previously. One lobe was attached by a silkworm gut stitch to anterior left abdominal wall; the other placed free in the right side of the abdominal cavity. The incision was made in the linea alba; no vessels required tying. Silkworm gut and horsehair sutures were used. Wound healed by first intention. The anterior abdominal wall was noted during operation to be very thin. The lamb was, unfortunately, killed by the ether. No symptoms of peritoneal irritation, and no abdominal distension occurred after introduction of the glands. At that time, however, several children in the wards suffered from dysenteric diarrhoea. The patient had a rather severe attack, commencing four days after the operation, and lasting three weeks. During it his temperature ranged between 98° and 102°. This dysentery reduced him considerably, and has somewhat complicated his progress, but since the end of June he has been improving. The attack may, of course, have been due to peritoneal irritation, but there were no signs of such, and not the least tenderness. The gland attached to the anterior abdominal wall could be felt with great clearness for more than two months; latterly it became less distinct, but recognisable. The unattached gland could also be clearly felt for some weeks; only a faint indication of its presence can now be detected.

Fig. 7.—September, 1892. Four months after second grafting into peritoneal cavity. Plants feet firmly, stands with aid of single finger. Fairly intelligent-looking baby boy. No myxodema and skin is as soft as a baby's of 2 years.

The last photograph taken, September 4th (Fig. 7), shows his present condition. To all appearance he is now merely a well-nourished baby boy, with soft natural skin and firm limbs, with somewhat thick features and lips but no myxomatous swelling. The fatty lumps in the lower cervical region have almost disappeared and he is now taking an increased interest in what goes on in the ward. He plays with toys and pictures much as a child of between 2 and 3 years of age would do.

He stands and walks pretty firmly, though still afraid to do so without support, which, however, requires to be little more than nominal. He is easily amused and laughs in quite an intelligent manner. The grafting, to sum up shortly, has cured his myxodema and has lessened his cretinism. Whether it, and if necessary, future grafting, will succeed further remains to be seen. His height is now 32½ inches, that is he has gained nearly 2 inches certainly in the last year.

HISTORY OF FIRST LAMB.

Its wound healed with practically no suppuration. It showed no symptoms whatever as the result of the removal of its thyroid. It was allowed to live until February 10th, that is, for seven months. I made up my mind that it possessed an accessory thyroid. It was killed, and a careful *post mortem* examination made, but no accessory thyroid found. The region of the trachea was then thoroughly explored, and a piece of thyroid gland was found in front of the trachea, and between it and the cicatrix, of about the size of one of the kernels of a broad bean. This was no doubt a hypertrophied small piece of gland which had been accidentally left at the operation.

The thyroid of a sheep consists of two lobes without a definite isthmus. These lobes are very long and spindle-shaped, and situated at the side of and almost behind the larynx and upper end of the trachea. Doubtless in ligaturing their vessels preparatory to excising them, a small piece of the very thin lower end of each had been left on the proximal side of the ligature. These had been approximated and drawn forward in the cicatrix, and had hypertrophied to carry on the essential function of the gland. May not this explain the absence of cachexia in three lambs observed by Sanquirico and Orecchia after the removal of their thyroid

glands? I can hardly believe so short-lived an animal as a sheep would fail to show cachexia within seven months, and it is fair to conclude that the piece of thyroid found in the case of my lamb was sufficient. I can be sure that no piece so large was left, as I considered that the whole gland had been removed. It was, therefore, a hypertrophied piece. Special care was taken to excise both lobes very completely from my second lamb, but unfortunately, as said before, it inhaled an overdose of ether while our attention was being given to the boy.

It occurred to me that this hypertrophy of what had been left behind when removing the thyroid glands from the lamb would be able to furnish evidence either for or against the alleged blood-forming function of the thyroid. After hardening I cut quite two-thirds of the whole of it into sections by the aid of the freezing microtome, and carefully examined all the sections (about 200) for lymph follicular nodules. The great majority of the sections contained no lymph follicular nodules, and those that did contain any contained so little as to leave no doubt that they were not an essential part of the gland structure. I had the curiosity to make a rough estimation of the amount found in the section which contained most lymph follicular tissue. This section measured half an inch by nearly a quarter of an inch; it showed two lymph follicular nodules which, after being recognised as such by the microscope, proved to be just large enough to be distinguished by the naked eye, in an unstained specimen, as of different tissue, because of different colour to the thyroid gland structure.

The lymph follicular tissue in those sections which contained any was almost always either connected with some prolongation inwards of the capsule, or with some moderately-sized blood vessel. The cells lining the gland acini were noted to be cubical in shape, and to have the appearance of being young cells.

It will surely be readily acknowledged that if lymph follicular nodules had been an essential part of the thyroid gland structure they would have been very numerous in a small piece which had hypertrophied to carry on the essential function of the gland, and had done so satisfactorily.

SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM.

An Abstract of the Lettsomian Lectures delivered before the Medical Society of London.

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LECTURE I.

GENERAL PATHOLOGY OF SYPHILIS: ARTERIAL DISEASE.

SYPHILIS COMPARED AND CONTRASTED WITH SOME OTHER SPECIFIC DISEASES.

DR. J. S. BRISTOWE began this course of lectures by some general considerations on the nature and relationships of syphilis. He said that it must be regarded as a specific infective disease, due to the invasion and proliferation of specific living organisms, and as having manifest relationships with other specific infective diseases, but especially to small-pox, tuberculosis, and cancer. He dwelt on the points of pathological resemblance to small-pox, and observed that from this point of view the main difference was that, whereas small-pox was almost completely self-protective, the virus being entirely eliminated and the disease showing no tendency to relapse, syphilis, on the other hand, though to a great extent self-protective, yet the specific poison was apt to lurk in the system, ready, under conditions as yet unknown, to become again aggressive and to cause serious, though, for the most part, localised lesions. He then compared and contrasted syphilis and cancer, pointing out that the latter resembled in its mode of progress tertiary syphilis. As to tuberculosis, he observed that, though the contagium of tubercle was liable to become generalised, as were the contagia of small-pox and syphilis, it was to a large extent a local disease, and remained localised, though the potentiality to assume an aggressive character after an indefinite period remained. He held that the specific lesions of syphilis in all its stages, as well as of congenital syphilis, were all irritative or inflammatory growths determined by the actual presence of the specific living organism. The difference in the specific proclivity to attack certain tissues which distinguished the secondary and tertiary stages he attributed to changes in the relative sensibility of the soil, due to the protective or modifying influence exerted over the tissues during the former of these stages; and he held further that the distinctive features of inherited syphilis were due in different degrees to the operation of the same cause, to differences of vulnerability of the fetal tissues as compared with those of the adult, and to interference with the developmental changes which were going on in early life. He believed that any tissue, the seat of an

active syphilitic process, might convey the infection to others, and quoted cases in support of the opinion that visceral lesions of the tertiary stage might be infectious under conditions which rendered contagion possible.

SUBDIVISIONS OF THE SUBJECT.

Owing to the facts that, though syphilitic lesion of the nervous centres fell into several well-marked categories, the symptoms were not always, or even generally, so distinctive as to allow non-fatal cases to be arranged in corresponding groups, and that even *post-mortem* examination might leave some uncertainty, he proposed to deal for the most part with fatal cases under the head of (a) disease of vessels, (b) gummata, and (c) inflammatory infiltration of tissues, but also to refer to non-fatal cases.

SYPHILITIC ARTERIAL DISEASE.

Syphilitic arterial disease, the lecturer continued, had been for many years a well-recognised affection. None of the arteries were exempt from liability, although, according to present knowledge, some suffered in larger proportion than others. Both the aorta and the pulmonary artery might suffer, as also any of the systemic branches sufficiently large to have received distinctive names; and there was abundant reason for believing that the smaller and even microscopic arteries were at least as vulnerable as their larger relatives. The syphilitic process might involve the entire thickness of the vascular walls; but it commenced in the inner or outer coat, and always mainly implicated one or other or both of these. Its infrequent commencement in the inner coat was due probably to direct inoculation by virus circulating in the blood, and he was inclined to agree with Mr. Hutchinson that when the outer coat suffered primarily, it was from the fact that the vessel had become involved in lesions originating in the vicinity. Syphilitic disease caused thickening and irregularity of vessels, with tendency, on the one hand, to aneurysmal dilatation and rupture, and, on the other, to stenosis, and more or less complete obstruction by thrombosis. The consequences which would naturally follow such conditions were derangement of circulation and impairment of nutrition in the parts supplied by the diseased vessels, with, on the one hand, softening or some equivalent change, and, on the other, hemorrhage, either from the rupture of a diseased vessel or in connection with diffused degeneration of tissue. It was a curious fact that, although these syphilitic lesions were occasionally widely distributed, they usually occurred in limited districts, the vessels elsewhere remaining wholly, or for the most part, healthy.

The lecturer then related at length three cases in which there were either central nervous lesions or symptoms referable to the nervous centres, but in which these were of secondary, if not trivial, importance, the main interest of the cases being the fact that they furnished admirable illustrations of the character and consequences of advanced syphilitic arterial disease of large vessels.

A case was also related in which all the main arteries at the base of the brain appeared to be completely obstructed by old coagula. Six months before his death the patient, a man, aged 35, had a fit followed by paralysis and failure of sight, from which he in a great measure recovered. About four weeks before death he began to lose the use of his right arm, and subsequently his speech became affected, and the mouth was drawn to the right. After a temporary improvement he had a fit, became comatose, and died in two days. The difficulty was to explain how the cerebral circulation and the normal consistence of the brain was maintained, in spite of extensive old coagula obstructing the basilar artery and the internal carotid arteries and their branches. The clot in the basilar was not universally adherent, and it must be supposed that there was space for a little blood to pass. In another case related the left internal carotid and its branches were atheromatous for about an inch, and filled with adherent cylinders of tough old coagulum. In a third case the right middle cerebral was obstructed by a firm decolorised clot. In these two cases there were also intracerebral lesions. The remainder of the lecture was devoted to the consideration of cases in which the disease was limited to the basilar artery and its branches, and the pons or neighbouring parts had undergone softening.

THE TREATMENT OF DIABETES MELLITUS BY MEANS OF PANCREATIC JUICE.

By HECTOR W. G. MACKENZIE, M.D., F.R.C.P.,

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IN the BRITISH MEDICAL JOURNAL for January 7th Dr. Mansell-Jones suggests that as the juice of the thyroid gland appears to be almost a specific in myxœdema, pancreatic juice administered before or after meals should be given a fair trial in diabetes, as this disease, he adds, in most cases, appears to be due to disease or disordered function of the pancreas.

Neither pathology nor physiology, however, lend much encouragement to the hope that diabetes mellitus will prove tractable in such a simple way. In the first place, the pathogenesis of this disease is much more complex than that of myxœdema, and disease of the pancreas accounts for probably only a fraction of the cases of this malady. In the second place, even if it were a fact that in most cases diabetes was due to disease or disorder of the pancreas, the analogy of this doubly active gland, both excreting and secreting, with the ductless thyroid gland is not a very close one. There is some reason, however, on theoretical grounds, for the belief that pancreatic juice might have some beneficial effect even in non-pancreatic diabetes.

The recent researches into the pathology of the pancreatic form of diabetes mellitus, of which a most interesting account was given by Dr. Vaughan Harley in the BRITISH MEDICAL JOURNAL for August 27th, 1892, make it very probable that, in addition to the well-known tryptic, diastatic, fat-splitting, and milk-curdling ferments, a glycolytic ferment is also produced by the pancreas. Assuming the existence in the normal pancreas of this latter ferment, I thought it possible that the administration of a pancreatic extract by the mouth might have some beneficial action in diabetes mellitus by assisting to destroy the sugar in the blood. Acting on this idea, therefore, I anticipated Dr. Mansell-Jones's suggestion, and for some time past have been treating in a tentative way two pronounced cases of diabetes mellitus under my care at the Royal Free Hospital, by the administration of liquor pancreaticus in half-ounce doses given three times a day immediately after food. It is the generally received opinion that, when given in this way, the liquor has no appreciable digestive power, so that we may put the latter effect on one side. No other medicine was given after this treatment was started, and in every respect the patients remained under the same conditions as before.

In both cases the patients have assured me they have experienced benefit from the treatment. I should not have attached so much importance to their statements had it not been that, without any suggestion on my part or collusion on the part of the patients, who attended on different days, there was a remarkable agreement in the accounts they gave of this beneficial effect. They both said they had lost to a great extent their feeling of lassitude and languor, and felt stronger in every way. Their thirst, moreover, had considerably lessened, and they had passed a smaller quantity of urine. These beneficial effects, moreover, have continued. The specific gravity of the urine and the relative amount of sugar have, on the other hand, not been affected.

In an in-patient under the care of my colleague, Dr. Samuel West, his house-physician, Dr. Rendel, informs me that since the administration of liquor pancreaticus, the amount of fluid imbibed during the twenty-four hours, which had previously averaged 12 pints, has fallen to 6 pints, with a similar decrease in the amount of urine passed.

In a disease like diabetes we must be thankful for even small mercies. For myself I would rather find an improvement in the general condition of the patient, increased strength, diminished thirst, and diminished quantity of urine as a result of treatment than a mere diminution of the amount of sugar in the urine without such improvement. I should have preferred, of course, to have found both results. It is evident that liquor pancreaticus is no specific, but the effects