yield to the desire to evacuate his urine without any straining efforts.

Two months have now transpired since the commencement of the case, and he feels no other inconvenience from his accident except a dragging sensation over the abdomen, chiefly on the right side, which is much increased when he attempts to lie upon his left side. This no doubt results from adhesions, consequent upon the peritonitis.

Remarks. The manner in which the accident happened, and all the circumstances and symptoms which followed it, were to me conclusive of the nature of the mischief. If anything could suggest a doubt about the rupture of the bladder, it was the very circumstance which makes the case remarkable—namely, the recovery; but to one who watched the case, no such doubt could occur, since it must be recollected that the bladder was known to be full at the time of the accident, no urine escaped into the clothes, nor did any come through the urethra for more than eighteen hours after, and then only about an ounce, mixed with blood. If, therefore, it did not escape into the cavity of the peritoneum, what else could have become of it!

This case may range with many, in proof of what severe injury the peritoneum may sometimes sustain, and the patient yet survive. Indeed out of the evil of peritonitis, which usually renders this accident fatal, came the good of such an effusion of lymph, as no doubt glued the bladder where wounded to the contiguous viscera.

The fact of gout occurring upon the absorption of the urine which first escaped into the peritoneum, and its aggravation upon its second extravasation, is interesting as connected with the pathology of that disorder.

CASE OF ABSCESS IN THE RIGHT LOBE OF THE LIVER.

By WILLIAM NORRIS, M.D., Stourbridge.

Thomas Price, aged 29, car-driver at the Talbot Hotel, in this town, suffered severely from an affection of the kidneys six weeks; these symptoms gradually left him, and acute hepatitis immediately followed, which did not yield to the usual remedies. The constitutional symptoms were very severe, and hectic fever soon set in, with frequent shiverings, and at the end of six weeks there was a fluctuating tumour in the right hypochondrium, without any external sign of inflammation; the feverish excitement increased, and his sufferings became more and more urgent, and it appeared certain, that the disease had terminated in abscess of the liver. Under these pressing circumstances, I made an incision an inch and a half in length, through the most prominent part of the swelling down to the peritoneum; the wound was plugged with a roll of lint to keep it open, and covered with a poultice. At the end of six days a large quantity of purulent matter, tinged with bile, escaped through the wound. I passed a probe into the aperture three inches. This discharge continued flowing abundantly for a fortnight; the hectic symptoms speedily subsided; the appetite and strength returned. Seven weeks after the operation he followed his employment, and has

enjoyed uninterrupted health seven years, although the wound oozed a little thin fluid for two years before it closed.

Dr. Graves, of Dublin, says that, it is obvious for the success of the operation that adhesions of the peritoneum must be a necessary condition, for in the event of their not existing, the matter will make its way into the peritoneal cavity, and probably destroy life.

I feel greatly indebted to this eminent physician for suggesting this novel and ingenious operation, for if I had not read of the successful result of his cases, I should not have performed it; and which I consider a most important addition to the surgery of the abdomen. The operation has everything in its favour, it is quite safe and easy, and will preserve the lives of many valuable persons.

Stourbridge, July 12, 1846.

MEMOIR ON THE DIGESTION AND THE ASSIMILATION OF AMYLACEOUS AND SACCHARINE MATTERS.

By Dr. MIALHE, Professor Agrégé at the Faculty of Medicine, Paris.

(Continued from page 324.)

After having thus established the energetic action of human saliva on feculent matters, I was naturally led to examine whether this action was not communicated to it by some special principle of the nature of a ferment, and soon succeeded in isolating a particular substance, which I proceed to make known, provisionally, under the name of the "active principle of the saliva."

The active principle of the saliva is solid, white or greyish white, amorphous, insoluble in absolute alcohol, soluble in water and in diluted alcohol. The aqueous solution is insipid, or at least without marked taste, and neutral to test papers; it is not precipitated by the sub acetate of lead; left to itself it rapidly changes and becomes acid, whether exposed to the air or otherwise; the acid which is thus generated is the butyric acid, or an acid very similar to it. This principle is without action on azotized substances,—fibrin, albumen, casein, gelatin, and gluten; and on neutral ternary matters,—cane-sugar, inulin, gum arabic, and compact cellulose. It exercises on the contrary a very extraordinary action upon starch, as is shewn by the following experiments:—

Action of the active principle of the saliva upon starch:—Like the saliva, it acts differently on anhydrous and on hydrated fecula; with crude fecula it only gives rise to a certain quantity of dextrine and of sugar of starch, or glucose, after many days digestion, but the reaction is much facilitated by raising the temperature. When a mixture of this active principle of the saliva and of starch, diffused in six or eight times its weight of cold water, is heated by a water-bath to seventy or eighty degrees, the mixture does not acquire for an instant the consistence of starch-paste, each grain of fecula being rendered soluble as fast as it becomes hydrated. After a certain time the solution is no longer coloured by iodine; on the other hand, caustic potash heated with it occasions an intense brown

colour—sure signs of the transformation of the starch into dextrine, and into glucose, a fact of which we are equally assured by filtering the liquor and treating it with six or eight times its weight of absolute alcohol; the latter becomes charged with the whole of the glucose, and precipitates the dextrine. Whatever diminishes the cohesion of fecula facilitates the action of the salivary principle upon this substance. Pounded starch is quickly changed, but starch swelled by water to the state of starch-paste, is transformed much more rapidly; the liquefaction is almost immediate if the temperature is raised to seventy or seventy-five degrees, and care taken to multiply the points of contact by agitation.

This property of the salivary principle must be ranked in the class of chemical reactions, still few in number, which operate in infinitesimal quantities. The activity of this principle is such, that one part by weight is sufficient to liquefy and convert into dextrine and into sugar more than two thousand parts of fecula.

The molecular changes just pointed out, however extraordinary they may appear, are yet not without their analogues. A substance exists which exercises on starch a specific power exactly similar to that of the salivary ferment. This substance is diastase, or the active principle of sprouted barley, discovered by MM. Payen and Persoz. This observation led me therefore to examine, whether the new principle which I have obtained from human saliva was a substance analogous to diastase, or whether it might not be diastase itself, notwithstanding its different origin. The following is a summary of a long series of researches, carried on with the view of resolving this problem:—

Diastase is an azotized principle; so is the active principle of saliva.

A temperature of 100°, tannin, and creosote, annihilate the specific action of diastase on fecula. These agents act in the same manner on the salivary ferment.

All the more powerful acids, all the soluble bases employed in sufficient proportion, a great many of the coagulating metallic salts, such as those of copper, mercury, silver, &c., destroy the properties of the active principle of the saliva, and produce the same effects upon diastase, as I have ascertained by very numerous experiments.

Hydrocyanic acid and weak alcohol do not interfere with the liquefying power of the salivary ferment upon starch, neither do they neutralize the active principle of sprouted barley.

All these facts are greatly in favour of the identity of the two principles, though not sufficient to resolve the question. The following experiments also speak highly in favour of this opinion:—

1. When on the one hand a mixture of pure diastase and of starch diffused through water, and on the other hand a mixture of the salivary ferment, starch and water in the same relative proportion, are submitted by a water-bath to the action of heat, the starch becomes fluid in the two cases at the same instant,—that is to say, between 70° and 75°. On filtering the mixtures, it is further seen that the un-decomposed particles of starch which remain on the filter, afford, with iodine, a red violet colour, absolutely the same

in both experiments; that the filtered liquid is no more influenced by solutions of iodine, and that it takes a brown colour, identical in the two cases, from the addition of boiling alkaline solution.

2. If equal weights of salivary ferment and pure diastase are added to hydrate of starch in excess, and the mixtures filtered, the action of potash shews that the proportion of starch changed is the same in both cases.

3. When an equal weight of these two liquefying principles is dissolved in the same proportion of water, and ioduret of starch added to each, taking care not to add more when the colour of the ioduret has been destroyed by the action of these two ferments on the starch, the proportion of the ioduret employed is found to be sensibly the same in the two cases; I may add, however, that the active principle of the sprouted barley is rarely so energetic as that of the saliva, owing to a difference in purity, that of the barley being almost always contaminated by a small quantity of dextrine, from which it can only be freed by frequent purifications, and which, from the great liability of this principle to change, are often more injurious than advantageous.

The preceding facts and observations appear to me sufficient to show the chemical identity of the active principle of the saliva, and that of sprouted barley; I prefer, however, leaving the question yet undecided, hoping to give the solution of it in a subsequent work, in which I shall investigate the saliva in a general manner, in a great number of animals belonging to different classes, proposing, in the mean time, to designate the active principle of human saliva, under the name of animal or salivary diastase, in opposition to the active principle of the cereales, which I propose to call vegetable diastase.

Preparation of Animal or Salivary Diastase.

In order to obtain this remarkable principle, we have only to filter human saliva, then to treat it with five or six times its weight of absolute alcohol, the alcohol being added as long as any precipitate occurs the animal diastase being insoluble therein, is deposited in white floculi, at first indistinct, but increasing gradually at the bottom of the vessel in which the precipitation is effected. The precipitate is collected on a filter, taken from it while moist, dried in thin layers on a plate of glass by a current of air, heated to the temperature of 40° or 50°, and preserved in a well-stopped bottle. The proportion of animal diastase existing in human saliva rarely exceeds two in a thousand, exactly the same proportion of diastase which exists in sprouted barley. Nothing is more simple and yet it is not without some difficulty that I have arrived at this result, owing to the quick and easy alteration of this principle whilst it is moist. When it is dry I cannot yet say if it can be preserved for any length of time, but everything leads me to believe that it is similar in this respect to the active principle of the cereales, for I have ascertained that animal diastase preserves all its powers after more than a month.

The preceding facts and observations admit therefore of the conclusion, that M. Dumas has recognised the true character of the chemical phenomena of digestion, in classing it as a fermentation, since the absorption of

the azotized matters is effected by means of a ferment, pepsin; the absorption of the fatty matters is very probably owing to some ferment inherent in the bile, and the transformation of the amylaceous matters is affected through the active principle of the saliva,—genuine diastase, as I have just shown.

(To be continued.)

PROVINCIAL

Medical & Surgical Journal.

WEDNESDAY, JULY 22, 1846.

The important communications from Mr. Cautrell and Mr. Martin, relative to the proceedings of the Poor-Law authorities, which have appeared in the last two numbers of this Journal, cannot but give rise to serious reflection on the part of all who are interested in the medical treatment of the sick poor. The conduct pursued towards these two gentlemen, although it may excite indignation for its injustice and commiseration for the weak and short-sighted policy which it betrays, is yet so accordant with all the previous transactions of the Commissioners and their satellites in the medical concerns of Unions, that it excites no surprise.

Whatever has been hitherto accomplished towards the establishment of an effective system of medical relief for the sick poor, or anything approaching to an equitable mode of dealing with the Union Medical Officers, has been wrung from the Commissioners, step by step, by the force of accumulated evidence, acting indeed, not upon their convictions, but upon their fears, through the searching trial of parliamentary investigation and public opinion. It is no matter of surprise, therefore, that these gentlemen should seize every occasion which presents itself to recoil from the straightforward course which is before them upon their original distorted policy. The inequitable treatment experienced by Mr. Cautrell in the refusal both by the Board of Guardians and the Poor-Law Commissioners to entertain his well-founded claim for remuneration for the services performed by him, is only, therefore, in accordance with the principles on which the Commissioners have acted throughout. They have, in all instances, shewn the determination, as far as circumstances would allow them, to extract from their medical officers arduous professional services, often performed at a positive pecuniary loss, and for which the pittance allowed in return is in no case to be called a remuneration.

The conduct of the Commissioners in the case of Mr. Martin is, in some respects, different, though traceable to the operation of the same principle; and their decision on his appeal to them to enforce justice from the Board of Guardians of the Union to which he is attached is, as he pithily describes it, "paltry and pitiful," "embracing no principle,

settling no question;" and, moreover, in direct opposition to their own general order.

A dispassionate review of these two instances of judicial misconduct on the part of the Commissioners cannot but strengthen the conviction long entertained, that they are incompetent to the discharge of at least this portion of the duties entrusted to them. Without imputing any corrupt motives, they are, to say the least, not sufficiently aware of the extent and value of the services performed by the medical officers, to enable them to do justice, and accordingly we find them in almost every instance in which their interposition is sought, acting, on the one hand, in charges brought against the medical officer, with all the rigour and despotism of a Court Martial; and in the other, in any complaint made by him, either directly siding with the Board of Guardians, or giving some such specimen of drivelling weakness and indecision, as is afforded by Mr. Martin's case.

The intention announced by the late Government to take upon themselves the payment of a portion of the salaries of the medical officers, may be expected to operate in some degree in the ultimate establishment of a more equitable system of remuneration, but the true remedy for the injustice inflicted on the medical officers under the administration of the existing Poor-Law Commissioners, is either to add to their number a Medical Commissioner, who shall have a voice in all concerns connected with the medical department, or what is better still, to relieve the Commissioners, altogether from this portion of their duties—duties for which they are manifestly not qualified, either by education or acquirement, and in the discharge of which they have all along shewn themselves altogether incompetent.

The subject is one well fitted for the serious consideration of the Provincial Association. Many of its members are Union Medical Officers, and most of them, from residence in country districts, are conversant with all the details of the question of Poor-Law Medical relief, with the nature and amount of the services required, and with the unworthy treatment from time to time experienced by the medical officers at the hand of Poor-Law authorities. What has hitherto been effected by the Association acting through its general meetings, its Council, and its Poor-Law Committees, in the collecting of important evidence, in the obtaining of a parliamentary investigation, and in certain beneficial alterations which have resulted therefrom, is well known and appreciated. More is, however, required, and we think the Association will do well to again take up the subject, and to devote its energies and powerful influence towards the attainment of some effective remedy for the evil arising out of the manifest incompetence of the present