she sickened and died in a few days. He made a post-mortem examination, and found an abscess in one ovary with some inflammation of the neighbouring peritoneum. The other organs appeared healthy.

Dr. W. S. A. GRIFFITH remarked on the interest of the specimen, and suggested that it should be referred to the standing Pathological Committee appointed by the Council some months ago. It was difficult to explain the virulence of the infective peritonitis if, as it appeared from the specimen and the history of the case, the ovarian abscess was of long standing, as it was usual in such suppuration to find the pus almost sterile. On the other hand, in recent acute septic suppuration it was difficult to distinguish between a suppuration of the tube or ovary which might be causal, and a suppuration which was a part of the general infection.

A CASE OF TERATOMA OF THE FŒTAL HEAD.

By HUGH S. STANNUS, M.R.C.S.

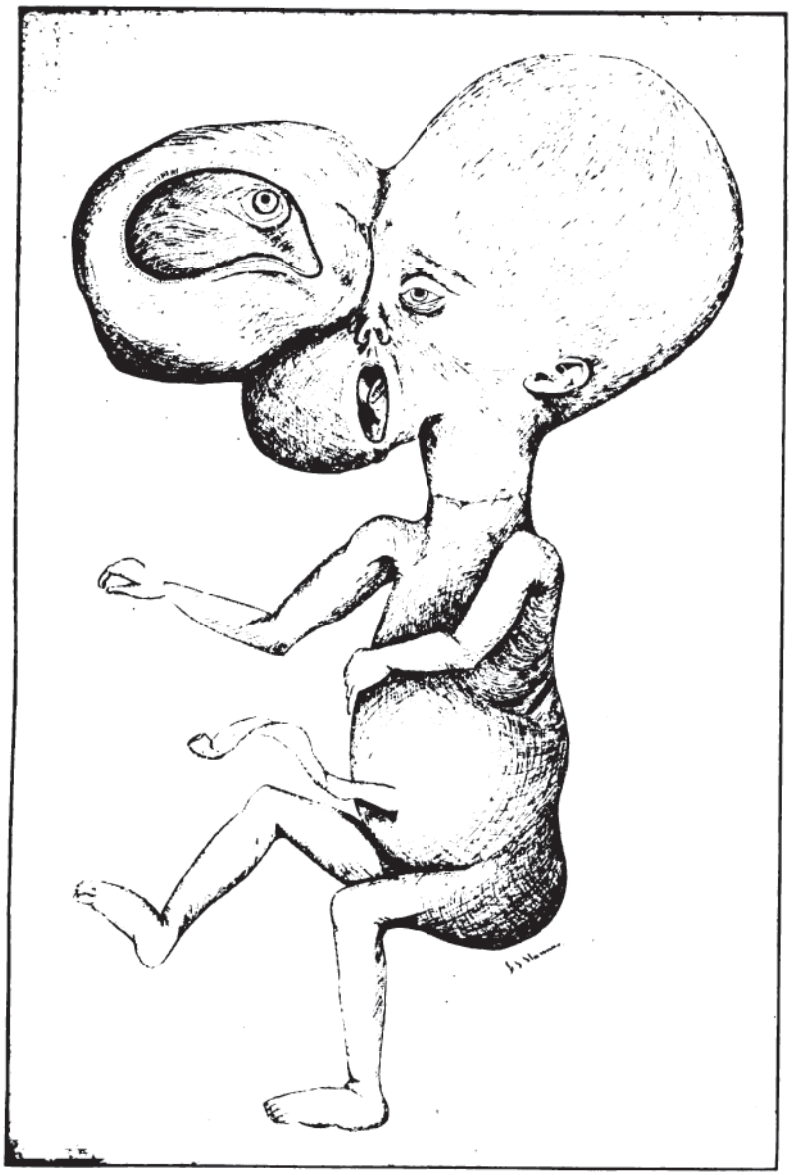
IT is a case in which the growth, arising on the right side of the head, involves the cranial cavity, orbit, and cheek in a hydrocephalic female fœtus, with a cleft in the neck, associated with hydramnion which necessitated interference with the pregnancy at the seventh month.

The head, which was detached from the body during delivery, weighs 2 lbs., and measures eleven inches in greatest breadth. At first sight it appears to be that of a double-headed monster, but the enlargement is due to—

1. A large tumour in the upper part of the right side of the face (orbital tumour).
2. A rounded swelling projecting from the right cheek.
3. The hydrocephalic condition of the head.

The larger tumour has pushed the face towards the left, so that the face, left side of head, and anterior surface of tumour are more or less on the same plane; while the posterior surface of the tumour is flush with the right side of the head, and with the exception of the ear, smooth.

It gives the impression that it has arisen in the orbit, and by its growth expanded the outlet, pushing the eye



Illustrating Mr. H. S. STANNUS's Specimen of Teratoma of the Fœtal Head.

Engraved and Printed by Bale and Danielsson, Ltd.

DESCRIPTION OF PLATE III,

Illustrating Mr. H. S. Stannus's specimen of "Teratoma of the Fœtal Head."

Sketch of the whole fœtus, showing two of the tumours and the hydrocephalus.

in front of it; and this is borne out by the position of the bony margins of the malar and frontal felt through the skin. As a result of this protrusion from the orbit, the palpebral fissure has been dilated in an extraordinary manner. It is seen on the upper and anterior surface of the tumour, and measures $3\frac{1}{2}'' \times 2''$ (the left measuring $\frac{5}{8}'' \times \frac{1}{3}''$).

The lids as such are obliterated, but the palpebral margins are fringed by fine lashes. A shining pinkish membrane, apparently the conjunctiva, covers in the exposed surface, and shallow fornices exist above and below.

Situated at the upper part, and rather nearer the inner than the outer canthus, is the right eye. It appears as if "set" in the mass of new growth, so that while the whole of the iris and cornea are visible and apparently normal, only part of the sclerotic is seen, and the conjunctiva is reflected from the latter on to the tumour. The pupil of the right eye has a reddish tinge, the left being black.

The whole tumour is elastic to touch, much softer in its outer part, where it feels semi-fluid.

The tumour of cheek is rounded, about $2\frac{1}{2}''$ in diameter, and of firmer consistency. Its posterior surface is continuous with that of the larger tumour, but in front the two are separated by a sulcus which runs upwards and inwards, reaching the median line at the root of the nose. The surface is smooth, but presents two or three prominences. The inner limit is formed by the mouth.

The mouth itself is enlarged in a vertical direction, and measures $1\frac{1}{2}'' \times \frac{3}{4}''$, the deformity being evidently due to the presence of the tumour. The upper edge of the alveolus of the lower jaw is seen as a pearly white curved bar notched in the middle, and above the tongue. The roof of the mouth and the hard asymmetrical alveolar margin can be felt. No cleft in the palate exists. The right wall of the buccal cavity is broad, and forms part of the covering of the cheek tumour.

Below the mouth is a cleft with margins resembling

lips. It is somewhat oval in shape, measuring $\frac{7}{8}''$ × $\frac{3}{4}''$. Situated at the bottom of the cleft, but projecting up into it, are two bars of cartilage; they are serrated, and enclose between them a third smooth portion; all are attached to the right ramus of the jaw. At the lowermost part of the cleft is a little soft fleshy body, terminating in three finger-like processes. A fine probe can be passed between the cartilages, on the inner side of the jaw towards the median line.

The left eye, nose, and ears are normal in shape and relative position.

The hydrocephalus was not extreme, but the natural configuration of the vault of the skull has necessarily been destroyed by the means adopted to effect delivery.

No brain matter remains in the cranial cavity, but occupying the middle fossa on the right side is a mass about the size of the cheek tumour lying underneath the dura mater.

The body is thirteen inches in length and weighs $1\frac{1}{4}$ lbs., and is that of a seven months' female fœtus. There is no apparent deformity of body or extremities.

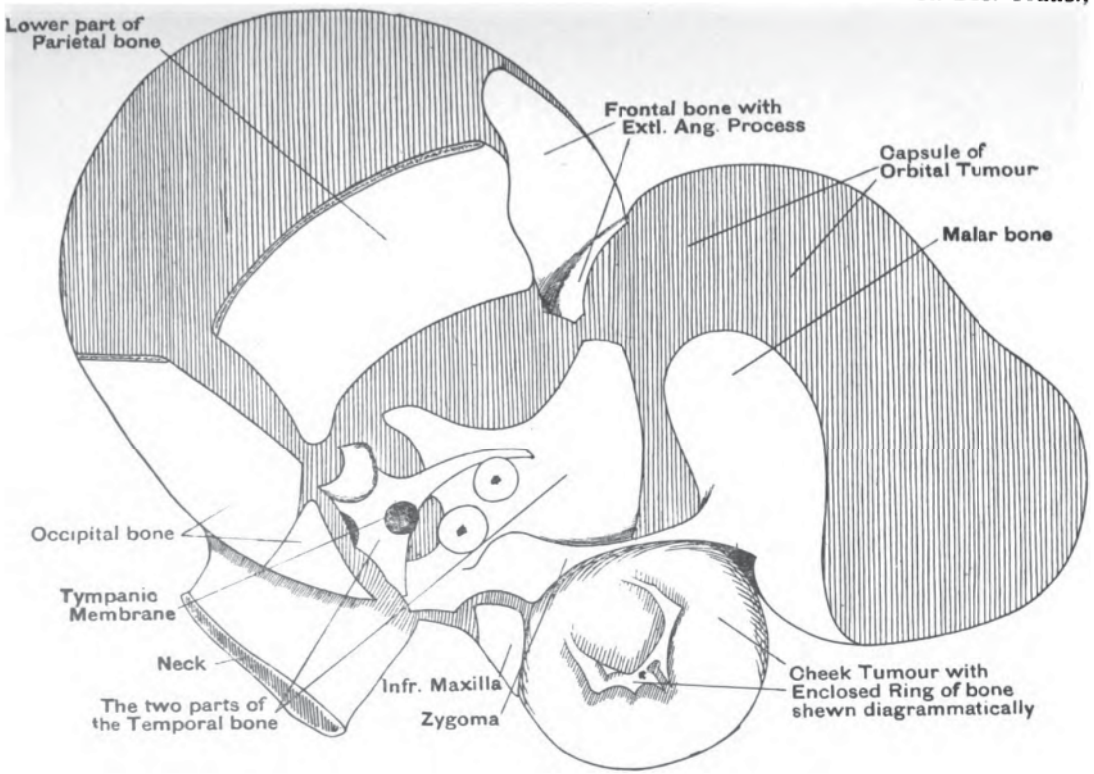
The placenta is large, roughly oval in shape, with irregular outline measuring 10″ × 8″, and divided into cotyledons of very varying thickness, from one inch to complete absence of placental substance at one spot.

The umbilical cord appears normal, the amount of Whartonian jelly and degree of twisting being a little deficient. The insertion into the placenta is eccentric, being three inches nearer one pole than the other.

The membranes are thin but of great extent (hydramnios = 12 pints). The whole weighs $1\frac{1}{4}$ lbs.

An incision was made on the posterior surface of the specimen, and the skin reflected forwards over the face, in this way allowing the dissection to be carried out without destroying the features.

The three tumours already noticed are found to be connected together by processes of growth, forming one mass which, though it has not invaded the left side of



Illustrating Mr. H. S. STANNUS's Specimen of Teratoma of the Fœtal Head.

Engraved and Printed by Bale and Danielsson, Ltd.

DESCRIPTION OF PLATE IV,

Illustrating Mr. H. S. Stannus's specimen of "Teratoma of the Fœtal Head."

Sketch to show the relations of the bones and pericranium on the posterior surface of the specimen to the tumours.

the head, involves the right petrous bone and all in front of it.

The arrangement of the bones of the right side of the skull will first be noted, and then the relations of the growth described.

The frontal bone meets its fellow in the median line below, but is widely separated from it above, forming the large anterior fontanelle; behind, it comes in contact with the anterior border of the parietal. The external angular process is well developed, but does not articulate with the malar bone. The orbital margin is expanded, and gives attachment to the capsule of the orbital tumour, but the orbital plate is not fully developed.

The parietal bone is normal in shape, and articulates in front and behind with the frontal and occipital bones respectively. The inferior concave border does not articulate with the upper margin of the temporal bone, which is deficient in that situation, so that a space is left between these bones covered in by pericranium, forming the wall of the temporal fossa.

The greater wing of the sphenoid is also deficient, and takes no part in the formation of the fossa.

The temporal bone consists of two ununited portions; the larger is roughly quadrilateral, the smaller triangular, base upwards, apex downwards, lying between the former portion and the occipital bone, and articulating with the former by a long process which fits into a groove formed by a little boss of bone just above the root of the zygomatic process. Two spaces, only protected by pericranium, are formed between the two parts; the upper one corresponding to a cavity in the petrous bone, filled by a process of the intra-cranial tumour; the lower also opens into the same space at its lower part. Close to the latter, in the smaller portion, is the tympanic membrane and ring of bone.

The squamous portion is partly undeveloped, leaving an upper concave border, bounded at either end by a process projecting upwards; the anterior one lying under the

external angular process of the frontal, but not articulating with it, the other being normal; in this way the space before mentioned is formed.

The zygomatic process runs forwards to meet the corresponding process of the malar; the capsule of the cheek tumour is attached to it along its whole length, not, however, involving it in the growth. The anterior border of the temporal is slightly concave, and lies parallel with, but separated from the posterior margin of the malar by a band of pericranium half an inch wide in the absence of the ala of the sphenoid. The posterior border articulates normally with the occipital bone, which is itself normal.

The natural floor of the middle fossa of the cranial cavity is deficient owing to the absence of the ala of the sphenoid, which is represented by a small portion of bone close to the median line. The lesser wing is present as a small spicule adherent to the margin of the orbital plate of the frontal. A false floor is formed on a lower plane by the incurved lower part of the temporal and the upper surface of the superior maxilla.

A cavity is thus formed in which the intra-cranial tumour lies, bounded on the outer side by the squamous portion of the temporal, behind by the petrous, on the inner side by the vertical plates of the maxilla, palate, ethmoid, and sphenoid, above by dura mater, and also in front by the orbital plate of the frontal. In front it is partially closed by a membranous curtain enclosing a delicate plate of bone which separates the intra-cranial mass from the orbital tumour. The septum is, however, incomplete below and at the sides, where processes of growth unite the two.

An oval aperture three quarters of an inch in diameter exists in the floor, formed by the lower concave margin of the temporal on the outer side, the outer border of the maxilla on the inner; behind it is completed by the petrous and in front by fibrous tissue which partly covers over the aperture, and to which is attached the ring of bone found in the cheek tumour; through this aperture

communication exists between the intra-cranial and cheek tumours.

The superior maxilla consists of a horizontal plate with nasal, palatine, malar, and alveolar processes. The horizontal plate is concave on its upper surface, and with the concave outer surface of the vertical plate and nasal process forms part of the floor and walls of the cavity mentioned above; the antrum is absent. The posterior border of the vertical portion and palatine process articulate with the sphenoid and palatal bones. On the under surface of the horizontal plate the curved alveolus is seen running from near the anterior part of the aperture at the base, to the mid-line in front. A process also projects outwards and downwards to articulate with the malar.

The malar bone, recognised by its zygomatic process, is expanded into a curved plate of bone which lies in the plane between the two external tumours, and is partly subcutaneous. Its upper end and anterior border are free, and give attachment to the capsule of the orbital tumour, the former lying below and in front of the external angular process of the frontal; the posterior border has been noticed. The lower part curves inwards, lending support to the orbital tumour, and articulates with the maxilla at a point in front between the two tumours on a level with the middle of the mouth.

The jaw articulates normally with the skull at the root of the zygoma, but the ramus is displaced backwards, and fixed in that position by the cheek tumour wedged in between it and the zygoma. As a result the mouth is widely open, and the tumour which forms the prominence in the cheek also bulges into the mouth.

As already described, the middle fossa is apparently occupied by the intra-cranial tumour; it, however, fills the larger cavity previously mentioned. The capsule of dura mater is, however, very definitely attached to the boundaries of the fossa; from it fibrous septa pass into the mass, dividing it into lobules, and including in them delicate plates of bone.

The lobules in the upper part of the tumour are well formed, and yellow in colour; several lie rather separated from the main mass; one such lies under the orbital plate, separated from the orbital tumour by the curtain. Another process occupies a little fibrous sac bounded externally by the pericranium in the interval between the parietal and temporal bones; a third extends into the petrous bone, which is in consequence expanded and hollowed out.

The lower part of the tumour is almost diffluent, and projecting up into it are several spicules of bone derived from a little mass near the median line, no doubt portions of partly absorbed sphenoid. From this lower portion processes pass through the aperture in the floor and through the lower part of the opening in front to the cheek tumour and orbital tumour respectively.

The orbital tumour is made up of several distinct masses, corresponding partly to the bosses seen on the outer surface. The capsule is derived from the periosteum of the bones forming the outlet of the orbit, viz. frontal, maxillary, and malar. Septa pass into the tumour separating the lobes, each having a well-marked finer capsule of its own, from which it shells out easily.

The largest lobule occupies the uppermost part of the tumour; it is very firm, rounded, and about two inches in diameter. In front of this is another mass which forms the prominence just above the nose, while the outer part of the tumour is composed of three other masses, smaller, softer, and semi-fluid. These masses are all in communication with the lower part of the intra-cranial tumour.

The eye is represented by a shell consisting of the ciliary body and parts anterior to it, and lies outside the capsule between it and the exterior.

The cheek tumour is in great part subcutaneous, and the skin over it is easily removed, discovering the capsule covered by layers of muscular fibres. The capsule is attached at the base of the skull to the margins of the aperture in the formation of which the temporal, maxilla, and sphenoid take part, and also derives support from the

zygoma above, ramus of jaw behind, and surrounding soft parts; on the inner side it is limited by the buccal cavity.

The mass, which can be shelled out from its covering, consists of a soft, red, marrow-like substance with a fibrous stroma. Buried in its midst is a ring of bone fairly regular in shape, and one inch in diameter. It has a flattened process which is attached by fibrous tissue to the base of the skull, and partially closes the aperture through which this tumour communicates with the intra-cranial mass.

The dissection of the neck revealed the larynx and thyroid body normal in size and position.

A fine probe passes in between the cartilaginous bars of the cleft, which are attached to the lower part of the right ramus along a canal which runs on the inner side of the ramus of the jaw, upwards to the base of the tongue, where it opens into an otherwise closed cavity filled with mucus.

The abdominal and thoracic viscera presented no abnormalities, and were not the seat of any growth.

Microscopically the new growth shows various stages in the differentiation of embryonic cells into almost every tissue of the body. Thus the transition into fibrous, myxomatous, and areolar tissue is seen, also striped muscle-fibre, likewise cartilage, fat, and here and there areas of calcification with attempts at bone formation. Other cells have taken on the character of epithelium; masses of such cells are seen grouped together in definite arrangement with the appearance of a central cavity, so forming a gland-like tubule. In some places the wall is invaginated into the lumen, in others the cavity is occupied by granular material.

Several rings of columnar epithelium are seen enclosing within them cells resembling endothelium. Larger spaces also exist lined by a stratified epithelium, the innermost layer sometimes ciliated, containing as a rule masses of cells and débris.

Several spaces surrounded by lymphatic tissue and fibrous coats exhibit a mucous membrane containing glands lined by goblet-cells, the whole resembling some portion of the alimentary tract.

The history of the case is as follows :—The mother and father were Italians aged forty-one and forty-six, and were in no way related before marriage.

There was nothing of interest in the family history; no deformity or abnormality had ever been observed in any member of the family. No history of tuberculosis, syphilis, or gonorrhœa.

The mother had always enjoyed good health. She was married fourteen years ago at the age of twenty-seven, and had had seven children and one miscarriage; the confinements had always been normal and uninterrupted by any inflammatory trouble.

The first five children are alive and healthy, the sixth and seventh died with bronchitis aged six and ten months respectively.

The miscarriage had occurred ten months before admission, at the fourth month. Menstruation had been re-established soon afterwards, and continued regular till February, 1901. Patient then thought she was pregnant, but noticed nothing unusual till the six weeks before admission to hospital. During that time her symptoms had been referable to great and rapidly increasing distension of the abdomen, a feeling of weight, shortness of breath, and later inability to rest in any one position, some vomiting and dyspepsia with anorexia; her previously existing varicose veins were exaggerated, and some œdema of legs had appeared.

She was sent up to St. Thomas's Hospital as a case of extreme ascites complicating pregnancy, and admitted 12th October, 1901.

On admission a fairly well-nourished woman, with no signs of any constitutional disease. Except the abdominal condition the only other point noticed was the presence of numerous flat-topped brownish warts situated on the

chest and in both axillæ; one larger than the rest was black and mulberry-like in appearance, and sprang from the left side of the pectoral region.

The abdomen was greatly enlarged, forming a dome-shaped swelling as the patient lay in the bed. The greatest girth measured forty-eight inches, three inches above the umbilicus.

The distension was evidently due to a tense encysted collection of fluid.

A well-marked fluid thrill could be obtained between any two points; external ballottement could with difficulty be made out, but no fœtal parts could be detected. The whole was dull to percussion except a narrow band at the subcostal margin and the flanks, which were resonant.

Vaginal examination revealed the cervix lying high up and the canal patulous, admitting two fingers. The bulging membranes could be felt at the internal os, and it was evident that the cervix was continuous with the large abdominal cystic swelling.

Hydramnion was diagnosed, and it was decided to relieve the condition. Three hours after admission the membranes were ruptured with the immediate escape of twelve pints of amniotic fluid. Owing to the size and shape of the contents of the uterus, which then became apparent, it was thought probable that twins were present. Twelve hours later patient complained of pain, and a foot was found presenting; the second leg was brought down and the body immediately followed.

Efforts to deliver the head by the ordinary means proving unsuccessful, the finger was passed into the uterus, when it was discovered that delivery was obstructed by a hydrocephalic head.

Perforation was attempted, and resulted in the escape of a collection of blood-stained fluid from between the scalp and the vault of the skull. Chloroform was then administered, and in the efforts of traction, the body separated from the head.

The enlarged presenting fontanelle was then perforated,

with the escape of a large quantity of fluid; the opening was enlarged, and the brain matter, together with most of the bones of the vault, removed before delivery could be effected; the remains of the vault appeared first, then the face, and lastly the tumour masses.

It was found necessary to remove the placenta digitally.

The patient made an uninterrupted convalescence.

Bibliography and short account of cases of somewhat similar character to the above, viz. examples of the condition called by Taruffi Exopiosopus amorphus.

"Teratoma Orbitæ Congenitum." Archiv für path. Anat. und Physiol, von Virchow, 6 Folge, Band vii, 67, 1876.

VROLIK.—Nieuwe Verhandelingen der I Cl. van het Koninkl. Nederl. Instituut, Amsterdam, 1831, Bd. iii, S. 211.

AHLFELD.—Archiv für Gynaek., Berl., 1874, S. 216.

A tumour situated in the buccal cavity of a fœtus beneath the left cheek. It was four and a half inches in diameter, and consisted of fibrous tissue, cartilage, and portions of the bone of the lower extremity. There was also present a body resembling the placenta, and a portion of intestine with the vermiform process.

SOEMMERING, S. T. L.—"Catalogue of the Anatomical Museum of Giessen." Frankfort-on-Maine, 1830, s. 77, N. 27.

A tumour projecting under the left cheek into the posterior part of the mouth of a fœtus, and producing deformity of the larynx and œsophagus. Portions of the upper and lower extremities of a fœtus with parts of the intestine, and a number of cysts with atheromatous contents, made up the greater part of the tumour.

BURY.—Lond. Medical Gazette, vol. xiv, May 24th, 1834.

A tumour situated under the skin of the cheek, and attached to the right superior maxilla of a fœtus. It consisted of two halves, separated by a process of bone derived from the frontal bone of the host. The interior of the tumour contained a serous fluid, some bones, parts of three limbs, and portions of skin covered with hairs.

REGULEAS GIOVANNI.—"Di un mostro umano dermocimo:" Narrazione letta all' Acad. Giornia, 1850. Catania, 1850, con tav.

In a male fœtus, born at full term, the author found a tumour, with a diameter of eight inches, attached to the whole of the area corresponding to the inferior maxilla and to the upper part of the front of the neck.

The stroma of the tumour had the appearance of a spongy mass, containing numerous vessels, not unlike a placenta. In this tissue was found a membranous tube resembling intestine.

In other parts of the tumour were present rudimentary portions of back bones, and a substance resembling brain tissue.

HESS, WILH.—"Beitrag zur Casuistik der Geschwülste, mit Zeugungsähnlichem Inhalt. Diss., Giessen," 1854. Kanstatt's Jahresbericht, 1854, Bd. ii, S. 31.

A tumour in the left cheek of a female fœtus, double the size of a fœtal head. It contained numerous cysts, some blind canals with the structure of intestine, and fragments of bone in part resembling a forearm, hand, and lower extremities.

BRÖER und WEIGERT.—Virchow, Archiv, Bd. lxvii, S. 518, 1876.

A fœtus with a tumour projecting from the right orbit. The optic nerve formed the pedicle of the tumour, while

the ocular bulb lay upon it. The greater part of the tumour consisted of connective tissue containing cystic spaces, with some fragments of cartilage and bone.

On microscopic examination were found connective tissue, epithelial cells, lymphatics, smooth muscular tissue, and vessels. Some of the cysts were lined by a mucous membrane resembling that of the intestine.

FORD.—Amer. Journ. of Med. Sciences, Jan., 1879. Philad.

A tumour situated in the right cheek and upper part of neck of a fœtus. It had a connective-tissue capsule and brain-like contents, containing fatty tissue, cartilage, mucous membrane, and epithelium.

AHLFELD, F.—Die Missbildungen, 1880, p. 52, Table vi, fig. 11.

A fœtus with a tumour springing from the left orbit, consisting of a mass resembling a button, and the left lower extremity.

Attached to the cheek near the left angle of the mouth was a tumour with the consistence of the liver. The fœtus had also a frontal encephalocele.

PANCOAST.—Medical and Surgical Reports, new series, vol. i, p. 405, 1859.

A fœtus with a tumour springing from the left cheek as large as an apple. Attached to the surface were some fingers and part of a forearm. The interior of the tumour contained portions of intestine and a substance like liver.

MORISON, J. RUTHERFORD.—Edin. Med. Journal, vol. xlii, July—December, 1896, p. 130.

A tumour successfully removed from the right side of the face of a male child eleven months old. The mass, about the size of a Tangerine orange, was attached to the part between the nose and right eye. It was covered

partly by skin and partly by mucous membrane, and consisted of fibrous and mucous tissues irregularly mingled.

BALLANTYNE, J. W.—Trans. Edin. Obstet. Soc., vol. xxiv, 1899, p. 47.

A Siamese boy, seven years old, with congenital tumour covering almost whole of right side of face, which had grown with the general growth of the boy. Base of tumour extended from forehead to end of nose. Tumour soft and doughy over greater part, probably a teratoma. Photographs only shown.

*Report of Teratological Committee upon Mr. Stannus's Specimen of Orbital Tumour in a Fœtus.**

We have carefully examined the dissected specimens and the microscopical sections of various parts of the tumour, and we consider that the whole growth, consisting of the three tumours and their processes, is of the nature of a *teratoma*. The growth is so extensive that it is not possible to ascertain the exact point of its origin, nor is it possible to say what portion of the whole mass represents the oldest part of the tumour. We are unable to determine whether the deficiencies in the bones of the skull are due to defective ossification, or to absorption of the bone during the process of growth of the tumour; probably both these conditions are present in different parts of the specimen.

The cleft in the neck with the canal leading from it probably represents a persistence of the lower part of the first branchial cleft.

G. F. BLACKER.
HUGH S. STANNUS.
ALBAN DORAN, *Chairman.*

February 16th, 1902.

* Exhibited at the December meeting, 1901.