FATTY TUMOURS.

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LIPOMATA are morbid growths which occur so frequently, are so well known, and apparently possess so little scientific interest, that it may with reason be asked, What can there be that is novel to write concerning them?

For the most part these tumours are to be regarded as overgrowths of the subcutaneous tissue, and as such are exceedingly prone to occur on the trunk and proximal segment of the limbs. These examples are not objects for consideration in this paper, but the rarer kinds—those which occur in unusual situations—will afford much scope for speculation.

The first case which excited my interest in the question was that of an old man who, some years previously, had a ventral hernia, through which a small piece of omentum protruded. This had never caused the patient any inconvenience until a few months before he applied to the surgeon, when he observed that the tumour had commenced to grow and had at that time attained the

size of an orange. Later on the man died from inter-current disease, and an opportunity was afforded for examining the tumour. It was found to communicate with the interior of the abdomen by an exceedingly narrow pedicle, but was uniformly adherent to the subcutaneous tissue of the abdominal wall, from which adhesions it derived its nutrition; the vessels in the pedicle were very few and small. In this case it was obvious that the small piece of omentum originally protruded had engrafted itself on to the subcutaneous tissue of the abdomen, and acquiring new growth had become in fact a "tumour" in the true sense of the word, viz. *it had acquired independence*.

Examples of fatty tumours growing in rare situations will now be described.

In the Winter Session of 1883 I removed the biceps cubiti muscle of an old woman, a dissecting-room subject, the upper part of which had become metamorphosed into a fatty tumour, lobulated as these growths usually are when they occur in subcutaneous tissue. It was not an example of fatty degeneration of muscular tissue such as one sees in cases where muscles are put out of use by infantile paralysis, or injury to the dominant nerve, but a genuine lobulated lipoma. It seems to me that possibly this muscle had been injured, the damaged part had retrograded into fat, assumed an autonomy and grown into a tumour. (Plate IV, fig. 3.)

Professor Turner has recorded a similar growth between the greater and lesser pectorals. Sir James Paget refers to one in the museum of the College of Surgeons connected with the heart of a sheep, and M. Cauchois reported in the 'Gazette des Hôpitaux,' July 5th, 1883, the removal of a large fatty tumour from beneath the tongue.

The information afforded by the examination of the tumour occupying the biceps muscle enables me to decide accurately with regard to a fatty tumour removed by Mr. Pearce Gould from the clavicle of a child. The growth

was situated beneath the sterno-mastoid muscle, and was so firmly attached to the periosteum of the clavicle that a portion of the membrane was removed in extirpating the growth. After removal, that portion of the tumour which rested on the clavicle was found to contain a very thin sheet of striated muscle-fibre, and the inference to be gathered from this fact is—that we have in this case to do with one of those abnormal muscles for which the clavicle is famous; the muscular tissue had undergone degeneration and formed a fatty mass, which as the child grew acquired sufficient size to attract attention, and thus came into the domain of tumours and the hands of the surgeon. It is represented in Plate IV, fig. 4.

As a case supporting the view here advocated, I will refer to an admirably reported case in 'Path. Soc. Trans.,' vol. xxviii, p. 221, by Mr. Butlin. A fatty tumour was removed from the leg of a girl, aged 7 years, by Mr. Thomas Smith. It was first noticed when the child was a year old, the time at which she began to walk. The tumour occupied the upper and back part of the leg, a little below the knee. When removed it was found that the growth lay among the deep muscles of the leg, and passed between the tibia and fibula, thrusting the interosseous membrane in front of it.

The tumour, which was of the size of a foetal head, was composed of fibrous and adipose tissue in equal proportions. It was enclosed in a capsule, and the various fatty lobules were surrounded by broad trabeculae of fibrous tissue. In the middle of many of these fibrous trabeculae thin reddish bands or fibres could be seen which afterwards turned out to be striated muscle-fibre. The fibres ran in various directions throughout all parts of the tumour, but were most abundant in a longitudinal direction and towards the anterior part of the mass.

Mr. Butlin concludes that most of the muscular fibre was enclosed within the tumour during its growth and was not of new formation.

Here, as in the instance of the biceps, and Mr. Gould's

case previously described, it may reasonably be supposed that we have to do with an aberrant muscular slip which has undergone fatty degeneration, and the retrograded elements of which have assumed an independence and grown into a tumour. The curious bands, capsule, and trabeculæ recall strongly the arrangement of connective tissue between the fasciculi of an ordinary limb muscle.

In the 'Path. Soc. Trans,' vol. xii, p. 148, Mr. Thomas Smith records a case of especial interest on account of its bearing on this question of muscular tissue degenerating into fat. Sir James Paget had removed a pedunculated fibro-muscular tumour of the uterus. On laying open the growth it was found to contain a cyst and a fatty tumour the size of a pigeon's egg, and to be surrounded by a fibro-cellular capsule.

There can be little doubt that this mass of fat, occurring in a situation usually devoid of fat, is a good example of the doctrine here advanced concerning these fatty tumours in "atypical" situations.

By way of broadly illustrating the question, a few examples from some of the domestic animals are given.

If the scrotum of a bull or ram be examined, it will be found to contain scarcely any fat, practically none. Examine now an ox or a wether sheep, say a year after they have been castrated. The scrotum is composed of an exceedingly thin layer of skin enclosing a large amount of fat, indeed, in the case of the ox it may weigh several pounds. Why is this? The testicle having been removed, the dartoid tissue and the proper coverings of the testis have degenerated into fat which, having no function to fulfil, has grown into the condition of a "tumour." "Hen birds" offer themselves as additional examples. In the early chick, two ovaries and two oviducts may be seen, but in the adult bird the right ovary has disappeared; often the oviduct shares the same fate, but frequently it is represented by a small duct about half an inch in length connected with the cloaca. This remnant may exhibit two forms of degeneration: (a) The rarer is a

cystic condition ; but more commonly one finds (b) a small fatty tumour developed on its upper extremity. This occurs most constantly in tame birds as fowls and pigeons. (Plate IV, fig. 2.)

It is well known that lipomata occasionally develop in connection with the alimentary canal, particularly in horses and oxen. Two remarkable tumours of this sort have come under my notice. They were found *loose* in the peritoneal cavity of a mare which was killed at the Zoological Gardens for the purpose of feeding the animals. The larger of the two measures four inches by three, the smaller three inches by two and a half, both are covered with a layer of serous membrane, and after careful examination no trace of a pedicle could be discovered.

On section they present the granular appearance so characteristic of omental fat.

The only opinion to offer concerning these masses is that they represent overgrown "appendices epiploicæ" which hung suspended to the gut by an extremely narrow pedicle, and that during the struggles of the animal in the process of killing they became detached, for it is improbable and inconsistent to suppose that they lived and grew loose in the peritoneal cavity.

Inflammatory new-formations may degenerate into fat and become veritable fatty tumours.

In the museum of the Royal College of Surgeons is a specimen in the general pathology series, No. 196^a the gift of Dr. Norman Moore. "It consists of a section of a mass of fat which surrounded a portion of the ureter, in which a calculus was impacted. Near the centre of the section a small portion of the wall of the ureter is seen, upon which the calculus rested ; bands of fibrous tissue pass from it into the fatty tissue. The mass formed a distinct tumour. It was probably produced by fatty degeneration of newly-formed fibrous tissue (inflammatory new-formation) occasioned by the irritation of the calculus." The above account is taken from the catalogue.

The museum of the Middlesex Hospital contains a

specimen showing a rectum and anus, the seat of a stricture the result of syphilis. The lower portion of the bowel, uterus, and vagina are embedded in a mass of fat measuring three inches from before backward. This mass of fat is divided and subdivided by bands of fibrous tissue, which in places give it a reticulated appearance. Sinuses lead from the gut to open around the margin of the anus. This seems to be a specimen of the same nature as the preceding one, and may be explained in this way. In the early stage of the stricture a certain amount of inflammation was present, which led to exudation of inflammatory products; these in their turn retrograded into fat, which later on, irritated by the stricture and the sinuses leading from the bowel, grew into a tumour. It must be remembered, however, that this retrogression of inflammatory new-formations completely disguises all traces of the original inflammation.

Dr. J. K. Fowler first drew my attention to the very frequent presence of a large collection of fat around the bowel in cases of long standing stricture, having himself observed it in very many instances.

Mr. T. W. Nunn reported to the Pathological Society, for Mr. Worthington (vide vol. xv, p. 100), an example of a fatty tumour surrounding the rectum, and on carefully going into the details of the case there can be little doubt that it was of precisely the same nature as the two cases just recounted. It was associated with old standing disease of the uterus, and thus serves as a striking confirmation of Dr. Fowler's observations. As a curious and valuable case in support of the view here advanced as to the probable origin of these collections of fat, the following may be used as an illustration.

M. Paul Berger relates, in the 'Gazette des Hôpitaux' of November 15th, 1883, that a man was admitted into La Charité with a salivary calculus impacted in Steno's duct. The irritation had caused hypertrophy of the pad of fat lying between the masseter and buccinator muscles, known as Bichat's *boule graisseuse*.

In these cases of fatty degeneration of inflammatory new-formations a large quantity of fibrous tissue is present which forms alveoli containing the adipose matter.

Attention must now be invited to another mode by which fatty tumours may arise, *i. e.*, by the degeneration of the soft parts of parasitic fœtuses.

The museum of the Middlesex Hospital possesses a fatty tumour, containing a shapeless mass of bone, which was removed from the buttock of a man by Mr. Henry Morris, November, 1876. Bone in a fatty tumour is by no means unknown, indeed, several cases have been recorded, but it is of rare occurrence.

The question which now suggests itself is this :—Are these tumours containing bone to be regarded as “lipomata” in the ordinary sense of the term? Certainly not. They are examples of immature fœtuses attached to the trunk of a perfect individual, or, as they are often called, “parasitic fœtuses,” in contradistinction to the autosite or mature being who is the unfortunate bearer of one.

The explanation would be that the soft parts of the attached fœtus undergo fatty metamorphosis, but the bone remains unchanged. These may continue quiescent throughout a long life, but from some cause or other, we know not what, may suddenly take on active growth, in the same way as the piece of omentum in the first case considered.

As an undoubted example of fatty tumours arising in attached fœtuses, reference should be made to the Teratological Catalogue of the College of Surgeons Museum, No. 132.

This specimen consists of the head of a human fœtus with a large lobulated vascular tumour, the remains of a second fœtus, growing from the median fissure of the palate. The bulk of the tumour is made up of fat. (Full details will be found in the catalogue.)

Mr. Butlin refers to a case described by Arnold. A child survived its birth six days with a large tumour filling

its pharynx and mouth. It was a lipoma, inasmuch as it consisted chiefly of fat, but it contained also fibrous tissue, cartilage, cysts, and even striated muscle-fibres ('St. Barth. Hosp. Rep.,' vol. xiii). A very remarkable case is recorded in 'Path. Soc. Trans.,' vol. xxxiii, p. 287, by Mr. Frederick Treves. An instance of fatty degeneration of an attached foetus similar to Arnold's case came under my notice this year, but the parents refused to give me the growth.

It will now be important to ascertain, if possible, on what this fatty metamorphosis depends.

An interesting fact is pointed out by Otto in his 'Compendium of Human and Comparative Pathological Anatomy' (South's Translation, 1831) to the effect that parts devoid of nerves are exceedingly prone to undergo fatty change, and by way of example he cites cases of parasitic foetuses which as a rule are without nerves, and contain a considerable quantity of fat in lieu of more important tissue, such as muscle. By way of illustrating the relation between absence of nerves and presence of fat I will detail a remarkable case which came under my own observation.

Early in 1883 Mr. Edgar Nicholson obtained for me a foetus with the following history :—The mother, a healthy woman who had passed successfully through several pregnancies, and was again in the fifth month of gestation, fell down six stairs on to her stomach, with her legs doubled beneath her. Stunned by the fall she lay in that position until help arrived. After remaining in bed for a few days she felt well again, but never felt the child move about as in previous pregnancies, and she feared it was dead. At the eighth month the child was born, lived for four or five hours, and then died.

On examining the body it was found that whereas all parts above the umbilicus presented the appearance and size of a child of eight months of intra-uterine life, the parts below were those of a foetus about the fifth or sixth month of gestation.

Looking to the spinal column it was found to present the sac of a spina bifida at the first lumbar vertebra, and at this point the canal and column suddenly ended; no trace of the remaining lumbar, sacral, or coccygeal vertebræ could be found. The ossa innominata were fused along their vertebral borders, the ureters were dilated and the kidneys cystic. No trace of the lumbar, sacral, coccygeal, or sympathetic nerves could be detected.

On reflecting the skin of the legs, which was very thin, I was surprised to find that they consisted of bones corresponding in their degree of development to about the fifth month of gestation, bone and cartilage being present in due proportion, but all other tissues, except a few blood-vessels, being represented by fat; indeed, these legs would be best described as *fatty tumours in the shape of lower limbs, containing bone and cartilage*.

The explanation seems to be that when the woman fell, she fractured the child's spine, destroyed the continuity of the spinal cord, and deprived the limbs of their nerve supply, which, in consequence, *degenerated into adipose tissue*. (Plate IV, fig. 1.)

In spite of this evidence it may be still fairly argued that we have no satisfactory evidence that these attached foetuses ever had any important tissues to suffer degradation, and as one cannot say positively that they had, the evidence on that point remains more or less circumstantial. But I shall now proceed to detail a case where the process has been traced from the perfect tissue to the fatty condition, and, what is still more important, the tissue in question occasionally persists in its perfect form.

Such evidence is afforded by :

The Fat Body of Frogs and Toads.

If the abdomen of a frog, *Rana temporaria*, be opened and the alimentary canal with the liver be removed, the reproductive organs will then come into view. If the frog

be a male the following disposition of parts will be observed :

t. The testes. A pair of yellow oval bodies, dotted with black specks, usually one fourth of an inch long, lying on the ventral surface of the kidneys. From these issue the vasa efferentia, about ten or twelve in number, which pass into the median border of the corresponding kidney. The spermatozoa pass from these into the tubules of the kidney to escape by the ureter, u, which in the frog serves not only as the main duct of the kidney but also as a vas deferens. Just before the ureters enter the cloaca, c, they form pouch-like dilatations known as the vesiculæ seminales. Passing from the summit of these receptacles in the male frog is a thin streak representing the Müllerian duct, which reaches as far forward as the root of the lung, m.d. Lying on the anterior extremity of the testis and sometimes connected with it is a mass of fat with three or four finger-like processes. This collection of fat is known as the "fat body" or corpus adiposum, c.a.

Turning now to the female frog the following arrangement is seen :

o. The ovaries. A pair of black masses lying in the folds of the peritoneum in front of the kidneys, their surface dotted with ova, and varying in size, shape, and colour according to the time of year.

M.D. The oviducts. A pair of convoluted tubes commencing at the root of the lung with funnel-shaped orifices and ending posteriorly in the cloaca, the genital ducts in the female being quite distinct from the ureters.

Lying on the anterior end of the ovary and connected with it is a corpus adiposum exactly corresponding to that on the testis of the male.

It is to this fat body that attention is now invited, for its history affords us a clear and instructive example of the process by which the rarer kinds of lipomata we have been considering indubitably arise.

The origin of the body in question has attracted the attention of some careful observers. Von Wittich's researches clearly show that the fat body and testis are developed from the genital ridge in the embryo, but the anterior part undergoes fatty degeneration, whereas the posterior part develops into a testis. This means that that portion of the genital ridge which under certain conditions becomes part of the ovary is represented in adult frogs by fat. There can be very little doubt on this score, for if anyone has the patience to examine say fifty frogs, he will be pretty certain to find one or more frogs in which the fat body is replaced by an ovary in addition to the testis, so that the frog possesses in fact an ovo-testis.

The common toad, *Bufo vulgaris*, affords excellent and important evidence on this head.

In the male toad, wedged in between the testis and the fat body, is a third structure, usually referred to as "Bidder's organ" (see woodcut on page 302). Careful inquiry by numerous competent observers has settled, on microscopical and embryological grounds, that "Bidder's organ" is really a persistent portion of the ovary which has not been involved in the general fatty metamorphosis of the anterior end of the genital ridge.

There is another fact which serves to demonstrate the ovarian nature of "Bidder's organ," and to which due consideration has not been given. In the toad the Mülle-

rian ducts, m.d., are always more obvious than in the frog, and the careful examination of several scores of toads has convinced me that the amount of development of the ducts in question corresponds to the size of Bidder's organ. That is, as a rule, if these ducts are large Bidder's organs are well developed and *vice versâ*. Also in those specimens of *Rana temporaria* possessing an ovo-testis which I have examined—and at least five examples have come under my notice in examining 250 frogs kindly collected for me by my brother—the Müllerian ducts (oviducts) have been developed in corresponding proportion. Hence it would seem that as the abnormal ovary approaches more and more to a mature condition so do the accessory ducts assume a functional size.

Now and then a frog may be found in whom the metamorphosis has exceeded its normal limits so as to convert a part or even the whole of the testis into fat.

A similar condition may affect the female, whereby a portion of the entire ovary of one side (according to my observations usually the right one) may degenerate into adipose tissue.

These facts go to show that in Amphibians (but not confined to this group) there is a tendency on the part of the anterior extremity of the genital ridge, instead of developing into an important tissue, to undergo conversion or degeneration into fat which now and then exceeds its general limits. Hence, nearly every frog possesses as part of its internal anatomy "a fatty tumour."

It is important also to notice that this metamorphosed tissue behaves itself exactly like a tumour: "it has a growth independent of the rest of the body."

For if the anterior end of the genital ridge develops into ovarian tissue it remains of a proper size, and I have never seen it exceed normal limits, but when represented by fat it grows and increases in size, for it has no function to keep it in check.

Lastly, it is important to note that, in common with fatty tumours affecting man, general emaciation has no

effect upon these fat bodies of frogs ; indeed, so far as my dissections go, the thinnest frogs and toads have the largest and best developed fat bodies. In this respect they differ from camels, in whose humps these collections of fat diminish towards the end of a long and toilsome journey.

Another class now awaits consideration, viz. "Dermoid Cysts."

It is a well-established fact that these cysts may be made up of the most complex structures, including in one tumour skin with its glands, hair, teeth, bone, muscular, and in rare cases nervous tissue. Fat also enters largely into the composition of these growths. If the facts recorded in the first part of this paper be correctly interpreted, then there can be little reasonable doubt that in the early stage of these dermoid cysts, most of the complex tissues of the body may enter into their composition, but lacking function, may later undergo fatty degeneration, as in the examples of parasitic foetuses previously considered. The explanation is a simple one and suggests a probable mode of accounting for the origin of fat in these very remarkable formations.

Lastly, a few words must be written about the "*Lipoma arborescens*" occasionally found in the neighbourhood of joints affected with chronic disease. The only example I have seen is the very beautiful specimen (No. 327 in the Catalogue of the Museum of the College of Surgeons), from whence the following account is extracted :

"A section of the condyle of a femur, around the articular margin of which there is a crowd of small oval and branched growths, of fibrous and fatty structure, each covered by a shining membrane, like a reflection of synovial membrane, and all attached by long and slender pedicles. Their shapes and sizes are various ; some are like branching threads ; others are nearly cylindrical ; others flattened and lanceolate. They are examples of the "*Lipoma arborescens*" of Müller. The articular cartilage has been removed from the front of the condyle, and the exposed bone is hard and polished, with an

appearance of gouty deposit on it; elsewhere the cartilage is thin."

It seems to me that in this specimen we have to deal with a case in which villous growths sprouted from an inflamed synovial membrane, but their nutrition was interfered with, on account of their long and slender pedicles; hence diminished nutrition of the little growths led to their fatty degeneration.

It is a fact well recognised in pathology, that, as a rule, growths with long and slender stalks rarely attain any important size and often suffer necrosis or detachment in consequence; hence it is not propounding anything far-fetched or fanciful to suggest that these minute fatty tumours arise by *degeneration of the villous processes which frequently infest the synovial membranes of joints in certain chronic diseases.*

Mr. Butlin in his paper on "Fatty Tumours in Infancy and Childhood" ('Barth. Hosp. Rep.,' vol. xiii) has put forward an opinion, that the occurrence of fat in many of these tumours is the result of secondary changes, and refers to a case reported by Weber, in which a tumour consisted of telangiectasis, fat, and fibrous tissue; it was supposed that the fat and fibrous tissue resulted from secondary changes occurring in a nævus.

In writing on the subject of fatty tumours in his 'Surgical Pathology' Sir James Paget says: "Respecting the causes of these tumours few things can be more obscure, nearly all knowledge on this point is negative."

May one venture to hope that the few facts related in this paper will go a little way towards dispersing some of this darkness.

The substance of the paper amounts to this:

Any of the soft tissues of the body, normal or pathological, may degenerate into fat, and this retrograded tissue does, in some instances, assume an autonomy and grow into a fatty tumour.

A list of references to interesting examples of fatty

tumours, whose details have a bearing on the views advocated in this paper, is appended.

Fatty Tumours in Unusual Situations, &c.

Bone.—Attached to ischium. Mr. T. Smith, 'Path. Soc. Trans.,' vol. xvii, p. 286. To the neck of the radius. Mr. T. Smith, 'Path. Soc. Trans.,' vol. xix, p. 344. Attached to the clavicle. Mr. Pearce Gould, p. 294 of this paper. To coccyx. Mr. T. Smith, 'Path. Soc. Trans.,' vol. xxi, p. 334.

Nervous System.—A fatty tumour growing from the superior peduncles of the cerebellum. 'Catalogue of Museum,' Middlesex Hospital, No. 834. From the cranial dura mater. Mr. Sibley, 'Path. Soc. Trans.,' vol. vii, p. 1. In the interior of the spinal canal near the seventh cervical and first dorsal vertebræ. 'Path. Soc. Trans.,' vol. iii, p. 248, by Mr. Obré. Median nerve in the palm of the hand. Mr. Pearce Gould, 'Catalogue of Museum,' Middlesex Hospital, No. 2191. Fatty tumours on nerves. Virchow's 'Archiv,' Bd. xv, s. 61. Lipoma of sacrum connected with the spinal membranes. Mr. Athol Johnson, 'Path. Soc. Trans.' vol. viii, p. 16.

In Muscles.—In the heart of a sheep. Museum, College of Surgeons. Between the greater and lesser pectorals. Prof. Turner, quoted in Paget's 'Surgical Pathology.' In the tongue simulating ranula. Dr. F. Churchill, 'Path. Soc. Trans.,' vol. xxiii, p. 234. Involving the biceps (Author). Beneath the tongue. M. Cauchois, 'Gaz. des Hôp.,' July 7th, 1883. Involving the muscles of the calf. Mr. T. Smith's case, reported in 'Path. Soc. Trans.,' vol. xxviii, p. 221. In a fibro-myoma of the uterus. Mr. T. Smith, 'Path. Soc. Trans.,' vol. xii, p. 148. Beneath occipito-frontalis; also one attached to the complexus, Mid. Hosp. Museum.

Intestines.—Of an ox. 'Catalogue of the Museum,'

College of Surgeons, No. 324. A fatty tumour projecting into the cavity of the gut at the angle of junction of the two segments of the ileo-cæcal valve. Prof. Turner, Paget's 'Surgical Pathology.' Attached to the mesentery. Sir Spencer Wells, 'Path. Soc. Trans.,' vol. xix, p. 243. In the abdomen. Weighing 29½ lbs. Mr. Pick, 'Path. Soc. Trans.,' vol. xx, p. 337. In abdomen; containing osseous tissue. Dr. Dreschfeld, 'Path. Soc. Trans.,' vol. xxxi, p. 287.

Throat.—In pharynx and larynx. Mr. Holt, 'Path. Soc. Trans.,' vol. v, p. 123. In pharynx. Dr. Frederick Taylor, 'Path. Soc. Trans.,' vol. xxviii, p. 216. The right arytaeno-epiglottidean fold. Mr. Sydney Jones, 'Path. Soc. Trans.,' vol. xxxii, p. 243.

External Organs of Generation.—To the scrotum. Mr. Henry Gray, 'Path. Soc. Trans.,' vol. vi, p. 230. To the labium. Unreported. A case of the author of this paper.

Lower Limb.—Sole of foot. Mr. Gay, 'Path. Soc. Trans.,' vol. xiv, p. 243.

Fatty Tumours in Parasitic Foetuses.—Attached to the head of the autosite. Museum, College of Surgeons. 'Teratological Catalogue,' No. 131. Attached to coccyx. Mr. Frederick Treves, 'Path. Soc. Trans.,' vol. xxxiii, p. 287. Attached to sacrum, lipome calcifié congénital. Dr. L. Briolle, 'Gaz. des Hôpitaux,' Jan. 23rd, 1883. Attached to median line of palate and filling the pharynx and mouth. Arnold's case referred to by Mr. Butlin in 'Barth. Hosp. Rep.,' vol. xiii. Many examples are given by Braune, Geschwülste der Kreuzbeingegend.

(For a report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' New Series, vol. i, p. 456.)

DESCRIPTION OF PLATE IV.

(Fatty Tumours, by J. BLAND SUTTON, F.R.C.S.)

FIG. 1.—The lower limbs of the foetus described in the paper, dissected to show the degeneration of the tissues into fat. F. Femur. A. T. Adipose tissue. T. Tibia.

FIG. 2.—The left oviduct of a pigeon. The rudimentary right oviduct is shown with a fatty tumour developed on its summit.

FIG. 3.—Biceps muscle from an old woman. The upper part is occupied by a fatty tumour.

FIG. 4.—A clavicle with a fatty tumour attached. Mr. Pearce Gould's case.