ART. VIII.—*Two Cases of Scirrhus of the Pancreas, with Observations on the Diagnosis of Affections of that Gland.*

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THE complete disregard of the pancreas by the ancient fathers of medicine is strongly contrasted with the rather exaggerated importance attributed to it by the writers of the sixteenth century, who evidently, as Dr. Abercrombie remarks, did not found their opinions on any very accurate observations. Highmore considered it the seat and source of apoplexy, palsy, and hysteria; while Schenckius, Fernelius, and Riolanus extended its influence to almost all the diseases of the human frame.*

At the present time, of all the organs in the body there is, perhaps, not one whose diseases are so little attended to, or thought of, as those of the pancreas, and this arises, partly, from the symptoms during life connected with its affections being so obscure and ambiguous as to be generally overlooked or misinterpreted; and, partly, because, as Lawrence remarks,† “morbid changes in it of any kind are extremely rare.” It becomes therefore a duty to record every instance of the latter tending to throw light on its pathology, for the history of which Abercrombie says,‡ “facts are wanting;” and it is with this view I beg permission to exhibit to the Surgical Society the morbid parts concerned in the following case, which, in some respects, will be found not undeserving of attention.

On September 3, 1843, I was requested to visit Mrs. M., a

* Edinburgh Med. and Surg. Journal, vol. xliv. p. 86; and vol. xxi. p. 243.

† Medico-Chirurg. Transactions, vol. xvi.

‡ On Diseases of the Stomach and Abdominal Viscera.

lady, aged between 55 and 60 years. She had been remarkable for her *embonpoint*, and had always enjoyed good health until two years previously, when she became subject to severe pains in the back, which affected also the shoulders and arms, and were supposed to be rheumatic. After the lapse of a year there was discovered in the epigastric region a deep-seated pulsating tumour, about the size and shape of an orange, having a regular diastolic enlargement synchronous with the pulse, and a well-marked bruit de soufflet. Her disease was in consequence considered to be aneurism of the aorta, by (I have permission to state) Mr. John Hamilton, Surgeon to the Richmond Hospital, who did not till after a most careful examination arrive at this conclusion, warranted by the foregoing facts, which I have given in his own words. She also suffered from fluid eructations, and an obscure, deep-seated pain.

In the course of a month or two this tumour subsided, and the pulsation ceased. A new set of symptoms then arose: the uneasiness extended over the abdomen, and the stools were passed with pain and forcing, which after awhile became of such severity as to resemble, as she said herself, the pangs of labour.

I found her extremely emaciated. She looked like a skeleton. Her complexion was of a dingy, leaden hue, and the conjunctiva of the eyes was slightly jaundiced. She suffered very much from constant pain and uneasiness in the lower part of the abdomen, which was somewhat prominent and tympanitic, particularly in the region of the cæcum.

There was a marked fullness of the epigastric region, in which was to be felt a deep-seated, solid, and fixed induration, having a flattened surface and a defined outline inferiorly, which ran transversely between the cartilages of the ribs. It was without pulsation, but a bruit de soufflet was audible on the application of the stethoscope over it in the course of the aorta. There was a continued unpleasant sensation in the epigastrium and right hypochondrium, increased by pressure on the swelling,

which seemed to be totally unconnected with the stomach or liver. Constipation invariably aggravated her suffering, and the bowels were seldom moved without the use of lavements (of which she could not receive more than a pint at a time) and aperients; and the passage of the stools was attended with violent straining and intense distress, which drew from her screams, loud and piercing. The stools generally consisted of watery, ropy mucus, deficient in bile; when at all solid the fæces were not thicker than a small sized finger. Her body, whether in bed or out of it, was always in an incurvated posture, bent forwards. She was in a constant state of anxiety and restlessness, never enjoying sound repose for any length of time continuously. Her appetite, hitherto good, was now nearly gone. She used nothing but fluid nourishment in small quantities, since having had, a week or two before, an attack of dysphagia, which had been removed by the application of an opiate plaster over the pit of the stomach, and she still continued to wear a portion of it, of the size of a crown-piece, over the top of the sternum, believing that it kept off any return of the complaint. Even fluids she disliked taking, as their passage, she said, always made her worse. At no time had she been subject to vomiting, but there were occasional eructations of a clear watery fluid, not exceeding a table-spoonful at a time, which she described as being bitter. Her mouth seemed always full of saliva; the tongue was pale and clean; there was no thirst. Pulse 70, intermitting, and variable in strength. The legs and thighs were highly anasarcaous.

She died on the 2nd October, little alteration having taken place in the symptoms, except an increase of the dropsy, and that, towards the conclusion, she did not suffer much unless when the bowels were being moved. Opiates and mild laxatives were the only remedies which procured relief. Mercury was not given in any shape. The ptyalism and eructations persisted throughout. When questioned about her complaint she

used often to lay her hand over the epigastrium, and declare that there was the source of all.

Thirty-six hours after death I examined the body, assisted by Mr. Brady of Newtown Mountkennedy.

Emaciation extreme; anasarca of both upper and lower extremities; fluctuation in lower part of abdomen. The hard prominence of the epigastrium was very distinct, all tympanitis having disappeared.

The cavity of the abdomen contained about a quart of clear straw-coloured serum. The rectum in its entire length was flaccid, and empty. The rest of the large intestine was very much contracted, containing a thick, tenacious, pale mucus; the mucous membrane was healthy, but vascular. The sigmoid flexure of the colon, for the distance of three or four inches from the sacro-iliac symphysis, was particularly narrowed, the sub-mucous tissue being thickened, dense, and of a pearly white colour; the muscular tissue was also hypertrophied, and of a bluish hue. This part of the colon was firmly bound down in its position by a hardening of its mesentery, which presented a great thickness where it divides to enclose the intestine, and it had in that part a dense, firm, and knotted feel, with small nodules of hard, yellow, adipose material projecting under its surface. The same degree of alteration was remarkable as far up as the transverse colon inclusive, and the subperitoneal cellular tissue of the left side, generally, was indurated and contracted; even the spleen and kidney were thus affected, the latter was smaller than the one of the right side, and firmer; its cortical substance was atrophied, and its pelvis was very vascular.

The gastro-hepatic omentum was very dense, hard, and much thickened, especially that part of it in front of the foramen of Winslow, and the contained vessels and ducts were intimately cemented together. The same thickening and hardening had invaded the cellular tissue surrounding the cardiac orifice of the stomach, which forcibly resisted the introduction of even the little finger. The stomach was small, and its mucous mem-

brane dark-coloured, but otherwise presented nothing remarkable, except that it was connected with the left extremity of the pancreas, which was universally hard and enlarged, and had lost every trace of its natural structure. Near the centre of this gland, and at its lower edge, existed a thin, translucent, horny cyst, which was slightly prominent, about the size of a walnut, and lay directly over the aorta. Its base was surrounded by a hard, cartilaginous, scirrhus formation, which in part projected into it. The rest of the gland was composed of a less solid, but unyielding, heavy substance, apparently made up of dense, closely interwoven, membranous bands.

The pancreatic duct was pervious for about an inch, only, from the duodenum. The ductus choledochus and hepatic ducts were not interrupted in any part of their course. The inferior transverse portion of the duodenum was closely adherent to the morbid pancreas, and, by being, as it were, drawn towards it, was so contracted as scarcely to admit the index finger. The mesenteric vessels and nerves were also involved in the scirrhus mass, which was so closely united to the subjacent parts, that it was necessary to remove them along with it from the surface of the spine underneath. The aorta was diseased in its entire course through the abdomen. There were atheromatous and ossific deposits under the lining membrane, which in some points was eroded.

The liver was rather small, of a dark grey colour, and dense, owing apparently to a thickening of its cellular tissue. The gall-bladder contained a small quantity of light yellow-coloured bile, and its coats were much thickened.

The thoracic viscera were healthy; there were old pleuritic adhesions. The heart was small and firm.

In this case the pancreas, which was much more degenerated than any other part, was evidently the point of origin of a scirrhus disorder, which by secondarily affecting the other parts, thus gave rise successively to the symptoms of contraction of the colon and of the cardiac orifice of the stomach. Neither of these canals was so much reduced in diameter as to present

to the passage of the food, or fæces, any great obstacle, which was increased in both instances by spasm, no doubt the cause of the temporary dysphagia, as during its continuance (it lasted for a week) the patient was nourished by enemata of broth, as she could not swallow even liquids. She was then under the care of my friend, Doctor M'Clelland. When I saw this lady the nature of the disease and the parts affected were *pretty* evident, although, independent of the induration in the epigastrium and emaciation, the usual symptoms of scirrhus of the pancreas, such as vomiting, jaundice, and epigastric pain, were either absent, or were so very insignificant, as to be obscured by the more urgent symptoms arising from contraction of the large intestines. Complications of this kind it is, in the diseases of the pancreas, which render their diagnosis a matter of so great difficulty,—a difficulty elegantly and forcibly expressed by a French author in reference to the symptoms of inflammation of the gland. He says: “*Ses cris de douleur s’il en a de propres, sont étouffés par ceux bien plus énergiques de l’estomac, du foie, des intestins ou du péritoine toujours souffrans en même temps et bien plus vivement que lui.*”* The ambiguous nature of any pain peculiar to affections of the pancreas is commonly admitted, and many think, with the author just quoted, that the only certain guide in such cases is the detection of the enlarged or indurated gland, which, in general, is possible only in an advanced stage, after great emaciation has ensued. This sign, however, in the case I have related, so far from affording assistance towards forming a diagnosis, was itself the very source of error.

The enlarged† pancreas has been observed to be the seat of

* *Nouveaux Elémens de Pathologie Médico-Chir.* Par Roche et Sanson, t. i. p. 613.

† “Cum ad hoc stadium pervenerit morbus, plerumque tactus ope percipi solet tumor, magis minusve mobilis, durus, ad magnitudinem pugni accedens vel etiam eam excedens, supra umbilicem positus, mox ad epigastrium, mox ad alterutrum hypochondrium tendens si tangas sæpe dolorificus interdum pulsans.”—*J. Frank, de Morbis Pancreatis, &c.*, p. 368.

pulsations, but, being without any of the other characteristics of aneurism, except, perhaps, a bruit de soufflet, it is readily distinguishable from the latter. Dr. Fletcher lately brought before the Birmingham Pathological Society a specimen of scirrhus of the pancreas, the head of which was very much enlarged, and enclosed the duodenum, so as to form a stricture of that intestine, just beyond the pylorus. The parts had been removed from the body of a woman, aged 52, who was extremely emaciated, and whose countenance indicated organic disease. She complained of great thirst; the stomach rejected all aliment, and the bowels were costive. Her sufferings, at times, were extreme, and the pain was seated in the region of the stomach, towards its pyloric extremity, and was increased by pressure. The whole surface of the abdomen was tender; there was hardness, and increased space of dulness in the epigastrium, and, on applying the hand, a very distinct pulsation was perceptible, simulating an aneurism, each impulse being attended by a distinct bruit de soufflet, while she lay in the recumbent posture, but which ceased on her being placed in the semi-erect, in which position the pulsation in the epigastrium very much diminished. There was no bruit de soufflet audible on applying the stethoscope over any part of the spine.* A case related by Sandwith† is peculiar as regards the situation of the pulsation. An unmarried woman, aged 67, complained of continued pain, in the epigastric region, which extended to the right hypochondrium; deep pressure increased the pain, and there was a remarkable pulsation below the cartilages of the false ribs on the left side. She was a good deal emaciated, and without fever. Bowels costive; appetite bad; no sickness or vomiting. The pain sometimes was most intense, and on these occasions she exhibited signs of distraction. Her body was agitated in the most violent manner; she tore the bedclothes, and said she could tear the flesh from her bones. The pancreas was found to have the

* Provincial Medical Journal, Jan. 20, 1844.

† Edinburgh Medical and Surgical Journal, vol. xvi. p. 381.

usual marks of scirrhus, and the splenic artery was imbedded in scirrhous matter.

Andral mistook a case for aneurism of the aorta. It is headed "Cancer du Pancreas simulant un Aneurisme de l'Aorte abdominale." A woman, aged 54 years, who had been three months ailing, was admitted into La Pitié. There were intolerable pains in the dorsal region, radiating to the left side of the thorax; they continued sometimes for hours, sometimes entire days, affected the whole of the abdomen, and were lost in the region of the spleen. She compared these pains to the blows of a hammer, sometimes to the darting of a dagger through the back; they were worse at night. Her tongue was coated, yellowish; there was complete loss of appetite; her face was pale and expressive of suffering. Nothing could be discovered on examination of the hypochondria by the hand. An attack of diarrhœa, with low fever, carried her off. The liver was sound; between this organ and the diaphragm was a cancerous tumour the size of an egg. The intestinal mass having been separated, an enormous tumour was immediately observed in the position of the pancreas, formed of encephaloid, scirrhous, and tuberculous matter. It was the pancreas which had undergone this transformation, only a few fibres of it could be distinguished in the middle of this mass, which compressed the abdominal aorta, and the nervous plexus spread over this vessel, which accounts for the acute pains the patient suffered during life.

Andral asks: "Was it possible in the present state of our knowledge to determine the seat of this disease, and to arrest its progress? We do not think so," he answers, "our experience only served to lead us into error." "En nous rappelant des faits analogues, en considérant cette douleur perforante, ces coups de marteau reçus dans le dos, nous étions très portés à croire à l'existence d'une anévrisme de l'aorte abdominale."*

These cases show how closely scirrhus of the pancreas may

* *Lancette Française*, t. v. No. 16.

simulate the symptoms of abdominal aneurism.* In that of Andral, the severity, and nature of the pain so similar to that observed in certain cases of aneurism of the aorta, sufficed to lead astray one of the most learned and experienced physicians of the age. In mine, the error was inevitable, where all the physical signs of aneurism seemed to be present. There was not only a rounded, yielding tumour in the course of the aorta, but with pulsation and bruit de soufflet, and an apparent systole and diastole, due, no doubt, to the early development of the cyst, which, probably, in the progress of the disease, had its fluid contents lessened by the encroachment of the scirrhus, while, the close union of the latter to the spine having removed the impulse of the aorta, towards the conclusion no other symptom remained but the bruit de soufflet, which was not likely to mislead.

Excessive pain is not a constant symptom of scirrhus pancreas, it is generally of an obtuse kind, deep-seated, often resembling lumbago ; sometimes there is none whatever, and, on account of the great emaciation, the patient has been supposed to be phthisical. “J’ai vu,” says Laënnec, “plusieurs fois, avec mes confrères, MM. Recamier et Richerand, une jeune dame qui semblait phthisique, et qui fût avancée dans la maladie.—J’affirmai constamment que les poumons me paraissaient sains, et effectivement ils furent trouvés tels à l’ouverture de son corps—la maladie était due à un squirrhe du pancreas accompagné d’un simple catarrh.”† A mistake of this kind is not to be expected at the present time, now that we have all profited by Laënnec’s discoveries; but the fact is interesting, as bearing on the point in question, and as it shows how easily, without the knowledge derived from auscultation, names high in the Profession were formerly liable to be led astray.

Had jaundice or obstinate vomiting existed in these cases

* For another disease simulating, by its pain, that of aneurism of the aorta, see my paper “on Exostosis of the Spine,” in the 24th volume of this Journal.

† *Traité d’Auscultation*, t. i. p. 693.

the nature of the disorder would have been less obscure. These symptoms are frequent attendants, on scirrhus, as well as other affections of the pancreas, and arise, the first, from obstruction or obliteration of the common or biliary ducts, by the pressure of the morbid growth, then seated in the head of the gland, which, in the same way, is often found to narrow so much the pylorus, or duodenum, that these have been found scarcely large enough to admit a common sized catheter, as in the two cases related by Sewall.* It is, however, remarkable, that vomiting is not always consequent upon great narrowing of the parts. Michaelis saw a case in which there had been no vomiting, although the duodenum and pylorus were compressed to such a degree as scarcely to admit the introduction of a goose-quill; and Dr. Greene has given a case where there was no vomiting until a fortnight before death, although "there was great contraction of the pylorus, which was hard, thick, and firm. The ascending, and transverse colon, and head of the pancreas were bound down into a cancerous mass, with which the duodenum, also, was connected. The cystic and hepatic ducts were both obstructed by the cancerous growth, and were much dilated above the strictured part. The patient was intensely jaundiced."† When the stomach rejects its contents, soon after they have been received, the vomiting may be supposed to be due to its irritation, by the hard or enlarged pancreas; the food remains much longer if the pylorus be compressed, and when the obstruction is beyond the entrance of the ductus communis into the duodenum, it may be suspected when the food remains two or three hours and the rejected matters are more or less tinged with bile.

Enormous dilatation of the stomach, and of the gall-bladder and ducts, are additional effects of this compression, whence have arisen some singular mistakes. A man presented himself

* Medical and Physical Journal, vol. xxxi.

† Dublin Medical Journal, vol. xxv. p. 172.

to M. A. Petit with a tumour, in the epigastrium, having the form, the volume, and all the exterior characters of a hernia; it had come on after violent efforts. It was soft, compressible, easily reducible, and was attended by hiccup and vomiting. Petit thought he recognized a strangulated hernia of the stomach or colon. In the presence of all his colleagues he operated, and found the stomach in "the centre of the tumour unenclosed in a hernial sac." The engorged pancreas had pushed it forward, and kept it pressed against the abdominal walls; it underwent thus a sort of strangulation, which occasioned all the deceptive appearances of a hernia. It was closely adherent to the pancreas.*

The gall-bladder has, also, been mistaken for ventral hernia, as in an instance given in the Reports of the Pathological Society. A female, 86 years of age, had, four months before death, the symptoms of hepatic disease, and a tumour appeared a little above the umbilicus: it was soft and compressible, could be made to alter its position, and received a slight impulse from coughing. Mr. R. W. Smith exhibited the morbid parts. The liver was of a dark green colour, with a number of white, hard tubercles on its surface. Tumours, of a similar character, existed in the pancreas towards its right extremity, and the substance of the gland was remarkably indurated. The termination of the pancreatic and common biliary ducts was compressed almost to obliteration; the pancreatic duct, throughout the substance of the gland, was dilated so as to admit of the introduction of the forefinger. The ductus choledochus, and hepatic ducts in the substance of the liver, were also greatly enlarged: the latter formed cavities capable in some places of admitting the passage of two fingers. The gallbladder, distended to a very great degree, passed down, below the umbilicus, towards the right iliac fossa. A tumour, of scirrhus hardness, and about the size of a pullet's egg, lay behind the pancreas, but not connected with its

* Discours sur les maladies observées à l'Hôtel Dieu à Lyons.

glandular structure, having the hepatic artery passing through its centre. The skin and internal organs were deeply jaundiced.* M. Mondière,† in stating that the ductus choledochus is sometimes enormously dilated, refers to one instance, only, in which, he says, it had attained a diameter of two inches. He seems not to have been aware of the very extraordinary example of this, given by the late Dr. Todd, which is unnoticed even in the comprehensive and recent work‡ of Joseph Frank, on Diseases of the Pancreas and Liver.

Dr. Todd was requested to examine a girl aged 14 years. Her skin was orange coloured, and she was greatly emaciated; her lower extremities were anasarcaous. She seemed to suffer much pain, frequently screamed aloud, yet was almost insensible to external objects. There was a tumour observable in the abdomen, which on examination was found distended with fluid, and the epigastric and right hypochondriac regions were particularly so. A distinct tense swelling occupied those regions, and could be traced extending below the umbilicus. At one point, somewhat more prominent than the rest, a little below the ensiform cartilage, and to the right of the linea alba, a fluctuation was very evident. This point was sensible. Under the impression that there was an abscess of the liver, an opening was made, and two quarts of viscid, green bile got exit. After death the liver was found healthy, and the hepatic and common ducts were enormously distended, containing a quart of bile. They extended from the porta of the liver to the os sacrum, lying behind the duodenum, pancreas, and root of the mesentery, and stretching in a transverse direction, so as to cover the anterior surface of the right kidney and a greater part of the left. The smaller hepatic ducts were so much enlarged as to

* Dublin Journal of Medical Science, vol. xvii. p. 382.

† Archives Générales de Médecine, t. xii.

‡ Præceps Medicæ Universa Præcepta. Monographiæ de morbis systematis hepatici et Pancreatis. Auctore Josepho Frank. Leipsiæ, 1843.

admit one of the fingers without difficulty. A valvular convolution in the cystic duct prevented the dilatation of the gall-bladder. The extremity of the common duct in the duodenum could not be discovered. The pancreas was scirrhus, and that portion of the gland, with which the ductus choledochus is connected, together with the surrounding cellular substance, was converted into a hard, solid mass, closely adhering to the duodenum, and the lower part of the enlarged biliary duct which seemed completely obliterated.*

Cruveilhier gives an instance of scirrhus degeneration of the head of the pancreas, compressing the termination of the ductus communis, which, as well as the gallbladder, was very much enlarged, and the anterior surface of the pancreas was raised by a watery tumour, of considerable size, containing a transparent serous fluid. It formed an elongated pouch lying transversely, and was recognized as the dilated pancreatic duct, from the circumstance of its inner surface being marked by transverse wrinkles and the small openings of the branches of the duct.† The absence of these indications was sufficient to remove any supposition of the cyst, in the case I have given, being one of this description, even if its connexion with the scirrhus, which was obvious, could have left room for doubt.

To compression of the vena porta and cava is likewise to be ascribed the common occurrence of ascites, and anasarca, in organic affections and inflammatory enlargements of the pancreas. In the case of the latter, given by Dr. Crampton,‡ in which there was “a circumscribed hard enlargement in the epigastrium, nearly circular, with a defined margin, and very tender on pressure, the abdomen being very much distended, with evident fluctuation, and the legs œdematous,” the symptoms supervened in four days from the commencement of the attack.

* Dublin Hospital Reports, vol. i. p. 325.

† Anatomie Pathologique, t. i. p. 286.

‡ Transactions of Association of Physicians in Ireland, vol. ii. p. 137.

Dr. Crampton recognized the case as one of inflammation of the pancreas, and, in reference to the dropsy, says, that "inflammation of the serous membranes was probably an attendant." This is controverted by M. Mondière, who remarks, that "acute pain would, then, have existed, that partial peritonitis rarely, if ever, produces ascites, and that, having been present, it would not have disappeared so readily as it did." This opinion, I may add, derives much support from the fact of the legs having been œdematous, and from the subsidence of the dropsical symptoms *pari passu* with that of the enlargement of the pancreas, and is supported by a case, mentioned by Portal,* of aneurism of the aorta caused by the pressure of an hypertrophied pancreas, and furthermore, by the analogous occurrence of dropsy in the advanced stage of mesenteric disease.

I have already alluded to the emaciation attendant on scirrhus of the pancreas, in reference to which Abercrombie says :† "There is much reason to believe that diseases of the pancreas have a most important influence upon the functions of digestion and assimilation, and that this is one origin of the remarkable affection that has been called anæmia." Pemberton remarks,‡ that "the body (in scirrhus of the pancreas) is often reduced to the utmost state of emaciation,§ and the integuments of the abdomen appear to rest upon the spine ; this appearance, therefore, of the abdomen, when it occurs, might distinguish diseased pancreas from scirrhus liver, or enlarged spleen ; in which cases the patient before death has, almost always, a considerable enlargement of the belly. In the same way, also, this will distinguish it from affections of the mesenteric glands, for here too, before death, the abdomen becomes enlarged. Diseases of the kidneys produce little emaciation."

* *Traité d'Apoplexie*, p. 390.

† *Edinburgh Medical and Surgical Journal*, vol. xxi.

‡ *On the Abdominal Viscera*, p. 66.

§ "C'est aux individus atteints d'affections organiques du pancreas qu'on peut appliquer à bon droit cette expression figurée, *la peau est collée sur les os*." — *Dict. des Dict. de Médecine*.

Having now referred to most of the symptoms* usually ascribed to diseases of the pancreas, I must beg to trespass a little farther upon the attention of the Society, while offering a few remarks upon one I observed in the case I have brought forward, and I am the more desirous of doing so, because, though it has been noticed frequently by our continental brethren, this symptom has not been even mentioned (so far as I am aware) by any writer in our language. I allude to the ptyalism.

According to M. Mondière:† “the physician who suspects an affection of the pancreas, should above all things pay attention to the state of the salivary glands and their secretion. Fourcroy had already observed, that in ‘obstructions’ of the pancreas the salivary glands separated more saliva than natural. Sometimes, so far from the secretion of saliva being augmented, it is, on the contrary, diminished.” All this is referred, by M. Maria Gelcen, to the effect of sympathy, the absence or presence of ptyalism depending on the nature of the affection of the pancreas. “There exists,” he says,‡ “a great sympathy between the salivary glands and the pancreas, on account, doubtless, of the similitude of their structure and functions, and the knowledge of this sympathy, he adds, can explain to us why there ensues a considerable ptyalism in consequence of lesions of the pancreas, and why the salivary secretion is considerably diminished in its engorgements or obstructions.” Certain instances of metastasis of inflammation are attributed to this sympathy; thus Andral found the pancreas injected in an individual who had a very much enlarged parotid; and Mondière

* In the case of scirrhus pancreas by Abernethy (Lancet, vol. xvii. p. 66), the patient “was constantly stooping forwards; towards the latter part of his life he lay in bed propped up with pillows:” just as occurred in the case I witnessed. This position is generally assumed, as it relieves the epigastric pain, and was remarkable in both of Mr. Sewal’s cases. In the first of Dr. Crampton’s cases, that of chronic enlargement, it is worth remembering, that, on the contrary, the patient could not stoop, from the pain of the tumour in the epigastrium.

* Archives Générales de Médecine, t. xii. p. 153.

† Journal Complémentaire, t. xi. p. 10.

cites the case of a person with a great enlargement of one parotid, which, having rapidly disappeared, was replaced by an affection of the pancreas; inflammation of the testis succeeded to this, and finally a blister settled the inflammation in the parotid which suppurated.

Vascular congestion of the pancreas, as of the liver, may be indicated by its tumefaction and diminished secretion, or by a copious flow of the latter. Both of these occurrences took place in the case recorded by Dr. Percival,* the tumour formed by the pancreas, in the epigastrium, having been removed by a spontaneous diarrhœa.

The high authority of Dr. Copland† lends weight to the opinion which attributes to augmented pancreatic secretion, a certain form of diarrhœa (the *D. pituitosa* of Sauvages) and that in connexion with the salivary glands. He says: "in some forms of this, occurring during difficult dentition, or after the use of mercurials, or upon the suppression of ptyalism, the stools have consisted of a thin, ropy mucus, of a translucent hue, and have seemed to be augmented pancreatic secretion." This form of diarrhœa, when mercurial, is styled by Dietrich,‡ "ptyalismus pancreaticus mercurialis," because the mineral affects the abdominal rather than the buccal salivary glands.§ [Pereira, regarding it, says: "there is fullness of the left hypochondrium; burning pain and tenderness of the region of the pancreas; and the evacuations are frothy, whitish, tough, and often greenish, at least in the commencement, from intermixed bile." "These

* Trans. King and Queen's College of Physicians in Ireland, vol. ii. p. 129.

† Dictionary of Practical Medicine, vol. i. p. 524.

‡ Ephem. A. C. N. t. viii. obs. viii. p. 25.

§ Mr. Colles has omitted to notice this affection, but has described the more common dysenteric symptoms produced by the mercury, "taking effect on the alimentary canal instead of the salivary system." "From the third to the seventh day of the administration of mercury, the patient is liable to attacks of griping, frequent desire to go to stool, and tenesmus; and these efforts are only attended with slight evacuations, chiefly of mucus tinged with blood."—*Colles on Venereal*, p. 44.

symptoms" he continues "may fairly be referred to an affection of the pancreas analogous to that of the salivary glands."*

In the Dict. des Sci. Méd. it is said, that "when inflammation of the pancreas is sympathetic of that of the salivary glands, there is observed occasionally a sort of 'balancement' between the secretion of the pancreas and that of these latter; thus, when the salivation is very abundant, the local symptoms of the inflammation of pancreas diminish, and constipation ensues; when, on the contrary, the salivation as well as the irritation of the salivary glands diminish, an abundant diarrhœa and symptoms of an affection of the pancreas follow."† A case given by Schmackpfeffer‡ illustrates this. A girl, 29 years of age, contracted syphilis in becoming pregnant. After delivery she was placed on corrosive sublimate; having used it for some time the symptoms disappeared, but she was salivated to the amount of four pints per diem. This secretion having diminished, a diarrhœa set in, which augmented in proportion to the diminution of the former. She became feverish; had great thirst; loss of appetite; nausea; with distended belly. She complained especially of *anxiety* in epigastric region, with heat, and of deep, obtuse pain, fixed in that position and extending towards the right hypochondrium. These symptoms were augmented when the stomach was full. After an improvement of five days' duration she became worse, and had bilious vomiting. She felt continually above the umbilicus a deep pain, which hindered her lying on the back or left side, and was augmented by full inspiration. Diarrhœa returned to such a degree that she had thirty liquid stools in the twenty-four hours, and the stools, which had been yellow or watery, resembled saliva. Then supervened swelling of the parotids, which were hot and painful, and the stools became suppressed. She died with symptoms of an affection of the head and chest. The pancreas was found red and tumified, particularly at its right extremity; it appeared

* *Materia Medica and Therapeutics*. 2nd Ed. p. 708.

† *Art. Pancreas*.

‡ *Observationes de quibusdam pancreatis morbis*. Hallæ. 1817.

also abnormally consistent, and blood issued in many points from it when incised. Its excreting canal was much dilated. The parotids were inflamed, and there were adhesions of the left lung, with some effusion.

An analogous case is given by Professor Harless.* A student submitted himself to mercurial treatment for the removal of some symptoms which he imputed to an old syphilis. For months he took regularly half a scruple of calomel daily, when, to remove *pediculi pubis*, he used frictions of mercurial ointment. After the third friction his mouth became sore, and a violent salivation was established, and the stools, before natural, became suppressed. Professor Harless then saw him and found no other symptom of disease but the salivation, with the exception of tension of the epigastrium. By the use of quinine and opium the salivation diminished; at the same time the tension of the epigastrium increased, the patient complained of a sensation of disagreeable heat in this part, and, after having examined it with care, the Professor soon discovered a slight tumefaction. The constipation persisted, and repeated lavements succeeded in removing some hardened fæces only. The salivation, however, which had been much diminished, reappeared with more violence, and immediately the epigastric symptoms were relieved, the salivary glands becoming simultaneously tumefied, hard, and painful. The salivation was again abated without the pancreas appearing to suffer, and finally, on the tenth day this and the epigastric pain returned simultaneously and remained till the fourteenth day, when the patient fell into a copious sweat, which continued three days and removed all the symptoms. Mondière says: "comparing this case with Schmackpfeffer's it is worth remarking the suppression of the fæcal matters as soon as the salivation was established, the reciprocal influence of the pancreas on the salivary glands, and of these upon the former; finally, the prompt disappearance of every

† Über die Krankheiten des Pancreas, u. s. w. in Abhandlungen der physikalisch Med. Societät, zu Erlangen.

symptom of disease of these secreting organs by the establishment of a copious sweat." Dr. Crampton's case, already mentioned, confirms this view of a reciprocal influence existing between the pancreas and salivary glands, as the inflammation of the former seemed to be due to the patient, with his mouth sore from mercury, having exposed himself to cold after a warm bath.

We have already seen that diarrhœa, alternating with salivation, is a consequence of inflammatory derangements of the pancreas; in scirrhus of the gland, on the contrary, continued constipation* is almost invariably present, and, according to the authority already quoted, is attended by salivation, "which (as it is stated) coming on at a more or less advanced stage of the disease, is a symptom almost constant."†

This "balancement" of the secretion of the buccal and abdominal salivary glands is further illustrated by what occurs during pregnancy, in which salivation accompanied by constipation is very frequent.‡ In suppression of the lochia§ and in hysteria,|| salivation has been observed, but according to Dr. Dewees, "the sympathy between the salivary glands and the impregnated uterus is, perhaps, as remarkable as any that takes place," and Mondière seems to consider pregnancy as an occasional predisposing cause of inflammation of the pancreas. If the increased action in, and determination of the fluids to, the salivary

* *Alvi obstructio pertinacissima evadit.* J. Frank. *Op. Cit.* p. 870.

† *Arch. Génér.* t. xii. p. 138.

‡ "In a very moderate degree it (salivation) may be considered as a very general attendant upon gestation, as almost all women at such times have more than an ordinary quantity of saliva secreted; it is very distressing and enfeebling when excessive, and is, almost always, accompanied with acidity of stomach and constipation of the bowels. It has, almost always, an unpleasant taste, though not offensive in smell. It keeps the stomach in a constant state of irritation, and not unfrequently provokes vomiting, especially if the saliva be tenacious."—*Dewees on Diseases of Females*, p. 214. This was probably the nature of fluid eructations in the case I have given; the patient was not in the habit of spitting out the superabundant saliva.

§ Rees on Disorders of the Stomach.

§ Sydenham, Whytt, Cheyne, and others; see Laycock on Nervous Diseases of Women, p. 266.

glands be transferred from these to the pancreas it can be readily allowed, that inflammation of the latter is as possible as the more fortunate occurrence of an increase of its secretion. Chambon de Montaux* makes no doubt of this being the source of the glairy, or watery fluids vomited by pregnant women. "On examining," he says, "the nature of the humours which some pregnant women vomit, it is seen that they are mostly composed of a liquid, thin and analogous to the saliva; it appears that in these cases the pancreas furnishes an abundant portion of this fluid, which ascends like the bile into the cavity of the stomach, from which it is expelled by this viscus irritated by it." He has so little doubt on the point, that he argues from it the probability of salivation in pregnancy; he continues: "therefore, the salivary glands being allowed by physiologists and physicians to have a similar use and structure to those of the pancreas, it is not to be wondered at if they furnish an abundant saliva." The diarrhœa without fever, of pregnancy, in which the stools contain "a great quantity of serosity," and to which he gives the name of "diarrhœe nerveuse,"† may have its origin likewise in augmented pancreatic secretion.

The same kind of sympathy between the testes and pancreas seems to be indicated by a case already alluded to, and on this subject Portal remarks, that "there are diseases of the testicle which affect the lumbar region, and give rise to suppuration of the pancreas or its neighbourhood."‡ The sympathy between the testes and parotids is fully manifested by the phenomena of metastasis of inflammation, from the latter to the former, in cynanche parotideæ, and "experience has proved that this local determination is a favourable omen, for its non-occurrence as well as its expulsion has been frequently succeeded by inflammation of some other organ, generally the brain or its membranes, and even death has been the unfortunate issue."§ The

* *Maladies de la Grossesse*, t. i. p. 87, "Du crachement frequent."

† *Op. Cit.* p. 181.

§ *Anatomie Medicale*, t. v. p. 353.

‡ *Cycl. Pract. Med.*—Art. *Parotitis*.

suppression of the ptyalism of pregnancy has been also followed by fatal consequences from a like cause. "Baudelocque knew a young married lady who had an abundant salivation during her first pregnancy. M. Bouvart and he were for a long time solicited by her family to stop it, but they obstinately refused. At her second pregnancy the salivation reappeared. Bouvart had died, and they called another physician and another accoucheur, who arrested the salivation, and the next day the lady was seized with apoplexy."*

In the fatal cases of inflammation of the pancreas related by Schmackpfeffer and Lawrence, can we not recognize a similar translation of the morbid action to the brain and its membranes, and an additional proof of the identity of the pathological relations of the pancreas and the other salivary glands? In Schmackpfeffer's case the suppression of an extremely copious diarrhœa, derived apparently from pancreatic secretion, was coincident with a return of the tumefaction of the parotids and the fatal symptoms. In the one recorded by Mr. Lawrence† (though unfortunately the condition of the bowels, towards the conclusion, is not mentioned), yet, during the greater part of its continuance they were relaxed, the patient suffering much from thirst, and from pain, which was occasionally very severe, and referred exactly to the situation of the pancreas. She felt, besides, exhausted, and her skin was completely bleached. The lady's illness commenced when she was five or six months advanced in her first pregnancy, and was attended with the foregoing symptoms of pancreatic disease, and she died five weeks after delivery, without any symptom of an affection of the head having manifested itself, unless as such be considered an irritability of the stomach, which came on five days before death, during which period nothing but rennet-whey was retained on the stomach. On dissection the internal parts of the body were extremely pale, and almost bloodless, with the exception of the

* Imbert, quoted by Doctor Churchill, "on Diseases of Pregnancy," &c. p. 76.

† Med. Chir. Trans. vol. xvi.

spleen and pancreas. This gland was throughout of a deep, dull red colour, firm to the feel externally, and when divided the lobules felt firm and crisp. The cellular texture round the pancreas and duodenum, the omenta, the root of the mesentery, the mesocolon and appendices epiploicæ of the arch of the colon, were loaded with serous effusion. The surface of the dura mater, covering the cerebral hemispheres, was lined, in the neighbourhood of the falx, with a very thin, soft, and almost mucilaginous layer of a light red tint. It could be scraped off with the handle of the knife, leaving the membrane of its natural appearance. There was slight serous infiltration of the pia mater. The blood-vessels of the brain were moderately full.

From all that I have stated, the close relations and intimate sympathy existing between the abdominal and buccal salivary glands can scarcely be questioned, and that the value of these facts, applied to the diagnosis of diseases of the pancreas, is not altogether problematical, I think, is proved by the following case, kindly communicated to me by Mr. Robert L. Mac Donnell, which of itself does away with the reproach of a recent writer,* who seems not to have known of the two cases recognized by Drs. Percival and Crampton, when he says, that “dans l'état actuel de la science on peut quelquefois soupçonner une affection du pancreas, mais on ne la reconnaît jamais.”

Thomas Meighan, a labourer, æt. 24, was admitted into the Meath Hospital, Sept. 30, 1841, under the care of Dr. Graves. He stated that for four years he had been subject to severe pain in the stomach, which came on, at first, only once a fortnight, but then after each meal, and sometimes in the middle of the night. He was pale and emaciated; his skin sallow, features pinched; and he had much the appearance of a man labouring under organic disease. The pain alluded to was seated in the epigastrium, and came on generally after meals, and was relieved by vomiting. The abdomen was by no means prominent, no tumour could be felt, and pressure did not cause pain. His

* Dictionnaire des Dictionnaires.—Art. *Pancreas*.

tongue was remarkably clean and moist. Pulse 72, soft and regular. Respiration natural. He had constant constipation. On the 2nd of October he had an unusually severe paroxysm of pain, followed by vomiting of nearly a basin full of dark fluid, covered with a thick scum of the same colour; this matter was inodorous, and its discharge was succeeded by a complete subsidence of the pain. He had had one such attack before admission. Meighan now passed under the care of Dr. Stokes. On the 6th of October he had a second attack of severe pain, followed also by vomiting of a fluid, resembling the mash for horses composed of bran and water. This also was without smell. On the 20th of October it was observed that the abdomen was more distended and prominent than before, and fluctuation was easily detected when he was placed erect. There was no change in the other symptoms. The constipation required the constant use of a combination of castor oil and croton oil. On the 21st he had another attack of vomiting of brown fluid, and again, once more before death. The ascites increased, and his legs became oedematous, and the pain more severe, and more frequent; he emaciated, and the excessive constipation continued. The abdomen, however, remained without pain on pressure, and he never had the least headach or thirst. A week before death he was seized with severe diarrhœa, which resisted all treatment, and carried off the ascites and œdema of legs, and left the belly soft and flaccid again, without, however, allowing any tumour to be felt.

The thoracic viscera were quite healthy. The stomach and intestines were exceedingly large and distended. The muscular tunic of the stomach was hypertrophied, and its pyloric extremity had formed so intimate an adhesion to the liver that it was necessary to remove both together. The pylorus was not contracted. On that part of the left extremity which lies in apposition with the liver there was a well-marked depression, about two inches in its long diameter, and one inch across, with edges thick, hard, and elevated. On making an incision into this the

knife passed through an exceedingly dense cartilaginous substance, which was confounded with the structure of the pancreas. The liver was healthy, also the duodenum and jejunum, but the rest of the intestinal tract was covered with small patches of closely adhering lymph, as if dashed upon it, the intervening mucous membrane being very vascular. The submucous coat was thickened, and nearly of cartilaginous appearance. No hypertrophy of the muscular coat.

Mr. Mac Donnell has added: "The cleanness and great moisture of the tongue and mouth generally, were very striking, and attracted the attention of three German physicians,* at the time attending Dr. Graves' Clinique, and from this circumstance, principally, they were led to pronounce the person to labour under disease of the pancreas. As this was the first time Mr. Mac Donnell's attention was directed to the subject he was inclined to doubt the accuracy of the diagnosis, and though the *post mortem* examination showed that the disease was not confined to the pancreas, yet that gland was sufficiently engaged to confirm the accuracy of their opinion, founded on the extreme moisture, and the pale and macerated appearance of the tongue."

The barmy nature of the fluid vomited in this case I have frequently observed in connexion with ulcers of the stomach, whence it was here evidently derived, seeing that the pancreas, from its degeneration, was incapable of secreting it; but the common occurrence of pyrosis, with rejection of limpid fluid alternating with diarrhoea, in chronic alterations of the pancreas, may, I think, throw light on many cases of the former not generally supposed to be derived from that gland. Andral's authority seems to be in support of this. After enumerating† the ordinary symptoms of pyrosis, such as constipation, salivation, curvature of the body forwards to relieve the pain, with rejection of fluid, having frequently the appearance of saliva, and always with the

* Drs. Krieger, Norman, and Günther, from Berlin.

† Cours de Pathologie interne, t. ii. p. 175.

property of being bitter and stimulating, he concludes: "all these are symptoms of inflammation and of different chronic alterations of the pancreas." Dr. Kerr* admits, that "we are indeed without any evidence that the fluid is actually secreted by the stomach, and it has been surmised, from the resemblance between the natural secretion of the pancreas and the ejected fluid, that it may be derived from this source." The difficulty with him is the improbability of the pancreatic fluid passing into the stomach, which may, it appears to me, occur just as readily as the passage of the bile upwards by an inverted action of the duodenum.

Majendie, also Leuret and Lassaigne, found the pancreatic fluid alkaline in their experiments; and in those of Tiedemann and Gmelin the fluid which first flowed was acid, while the latter portions were alkaline. Müller considers it acid while fresh, from which it is rendered probable that the fluid of pyrosis, when tasteless as well as when acid, may be vitiated pancreatic secretion, which may, even in its natural condition, have different reactions according to circumstances, in like manner as the saliva, "which becomes alkaline when food is taken, though it is acid at other times."† But the saliva undergoes an increase of acidity occasionally; thus Prout found a case in which "acid seemed to be formed not only in the stomach but salivary glands, the breath of the patient smelt strongly of vinegar;"‡ and Guersent says, he thinks "this is generally the case in individuals who have the teeth destroyed by the effect of acids, it being more probable that they become worn away by the constant action of the saliva than by the matters vomited, which can have only a passing effect."§ In proof of this he says that he has relieved some cases of acidity by having absorbent substances kept in the mouth after these introduced into the stomach were without avail. In the same way the pancreatic fluid may become of increased acidity, and this is very likely to

* Cyclopædia of Medicine.—Art. *Pyrosis*.

† Mitscherlich. Müller.

‡ Monro on the Gullet, p. 412.

§ Dict. des Sciences Médicales.—Art. *Absorbans*.

occur when the fluid is superabundant, it being an observation that secretions altered in quantity are generally changed in their quality also. Even the mild secretion from the lachrymal gland becomes so irritating and acrid in serofulous ophthalmia, and in inflammation of the lachrymal gland,* as to excoriate the edges of the lids and the cheeks.

Nor should the excessive quantity of the fluid occasionally rejected in pyrosis raise a difficulty in tracing its source to the pancreas, when we consider the amazing extent to which the flow of saliva sometimes proceeds, and that the pancreas is three times larger than all the salivary glands together.† Dewees has observed the salivary glands during pregnancy to secrete from one to three quarts of saliva in the course of the day. In a case by Mr. Gorham,‡ the patient spat out as much as four quarts in the same period, and never less than two quarts; and in a case of scirrhus pancreas, mentioned by Rahn,§ it amounted to more than ten pints per diem. In fact Mr. Abernethy used to remark, that the pancreas is not so liable to disease as other parts, from the facility with which it secretes, and this will account for “its having never been observed to be the seat of inflammation by either Baillie, Meckel, or Andral.”||

Whether these deductions with regard to the occasional origin of pyrosis be well founded or not, it may be not altogether useless to have drawn attention to the subject. No doubt, I think, can remain as to the relative action of, and sympathy between, the abdominal and buccal salivary glands, which I have endeavoured to explain, and if, by bearing this in mind, assistance be afforded for a more accurate diagnosis of diseases of the pancreas, some good must be attained when all other symptoms are confessedly so obscure and ambiguous.

* Dr. Todd “on Inflammation of the Lachrymal Gland.”—*Dublin Hospital Reports*, vol. iii.

† Blumenbach’s *Physiology*, by Elliotson, fifth edition, p. 88.

‡ *London Medical Gazette*, June 30, 1838.

§ *Diagnosis Scirrhorum Pancreatis*. Goetting. 1796.

|| Lawrence, *Med. Chir. Transactions*, vol. xvi.