritated by unhealthy urine; an emptied bladder excites the kidneys to increased action; thirst is encouraged, the digestion is further impaired, and all the symptoms are aggravated by each other.

I must, however, check myself in these remarks, as not wishing to enter into the discussion of questions which may admit of any difference of opinion, but simply to relate the facts of my own case, and the results of actual experience.

June 25th, 1855.—Some time has now elapsed since my narrative was drawn up, during which I have again experienced the salutary effects of the bran cake. I went on well, notwithstanding a pretty free use of food containing starch, until November last, when the cold winds set in, and my old symptoms gradually returned. When they had attained considerable severity, they were partially checked by additional warm clothing, and restriction to a very small quantity of brown bread; at length this failed, and on the 5th of March, the specific gravity of the morning urine being 1·041, that of the afternoon 1·035, the quantity very considerable, with dry mouth, and tenderness in the back, particularly over the right kidney, it began to be time to take some decisive step; and I resumed the bran cake. The effect was immediate. On the 8th, the morning urine was scarcely 1·020, the afternoon, 1·015, the quantity normal; and although taking no bread, and less meat, I was already beginning to regain flesh;¹ that the change was owing to the substitution of the cake for the brown bread was sufficiently obvious, as the

¹ I have often remarked the rapidity with which this has taken place; it has been much more striking than its opposite.

weather continued cold, with a prevalence of north-east winds, and I had still considerable remains of catarrh.

Since the weather has become mild, I have been able to resume amylaceous food partially, and without injury; and, in fact, consider myself well.¹ The cessation of the diabetic symptoms was followed by congestion in the head, which harassed me several days, but gradually subsided under the use of citrate of ammonia, and small doses of Vin. Colchici; the uneasiness in the back left me at once, as well as several sensations difficult to be described. I have not yet ventured to return to the use of bread, but continue the bran cake at breakfast and supper; at dinner, two or three times a week, after meat, or fish, and greens, I allow myself puddings of flour or maccaroni; and at tea, small cakes made with flour, &c.²

Thus, in brief, I have given the sequel of my history to the present time. I believe that the relapse would not have occurred in a more genial season; the use of the cake in checking the symptoms until the weather has become more favorable, has been most important and striking.

¹ In addition to my own observation (with both the potash and copper tests), I may mention that my friend Dr. Bence Jones kindly examined a specimen the other day, (June 19th), the sp. gr. was 1.020 and he found no trace of sugar.

² I prefer these cakes to any form of biscuit, having found them to agree much better; they are prepared as follows:—

Rub $1\frac{1}{2}$ or 2 oz. of butter into half a pound of flour, add a teaspoonful of powdered ginger, mix with milk and the *white* of one egg, (the white answers every purpose), roll out into a very thin paste, and cut them into round cakes with the top of the flower dredge; bake quickly, but not too much, about ten minutes will suffice.