

Several attempts have been made over a number of years to apply electricity in some form to this surgical purpose. The idea of using electricity for the detection of bullets embedded in tissues has been traced back to 1862, when a method was brought forward, apparently with no great success, by Professor Favre, of Marseilles. Ten years later a civil engineer, named de Wilde, proposed the use of an electric bell as the signal for the presence of a metallic body in the tissues. In the case of President Garfield, as I stated at the beginning of this paper, the induction balance was employed; this last I do not look upon as a practical method of locating bullets, all that it does being simply to reveal their presence. The telephone, I believe, will be found the most simple and reliable method for aiding the surgeon in the removal of a bullet previously localised by means of X rays.

If something other than the sound of a telephone were required—for instance, in the case of a deaf surgeon—it could be obtained by a modification of the method I have been advocating. Instead of taking the current through the telephone it could be passed through a suitably wound galvanometer and the movement of the galvanometer needle would then indicate contact with the metal, or this arrangement could work as a relay and a bell would ring every time the bullet was touched by the surgeon's implements. It seems to me, however, that these are less practical than the simple plan advocated in this paper, and I have every confidence in recommending it to the attention of the surgeon.

SPLENECTOMY FOR ENLARGED SPLEENS WITH ANÆMIA.¹

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AT the risk of being regarded as elementary I would like in the first instance to recall to your minds very briefly something of the physiology of the spleen. It has in part, as you will remember, a very slow blood current owing to the terminal arrangement of some of its arteries, which do not end in capillaries but in dilated spaces in the splenic pulp. In this slow current the leucocytes pick up the damaged and worn-out red corpuscles, digest them, break up their colouring matter, and with part of it produce some, at all events, of the colouring matter of the bile. Beyond this main function it is probable that the spleen takes some part in the destruction of infections, again through the leucocytes in its meshes, and it may have a hormonal function which to some extent controls pancreatic secretion.

For many years past the spleen has occasionally been removed for various conditions, for displacement with or without rotation of its pedicle, for cystic disease, for traumatism, or for what has been called simple hypertrophy. This last condition probably was an early stage of the splenic enlargement with anæmia, which we now operate on under the name of Banti's disease, acholuric jaundice, &c. However that may be, splenectomy for the conditions I have mentioned above proved to be a reasonably safe procedure and fully justified. Unfortunately the ardour of some surgeons led them to remove the enlarged spleen for leukæmia with ghastly results. I do not know a well-authenticated

case in which the patient recovered, and happily we are all agreed that the operation in leukæmia is quite unjustifiable. Experience of splenectomy has shown that a patient whose spleen has been removed may live a perfectly normal life under ordinary conditions and that the expectation of life is not shortened. The assertion has been made that therefore a patient is no worse off without a spleen than with one, but this seems to me hardly justified at present. This may not be true if the patient is involved in a struggle for existence against an infection—pneumonic, typhoidal, pyrogenetic, or similar poison—when the whole forces of the body may be necessary to carry the fight to a successful issue. The only case I am acquainted with bearing on this point is one mentioned by French;² the patient, a boy aged 6, survived both measles and scarlet fever after splenectomy. It would be interesting to know if in other cases recovery has occurred after similar illnesses. In the absence of the spleen other organs appear to carry out its work—the lymphatic glands, the bone marrow, and the liver.

Under the title "enlarged spleen with anæmia," which I have taken as my subject, several conditions are grouped together; in all of them we find enlarged spleen, marked reduction in the number of red corpuscles and in hæmoglobin, with either some degree of leukopenia, a normal leucocyte count, or one that is somewhat increased. The enlargement of the organ and the diminution in the red corpuscles appear to be due to great exaggeration of the chief normal function of the spleen. This exaggerated function may be excited in different ways, in one case by the poison of syphilis, in kala-azar and in malaria by the particular parasites associated with these diseases; perhaps in other cases a streptothrix as suggested by Gibson³ may be the stimulation. Further investigation is not unlikely to reveal other provocative agents of a similar kind.

I said just now that under the title "enlarged spleen with anæmia" various conditions are described having certain common features. Then comes divergence, and further knowledge is required to determine whether we have to deal with really different diseases provoked for instance by different forms of infection, or merely with accidental divergences due to the different reaction of individual patients' tissues. Under the names Banti's disease, acholuric jaundice, hæmolytic jaundice, and syphilitic splenomegaly we find grouped most of the splenomegalies with anæmia, at all events in this country. Banti's disease implies in addition to enlarged spleen and anæmia a marked tendency to hæmorrhages chiefly from the gastro-intestinal tract, ascites, and in some cases cirrhosis of the liver or thrombosis of some part of the portal system. I propose to show you a typical example.

Acholuric jaundice has additional features which the name implies, jaundice with an absence of bile in the urine. The jaundice appears very early in life and has been described as congenital; there is in addition an unusual fragility of the red corpuscles, but this may entirely disappear after splenectomy.

Hæmolytic jaundice resembles in many respects acholuric jaundice, but the jaundice does not appear until, it may be, some years after birth. The urine is deeply coloured, but may not contain the ordinary bile pigments, the red corpuscles are unduly fragile, and cholecystitis with or without gall-stones may occur.

¹ A lecture to a post-graduate class at the Birmingham General Hospital.

² Proceedings of the Royal Society of Medicine, vol. vii., No. 5, Clinical Section, p. 77.

³ Quarterly Journal of Medicine, January, 1914, vol. vii., No. 26.

Syphilitic splenomegaly with anæmia appears to be due to congenital syphilis, and may persist despite antisyphilitic treatment, including the administration of salvarsan. In the few cases I have seen recorded there is no mention of hæmorrhages occurring.

My own experience of splenectomy for enlarged spleen with anæmia comprises three cases which I now describe; they were all referred to me from the medical wards by my colleague, Sir Robert Simon. Two other cases with enlarged spleen are present for your examination. So far neither of them is the subject of anæmia, but we hope to keep them under observation that we may learn what their future will be, especially as to whether at a later date they will develop anæmia and the other changes sometimes associated with it.

CASE 1. *Banti's disease; splenomegaly, anæmia, hæmatemesis, melæna, ascites; splenectomy.*—The patient, aged 19, was admitted to the General Hospital under Sir Robert Simon on June 19th, 1913, complaining of pain in the abdomen and of passing blood by the bowel. The patient was fairly well nourished, but looked very anæmic and ill; the temperature was 101° F. and the pulse 128. The past history showed that for about six years he had complained at times of aching pain in the upper abdomen, generally coming on some time after a meal and relieved by the taking of food. The pain was not constant; it lasted only a few minutes as a rule; vomiting did not occur; and there were often intervals of freedom from pain which might last weeks. Four days before admission when getting out of bed he suddenly felt very weak and could hardly get up. He experienced no pain, but stayed in bed all day, and noticed that the bowel action was dark red in colour; this continued until the patient came to hospital. On the night of admission he vomited 10 oz. of bright-red clotted blood, and this hæmatemesis with the past history suggested at first duodenal ulcer.

The spleen was found to be enlarged; it extended inwards to the linea alba; it felt hard and rather uneven, but was not tender. The only other point needing mention was the presence of soft bruits, systolic in time, heard over all the heart valves. Bleeding from the bowel continued for three days and was treated by the administration of horse serum. The blood examination on June 25th showed red cells 1,800,000, white cells 10,000, and hæmoglobin 20 per cent. On July 8th the figures were—red cells 1,900,000, white cells 7500, and hæmoglobin 30 per cent. On the 11th it was noted that the abdomen was becoming distended and the surface veins prominent. On the 14th distension of the abdomen was more marked and the patient's colour did not improve. On the 19th distension was marked and there was much fluid in the abdomen. The pulse ranged from 120 to 96, but very rarely was less than 108. The temperature varied from 98° to 101°, but was usually from 99° to 100°; the respirations were from 24 to 36. The urine rarely exceeded 30 oz.; its specific gravity was rather low, but it contained no abnormal constituent.

I saw the patient on several occasions with Sir Robert Simon, and we arrived at the conclusion that he was suffering from Banti's disease. Operation was discussed, but postponed in the hope that as there were no fresh hæmorrhages the general condition would improve. This hope was, however, not fulfilled; on the contrary, a large and increasing ascites developed, and we felt that the prospect of a successful operative interference was diminishing rather than increasing, and the patient was therefore submitted to operation on July 21st.

Operation.—The incision commenced in the middle of the epigastrium high up and extended outwards below and parallel to the left costal margin, then down the linea semilunaris to the level of the umbilicus. A large quantity of pale yellow, slightly turbid fluid estimated at several pints escaped from the peritoneal cavity; this fluid appeared to be paler and thinner than the ordinary fluid of ascites due to cirrhosis of the liver. The spleen was very carefully delivered through the extensive incision; it was fortunately found to be free from adhesions. The pedicle contained enormous vessels, all of which were free from thrombosis, but in the walls of the pedicle were numerous small masses

of tissue which were evidently spleniculi. It was determined to tie the pedicle in sections with silk; when this had been partly accomplished some of the vessels tore owing to the weight of the organ. The remainder of the pedicle was therefore clamped, the spleen cut away, and the vessels unsecured were tied individually, and finally a ligature was tied round the whole stump of the pedicle so that it was absolutely dry. The liver was quite free from cirrhosis, and no thrombosis of vessels was recognised, but owing to the patient's feeble condition it was impossible to make any systematic investigation on this point. The abdominal incision was closed, and whilst this was being effected 1½ pints of normal saline were transfused into one of the veins of the arm, as collapse was rather marked.

The spleen with its contained blood weighed 4 lb.; it was somewhat harder than a normal spleen and was practically free from perisplenitis. Examination of the ascitic fluid showed that it had a specific gravity of 1011; its reaction was alkaline; it contained a heavy cloud of albumin, and was free from sugar, from urea, and from blood. Microscopically a few small round and oval cells were found.

On the day following the operation the patient had completely recovered from the shock, and at the end of a week he looked decidedly better; the pulse was then generally below 100. The blood count was: red cells 2,700,000, white cells 12,500, and hæmoglobin 50 per cent. After this time improvement was slow; the pulse again quickened, and was often as high as 120 and over. About the middle of August there was considerable abdominal pain, vomiting occurred several times, and occasionally diarrhoea; a good deal of ascitic fluid was present, and the boy looked thin and anæmic. Soon after this he was sent to the Jaffray Hospital, and on Sept. 8th was allowed to get up; his pulse, however, was still quick, generally 110 or higher, but he gained 3 lb. in weight in eight days. Becoming discontented he left the hospital on Sept. 25th, and was lost sight of until recently.

Subsequent condition.—The patient was examined on Dec. 9th, 1913. He had gained weight and felt well except that he tired easily. It was thought that a little free fluid existed in the abdomen. The red count was 4,000,000, hæmoglobin 40 per cent., and leucocytes 16,000. In May, 1914, the red count was 4,000,000 and white cells 12,000. The abdomen appears to be free from fluid and the patient is at work as a railway porter. He occasionally has slight epistaxis.

CASE 2.—Male, aged 20. Shop assistant. Admitted under Sir Robert Simon Feb. 9th, 1914. Complaint on admission, jaundice four months ago, since which he had been confined to bed with intermittent pain in the left flank. The patient stated that previous to this time his health had been good. Father, mother, six brothers, and three sisters are in good health.

The present illness commenced in the middle of October, 1913, with an attack of jaundice lasting about three weeks. Since this time he had felt weak though not very ill. When admitted he was found to be muscular but distinctly thin; the face was pale and sallow, but there was no actual jaundice. The temperature was 101° F., pulse 120, and respirations 24. The teeth were very bad, many molars missing and the incisors of the upper jaw decayed; the tongue was clean but rather dry. The abdomen was relaxed; there was no pain or tenderness. The spleen was found to be greatly enlarged; it reached downwards to the mid-Poupart line, and 2 inches to the right of the middle line of the abdomen. The liver was somewhat enlarged; its lower border was felt 2 inches below the costal margin. Heart, faint mitral systolic murmur. No notable condition in the respiratory system. Blood examination showed: red cells 2,700,000 and white cells 2800. On Feb. 12th the red cells were 1,010,000, white cells 2200, and hæmoglobin 50 per cent.; on the 14th the figures were 1,587,500, 2000, and 60 per cent. respectively. On the 19th it was thought that the spleen was somewhat smaller, and as there was a little expectoration this was examined for tubercle bacilli but none were found. From time to time there seemed to be some slight variation in the size of the spleen. The blood count on May 3rd showed—red cells 2,600,000, white cells 5800, and hæmoglobin 50 per cent. The patient's condition was not satisfactory. He looked ill, was markedly anæmic, and appeared to be losing weight. His temperature was 103° or more at

night, the pulse varied from 112 to 128, and the respirations were generally 24. There was no evidence of free fluid in the abdomen.

Splenectomy was determined upon and was carried out on March 9th. An incision was made in the left semilunar line, and this was prolonged upwards, the seventh and eighth costal cartilages near the bony ribs being divided, thus giving considerable addition to the operating space. The abdominal cavity was free from fluid, there was much perisplenitis, and fibrous adhesions above attached the spleen to the under surface of the diaphragm and to the posterior abdominal wall. These adhesions were divided, several vessels were tied here, and the rest of the oozing was stopped by packing, whilst the splenic pedicle was ligatured in detail. The liver looked quite healthy except for a localised patch of perihepatitis on the upper surface of the right lobe; this area was not as large as the palm. The abdomen was closed, the divided rib cartilages being sutured with catgut. The spleen was found to weigh 3 lb. 5 oz. There was moderate shock, as the operation had been rather prolonged owing to the time spent in dividing the adhesions mentioned above, but half an hour after the operation the patient's condition was quite satisfactory.

The wound healed per primam, and at first it seemed as though the patient were going to make a complete and satisfactory recovery. The temperature fell to normal and remained so for five days; it then slowly began to rise again, and eventually returned almost to its old level, being on an average one degree lower than before the operation. The blood counts after operation were as follows:—

	Red cells.		White cells.		Hæmoglobin.
March 12th, 1914 ...	2,260,000	...	8,000	...	50%
„ 14th, „ ...	2,250,000	...	7,000	...	60%
„ 26th, „ ...	3,200,000	...	7,000	...	90%
„ 31st, „ ...	3,690,000	...	7,800	...	90%

On April 24th a number of carious teeth were extracted as the patient was not doing well, and it was thought wise to extirpate any possible infective focus. During the next few days he was losing condition, complained of discomfort in the abdomen, he had bronchitis on both sides of the chest, and he looked thinner and more ill. The abdomen began to swell, the legs became oedematous, the eyelids puffy, and there were some slight petechial spots observed. The patient's relatives getting discontented with his want of improvement took him home on May 16th. At that time he had a large ascitic collection, his legs were swollen, his temperature was about 103° at night, his pulse, always quick, ranged from 110 to 120, and he looked as though he were steadily losing ground. [I am unable to trace the patient.—G.B.]

The immediate improvement after splenectomy gave ground for believing that speedy restoration to health would ensue; the subsequent relapse was therefore the more disappointing. The improvement in temperature following operation suggested that the extirpation of the spleen had removed the great source of infection. The subsequent rise came on very gradually, and eventually the evening rise was as great as before the operation.

CASE 3.—A girl aged 6 was admitted under Sir Robert Simon on Jan. 21st, 1914, with a history that on the day previously she had vomited a pint of brownish fluid mixed with blood-clots. Six weeks before the child had had a severe hæmatemesis; she vomited several times at school and three times after she reached home. The previous history showed that she had been under treatment for four years for paralysis of the left arm, which had practically recovered. Scarlet fever and measles with bronchitis had attacked her in the first 18 months of life. The spleen was enlarged and quite mobile; its upper border reached to about three inches below the left costal arch. Blood examination showed red cells 3,300,000, white cells 26,000, and hæmoglobin 70 per cent. Further examination showed about the same amount of red cells and a diminishing white blood count, which eventually was as low as 7000. Later the white blood count rose to 18,000, the red cells being then 3,600,000 and the hæmoglobin 60 per cent. A general examination of the cavities revealed no other evidence of disease.

On Feb. 25th the child was remitted to me for splenectomy, with the diagnosis of early Banti's disease. Incision was made in the left semilunar line. The spleen was very sessile

to the stomach, and there were some adhesions below the pedicle, but these were easily ligatured piece by piece, and the operation of removal was a comparatively easy one. It was noted at the time that the liver presented an absolutely healthy appearance; it was perfectly smooth, its capsule was not thickened, and its colour was typical of a healthy liver; there was no ascitic fluid. Shock was moderately severe, and saline was given by the rectum with speedy improvement. The pulse, however, remained persistently quick; it had been about 100 before the operation. Immediately afterwards it was 176; it, however, dropped to below 120. There was persistent vomiting at first, and the patient was very restless. On the third day after the operation the pulse had quickened up to 160–180, the respirations were over 40, the temperature was as high as 105° F. for some hours, and the child died the next day.

The necropsy showed a satisfactory condition of the wound area; there was no peritonitis, and the only condition found to explain death was the state of the liver, the naked-eye appearance of which suggested delayed anæsthetic poisoning. The anæsthetic given was a mixture of ether and chloroform. The note of the examination of the liver by Dr. Logie, visiting pathologist, is as follows:—

Macroscopically the liver was enlarged and pale, its surface smooth and glossy. It cut easily and appeared to be in a state of acute hepatitis with cloudy degeneration. On microscopical examination the portal tracts showed well-marked cellular increase and in many cases marked proliferation of bile-ducts. The intralobular capillaries were dilated and well filled with blood. The vessels generally were engorged, and there were some small hæmorrhages. The parenchyma showed atrophy of the liver cells which were opaque, more or less necrotic, and all in a state of fatty degeneration. The nuclei were obscured and stained badly. The cells in the neighbourhood of the portal tracts showed some fatty infiltration. Those more remote were degenerate and in some parts quite destroyed.

Dr. A. G. Gibson has been kind enough to examine the spleens removed from these patients, and in one of them, the organ from Case 2, tubercle bacilli were found; in the other two cases no infective organisms were recognised. At the operation on Case 2 no tuberculous condition was recognised in the abdominal cavity, and the question arises whether the primary condition in the spleen was one of tubercle or whether this was superimposed on some pre-existing change.

CASE 4.—A male, aged 12, was admitted on April 25th, 1914, under Sir Robert Simon, complaining of pain in his ankles. The patient is one of a family of ten, of whom three died in infancy; the mother has had two miscarriages. The other members of the family are all healthy except one boy, aged 15, who is always rather pale and whose feet are "flat." The patient has had no previous illnesses. Three years ago last March he complained that the right foot was painful. His mother states that this condition first came on after the boy had been kicking a ball about. The foot was rested, but the pain continued, and he has never been able to use his foot since. He had his foot put up in a plaster-of-Paris case 15 months ago, and this case he wore for ten weeks. Six weeks ago his left foot also became painful, and since then he has not been able to use either foot. For the last fortnight his ankles have been tender and swollen.

Condition on admission.—A well-nourished and fairly intelligent boy unable to walk but can lie in bed comfortably. Both feet show well-marked pes planus. There is considerable oedema of both ankles. Abdomen: Full and rather flat; the spleen is large and palpable as low down as the umbilicus; a distinct notch can be felt. The liver is not palpable. There is a soft systolic murmur at the apex of the heart; this is not propagated towards the axilla. The murmur can also be heard to the left side of the sternum; the pulmonary second sound sharp and rather accentuated. Lungs normal. Two blood counts at intervals of a few days gave the following results: red cells 6,400,000 and 5,200,000, white cells 9600 and 8500, and hæmoglobin 90 per cent.

The condition of the ankles improved under treatment, and the patient was discharged as an out-patient, so that the condition of his spleen and his blood might be kept under observation.

CASE 5.—A male, aged 37, was admitted under me on May 1st, 1914, complaining of pain in the left side of the abdomen, duration six weeks. The father and mother are healthy; 2 sisters and 4 brothers alive and healthy. The patient is a moderate drinker and smoker. No previous illnesses, but he has occasionally suffered from epistaxis while bending over a basin washing himself. The patient attributes his present condition to straining himself while at work six weeks ago, when he did three days of extra heavy work; following this he had severe pain in his left side. There has been no vomiting of blood nor melæna.

Condition on admission.—A healthy looking man; complains of no pain at present nor of discomfort. Temperature and pulse normal. Abdomen: On palpation the spleen is found to be markedly enlarged, extending downwards almost to the umbilicus. It is of firm consistence, but the edge is not well marked except at the lower part; it is not tender. Liver not enlarged. Urine normal. Wassermann reaction negative. Blood examinations on three consecutive days: white cells, 16,000, 15,000, and 15,000; red cells, 4,400,000, 4,200,000, and 4,300,000; and hæmoglobin, 80 per cent.

The patient was discharged, but was made an out-patient to be kept under observation.

In conclusion, may I remind you that the first case is a typical Banti's disease; the second is probably of the same nature, though we have positive evidence of a definite infection, tubercle. As to the third, in which the patient died with an acute hepatitis after operation, the hæmorrhages suggest she too may have been an early example of this type. Cases 4 and 5 both have considerably enlarged spleens without blood changes, and their future course will be watched with interest. Case 5 was seen in December, 1914, when he appeared to be in good health; he had, however, found a lighter occupation. The splenic enlargement had not altered; no opportunity offered of examining his blood. At present it is impossible to determine the meaning of the splenomegaly of which they are the subjects.

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A CRITICAL STUDY OF THE BASIS OF ABDERHALDEN'S SERUM REACTION.

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IMPERIAL CANCER RESEARCH FUND.

THE great mass of literature dealing with the subject of this paper has been reviewed so recently by Abderhalden,¹ by Lange,² and others that it is unnecessary here to do more than to refer to special points and to emphasise the division of opinion as to the value of the reaction in the diagnosis of pregnancy and of disease. On the one hand, numerous writers³ support Abderhalden's results and conclusions completely; one observer declared it to be possible to distinguish between a gastric and a duodenal ulcer.⁴ On the other hand, a few writers⁵ on the subject totally deny the existence of specific protective ferments. Between these extremes there are some who partially confirm Abderhalden's work, and others who corroborate the experimental results but offer another explanation of them.⁶

The chief object of the work to be described was to test the reliability of the reaction as applied to the diagnosis of cancer. But before carrying out the routine empirical tests devised by Abderhalden the experimental results on which the whole method is based were examined. The experimental results claimed are briefly: 1. By injecting animals with solutions of sucrose, maltose, or other sugars strange to the economy of the animal employed

protective ferments are developed in the body which decompose the strange sugars and render them useful or at least innocuous to the animal. The evidence adduced that such ferments are produced is as follows. The blood serum of the normal animal is mixed with a solution of the sugar to be injected and the mixture examined with the polariscope; no alteration in the rotatory power of the solution takes place. When now the blood serum is obtained after the animal has received an injection of the sugar and is mixed with the sugar solution as before, the rotatory power of the solution gradually changes, indicating a splitting up of the sugar. 2. When an animal is injected with a foreign protein a similar phenomenon is said to be observed. Ferments are produced which are able to break up the protein into peptones and amino-acids, acting in this way in a protective capacity. The optical method was again employed, in this case allowing the blood serum to act upon solutions of peptones prepared from the protein used to inoculate the animal.

These are the essential experimental results, and they are extended by speculation and reasoning by analogy to practical ends. In the case of pregnancy, for example, it is said that since cells of the placental villi may break off and pass into the maternal blood stream, and as these cells are made up of proteins strange to the mother, protective ferments may be produced. But pregnancy may be diagnosed very early (in the first month) by the method, and it is obvious that the total weight of placental cells which may in this time get into the maternal blood stream is excessively small; it is, therefore, unreasonable to assume that this process can be solely responsible for the production of the protective ferments. Further, in some animals—e.g., the mare—the relationship of the placenta to the mother precludes the possibility of cells of the villi escaping into the blood stream. Hence a long theory, based on endless assumptions, of the relationship between the maternal and foetal metabolism is elaborated to show how protective ferments may be produced in the mother by simple products of the foetal metabolism.⁷

By a similar process of reasoning the experimental results already mentioned have been made a basis for researches on practically every subject within the scope of medical science. It is all the more important, therefore, to repeat and consider carefully the experiments by which the existence of specific protective ferments is considered to have been established.

The optical method of demonstrating the ferments does not, on the surface, appear to be very satisfactory. In the first place, the maximum rotations observed by Abderhalden are very small; in fact, only just outside the limits of error of the polariscope employed. In the second place, blood serum is chemically such a complex liquid that small changes in its optical activity are not necessarily significant. In this connexion it should be observed that Abderhalden states that blood serum may be kept indefinitely at 37° C. without any alteration in its optical activity, and it will be shown later that this statement comes into direct conflict with evidence obtained by the dialysis method. For these and other reasons the fundamental experiments with sugar as the substrate have not been repeated. In the last number but one of the *Journal of Biological Chemistry*⁸ Hogan has published a paper on the parenteral utilisation of disaccharides, in which he comes to the conclusion that his data "yield no evidence whatever