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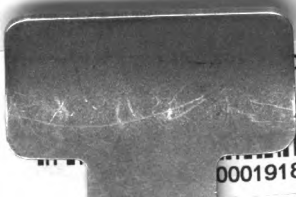
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CAMPLIN
ON
DIABETES

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DIABETES.

DIABETES.

ON
DIABETES,
AND
ITS SUCCESSFUL TREATMENT.

BY
JOHN M. CAMPLIN, M.D., F.L.S.

THIRD EDITION.

REVISED, WITH ADDITIONAL NOTES AND OBSERVATIONS.

BY
JAMES GREY GLOVER, M.D.

LONDON:
JOHN CHURCHILL AND SONS,
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THE
EDITOR'S PREFACE.

THERE are two good reasons for publishing a third edition of Dr. Camplin's book on 'Diabetes.'

The first is that just before his death, which happened somewhat unexpectedly, he had contemplated sending to the press a third edition. Indeed, singularly enough, he had just completed the alterations and additions which he designed to make, and which will put the reader in possession of his latest views upon the subject. Respect for the author's wishes and plans suggests the propriety of publication.

The second reason is equally good, viz., the continued demand for the work, and the exhaustion of former editions. The book is one of a number of recent publications which have

established the treatment of diabetes on a sound and rational basis. Leaving to others, who have done the work so well, the investigation of the physiological relations of sugar in the animal economy, Dr. Camplin, as at once a medical practitioner and a diabetic patient, set himself to a clinical study of diabetes, and succeeded, as perhaps only a medical man suffering from the disease, could have succeeded.

The present position of the subject of diabetes is full of interest and promise. Our advancing knowledge tends wonderfully to fasten upon certain parts of the body the origination of the abnormal production of sugar in the system which chiefly characterises the disease. Though no specific remedy has been discovered for it, great progress has been made in defining the treatment by which it is most effectually controlled. And, by the way, let it be said, that this is a good illustration of the progress of therapeutics in general. Our control over disease seems to be advanced not by the discovery of single remedies, but by discovering the importance of, and prescribing regard to, a number of physiological considerations, and the judicious use of helpful, *but not specific*, medi-

cines. At the same time, it may be remarked, that the case of diabetes is one so peculiarly chemical in its character, that it is not unreasonable to hope for the discovery of a chemical remedy for it. Meantime it is satisfactory to be able greatly to command the disease, to mitigate the distress which it occasions, and to enable a great number of diabetic patients to follow their callings with comfort and efficiency, even to an advanced age.

J. G. G.

February, 1864;
33, COMPTON TERRACE,
ISLINGTON, N.

ADVERTISEMENT
TO THE
FIRST EDITION.

THE limited circulation of the 'Transactions of the Royal Medical and Chirurgical Society' has induced me to republish the following paper, which I have thought it best to do in the form in which it originally appeared.

I have appended to it a short sketch of the opinions of some who are now attempting an elucidation of the phenomena of diabetes, together with my own observations on its nature and treatment, and the results of my subsequent experience.

J. M. C.

33, COMPTON TERRACE, ISLINGTON;
June, 1858.

PREFACE
TO THE
THIRD EDITION.

IN preparing for publication this Third Edition of his work, the author feels that he has nothing to add as to the principles of treatment; he has, however, revised the details both of diet and medicine, and rendered them more complete. During the interval that has elapsed since the publication of the Second Edition, he has had the satisfaction of knowing, both from published cases and correspondence with practitioners and patients in various parts of the country, and in Germany and America, as well as the numerous cases in which he has been personally consulted, that

his plans are now very generally adopted. The experiments and observations of M. Bernard and Dr. Pavy are omitted in this Edition, not out of disrespect to those eminent physiologists, but because the knowledge of their researches is now generally diffused amongst the profession, and at the same time they are devoid of interest to the general reader.

33, COMPTON TERRACE,
ISLINGTON ; 1863.

ON THE
JUVANTIA AND LÆDENTIA
IN
DIABETES.

BY
JOHN M. CAMPLIN, M.D., F.L.S.

REPRINTED FROM VOLUME XXXVIII OF THE 'MEDICO-CHIRURGICAL TRANSACTIONS,' PUBLISHED BY THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON IN 1855.

COMMUNICATED BY
RICHARD BRIGHT, M.D., F.R.S.

Received Nov. 10th, 1854.—Read Jan. 9th, 1855.

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, 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 bis-

cuits 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.¹ 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

¹ The gluten bread of that day differed materially from that now in use, being deprived of starch, and extremely disagreeable ; 1863.

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

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."² 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,

¹ See Appendix.

² Dr. P—'s peculiar opinions induced him to go further, and recommend things which I should not be disposed to *tolerate*, particularly in a severe case.

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 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

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, not disordering the bowels, and containing 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

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.¹ 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 diarrhoea, 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 macaroni many days together (without any fresh vegetables)

a short time since; the sp. gr. was 1·018, and he found no trace of sugar.

¹ No experiment on diet should be made in the winter, particularly if the north-east wind prevail.

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;¹ 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

¹ Subsequent experience has shown that in many cases it is better to interdict milk, or only allow it sparingly. 1863.

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.

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 green cabbage is, perhaps, at once the cheapest and best for ordinary use Cauliflowers,¹ broccoli, Brussels sprouts, &c., give considerable variety. 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 young French and scarlet beans, without injury ; but should consider the cabbage tribe highly preferable for the actually diabetic. Spinach is generally considered allowable, and indeed recommended ;

¹ I am not now disposed to recommend cauliflowers as equally suitable with other cruciferæ. 1863.

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.²

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,

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.

² See the former note—many will bear this direction to be reversed. 1863.

not above a table-spoonful of the former.¹ 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 water in the summer, and an occasional warm bath in the winter: these I have used with great advantage.²

¹ This quantity of course may be increased at the discretion of the practitioner.

² 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.

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, when restricted to the use of the bran cake, at home, 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.¹

¹ Nearly twenty years have now elapsed since my attack, and so many cases have come under my observation as to give me ample opportunities of testing the effects of various remedies. November, 1863.

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 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 large, stout 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., to which she had strictly adhered. 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, tranquillised by effervescents 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 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

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

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 that seems suited, to

give it a further trial, probably in conjunction with Vin. Ferri or Infus. Quassia¹.

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 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 discontinued 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

¹ I have since been able to observe the cases in which this remedy is indicated. 1863.

for meals, or in any way the worse for wear.¹

So much, then, for the facts of my case, and the observations I have been able to make on those of others, and it is not my purpose to go 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

¹ Of late years I have been able to dispense with this also, and now never take anything between meals. 1863.

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 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.² 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

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

² 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.

three times a week, after meat, or fish, and greens, I allow myself puddings of flour or macaroni; and at tea, small cakes made with flour, &c.¹

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 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 flour dredge; bake quickly, but not too much,—about ten minutes will suffice.

It is scarcely necessary to observe that these cakes must not be indulged in by the actually diabetic, any more than other forms of farinaceous food.

ON
DIABETES, & c.

June, 1858.

My personal history has formed a large portion of the foregoing paper, and I wish to continue it, by stating, that since its publication my health has continued good, with but two interruptions, each marking the susceptibility still existing, and the immediate success of my old remedy.

The first was the result of over-fatigue, combined with the difference of diet, during a very short visit to Belgium—these produced a partial return of diabetic symptoms, accompanied by a most peculiar and distressing train of sensations, dependent on the exhausted state of the nervous system, which, as they have no immediate relation to the subject of this paper, I forbear any attempt to describe. Strict diet

and tonics gradually restored me, without much interruption to professional duties.

The second occurred in the autumn of last year, when I left London for a few days' relaxation at the sea-side. Accidental exposure to the east wind and damp produced severe fever and rheumatism, which first confined me to bed, and then sent me home very much broken down. After some time these complaints were subdued; but great debility remained, and I perceived a return of old symptoms, in the frequency of micturition, and, on examining the specific gravity of the urine, found it 1.036.

For a long time previously I had taken bread regularly, and other farinaceous matters occasionally; but, with this state of things, determined to return to the bran cake.

On September 24th, my urine, according to my friend Dr. Garrod's glucometer, contained 17 grs. of sugar to the ounce.

September 28th (only four days after the alteration of diet), it was found to contain less than half a grain, indeed only a trace.

For a short time I followed my plan rigidly, restricting myself to meat or fish, greens, and

the bran cake—the result was a very speedy return of health and activity; since then my diet has been that of convalescents.

The cases of diabetes which have fallen under my observation, - since the publication of my paper, have been chiefly those of persons past the meridian of life, and have very much resembled my own, as to the success of the treatment.

In those whom I have *personally* attended, the improvement has been most satisfactory, and the attendance comparatively short.

In other cases, in which my opinion has been asked, by medical men, or patients at a distance, I am not in possession of sufficient details to speak with accuracy as to permanent results, but the short reports which have reached me have all been favorable. One case has disappointed me, that of a young lady, who could not be prevailed upon to try the bran cake, nor, indeed, to submit to any appropriate regimen.¹

¹ As this lady had an unfortunate aversion to any kind of brown bread, had I seen her again I should probably have advised her to try Bouchardat's gluten bread, which, although it contains about 25 per cent. of starch, and is not so pleasant for continued use as

I have also heard of a case (and do not doubt that there have been others), in which attempts were made to manufacture the bran cake, but the result was unsatisfactory, either from not having a sufficiently fine mill, or some fault in the manipulation. I was not consulted in this case, which ended fatally some time since.

Before commencing any account of the opinions of pathologists as to the origin of diabetes in the system, or entering into the theories which have been formed of its essential nature, I would notice to any non-professional reader into whose hands these remarks may fall, that notwithstanding the difference of opinion which exists on these matters, there are certain, fixed, broad principles upon which the disease is to be treated; and that, although continued researches into its nature will enable us to classify cases, and in other respects be of great value, we can, even now, lay down maxims for its treatment, which will be successful, when there is anything like power in the constitution.

For many years I had been accustomed to the bran cakes, would have been a great improvement on ordinary bread.

consider the views of Dr. Prout on the pathology of diabetes as correct, with reference to the stomach and *primæ viæ*, and that the change of amylaceous matters into sugar takes place in that part of the system ; and notwithstanding the recent researches which give the glucogenic function to the liver, I am disposed to believe, that in many cases the gastric juice may be so changed as to resemble the saliva in its properties, and that sugar may be absorbed independently of the liver.

The recent experiments of M. Brown-Séquard ('*Journal de la Physiologie de l'Homme et des Animaux*,' pp. 158, 159) go to show that, in the normal state, starch is to a certain extent converted into sugar in the stomach ; this power may be greatly increased in the diabetic, and thus be the reverse of that which we observe in some forms of dyspepsia, in which everything capable of such a change becomes intensely acid. It may also be noticed that the pancreatic juice, according to M. Bernard, has the power of converting starch into sugar.

I have already expressed the opinion that the nervous system is always more or less in fault in the diabetic state, whether we consider it as

owing to a general failure of nervous power, combined with some peculiarity in the constitution which localizes it, and thus induces that particular manifestation, or as, in many instances, the effect of that failure, combined with some special reflex action. We are constantly in the habit of witnessing the effects of diminished or depraved nervous action, in the production of other diseases, modified, as they may be, by the constitution of the patient, or the peculiar circumstances in which he is placed.

Bearing this in mind, it is desirable that we should trace the various influences of the stomach, liver, skin, and kidneys on the nervous system, and on each other, in its production and perpetuation. In many patients the urine undergoes a change before it becomes decidedly diabetic—at least, we may infer this from their history—and probably the disposition, if then ascertained, might have been arrested. On the other hand, when not suspected, it only waits the concurrence of circumstances still further lowering the nervous energy, and encouraging the setting up of diseased actions, to establish the complaint.

These circumstances may vary, but will generally be found to consist of too amylaceous a diet, the influence of cold and damp, and these concurring (as in my own case) with too much strain upon the bodily and mental powers.

Dr. Prout remarks that animals are not subject to diabetes, and asks, "Can the exception be referred to that fertile cause of bodily disorder in human beings, the influence of mind?"¹

When there is any diabetic disposition in the system, it will be greatly encouraged by too large a proportion of amylaceous food. I have mentioned that in my own case, having been dyspeptic and bilious, rice, &c., had been directed for me, and that I had seen a gentleman who said he had been "a great bread-eater;" since then another patient, without any leading question from me, has used precisely the same expression.²

¹ M. Bernard also mentions this fact, and almost laments it, as the physiologist has in consequence no means of vivisection.

² Subsequently many similar cases have occurred, this was particularly observable in a youth of nine or ten.

The effects of cold and damp in favouring the development of the disease are too obvious to need being dwelt upon. I have often observed ordinary dyspepsia to become much more frequent and severe when the chills of autumn come on; and it seems to me, that the cold of November, and the action of east winds, produce peculiar effects on the diabetic, beyond their debilitating influence.

I am of opinion that mere cold or checked perspiration will not suffice to bring on the complaint in the first instance, but will strongly dispose to perpetuate it, or occasion a relapse.

Though the kidneys cannot of themselves produce sugar in the urine, they may add to the mischief by their habitually increased action, and will naturally do so, if the skin is allowed to become torpid and sluggish—the bad effects of this state of things on the general system are too obvious to need comment.

We must, moreover, not lose sight of the fact, that diabetes shortly becomes more or less a blood disease—the depraved digestion and assimilation must speedily alter its qualities, as well as impoverish and take away its powers of

restoring the wasting fabric, and will have a still more direct effect, if we take Dr. Pavy's view, that deteriorated blood can change hepaticine into sugar in the living subject.

Besides the complications and varieties in diabetes already alluded to, there are, in the young, the dispositions to pulmonary disease, which are aggravated or induced by it, and in the advanced in life its combinations with dyspepsia, and its affinities with gout and calculus, all requiring a careful consideration.

The cases in which saccharine urine exists temporarily in other affections, such as those of hooping-cough, &c., recorded by Dr. Johnston ('Lancet,' p. 303, 1858), may eventually assist in throwing light on real diabetes.

A medical friend lately communicated to me some particulars of the case of a lady, who had been suffering several months from pulmonary disease, and was in a hopeless state when my friend first saw her; he detected the presence of diabetes from her breath, and found on examination that the amount of sugar was very great—the urine having been normal in quantity, and no thirst having existed, the diabetic

affection had escaped notice. Future observations on cases like this, particularly in their earlier stages, may assist our investigations.¹ In them there is, no doubt, a highly depraved state of the blood, and the organization of the lungs is destroyed in a way which differs from common tubercle, being a thorough disintegration of the substance.

That the brain and nervous system are primarily affected in diabetes, may also be inferred from cases where the disease has been occasioned by injury to the head or spine—one of this kind was lately under the care of Mr. Erichsen, in the University College Hospital. A man fell from a haystack—diabetes and severe paralysis supervened, but he ultimately recovered.² The disease thus induced is, however, somewhat different from ordinary diabetes, and requires a modified treatment; it also, I believe,

¹ This appears to me to have been rather an unusual case. It is not uncommon for old persons to have the urine saccharine, without being increased in quantity; but in the young this generally goes on to complete diabetes, having the increase in quantity as well as the sugar.

² See also a case published by Dr. Goolden, 'Lancet,' p. 656, 1854; and others are recorded.

generally terminates more speedily and completely, and this may be expected, from there being no previous affection of stomach or liver.

The fact of saccharine urine being produced in animals by irritation of the fourth ventricle, leads us to suppose that the medulla oblongata is the part of the brain the functions of which are chiefly disturbed in diabetes.

It is, I believe, a generally received opinion, that the lower part of the brain is most concerned in supplying energy to the generative system; if this opinion is correct, may we not connect the two facts, viz., the diabetic disposition, and the deranged state of generative organs, which so commonly takes place in the progress of diabetes, as indicating that the neighbouring portions of that part of the brain which was first affected, become implicated?¹

Post-mortem examinations have hitherto failed in throwing light on the primary organic

¹ Since writing the above, I have seen similar remarks made by M. Bernard, who also goes into other particulars, on which I am not disposed to enter, but with respect to which, his observations entirely coincide with my own.

changes which accompany or give rise to diabetes; in some examinations, conducted too with considerable care, no organic change in any part of the body has been observed. I account for this by believing that the medulla oblongata has not been examined microscopically. I think that had that been done by such observers, for instance, as Mr. Lockhart Clarke, considerable organic change would have been found; it seems to me not at all likely that rapid decay and death would take place without organic change somewhere.

It would seem that in cases of diuresis or diabetes insipidus, the deranged condition of the nervous system acts on the kidneys, without materially influencing the liver or stomach—thus, in hysteric diuresis, the kidneys undergo great excitement, more or less continued, which in most instances yields readily to medicines calculated to quiet the nervous system.

I had often occasion to witness the effects of even slight nervous excitement, in a gentleman who suffered during a long life from diuresis, and who ultimately sank from paralysis and brain disease—such cases are not uncommon.

I have at this time under my care an infant

who has had two attacks of diuresis—there is some peculiar debility in the system which occasions the teething process to be suspended, and also gives rise to the diuresis—each attack has been checked almost immediately, by small doses of the Tinc. Ferr. Sesquich.

Diabetes insipidus seems to be owing to an affection of a different but adjoining portion of the brain to that which is affected in diabetes mellitus.

In Bernard's experiments on the fourth ventricle, if the exact spot of the brain is not touched, diuresis, and not saccharine urine, is the consequence, or both may be produced, at the same time by a somewhat different application of the instrument.

Dr. Gull is of opinion that there are two kinds of diabetes insipidus, besides the hysteric form. One, which ought rather to be termed polydipsia, and is probably owing to irritation of the pneumo-gastric nerves, producing intense thirst—the amount of fluid taken of course occasions a corresponding increase in the quantity of urine. In the other, thirst is not so prominent a symptom, and there is a little mucus in the urine, indicating that, from whatever

cause the disease may arise, the kidneys are more or less in fault.¹

The material termed glucogen by M. Bernard,

¹ A few particulars of a case of diuresis in which I was consulted, in March, 1859, may be worth recording.

The patient was a gentleman, aged forty, resident in a provincial town, and engaged in laborious occupations until a very late hour. His quantity of urine had been abnormal for about a year; and he had had other symptoms of ill health, especially the loss of appetite, for two or three months.

On a Sunday morning, about a fortnight before his coming to town, he had a rapid attack of diuresis, in which he stated that he passed full sixteen ounces every half hour for some time, and believed as much as a gallon and a half during the morning: it then subsided. The day before his journey he passed about twenty ounces the first thing, and in half an hour urinated again, and had a constant desire more or less all the day.

The urine, when I saw him, was 1·012 to 1·013, and gave little or no indication of disease beyond its low specific gravity.

This gentleman had been put on a diabetic diet, which I set aside, and directed him nourishing food of any kind suited to his feelings, with a sparing use of liquids, and prescribed the T. Ferr. Sesquich. with Liq. Calumbæ and Inf. Quassia. In April he reported his symptoms much improved, but was then passing a gallon per diem. A further course of mineral tonics, with Acid. Sulph. Dil., restored him.

hepatine and amyloid substance by Dr. Pavy, &c., whether it goes to the formation of fat or not, is, without doubt, essential to the well being of the system; and the discovery that it can be formed by the liver from animal substances is important, as tending to remove the apprehension felt by Dr. Prout and others, that the system would suffer by abstinence from amylaceous food, a fear which has often influenced their practice.¹

Independently of that discovery, this fear need not, I think, be seriously entertained, as long as the appetite continues, if we consider the habits of those races who subsist entirely on animal food, and are notwithstanding vigorous and active. The wild Indian is without the Cerealia, and the natives of South America

¹ "For some years past a diet exclusively animal has been much insisted upon. I do not however, approve of a diet exclusively animal; but consider a certain portion of farinaceous matter proper, the recommendation of this admixture of farinaceous matters is founded on a fact apparently well established; viz., that the assimilation of saccharine principle is one of the last functions which becomes extinct in animals." Dr. Prout quoted in Dr. Garrod's Gulstonian Lecture.

in the Argentine provinces, although of Spanish descent, live without vegetables of any kind.

A friend long resident at Buenos Ayres, who had estates up the country, writing to me, says, "The diet of the South Americans, who are engaged with the herds of cattle, consists entirely of flesh, to the exclusion of grain or vegetable productions containing starch; they consume a large quantity of fat.

"Many of the largest cattle-farms produce only grass, rarely cultivating a foot of ground for any purpose.

"The Indian tribes in the province of Buenos Ayres subsist entirely on flesh, principally that of mares, which they prefer. Both the natives of Spanish descent, and the Indian tribes, are, generally, healthy and hardy races, not being subject to any particular disease arising from the use of animal food."¹

This account is also confirmed by Mr. M'Cann, author of 'Two Thousand Miles' Ride through the Argentine Provinces,' who, speaking of the same people, says (p. 24, vol. i) "they have neither bread, milk, nor vegetables, and

¹ MS. letter from Samuel Bishop, Esq.

seldom eat salt ;”¹ probably the fat consumed by these races, as well as the Esquimaux and tribes in the Arctic regions, supplies to the system what is furnished in Europe by the Cerealia. In the Arctic regions fat is a necessary of life.²

Quitting these general observations, we may proceed with our practical considerations, and

¹ See also p. 157, vol. i, where the same author describes his visit to a rich man, who (to use his own expression) “lived in a natural state,—spurs, stirrups, &c., of *silver* hung round the walls,—our food consisted of beef, and beef only, without either salt, bread, biscuit, or vegetable of any sort ; water was our drink.”

The flesh being in a recent state, and roasted (sometimes with part of the skin on), the animal juices are more retained, and this is probably the reason why salt is not so necessary, the saline portions being transferred with the rest of the nourishment from the animal to the man.

² Notwithstanding what has been said above I do not think that in our country and in the circumstances in which many of our patients are placed a diet exclusively animal is advisable, and this is particularly the case with convalescents or where the disease is in a mild form—in them I recommend not only that the patients should have vegetables, but that one or two of the meals taken during the day should consist of fish or the lighter meats.

repeat that, whatever theories we may entertain, there is nothing to prevent our treatment from being simple and decisive.

We must, in our plan of diet, deny all those articles of food which favour the morbid actions, at the same time that we nourish the patient as much as possible, give tonics to invigorate the nervous system, and to assist in renovating the blood; and these tonics must have reference to the organs most implicated, as far as they can be ascertained. Where, as in many elderly persons, the disease seems to be a modification of dyspepsia, our remedies should be adapted accordingly, and will chiefly consist of alkalies and bitters, with or without iron.¹

In younger subjects, the mineral acids, especially the nitric and hydrochloric, or their combination, or the latter with iron, as in the T. Ferr. Sesquich., will be useful, whether they may be considered as general tonics, or as acting specifically on the liver and the blood. I repeat, however, that each case, whether of

¹ The Mist. Ferri Compos. was the favorite medicine of the late Dr. Latham, who seems to have been more successful than many of his successors. (See 'Observations on Diabetes,' 1811.)

young or old, has its peculiar modifications, and requires to be made a separate study ; and this will cease to be a subject of surprise, if we recollect that, besides the varieties of individual constitution, there are several organs concerned in the disordered actions.¹

It is stated in my paper, that when I began the bran cake, my condition was such as to determine me to abstain from all amylaceous food, together with every solid and liquid containing sugar, or any substance readily convertible into it, and to do this at any risk.

Inconveniences were expected to arise, which never occurred when the proper mode of preparing the bran was hit upon, and I have not observed any ill consequences in others from this abstinence ; in cases where the ordinary forms of dyspepsia coexist with diabetes, the diet, although conducted on the same general principles, requires to be watched over and varied, and the medical treatment to be more studied.

With regard to change of air, which I consider to be essential in the cases of young people, it is by no means so necessary in those resem-

¹ This remark is fully borne out by Dr. Prout. (See his 'Treatise,' p. 56, 3rd edition.)

bling my own (although it assists them also, if a proper regimen be persevered in). I had an instance of this a little time since, in a patient who had long been wandering about in search of health, and yet losing ground, but who began to rally as soon as he was put upon a proper plan of diet and medicine, and, without again leaving home, resumed his former occupations.

However paradoxical it may appear, I believe that my life has been prolonged by the attack of diabetes—previously I was dyspeptic and bilious, and had symptoms which, there is no doubt in my own mind, would have proceeded to fatty degeneration of the heart—the meat diet first, and then its combination with the bran cake, altered this state of things, and I have now firm muscles, and am a stranger to the feeling of want of power in the circulation.

Since that time, I have been more anxious to direct patients, at all disposed to obesity, with a feeble circulation, to take animal food (with fruit and vegetables), rather than bread, rice, and potatoes.

It is, indeed, my opinion, that the energies of the brain itself, and its normal condition, as

to the molecules of which it is composed, may be better preserved in some cases (not exclusively those of diabetes) by animal diet, provided that other causes of congestion are avoided.

When the use of bran was first suggested, it was merely to enable me to dispense with bread, and not as a nutrient; but it has long appeared to me that this was an imperfect view of its utility, and all late writers on the subject confirm that opinion.

Dr. Marcet, in his work on Food, &c., p. 14, says, "From the large quantity of gluten known to exist in bran, it may be concluded that, in the present system of grinding, the most nutritious part of the grain is not included in the flour." Dr. Hassall's remarks, page 258, &c., in his work on Food, &c., are to the same effect. Every analysis of bran gives a large proportion, not only of gluten and fatty matter, but of mineral salts, which latter are contained in the bran, and not in the farina, and which I think likely to supply the blood with those minute but yet important substances, which tend materially to constitute the difference between healthy vigorous blood, and the con-

trary.¹ Notwithstanding what is above said by myself and others, the popular predilection for white bread is well founded, if not carried too far, as when the bran is left in the bread, it becomes less nutritive, from being hurried through the bowels, the bran itself is too large to be fully digested, and thus there is a double loss.² The case is quite altered when the bran is reduced to a very fine powder; in that state it retains all its valuable constituents, mixes with the animal food, and has every chance of being properly digested.

I consider it a great mistake to suppose that brown bread will suffice for diabetics, instead

¹ Professor Johnstone's 'Analysis,' quoted by Dr. Marcet, gives 7·3 per cent. of saline matter in bran; and this proportion will be much increased in bran prepared for the cake.

² Mr. Stephens, of Patriot Row, whose bread was exhibited some time since at the Polytechnic Institution, informs me, that his West End customers take about equal parts of brown and white bread; whilst the poor in his neighbourhood have a very small portion of brown, and seldom any, if they can get white. Both parties are right: to the rich, bread is much less the staple article of diet, and the aperient property of the bran beneficial; the case is opposite with the poor, to whom, with their children, bread is the staff of life.

of the bran cake,—brown bread, whether made of unbolted meal, or bran added to the white dough (as is done by the majority of the London bakers), is yet chiefly composed of starch thus disguised.

The bran itself, when alone and unwashed, contains 52 per cent. of starch, according to the analysis of Miller.

It is the opinion of some (and Dr. Hassall appears to concur in that opinion) that the bran promotes a peculiar kind of fermentation, and thus renders the panification more complete; however this may be, I have been more frequently sensible of a sweet taste after brown bread than white.

I have little to add to what is said in the former paper respecting animal food—only to notice that it is desirable to vary the food during the same day, taking the lighter kinds in the later meals.

I have never restricted others in the use of eggs, or the fat of meat, although obliged to refrain from both in a great measure at one period of my illness.

Being of opinion that fat assists materially in supplying the want of the Cerealia, I am

disposed to recommend it, and the more so, having taken it freely myself now for some years without any discomfort. Dr. Prout recommends butter, in which I fully concur. Eggs, where they agree, are very proper, and form a most important article in the diabetic bill of fare.

Soups may be allowed, but they should be really good, and flavoured with aromatics or onions, to the exclusion of carrots, turnips, and peas. The bran cake may be eaten at the same time, but not put into the liquor.

In the state to which I was once reduced, previously to the use of the bran cake, much benefit was experienced from a cup of beef tea, very early, sometimes at 4 or 5 in the morning. When further recovered, a cup of warm milk, with a little nutmeg, at 7, was substituted.

As to vegetables, besides those mentioned in the paper may be added onions, and, in most cases, turnips—parsnips and carrots have been advised, but I cannot join in the recommendation ; asparagus should also be excluded.

I have found lettuces to agree well, eaten sparingly with oil and vinegar, (or with only a little salt if the vinegar is likely to disagree) and see no objection to their use in cases in

which they do not produce flatulence or discomfort. Pickles, in small quantities, may be permitted to convalescents, who have no dyspeptic tendency sufficient to forbid them.

Besides allowing the patient his choice of coffee or tea, he may have cocoa prepared from the nibs, not that sold in cakes, or powder, which contains a great portion of sugar and the low starches.

With regard to wines, chemically considered, we should allow claret, and I mentioned it before with approval, but cases have since occurred which make me hesitate. In some, the combination of gout with diabetes, and in others, a disposition to the formation of lithic acid, has induced me to forbid it. As a corrective to any injury which might arise from claret, Vichy water has been recommended to be taken with it, and this may be an excellent beverage; my objection is, that it encourages the patient to drink, the tendency to which should rather be repressed.¹

¹ I am glad to find in the recent publications on diabetes, that attention is being paid to abstinence from liquids, as a remedial means.

During my extremity great relief was afforded by carrying with me a small phial of milk and lime-

During my short visits to Belgium and France, I made trial of the wines, which certainly did me much injury; and I am disposed to believe that the frequency of diabetes in the latter country may be partly attributable to the poor acid wines which are the general beverage.¹

To a few patients, sound malt liquor may be directed with advantage, but it must be in its best state, and its effects carefully watched. Convalescents may have a little very dry sherry

water (equal parts), a sip relieved the thirst without adding to the disease.

Still more recently, however, I find physicians who have written on the subject allowing their patients a *carte blanche* as to the quantity of drink, and considering it cruel to deny them. I do not myself advise the degree of abstinence which has been recommended by some, and which would, I fear, in many instances derange the digestion, and am quite disposed to agree with Dr. Christison that when the thirst has already been much indulged the quantity of liquid taken must not be greatly reduced all at once. A patient consulted me a few days since, who said that he had been in the habit of drinking at least six quarts during the twenty-four hours, that he has frequently taken three pints in ten minutes. Surely this ought to be checked.

¹ I may also notice the much larger quantity of liquids consumed at meals by the continental nations.

or old port, but the fruity wines, now in general use, should be entirely interdicted, and, I repeat, that of all the alcoholic beverages, weak brandy-and-water is the safest, the quantity of brandy being directed by the medical attendant, and always *measured*.

Fruits are permitted by some practitioners, but in this indulgence I cannot bring myself to concur, and when the complaint is under control, the desire for them is so diminished, that the privation will be of comparatively little importance.

With regard to fruits in general, I know that the experience of physicians, for whose judgment I entertain a high opinion, coincides with my own, as some of them have so far interested themselves in my welfare, as to caution me against any return to their use.¹

Having seen cases where previous medical advisers had allowed a degree of indulgence in

¹ I have already mentioned the ill-effects of eating apples in my own case, and have lately heard of another, in which I believe they hastened the fatal termination.

See also a remarkable case mentioned by Dr. Latham, and Dr. Prout's observations on this point.

fruit, I am disposed to think, that the profession generally have lately not been sufficiently strict in this respect. A gentleman consulted me some months since, who had taken grapes frequently. It is true, that his diet, whether as directed or not, had not been well managed in other respects. He was losing strength and fast failing, when I first saw him; had tried the bran cake, at the recommendation of some friend, for a week or two, and discontinued it on account of relaxed bowels. Not being certain how this gentleman's cake had been prepared, I had some made for him in my own house, and gave him the citrate of ammonia, with a small dose of Tinct. Camph. Compos., and three or four grains of Dover's powder at night. He soon improved and was able to take the bran cake (as prepared by Mr. Blatchley), without any opiate, or the bowels being affected. A few weeks restored him to comfort, and he has since been capable of laborious exertion of body and mind, although upwards of seventy.¹

Sugar has lately been recommended, both

¹ I prescribed opiates for this gentleman, but they were in very small doses, and soon laid aside.

here and in France; of this I have no practical experience.

It may not be generally known, that the saccharine plan was freely tried, some sixteen or seventeen years ago, at Guy's Hospital, by Dr. Bright, at the suggestion of Dr. Gull, and laid aside again, having been followed by no useful results. The patients were allowed 1 lb. of brown sugar per diem, and the first day or two, thought themselves better. After a while, no improvement taking place, it was suggested that grape sugar ought to have been given instead of cane. Dr. Taylor having been applied to, as to the best way of obtaining it, recommended to take old honey, which had become partially crystallized, and wash away the more liquid portions—the residue is grape sugar. This was freely administered, but with no better success, and, after a time, the plan was altogether abandoned.

Dr. Garrod has also tried the saccharine plan in the University College Hospital—he found that a patient could bear sugar, without being injured by it, only at those times when he could equally well bear amylaceous food.¹

¹ Since the above was written, Dr. Bence Jones has

Before closing these remarks, I wish to observe that persistence in the diabetic diet recommended here, and in my former paper, will render it quite agreeable, in a great majority of cases; and when difficulties occur, they may be overcome by a little management and medical direction—at least this has been my

published a paper on the subject in the 'Medical Times' for May 1st, 1858, which has drawn forth a reply from Dr. Budd in the same journal for May 22nd; there has also been a paper by Dr. Sloane in the 'British Medical Journal,' for May 29th, detailing experiments on several cases.

On this subject I have no experience of my own to offer, and fear that it would now be difficult to obtain exact notes of the cases treated in Guy's Hospital before referred to.

Further time must elapse, and more extended observations be made, before I could bring myself to prescribe sugar for a diabetic; yet I can conceive that there may be cases in which actual sugar would be less injurious than the amylaceous matters which the depraved actions turn into sugar. 1860.

Since the above I have seen cases in which the saccharine plan has been tried with very bad results, and so many instances are now recorded in which it has been followed by various physicians without success, that we may hope that the question as to its utility is now fairly set at rest, and that no future experiment will be deemed necessary. 1863.

experience in the cases which have come under my own observation.

For myself (when in health), I prefer the bran cake, at breakfast, dinner, and supper, to the finest bread, and a mere taste of sugar is highly disagreeable.

To convalescents, I allow a little wheat,¹ variously prepared, but only to convalescents, and for this indulgence am unable to lay down any precise rule; whatever is permitted by the medical attendant must be clearly defined, and never exceeded. Dr. Prout repeats the observation, that it is easier to abstain than to refrain, and I would also join in the cautions he gives respecting *a little*, a term which may be so variously interpreted by the patient. Wheat is almost the only amylaceous matter allowable.

I am the more desirous to make these remarks, as to the non-unpleasantness (if I may use such a term) of the diabetic diet,

¹ My own allowance is about two ounces per diem, and not in the form of bread. "Tout le monde sait que l'amidon se transforme en glucose pendant la panification," says M. Brown-Séquard. I quite agree with him as to the fact, but am not so sure that everybody is aware of it.

from having seen it described, in some recent publications, as insupportable, and not likely to be persevered in. Privations have to be endured, it is true, but they are as nothing compared with the comfort and support which are soon felt to result from really sustaining food.

With the varieties of animal food, and fish of all kinds—eggs—the bran cake—greens, and some other vegetables, in many cases milk, in all cheese, butter, curds, &c., there is little cause for complaint; many persons voluntarily pursue a much more rigid course of diet, and the total abstinence from bread and farinaceous things is much easier than would be anticipated.

In conclusion, it may be observed that no diabetic need expect to recover or continue well, who cannot exercise self-control, and make up his mind to be temperate *in all things*.

I have thus far fulfilled the intention with which I set out, having given the sequel of my history and experience, since the publication of my paper in the ‘Transactions of the Royal Medical and Chirurgical Society.’

For myself, I do not claim the honours due

to men who are able to devote their time and talents to the labours of the dissecting-room or the laboratory. Mine has been a more practical task ;—that of observing the effects of diet and medicine on myself and those who have been under my care, and reporting my observations with simplicity and truthfulness. After fourteen¹ years of health and comfort already added to my life, and having been the means of rescuing others of my fellow-sufferers, I have felt it at once my duty and my privilege to disseminate as widely as possible the results of my experience in the treatment of diabetes.

¹ Now about nineteen. 1863.

1860.

SINCE the publication of the first edition (June, 1858,) I have seen numerous cases of diabetes, presenting a great variety of form and constitution in those who have consulted me ; amongst them have been several fine stout men, as well as the thin and attenuated, and a greater number of the former.

These patients (men, with few exceptions), although still stout, invariably speak of a decrease of weight. One who consulted me recently, and appeared very large, now weighing upwards of seventeen stone, said that he formerly weighed nineteen and a half. This gentleman, at the time I saw him (April 9,) was considerably better than he had been a few months before, and attributed his partial recovery to medical treatment and the gluten bread, yet he was now passing eight pints per diem, sp. gr., 1·037-40. In his case, although retaining so much flesh and fat, the memory,

and other functions of the system depending on nervous energy, were much impaired.¹

I have observed family tendencies—for instance, two delicate sisters—two brothers, whose father was subject to gout and gravel, and others whose parents or near relatives have had some of the complaints which associate themselves with diabetes.

The great cause of the disease appears (as formerly observed) to be exhaustion of the nervous system. Several of the sufferers have been overworked medical practitioners, or clergymen; others from various kinds of toil and mental anxiety; one from over-lactation and distress at losing her children, two from severe attacks of typhus fever; one from fright, a young man of 19, who was shaken violently by a savage dog, and his nervous system so

¹ His medical attendant, in a note dated May 2nd, states, "Our patient is in a greatly-improved condition,—he has been more attentive to his diet, using the bran-cakes diligently, varying them occasionally with Abbott's gluten bread. He continues the use of the mixture you prescribed for him, and goes about his daily avocations without inconvenience. His urine is in a nearly healthy state, sp. gr. 1·018, a slight-brown tinge on boiling with Liq. Potassæ."

enfeebled, that after some weeks of debility, diabetes supervened.

I have hitherto had only one case of cataract, and that in an aged gentleman. In his case the cataract and diabetes were obviously associated ; the cataract was of the kind described by Mr. France ('Lancet,' Nov. 26th, 1859), and which has lately been noticed by others, and had been observed by the Germans for some time past. Depression was performed, but very little-sight has been restored, and it does not seem that any operation is desirable in such cases.¹ Weakness and pain in the lower limbs have continued to be observed in those advanced in life. In one who had previously had an attack of paralysis from an overworked brain, the diabetes, when subdued, was followed by severe neuralgia in the knee of the side previously affected, which continues to harass him more or less to the present time.

¹ The cerebellum though not the organ of seeing or hearing, has a special influence on the organs of vision—in sixty cases collected by M. Brown-Séquard in which there was lesion of the cerebellum, there was amaurosis in one or both eyes ('Ranking's Abstract,' 1863). May not some analogous change spreading from the medulla oblongata exist in diabetic blindness.

Another gentleman, aged 73 or 74, who had been used to great bodily as well as mental exertion, consulted me two or three years ago, and recovered his health and activity; but latterly, when I occasionally saw him, complained of pain and weakness in the legs. He had important business in town during some of the severe days in the early part of the winter, and underwent great fatigue, as well as exposure to cold; the result was an affection of the foot, at first considered rheumatic gout; but when I saw him a few weeks after, some of the toes and part of the foot were completely black, and had been so for some time. It is almost needless to add that this case proved fatal in spite of every effort.

Besides the above (which might have taken place independently of the disposition to diabetes) I have seen very few fatal cases; and in these, with perhaps one exception, chest affection had existed before my seeing them; and it is to be remarked that in nearly all, the beneficial effect of diet and medicine has been so conspicuous in diminishing the quantity and sp. gr. of the urine, as almost to induce a hope of recovery.

I am not aware that any remedy has recently been brought forward, as possessed of specific power in the cure of diabetes. Besides the medicines formerly mentioned, and of which the utility is unquestionable, I have latterly prescribed strychnine in several cases, in combination with other medicines, in some with advantage, in others without any obvious benefit.

Pepsine was at one time highly recommended, but I have had little personal experience of its effects, and in the cases of those who have consulted me after taking it by the advice of others, it had been so combined with quinine and other powerful tonics that it was difficult to determine what amount of good had been produced by the pepsine, at the same time that the circumstance of the patients coming to me afterwards was sufficient evidence that the disease had not been cured.

I have, however, been made acquainted with one case in which the effects of pepsine were so remarkable, if we may rely on the writer's correctness of observation, as to be quite worth publication; and I shall give the statement in his own words, only premising that the gentle-

man lives in Australia, and that I was consulted in his case in consequence of dryness of the mouth remaining after the other symptoms had subsided.

FROM MR. —, TO HIS FRIEND IN LONDON.

“I am much obliged for the liquor pepticus and pepsine, and the small book on Diabetes by Dr. Camplin. Necessity is said to be the mother of invention, and so I found it when I sent for the pepticus.

“I was very bad with the third attack; the usual remedies of opium and ammonia entirely failed, and I had made up my mind to proceed to England by the steamer, but my doctor was doubtful whether I should hold out till I got there; the wasting had set in, and I had lost a stone and a half.

“At this time we discovered a small quantity of Boudalt’s pepsine, which I took, and it evidently had a curative effect, but no more was to be had. We had a chemist here who tried to make the pepticus, and failed, as it turned putrid.

“I was sorely puzzled how to act, and determined to try an experiment of my own. I got three calves’ stomachs, had them well cleaned, then made them into thin sausages, well smoked, and after putting them in hot water for fifteen minutes, hung them up all night over the fire in the kitchen. I took about an inch and a half morning and evening with my meals, and in a month diabetes was gone, and I am now perfectly well, weighing 16 stone 3lbs.—within 6lbs. of my usual weight. This surprised my

doctor, but on putting a small piece of sausage in new milk, it coagulated—a proof of its medicinal quality being preserved. I had to get several lots of sausages made; they are quite a relish for tea and breakfast.

“So now having pepsine and pepticus, which I have proof of will keep well, and sausages *ad libitum*, I am pretty easy about this hitherto incurable complaint.

“Depend upon it, the rennet sausage is nearer to nature than either of the other, and consequently more efficacious.

“I have thus described it, in case you know any unfortunate being with this complaint, who must fall under it, when the opium and ammonia fail to act.”

The writer thus addressed his friend, and in a separate note describing his case, with reference to my opinion as to a degree of dryness of the mouth in the morning, speaks of his last attack as having occurred twelve months before, and says that his urine now ranges from 1·015 to 1·020, and shows no change of colour by Liq. Potassæ, and no fermentation under the yeast test.

I have as yet had no sufficient experience of the value of this prescription for sausage-making; and leave the reader to judge of its merits, only remarking that I shall feel greatly obliged if any practitioner or patient, who may be dis-

posed to try it, will communicate to me the result.

Whilst on this subject, I may mention that Dr. Collins, of the Regent's Park, has for some time past prepared a kind of pepsine, or rather liquor pepticus, from the saliva and mucous membrane of the stomach of the pig, dissolved in weak nitro-muriatic acid. He believes this to have been very useful in a case of diabetes, in several of dyspepsia, and more especially in the exhaustion of a very aged person. His idea is, that if we are to be benefited by animal secretions, the good effects are much more likely to be produced by those of an omnivorous than an herbivorous animal.

IODINE.—My attention was called to the use of Iodine by an article in the abstract of Drs. Ranking and Radcliffe, (for July, 1859,) in which the following is quoted from the 'Edinburgh Medical Journal,' for November, 1858.

"On the Use of Iodine in Diabetes. By Dr. Dick, Professor of Medicine in the Edinburgh Veterinary College.

"In a notice of Dr. Stokes' researches on the formation of sugar in the liver, it is mentioned incident-

ally that Professor Dick has found iodine in large doses, 3j twice or thrice a day, a perfect cure for diabetes in the horse. It is suggested also that this remedy might be serviceable in the saccharine diabetes of man, and the suggestion is certainly one which deserves to be attended to, for iodine has certainly a marked action on the organ which is a good deal concerned in the production of the sugar, viz., the liver."

Having doubts as to the identity of the disease in horses and man, I wrote to Professor Dick on the subject, who kindly favoured me with a reply, from which the following is extracted:—

"The paragraph in the 'Edinburgh Medical Journal' is quite correct, but as you take an interest in the matter, I may tell you how I was induced to try the iodine. When it was first introduced to public notice, a case of glanders in a young horse was placed under my care for experiment, and I resolved to try the effects of the simple iodine upon him, and began giving him one drachm night and morning, without producing any apparent effect; the dose was doubled in a week with the like result, and in another week the dose was again doubled, and at the end of another week again doubled, giving an ounce night and morning for some days, when, finding no result, I inquired of the groom if he found no change, when he remarked that the only thing to be observed was, that the horse never drank any water. Although the glanders was not cured, nor the horse

improved, I determined to try its effects on the first case of diabetes I met with, and was delighted to find that a single dose was attended with the greatest benefit; and I have ever since used it with decided success, so much so, that in many cases a dose of two drachms made into a ball with linseed meal will at once check the disease, and it seldom requires more than three or four doses to effect a cure. The disease is always attended with excessive thirst. I have seen a horse affected with it drink nearly three horse-pailsful of water at one time; and in such a case I have found that, by giving two drachms as a dose at night, that the following morning the thirst has been so far relieved, that a single pailful has been found as much as he would drink.

"The disease seems to depend upon the food, either hay or oats, or indeed any food which has been heated in the loft or on board of ship, which always has a musty smell, is sure to produce the disease; and a change of food is always necessary. In some cases it is necessary to give a dose of laxative medicine, if the iodine does not at once take effect. It seems to act by allaying the thirst, and has some action on the liver.

"I have found its effects so satisfactory in the simple form, that I am not in the habit of using the iodide of potassium, and have often recommended a trial of it on man, but am not aware whether it has been tried.

* * * * *

"I may state that I consider the disease much more simple in horses than in man."

The above answer to my note, not having reached me so soon as I expected, owing to Professor Dick's engagements, and being desirous to be satisfied as to the nature of diabetes in the horse, I called at the Veterinary College at St. Pancras, and had a conversation with the assistant professor, Mr. Varnell, who shortly after kindly wrote me the following note which possesses too much interest to be passed over:—

“ * * * We have only recognised one kind of diabetes in the horse, viz., diabetes insipidus, which is usually produced by improper food, and is in many cases cured by placing the horse on proper diet. Ferri Iodidum has been used by us for a long time for the relief of the complaint, the dose being from ʒi to ʒij daily, according to circumstances; and in the majority of instances the malady has yielded to the second or third dose.

“I find by referring to Morton's ‘Manual of Veterinary Pharmacy,’ that it is very highly spoken of by Mr. G. Woodyer, a veterinary surgeon of considerable experience. Since I saw you, I have written to Mr. Woodyer on the subject, and he informs me that it is more than twenty years ago since he first witnessed its effects; he was advised to use Ferri Iodidum as a tonic, and the groom, who had charge of the horse he first tried it upon, complained that he would not drink, or at any rate partake of but little water. This circumstance led Mr. W. to think that

it might be a useful agent in diabetes insipidus, a great number of cases of which he was called upon to treat in the stables of large omnibus and cab proprietors, who are not so particular in the choice of their horses' food as they ought to be, and he has since continued its use with marked success.

"I have used other compounds of iodine in such cases as above referred to, but not with such beneficial effects as the Ferri Iodidum."

I have thought the above letters quite worthy of publication, if only to give the history of the discovery of the use of iodine in the diuresis of the horse. As far as my present experience goes, I believe the iodide of iron valuable in the diuresis of the human subject. I have not tried it in diabetes: in two cases in which the iodide of potassium was prescribed, the result was unfavorable, and it has also been tried in Guy's Hospital without success; but it does not hence follow that iodine might not be useful in some other form. There is a difference of action between iodine and the iodide of potassium, which I think, has been too much lost sight of in practice of late years.¹

¹ I was disappointed to find that Dr. Chambers in his recent lectures mentions his intention to try the Potass. Iodid. in diabetes. My belief, arising not only from my own experience but that of others,

The great value of the bran cake, as a substitute for bread, has now been established by the experience of so many individuals, that no argument is needed in its favour; it may, however, be well again to allude to the circumstance that it has often been ill prepared, and the patient in consequence thought himself unable to take it, when the difficulty has arisen entirely from the mode of preparation. The bran should be *thoroughly* washed, and *finely* powdered, and if this is done at home, considerable labour is necessary: those who cannot take this trouble may obtain the powder ready prepared, (see appendix,) containing very little starch, and of sufficient fineness. By making it at home, the inconveniences of a dry cake or a hard biscuit are avoided, and I should recommend it to be done in all cases where the appetite is delicate or the teeth defective.¹

being, that it is not only inert as to any curative effect, but would in most instances be prejudicial. There are cases in which I have found the bromide of potassium useful for the relief of symptoms which have remained in convalescents, after the disease has passed away. 1863.

¹ My formula has been altered by the makers and vendors into a biscuit, adapted for long keeping, but

I have lately had my attention called to the gluten bread of M. Durand, of Toulouse, imported for some time past, by Messrs. Bell, of Oxford Street, and other chemists, and latterly by Mr. Van Abbott, 3, Cannon Street, as the wholesale agent. This is greatly to be preferred to ordinary bread, where there is an insuperable difficulty as to the bran cake (as in the case of a lady mentioned at p. 24), but is not at all capable of superseding it, especially in severe cases. It certainly bears little resemblance to the gluten bread I first tried, and which I had prepared both at home and by some of our best chemists; but in these preparations the starch was thoroughly washed out; in the bread of M. Durand it is retained to the extent of 26 per cent., according to a recent and most careful analysis; the starch thus retained and the mode of preparation, by forcing in carbonic acid, render it very different from the gluten bread formerly in use. I have not yet tried it extensively; but in a recent case of convalescence, in which the urine was 1·025, with scarcely a trace

biscuits are necessarily hard and dry, whilst the cake is soft, and so little disagreeable, that I am sometimes obliged to restrict patients as to the quantity.

of sugar, during the use of the bran cake, after partaking of the gluten bread four or five days, it became increased in quantity, the sp. gr. 1.036, and dark-brown with Liq. Potassæ. The bran cake was then resumed, and in three or four days the urine was again as before; the diet, occupation, and weather had remained the same during the experiment.

In another case, so far recovered that I recommended a trial of the gluten bread, the gentleman prefers Smith's (now Donges') biscuits, he says that "they stay his stomach better."

Notwithstanding these unsuccessful trials, I think that, in some cases of convalescents, the gluten bread may be taken as an occasional change, or when meat forms no part of the meal; but if at any time it is substituted for the bran cake, its effects must be watched. Moreover, I am of opinion that, independently of its action as a remedial agent, no one used to the bran cake, properly made, would willingly change it for the gluten bread, except occasionally.

Since writing the above, I have received a letter, dated May 3rd, 1860, from a diabetic patient in the country (himself a medical man),

in which he mentions his having tried the gluten bread, and found the sp. gr. decidedly higher, and the quantity of urine increased. After ten days, he "gladly returned to his bran bread."¹

As to meats, I have little to add to my former observations, but would merely state that I have not found it necessary to deny veal and pork, or the less readily digestible meats, to diabetics, as is often the case with the dyspeptic.

The cabbage is, as formerly observed, the vegetable chiefly to be depended upon. A correspondent has suggested the use of the lamb's lettuce (*Fedia Olitoria*), and there seems no objection to it as a salad.

Another correspondent believes himself to have been greatly benefited by a decoction of ground liver-wort (*Poltidea Canina*), and states that a friend similarly affected was cured by it.²

Since the publication of my first edition, I have made several attempts to find a kind of wine which could be confidently recommended for

¹ See additional remarks, &c., in which an account will be found of other attempts at diabetic bread.

² If any practitioner or patient has an opportunity of trying the above, and will inform me of the result, I shall feel obliged. The patient who recommends it says that it promotes perspiration.

general use by the diabetic. Many of these experiments have been made with white wines, the analysis of them by Dr. Bence Jones having led me to hope that, containing very little sugar, they might be taken with impunity. I have in this way tried Amontillado, Monsanilla, and Manilla, but without the anticipated success.

I have been better satisfied with my trials of Burgundy, which has appeared not only to agree with the stomach, and give that tone to the system so much needed, but not to be followed by any bad results. We may now hope to obtain this wine with less difficulty and expense; but caution will be necessary to procure what is really proper, for as to the poor acid wines commonly taken in France and Belgium, I am of the same opinion as formerly.

With these brief observations, I again take leave of the reader. Since my former publication, I have had a severe attack like that described at p. 22, and have again rapidly recovered, by a strict regimen and appropriate medicine, and hope to be still spared to add further contributions to the successful treatment of diabetes.

COMPTON TERRACE, ISLINGTON. 1860.

1863.

IN the former editions of this work I have given my readers almost an autobiography, describing the progress of my own case, and combining with it the chief facts which were observable in the treatment of others as they occurred; thus my publication has rather resembled a series of letters than a complete treatise. My first paper (published in the 'Medico-Chirurgical Transactions') having been written in the form of a letter to my late friend Dr. Bright, led me into this mode of composition, which my occupations, and unwillingness to write on the subject *de novo*, have induced me to continue. The reader will, however, I trust, be willing to go with me, and facts, simply and truly narrated, may be found more agreeable than prolonged dissertations.

In the first place then, with reference to myself, three years have passed since the second edition was published, and I have to be thankful for continued powers of mind and body.

The chief difference in my diet has been the abstaining from all alcoholic drinks during the last two or three years, and the substitution of a small quantity of tea at dinner or supper.

I was induced to make this change by flushing of the face, which often occurred after my (moderate) quantity of Burgundy, and immediately ceased when it was discontinued.

The small cup of warm tea taken during the meal supplies everything necessary to assist in digestion, and leaves no unpleasantness behind.¹

A very brief summary of the leading particulars in the cases which have recently come under my observation will suffice; they have

¹ I have not thought it necessary to enjoin teetotalism on others, but have allowed the young or those who preferred abstinence to continue it. In many cases, wine or something alcoholic seems needed, but I by no means agree with M. Bouchardat, who says that "the replacing of feculent food by alcoholic drinks is as essential as the abstinence from the food." Having an opportunity of conversing with Dr. Watson some time since, and asking his opinion on this point, he very strongly expressed his dissent. Each case must, however, determine, in some degree for itself, what should be allowed—the free use of wine may be more necessary in France than in England, and thus have given rise to M. Bouchardat's opinion of its necessity in all cases.

been of all conditions, from those of high rank to some who have not been able to procure the ordinary necessities of life ; it is scarcely necessary to observe that in the former the circumstances in which the patients were placed rendered it difficult for them to pursue a strict regimen, whilst the latter have succumbed, or must do so in spite of anything that mere medicine can do.¹

The general success has at least equalled, if not exceeded that formerly experienced ; the causes of disease have been similar ; in the greater number of cases there has been anxiety of some kind, or over exertion, often both combined ; in a few cases the disease has been brought on by accidents, in one young

¹ One of these, a young woman of twenty, was nearly blind when I saw her, and had every tooth loose—had been long living on potatoes and water, with now and then bread and butter. Another, the wife of an artist out of employment, when I asked her a little time since what she had had for dinner the day before, said she had had the liquor in which some tripe had been boiled the previous day—she yet survives, notwithstanding that besides her want of proper diet, she has a constitutional tendency, her daughter having died of the disease. She dates her attacks from the seizure of her goods for rent.

gentleman, previously somewhat out of health, by an explosion of gunpowder,¹ in another a previously healthy strong young man was severely injured by the bursting of a steam-boiler, and diabetes followed; others might be added.

I have had further opportunities of testing the effects of various remedies as well as observing the evil consequences arising from treating the disease in accordance with ill-founded opinions, much mischief having been done by mercurials and purgatives under the idea that the liver was the organ in fault, and must in that way be set to rights, it is needless, however, to go into particulars with reference to these cases, and I only mention the circumstance by way of caution.

Of remedies which have at one time been highly spoken of and yet found unavailing on further trial I may mention the permanganate of potass. I have tried arsenic in a few cases without decided results, in one case in which it was prescribed the recovery was very rapid, and in corroboration of the good effects which may be expected (or per-

¹ This patient had been an unusually "great bread eater."

haps rather wished for) from it, I may mention that a gentleman from Canada, who consulted me some time since, informed me that Dr. Small, of Toronto, Upper Canada, told him that he had seen more benefit in such cases from Fowler's solution than anything else.

Perhaps the most important addition to what has already been laid before the reader will consist of a few remarks on the substitutes for bread, which have been recently introduced, and which I have tried impartially, only wishing to find the best.

It is not necessary to add anything to the former observations on the French gluten bread, subsequent experience having confirmed my opinion respecting it.

A kind of gluten biscuit was introduced to notice by Mr. Blatchley some time since, and I was at first disposed to favour its use, there are, however, sufficient reasons for preferring the bran cake, the former contains more starch than properly prepared bran, it is also more expensive, and cannot be made at home.

Mr. Blatchley has more recently prepared, at the suggestion of Dr. Beale, a kind of rusk from fine bran combined with a little glycerine,

this rusk is liable to the same objections as to expense, and not being easy of preparation, yet may, I think, in some cases be valuable, it would probably do away with the difficulty in children, or in persons of fastidious appetite, (of whom there are some to be found amongst the diabetic), and may be pleasant to others as an occasional change.¹

Dr. Pavy has recently introduced biscuits and

¹ These rusks are very pleasant, and the small quantity of glycerine in them will not prove injurious in the cases in which they are likely to be used, although that would be an objectionable ingredient in severe cases, or on a large scale from its affinity to sugar.

In a quotation from Van Doon ('Year Book of Medicine,' 1862 page 19) after other experiments it is said, "Again he obtained sugar by letting the pancreatic substance act upon glycerine—in another series of experiments he tries to prove that glucogen and sugar are formed from glycerine, within the animal system * * * He concludes that glycerine is one of the chief sources, if not the chief source from which glucogen and sugar are produced in the liver." It is right to add that Hoppert doubts whether the substance believed to be sugar is really sugar.

Bertholet observed that glycerine by being acted upon by nitrogenous substances can be transformed into a kind of sugar capable of undergoing fermentation. ('Year Book,' as above.)

a loaf (prepared by Mr. Hill, Bishopsgate Street) the basis of which is the sweet almond; these preparations have the advantage of freedom from starch, and are superior to any thing in use with which I am acquainted, except the bran cake—and perhaps Mr. Blatchley's glycerine rusk, which has been too short a time in use for me to speak of it with certainty—which, besides being more pleasant (when properly prepared) is less expensive, even when the powder is purchased, and far less so when the parties have a mill, and the whole manufacture is conducted at home; to those, who, as in the case mentioned, p. 24, have an objection to any thing brown in the shape of bread, the almond cake would be of great use. It does not keep long, and not being able to be prepared at home, is a disadvantage to residents at a distance from town, the biscuits will not agree with all stomachs, but they also enable the patient to follow out the leading principle of avoiding starch.

Mr. Blatchley some time since attempted to follow out Dr. Pavy's idea, by combining almonds with bran in a kind of biscuit, but, as I think, without success.

Besides these, various attempts at bran bread

suitable for the diabetic have been made. One which came to my notice, having been recommended by an hospital physician, consists of unprepared bran fermented with German yeast, and baked in a tin, it is not so unpalatable as might be expected, but, containing 50 per cent. of starch, and the bran in its rough state, is not suitable for the diabetic.

I was made acquainted a short time since with a kind of bread prepared for diabetics at another of our hospitals, and on inquiry of the baker as to its composition, he told me he was sure it would do good as he made it of the best flour!¹

The biscuits sold by those who profess to make them according to my formula, have not always been prepared with sufficient care, but will, I hope, in future be made more free from starch, the washing being more attended to, and the difficulty of moulding them having been overcome, so that there is less temptation to the workmen to add flour to them in the

¹ The brown bread prepared for the Charing Cross Hospital mentioned by Dr. Willshire ('Lancet,' October, 1860) is liable to the objections formerly referred to.

manufacture, but I recommend that patients should either have a mill and prepare the bran at home,¹ or obtain the powder in preference to biscuits, and have it made into cakes.²

I will only add that nothing has yet been discovered of equal utility to the bran cake, combining as it does moderate cost, with (when properly prepared) freedom from starch, and sufficient pleasantness as an article of food.

It may also be noticed that the cake is more pleasant if placed in the oven for a few minutes before being brought to the table.

When economy is an object, or the stomach does not well bear butter, the above form may be modified as follows :

Prepared bran, four ounces, three eggs, about twelve ounces of milk, with a little spice and salt, to be mixed and put into a bason (previously well buttered), bake for about an hour ; the loaf may be cut into slices and toasted when wanted, or after slicing be rebaked and kept in the form of rusks.

Some patients have prepared this, when cir-

¹ It is necessary to have a mill made for the purpose, ordinary coffee mills are of no use.

² Besides the regular form, different modifications will be found in the appendix.

cumstances have rendered it necessary, in considerably larger quantities at a time.

Again then I take leave of my reader, feeling that although success in every case has been impossible, it has been a great privilege to rescue many valuable lives, restoring some entirely, and for others obtaining comfortable health, and arresting the progress of decay, although as I have before stated, I do not claim the honour due to the physiologists who have devoted so much time and labour in the attempt to elucidate the phenomena of diabetes, I do claim to have obtained *practical* results.

The difficulties attending a diet exclusively animal have been overcome (difficulties which had been felt by many to be so great as to induce them to give up the attempt), and laying aside in a measure the endeavour to find a specific remedy, I have adapted my medical treatment to the circumstances of individual cases, and my success has been very different from that generally reported.

CASES OF DIABETES.

CASE I.—August, 1858. Mrs. —, æt. forty-four, the mother of several children, rather a large woman, although she says that she has lost two stones in weight; supposes that her complaint has been brought on by anxiety; has latterly been subject to headaches and palpitations; skin very moist; says that she sweats profusely; has lost her appetite; has constant thirst; her lips stick together, and that she is so altered that a physician long acquainted with her, and who had seen her a few months before, did not recognise her when she called on him. Catamenia regular; bowels confined.

Her case was described by the physician (Dr. Forsyth, of Londonderry) who kindly recommended her to my care, as follows:—"She complained chiefly of debility and loss of flesh, and I had not much trouble in tracing these

symptoms to a diabetic origin. I found the sp. gr. of the urine 1·040, Liq. Potassæ turning the sample to a claret colour. About eight pints were passed in the twenty-four hours.”

When I first saw her, the diabetic symptoms thus described were rather aggravated than otherwise, the Liq. Potassæ rendering the urine extremely dark.

I prescribed :

℞. Acid. Sulph. Dilut., ʒiij ;
Liq. Gent. Compos., ʒiiss.

M. cap. coch. parv. ter die ex aquæ cyatho.

℞. Aloes Barb. Extr.,
Saponis, āā gr. xxiv ;
Pulv. Ipecac., gr. iv ;
Ext. Nucis Vom., gr. iij.

M. et div. in pil. xij. cap. j. vel i. h. s. ut opus f. ; and enjoined a diet of bran cake, meat, and a free use of vegetables.

Aug. 31.—Urine diminished to four pints, and now only light brown, with Liq. Potass. ; thirst nearly gone, and in every respect better.

Sept. 15.—The sample of urine sent up for inspection contained scarcely a trace of sugar ;

the sp. gr. 1·015 (quantity not mentioned); and it was difficult to believe that it could be from the same person.

Nov. 1.—I received a note, stating that she had quite recovered; and on April 19th of this year her husband writes: “I am happy to say that Mrs. —— is now quite well; she has resumed her usual diet long since.”

CASE II.—Dec. 1856. —— Esq., upwards of seventy, attributes his attack to late hours in Parliament, which had been “too much for him at his advanced time of life.”

The general health of this patient was not so much lowered as might have been expected, the disease having existed some months; but his son (an eminent surgeon) considered him now fast declining: he complained much of weakness of the limbs, and had a little puffiness on the tibia; had taken gallic acid and other remedies by the advice of his medical attendant in the country, and had also been put on a partially restricted diet; the quantity of urine was now about 80 oz., the sp. gr. not much above 1·030, but it contained a considerable quantity of sugar.

I prescribed :

R. Ammon. Sesquicarb., ʒij ;

Infus. Aur. Co., ʒviij.

M. f. mist. cap. coch. ij. ter die ;

and directed a more rigid diet, with a little brandy and water instead of wine.

This prescription was occasionally varied, with Ammonia as the general basis, and he took, from time to time, small doses of Pil. Hydr. and Pulv. Ipecac. Compos., and gradually recovered.

Aug. 5, 1857.—He writes, “I am glad to be able to say that for some months past I have been in excellent health, and my friends tell me I look as well as I ever did.”

July 21, 1858. I had a note from his son, who says : “He has latterly been well in health, and when I last examined the urine, no sugar could be detected, but there was a large amount of lithates. He lives pretty much as usual, temperately always as regards alcoholic liquors, but does not eat much bread—the bran cake his servants managed very well¹ and he takes it occasionally.”

¹ Several of my patients have succeeded equally well in the manufacture of the cakes—others have

On a recent occasion, when I accidentally met this gentleman, I had the satisfaction of hearing that my patient, though in his seventy-eighth year and feeble, had not required any restriction in diet for eighteen months or more.

CASE III.—The Rev. Mr. —, nearly sixty-four. Sept. 1857.—The history of this case written by himself is exceedingly graphic, and would be well worth transcribing at length. The disease had been slowly undermining his system several months, and having been in the habit for some years of resorting to a hydropathic establishment when out of health, he had recourse to that in the first instance. Contrary to what had been usual with him, instead of recovering strength, he continued to get weaker, and the nature of his disease not being ascertained, the proprietor considered him nervous, and recommended him to go to the seaside. After remaining there some weeks, still losing ground, he came to consult an emi-

preferred purchasing the bran biscuit. When the bran cakes have been found unpalatable, or have turned moist in the centre, or rapidly changed, it has arisen from some fault in the preparation, or more commonly in the baking.

nent physician in town, who discovered the nature of his case, prescribed for him, and put him on a partially restricted diet. When he placed himself under my care, he was somewhat better, but highly nervous and dyspeptic, the urine still abnormal in quantity, and containing sugar. I advised that the diet should be still further restricted—that he should have weak brandy and water instead of claret. Substituted Ext. Humuli at night for the opiate, as he was too wakeful to do without anything, and prescribed the following mixture :

℞. Magnes. Carbon., ʒiv;
 Pulv. Acaciæ, ʒij;
 Sp. Ammon. Arom., ʒij;
 Infus. Gent. Compos., ad ʒviii.

M. f. mist.

I find this prescription occasionally varied, as Dec. 16.

℞. Potass. Bicarbon., ʒiij; ʒi;
 Magnes. Carbon., ʒiv;
 Pulv. Acaciæ, ʒij;
 Tinct. Hyoscy., ʒi;
 Infus. Calumbæ, ad ʒviii.

M. f. mist. cap. coch. ij ter die.

At one time small doses of Tinct. Nucis Vom. were added to the alkaline mixture, but soon laid aside again; he gradually recovered and resumed his clerical duties, which he had long been incapable of performing.

June, 1858.—He writes: “I am now gradually returning to ordinary diet. I substitute brown bread for the bran cake. I have now more fear of lithic acid than of sugar.”

March 23, 1859.—“I have no return of diabetes, and am decidedly stouter and more vigorous. Now take three glasses of port-wine daily, two at dinner, one mulled at night, or at 8 o'clock in the evening; brown bread and greens, meat three times a day, but not much.”

CASE IV.—August, 1858. — Esq., banker, aged upwards of sixty, consulted Dr. Babington, who prescribed for him, and kindly recommended him to me for instructions as to diet. Dr. Babington's prescription was five grains of Ammon. Sesq. in Infus. Gent. c. three times a day. Writing to me shortly after, this patient says: “It is quite astonishing how little water I part with in comparison—it was immediate when I paid strict attention to diet.”

I had not heard of this gentleman for many months,—in answer to an inquiry as to his state he writes (April 23, 1859): “I do not make more than one quart per day; sometimes there is a little red sediment at the bottom. I sleep well, and eat well.” . . .

The above are specimens of cases, in which a return to the ordinary diet has been practicable: in the majority the disposition to the formation of sugar has appeared too strong to render this advisable; and I have thought it better for the patient to be satisfied with comparative health and comfort, with the diabetic diet, than to run the risk of a relapse, particularly where, from distance and other circumstances, I could not examine the urine from time to time.

The remedies prescribed in the above cases were in the first acid, in the others alkaline; in each the indications seemed obvious, and the result was most satisfactory.

APPENDIX.

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 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 ; that which remains in the sieve must be ground again until it becomes quite soft and fine.¹ Take

¹ This is particularly necessary in cases of irritable bowels.

of this bran powder 3 oz. (some patients use 4 oz., the other ingredients as follows), three new-laid eggs, $1\frac{1}{2}$ (or 2 oz. if desired) of butter, and about 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 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 *curd* or any of the soft cheeses.

It is important that the above directions as to *washing* and drying the bran should be exactly followed, in order that it may be freed from starch, and rendered more friable. In some seasons of the year, or if the cake has not been well prepared, it changes more speedily than is convenient—this may be prevented by placing the cake before the fire for five or ten minutes every day.

Mr. Blatchley, of 362, Oxford Street, near the Pantheon, makes the bran biscuits, and prepares the powder for those at a distance, who have no mill, or wish to avoid the trouble. Mr. Donges, baker, Gower Street North, also prepares powder and biscuits. The mill and sieve are to be had of Messrs. Evans Brothers, 54, Brick Lane, Spitalfields, E.

