TRANSACTIONS

OF THE

PATHOLOGICAL SOCIETY OF LONDON.

VOLUME FIFTH.

INCLUDING THE REPORT OF THE PROCEEDINGS FOR THE SESSION 1853–54.

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1854.

The present publication, being the Fifth Volume of Transactions, constitutes the Eighth Annual Report of the Pathological Society's proceedings.

The Council think it right to repeat, that the exhibitors are alone responsible for the description given of the Specimens exhibited by them, the only change made in the reports furnished by the authors, being such verbal alterations as were absolutely necessary.

33, George Street, Hanover Square,
September, 1854.

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1852 ... CÆSAR H. HAWKINS, Esq.

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* Former Members of Council.
† Have paid Life Subscriptions.
‡ Have paid Composition Fee for Transactions.

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Adams, William, Esq. (C.), Assistant Surgeon to the Royal Orthopædic Hospital, 5, Henrietta-street, Cavendish-square.

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*Bennett, James Risdon, M.D., Physician to St. Thomas's Hospital, and to the City of London Hospital for Diseases of the Chest, 15, Finsbury-square.

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*Peacock, Thomas Bevill, M.D. (V.P., late Secretary), Assistant Physician to St. Thomas's Hospital, and Physician to the City of London Hospital for Diseases of the Chest, 20, Finsbury-circus.

*Phillips, Benjamin, Esq., F.R.S., Consulting Surgeon to the Westminster Hospital.

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*Ramsbotham, Francis H., M.D. (late V.P.), Physician Accoucheur to the London Hospital, 7, Portman-square.

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*Roe, Hamilton George, M.D., Physician to the Westminster Hospital, and to the Hospital for Consumption and Diseases of the Chest, at Brompton, 26, Upper Brook-street.

Sankey, W. H. O., M.B., Resident Medical Officer, London Fever Hospital.

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MEMBERS ELECTED DURING THE SESSION 1847–48.

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MEMBERS ELECTED DURING THE SESSION 1851–52.

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Mackenzie, Frederick William, M.D., Physician to the Paddington Dispensary for Diseases of Women, &c., 11, Chester-place, Hyde-park-square.

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Walker, J. Butterworth, Esq., 8, Hamilton-place, St. John's-wood.

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MEMBERS ELECTED DURING THE SESSION 1852–53.

Barwell, Richard, Esq., Demonstrator of Anatomy, St. Thomas's Hospital, 22, Maddox-street.

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MEMBERS ELECTED DURING THE SESSION 1853–54.

Ancell, Henry, Esq., Surgeon to the Western General Dispensary, 3, Norfolk-crescent, Hyde-park.

Black, Cornelius, M.B., Physician to the Chesterfield Dispensary, St. Mary's-gate, Chesterfield.

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Complin, Edwin John, Esq., "Dreadnought," Hospital-ship.

Cornish, William Robert, Esq., H.E.I.C.S.

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Hood, William Charles, M.D., Resident Physician, Bethlem Hospital.

‡Jardine, J. L., Esq., County Hospital, Winchester.

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Wordsworth, John C., Esq., Assistant Surgeon to London and Royal Ophthalmic Hospitals, 41, Finsbury-square.

LIST OF SPECIMENS

EXHIBITED AT THE MEETINGS OF THE SOCIETY DURING THE SESSION 1853–54.

DISEASES, ETC., OF THE NERVOUS SYSTEM.

1.

A Cyst formed amongst the meshes of the Pia Mater of the Brain, which produced absorption of the convolutions of the surface. — Dr. J. W. Ogle.

2.

Tumor, probably Epithelial Cancer of the Dura Mater. — Dr. Bristowe.

3.

A Brain and Dura Mater taken from a Man after a blow on the head. — Mr. John Wood.

4.

Disease of the Brain, arising from Caries of the Temporal Bone, after Scarlet Fever. — Mr. Toynbee.

5.

Phlebitis with Fbrinous Clot, plugging the Left Middle Cerebral Artery. Abscess in the Spleen. — Dr. Septimus Gibbon.

6. Cancerous Tumor in the posterior Lobe of the Right Hemisphere of the Brain.	Dr. Markham.
7. Case of Chronic Disease of the Brain, giving rise to symptoms resembling Chorea.	Dr. Hale.
8. Fibrous Tumor in the Left Ventricle of the Brain; Bony Deposit in the Arachnoid Membrane of right hemisphere.	Mr. Shaw.
9. Cholesteatomatous Tumor of the Brain.	Dr. Peacock, for Dr. Thurnam.
Report on this Specimen.	Dr. Bristowe.
10. A Cyst at the Base of the Brain, formed by the softening of Scrofulous Deposit: and clearly indicated during life, as to its position, by certain well-marked symptoms.	Dr. J. W. Ogle.
11. Specimen showing extensive Softening of the entire Spinal Chord without Discoloration thereof.	Dr. J. W. Ogle.
12. A mode of taking the Specific Gravity of Healthy and Diseased Brain.	Dr. Sankey.

DISEASES, ETC., OF THE ORGANS OF RESPIRATION.

1. The Lungs and Heart of a Child who had died from the pressure of a Tuberculous Gland on the Right Bronchus: the Left Lung having been previously destroyed by Pleuritic effusion which had been absorbed.	Mr. Hutchinson.
2. Ossific Mass deposited in the Pleura.	Dr. Hyde Salter.
3. Vegetable Fungus growing in a cavity of the Lung.	Dr. J. S. Bristowe.
4. Fibrinous Casts of the Bronchial Tubes.	Dr. Fuller.
Report on this Specimen.	Dr. Peacock.

DISEASES, ETC., OF THE HEART.

1. Malformation of the Heart. Contraction of the Right Auriculo-ventricular Orifice, with two small apertures in the Septum-ventriculorum.	Dr. Peacock.
2. Malformation of the Heart. Great Contraction of the Pulmonary Orifice; deficiency in the Septum-ventriculorum, and open Foramen Ovale.	Dr. Peacock.

3. Abnormal condition of the Valve at the Root of the Pulmonary Artery, with consequent Hypertrophy of the parietes of the Right Ventricle of the Heart.	Dr. J. W. Ogle.
4. Two Cases of Diseased Hearts.	Dr. Brinton.
5. Old standing Disease of Aortic and Mitral Valves, with Hypertrophy and Dilatation of the Heart, which appear to have produced no inconvenience till a short time before death. Pulmonary apoplexy.	Dr. Bristowe.
6. Malformed and Diseased Aortic Valves. Arrested Phthisis?	Mr. Obre.
7. Deposit of Bone on the Aortic Valves.	Mr. Obre.
8. Case of Diseased Aortic Valves.	Mr. J. W. Trotter.
Report on this Specimen.	Dr. Peacock.
9. Extreme Hypertrophy of the Heart, apparently without sufficient associated disease to account for its production.	Dr. Bristowe.
10. Cases of Fatty Degeneration of the Heart.	Dr. Bristowe.

11. Aneurism of the Left Ventricle of the Heart.	Dr. Bristowe.
12. Lateral or partial Aneurism of the Heart.	Dr. Peacock.
13. Congenital Malformation of the Heart. Absence of the Right Auriculo-ventricular Orifice, Patulous Foramen Ovale, Defective Inter-ventricular Septum.	Dr. Sieveking.
14. Malformation of the Heart, from a Child who had suffered from Cyanosis. Imperfect septum of the ventricles. Rudimentary right ventricle, which was divided into two chambers by a fleshy septum between its sinus and its infundibular portion.	Mr. Hutchinson.
15. Traumatic Rupture of the Ventricular Septum of the Heart, without any laceration of the Pericardium.	Mr. Prescott Hewett.
16. Case of Rupture of the Septum Cordis.	Dr. Peacock.
17. False Aneurism of the Arch of the Aorta, from a Child Four years old.	Mr. Hutchinson.

18.

Aneurism of the Aorta opening into the Œsophagus. — Mr. N. Ward.

19.

Aneurism of the Arch of the Aorta of several years' duration, filled with firm laminated coagulum. — Mr. Harvey Ludlow.

20.

Disease of the Arterial System. Aneurism of the Subclavian, Femoral, and Popliteal Arteries. — Mr. Haynes Walton.

21.

A large Aneurism of the Posterior Tibial Artery. — Mr. Haynes Walton.

Report on this Specimen. — Mr. W. Adams.

22.

Drawings of the Appearance of the Surface of the Heart in two cases of Purpura. — Mr. Spencer Wells.

DISEASES, ETC., OF THE ORGANS OF DIGESTION.

1.

Erratic Vascular Canals in Teeth. — Mr. James Salter.

2.

Vascular Tumors connected with Dental Periosteum. — Mr. James Salter.

3.

Specimens of Epulis. — Mr. James Salter.

4.

Fatty pendulous Tumor of the Pharynx and Larynx. — Mr. Holt.

Report on this Specimen. — Mr. Fergusson and Mr. Partridge.

5.	
Cancer of the Omentum, &c.	Dr. Hare.
6.	
Two cases of Disease of the Mucous Membrane of the Stomach.	Dr. Handfield Jones.
7.	
Cystic Formations in the Stomach.	Dr. Handfield Jones.
8.	
Medullary Cancer. Tumor of the Pyloric End of the Stomach.	Mr. E. Pye Smith.
9.	
Medullary Cancer and Ulceration of the Stomach.	Mr. E. Pye Smith, for Mr. Ewen.
10.	
Simple Chronic Ulceration of the Stomach, two large Perforations closed up by adhesions to the Liver and Pancreas.	Mr. E. Pye Smith, for Mr. Ewen.
11.	
Specimens of Diseased Stomach	Dr. Handfield Jones.
Report on this Specimen.	Dr. Lionel Beale and Dr. Bristowe.
12.	
Specimens of Diseased Mucous Membrane of the Stomach.	Dr. Handfield Jones.
13.	
Cancer of the Pylorus.	Dr. C. Handfield Jones.
14.	
Stomach showing Abnormal Development of the Solitary Glands.	Dr. Handfield Jones.

15. The Stomach of an Insane Patient filled with Cocoa-nut fibre, which caused Death by perforation of this viscus.	Dr. Quain, for Dr. Bucknill.
16. Cases illustrative of Local Jaundice in the Liver.	Dr. Handfield Jones.
17. Deposit on the Liver, Kidney, and on the Peritoneum, in a Case of Typhus.	Dr. Pollock.
18. Specimen of Lobulated Liver, from a Child.	Dr. Quain, for Dr. Armitage.
19. Cirrhosed Liver, from a temperate Man, aged 22 years,	Dr. Septimus Gibbon.
20. Biliary Calculus discharged through an opening in the Abdominal Walls.	Mr. Simon.
21. Biliary Calculi discharged from the Umbilicus; recovery. Death by Phthisis and Emphysema.	Mr. R. R. Robinson.
22. Specimen of Abscess of the Liver containing a large mass of Agglutinated Biliary Calculi, opening by Ulceration into the Duodenum and Common Bile Duct.	Dr. J. W. Ogle.

23. Large Biliary Calculus passing by an Ulcerative process into the Intestines, and causing Death by Obstruction of the Bowels.	Mr. E. Pye Smith.
24. Ulceration and Perforation of the Bowels in a case of Fever of Relapsing Type (Typhus?). Intestinal Hæmorrhage. Death at the end of Two Months.	Mr. R. R. Robinson.
25. Great enlargement of the Aggregate and Solitary Glands of the Intestine, in a case of Asiatic Cholera.	Dr. Habershon.
26. Rupture of the Bowel (Ileum) from a contusion of a Reducible Hernia.	Mr. Shaw.
27. Traumatic Ulcer in the Small Intestine of a direct Inguinal Hernia.	Mr. N. Ward.
28. Diseased Intestine, from a Case of Typhoid Fever.	Dr. Handfield Jones.
29. Prolonged Constipation. Sacculated Colon.	Mr. Gay.
30. Imperforate Rectum and Anus.	Mr. T. J. Ashton.
Report on this Specimen.	Mr. Partridge.

DISEASES, ETC., OF THE URINARY AND GENERATIVE ORGANS.

1. Kidneys in Bright's Disease.	Dr. Semple.
2. The remains of Abscesses (?) in the Kidney.	Dr. Bristowe.
3. Case of Abscess of the Left Kidney, passing behind the Colon and opening in the Groin.	Dr. Quain.
4. Kidney with Cysts.	Mr. Conway Evans.
5. Cancer of the Kidneys, upon the Pleura and Mediastina.	Mr. Part.
Report on this Specimen.	Dr. Bristowe.
6. Rupture of the Mucous, Muscular, and Peritoneal Coats of the Urinary Bladder, with Fractures of the Pelvis.	Mr. Partridge.
7. Medullary Cancer filling completely the Urinary Bladder.	Dr. Septimus Gibbon.
8. Sacculated Bladder; Peritonitis, from Incomplete Formation of a Sacculus at the Fundus.	Mr. Shaw.
9. Fungous Tumor in the Bladder of a Female.	Mr. Shaw.

10. Malignant Disease of the Bladder.	Mr. Holt.
11. Urinary Calculus discharged through the Rectum.	Mr. Spencer Wells.
12. Urinary Calculus of peculiar form.	Mr. James Salter.
13. Carcinomatous Deposit in the Prostate Gland within the Spinal Column, &c.	Mr. Henry Thompson.
Report on this Specimen.	Mr. J. Hutchinson.
14. Large Abscess of the Prostate and Vesicula Seminalis. Chronic Inflammation of the Bladder.	Mr. Henry Thompson.
15. Stricture of the Urethra. Extreme dilatation of the Bladder, Ureters, and Kidneys.	Mr. Henry Thompson.
16. Obliteration of the Urethra.	Mr. Henry Thompson.
17. Cases of Diseased Testes.	Mr. Haynes Walton.
Report on this Specimen.	Mr. Harvey Ludlow.
Report on a Specimen of Cystic Disease of the Testicle, which had been extirpated by Mr. Fergusson, at King's College Hospital, and presented by him to the Society.	Mr. Harvey Ludlow.

18.	
Atrophied Testis taken from a subject in the King's College Dissecting Rooms.	Mr. JOHN WOOD.
19.	
Case of Rupture of Uterus from obstruction to labour, by an Ovarian Cyst.	Dr. OGIER WARD.
20.	
Cancer of the Uterus, Vagina, Bladder, and Rectum.	Dr. RAMSBOTHAM.
Report on this Specimen.	Mr. J. HUTCHINSON.
21.	
Medullary Carcinoma of the Os and Cervix Uteri.	Dr. RAMSBOTHAM.
Report on this Specimen.	Mr. JONATHAN HUTCHINSON.
22.	
Ovarian Tumor. Great Elongation of the Cervix Uteri.	Dr. BRISTOWE.
23.	
Case of Malignant (?) Ovarian Tumor filling up the brim of the Pelvis, and a considerable portion of the Iliac Fossa, with a Cyst containing Pus. Great distension of the upper portion of the Right Ureter, and enlargement of the Pelvis of the Kidney.	Mr. COUSINS, for Mr. PART.
Report on this Specimen	Dr. BRISTOWE.
24.	
Small Calculi (Phlebolites ?) taken from between the Coats of the Vagina in a coloured woman.	Dr. SIBSON, for Dr. G. D. GIBBS.

Report on this Specimen. — Dr. Lionel Beale.

DISEASES OF THE OSSEOUS SYSTEM.

1.

Fracture of the Skull, with detachment of the Dura Mater, and Effusion of Blood on it on opposite sides. — Mr. Nathaniel Ward.

2.

Primarary ulceration of the Intervertebral Fibro-cartilage between the fourth and fifth lumbar vertebræ, with lumbar abscess, but without destructive disease of the bones. — Mr. W. Adams.

3.

Ulceration of the Intervertebral Fibro-Cartilage, between the tenth and eleventh Dorsal, and the third and fourth Lumbar Vertebræ, with Psoas Abscess, but without Destructive Disease of the Bones. — Mr. W. Adams.

4.

Primary ulceration of the Fibro-Cartilage of the Symphysis Pubis, and large Abscess in the sheath of the Rectus Muscle communicating with the joint. — Mr. W. Adams.

Report on this Specimen. — Mr. Partridge.

5.

Malignant growth from the Dorsum of the Ileum. — Mr. Spencer Wells.

6.

Dislocation of the Femur on to the border of the Obturator Foramen. — Mr. Nathaniel Ward.

7.

Two cases of Simultaneous Rupture of the Ligaments of both Patellæ. — Mr. Shaw.

8.

Two specimens of Disease of the Elbow-joint removed by resution. — Mr. Fergusson.

9.

Specimen of Diseased Joints removed by Operation. Diseased Head of Femur. — Mr. Fergusson.

10.

Fibro-cystic Tumor of the Femur, for which amputation at the Hip-joint was performed. — Mr. Nathaniel Ward, for Mr. John Adams.

Report on this Specimen. — Mr. Prescott Hewett.

DISEASES, ETC., OF THE EAR.

1.

Disease of the Ear extending to the Brain. — Mr. Pilcher.

2.

Anchylosis of the Stapes. Expansion of the Base. — Mr. Toynbee.

3.

Disease of the Ear affecting the Lateral Sinus and Cerebellum. — Mr. Toynbee.

MISCELLANEOUS SPECIMENS, ENTOZOA, TUMORS, ETC.

1. On the Trichina Spiralis.	Dr. Bristowe and Mr. Rainey.
2. Specimen of Hydatids from the Subperitoneal Cellular Tissue.	Mr. Jones.
3. Hydatids of the Liver. Sudden death.	Dr. Pollock.
4. Hydatid Cysts in the Peritoneum.	Mr. Obre.
5. Expectorated Fragment of an Hydatid Cyst (probably from the Liver).	Mr. Hutchinson.
6. Hydatid Cysts. Observations on their nested arrangement, and mode of development.	Dr. Hyde Salter.
7. Hydatids passed per Urethrum.	Mr. Jones.
8. Suppression of Cancer in the Breast by the use of cold, followed by Development of the Disease in other Organs.	Mr. Simon.
9. Three specimens of Colloid Cancer of the Breast removed from the same individual at three operations in eight years.	Mr. William Adams.
Report on this Specimen.	Dr. J. S. Bristowe and Mr. John Birkett.

Description of the (Colloid ?) Tumor removed from the Breast, and alluded to in the preceding history.	Dr. Lionel Beale.
10.	
Large Fibrous Tumor, weighing between three and four pounds, removed from the Back.	Mr. Fergusson.
11.	
Large Tumor removed from the Calf of the Leg by Operation.	Mr. Fergusson.
Examination of this Specimen.	Dr. Lionel Beale.
12.	
Large Medullary Sarcoma from the Lower part of the thigh.	Mr. Fergusson.
Examination of this Specimen.	Dr. Lionel Beale.
13.	
Termination of a case of Malignant Disease of the Leg, reported in the Fourth Volume of the Society's Transactions.	Mr. John Birkett.
14.	
Congenital Fibro-cellular Tumor removed from the Arm of an Infant, aged 4 months.	Mr. William Adams.
15.	
Cystic Tumor removed from the side of the Neck.	Mr. Holt.
16.	
Portions of the Pectoralis Major Muscle and Diaphragm, containing numerous purulent deposits.	Mr. Hacon.

17. Melanosis of the Eye, Liver, and Mesentery.	Mr. Trotter, for Mr. Bullock.
18. The occurrence of Sugar in the Urine in a case of Acute Bronchitis.	Dr. Garrod.
19. Entire Crochet Needle, Two Inches and a Quarter Long, from the Leg of a Child.	Mr. Partridge, for Dr. Orwin.
20. Pins swallowed accidentally, and subsequently removed from various parts of the Body.	Mr. Henry Thompson.
21. Description of numerous Morbid Appearances found in an Aged subject.	Mr. R. R. Robinson.
22. Senile Gangrene.	Mr. Barwell.
23. Distortion of the Wrist Joint.	Mr. Shaw.
24. Cast of the Left Hand of a middle-aged man, and also a Dissection of the same hand, to show a Contraction of the Little Finger.	Mr. Partridge.
25. A Child born without Extremities, and on whom Intra-uterine Amputation of all the Limbs had probably been performed.	Mr. Hutchinson.

SPECIMENS OF DISEASE FROM THE LOWER ANIMALS.

1.

Filaria in the Heart of a Peregrine Falcon. (F. Peregrinus.) — Dr. Crisp.

2.

Disease of the Mesenteric Artery, produced by Strongyli within the vessel. — Mr. Simonds.

3.

Cysticerci and Tricocephali, from an Alligator (C. lucius). — Dr. Crisp.

4.

Scirrhous Kidney of a Capybara (C. Hydrochærus). — Dr. Crisp.

5.

Large Fungoid Tumor in a Carp. — Dr. Crisp.

6.

Malignant Tumor on the Pectoral Muscle of a Mouse (M. Musculus). — Dr. Crisp.

7.

Inflammation of the Os Carenæ of a Horse, succeeded by Ulceration of the Bone tissue and of the Articular Cartilage. — Mr. Simonds.

8.

Extensive Fibrinous Deposit on the Heart of an Ox. — Mr. Simonds.

Report on this Specimen. — Dr. J. W. Ogle.

9.

Detached Uterus of a Hare containing two fœtal young. — Mr. J. Hutchinson.

Report on this Specimen. — Dr. Ramsbotham and Mr. Simonds.

REPORT.

SESSION 1853–54.

I.—DISEASES, ETC., OF THE NERVOUS SYSTEM.

1.—*A Cyst formed amongst the meshes of the Pia Mater of the Brain, which produced absorption of the convolutions of the surface.*

The specimen consisted of the left cerebral hemisphere, and showed absence of the convolutions to the extent of about half a crown piece in diameter. The cavity produced thereby, was about a quarter of an inch in depth, and was lined by a rather tough membrane easily separable by the forceps from the walls to which it was adherent. Originally the membrane formed a cyst equal in size to a walnut, which contained limpid fluid; when examined microscopically it was found to contain a large number of blood-vessels along with much fibrillated structure and granular matter intermixed. The surrounding arachnoid membrane was thickened, and also in many places more distant, it was opaque and thickened, containing millet-shaped deposits of light-colored matter with occasional portions of calcareous matter. At first sight there seemed to have been simply a congenital deficiency of cerebral convolutions, and it was supposed that the void had been filled up by thickened subarachnoid tissue and pia mater: but on examination by the microscope, the brain forming the base of the cyst at the part where the convolutions were wanting, was found to be so altered (and the alteration must have been comparatively recent), that it could not possibly have been a congenital deficiency. The subjacent brain, though not to any great depth, proved to be softened to a not inconsiderable extent, and the softened brain tissue, as

seen under the microscope, consisted of granular matter with great numbers of oval and irregularly shaped nucleus-like bodies, also globules, the counterpart of pus globules, wasted nerve tubes, with, here and there, accumulations of star-shaped and caudate bodies, having dark margins and a calcareous appearance. The brain, on section, was somewhat vascular, but of a natural consistence generally. The ventricles were rather large, and contained two or three drachms of clear fluid. The arteries at the base of the brain were natural. On examining the lungs they proved to be highly congested, and the bronchial tubes contained much thick mucus. The heart was natural, excepting one or two opaque yellow patches in the mitral valve flaps, and a small tuft of fibrous tissue projecting from a thickened corpus Arantii in one of the aortic flaps. The other parts of the body, excepting a general congestion, were quite natural. The preparation had been removed from a woman æt. 34, who was a housemaid, and stated that for several months she had been subject to "fits," during which she was perfectly insensible, which lasted some time. The last fit had occurred a fortnight before she was treated. The patient said, that the catamenia which had been irregular, and had only supervened when she was twenty-four years of age, had been absent some months, and that she was affected by leucorrhœa. The bowels were generally costive, and she was greatly debilitated. The bowels were regulated by aloes, and steel wine with occasional shower baths were resorted to. A day or two afterwards the patient had an attack which seemed to the nurse to be of an hysterical nature; and on the next day, after the use of a shower bath, a regular epileptic attack came on, continuing for two hours and a half; this was followed by stertor and coma, in which she died after the lapse of a few hours.

Remarks.—Few authors apparently make definite observations upon the formation of cysts on the surface of the brain like the present. Lallemand, indeed, mentions some instances having something of the same character, but he rather imagines them to be, as he calls them, instances of "definite resolution of indurated parts into cellular tissue." That this specimen was an instance of the result of inflammatory outpouring of fluid, such

as is by no means uncommon in or after fever, especially of the eruptive kind, and which is attended by the exudation in many cases of the albumino-fibrinous parts of the blood, may well be imagined from the condition of the neighbouring parts of the arachnoid, which was in places thickened and opaque, and contained small masses of yellow deposit. It shows how, in some cases at least, cysts on the surface of the brain may be formed. That the action giving rise to the effusion was probably not of very long standing, may be inferred from the absence of induration in the subjacent parts of the brain, and from their actual microscopical state, as also from the tenacity and vascularity of the walls of the cyst: but the absence of any symptoms referable to any previous inflammatory action, prevented our forming conclusions regarding the exact time of any such supposed invasion. The well known and remarkable extent of tolerance exercised on the part of the brain of any interference carried even to actual loss of substance, provided the injury be not rapid in its operation, may well prepare us to conceive the existence of the morbid appearances without any symptoms having been produced. In some cases, cysts of such a nature may be doubtless formed within the substance of the arachnoid membrane itself, as if by splitting up of its structure; or they may be supposed to arise precisely as we often find *quasi* cysts formed in other parts of the body, namely, by serous or bloody fluid collecting within false membranes or bands recently produced by exuded fibrin, as, for instance, in the pleural sacs, or, as is more frequently seen, in the peritoneal cavity about the lower part of the abdomen. It seems likely that in the present instance, such fibrinous adhesions were primarily formed, enclosing fluid, assuming a vascular character, and forming an intimate connection with the pia mater, which also took on a greatly thickened and vascular character. Most probably many cases of supposed malformation or congenital deficiency, not unfrequently in connection with mental aberration, or again, cases of superficial cicatrices may originate as effects of cysts so produced.

Dr. J. W. Ogle, *7th of March*, 1854.

2.—*Tumor, probably Epithelial Cancer of the Dura Mater.*

C. C., æt. 70, was admitted into St. Thomas's Hospital, under Dr. Barker's care, on the 27th of November, 1853, and died on the 20th of the following November. He was brought from the Workhouse, and had been ill for a considerable length of time. He suffered under loss of the intellectual powers, and general paralysis, associated with occasional epileptic fits. During his stay in the Hospital, the former symptoms increased; he gradually became comatose, or nearly so, and was totally unable to articulate, to use his limbs, or to retain his fæces; and in this state, but gradually getting weaker, he continued until his death.

Post-mortem examination.—The body was tall and emaciated. No abnormal appearance worth mentioning was observed in the viscera either of the chest or abdomen. The examination of the head, however, will be given in detail. The calvaria and membranes of the brain were, for the most part, healthy. The subarachnoid tissue contained a large amount of serum; the convolutions of the brain being considerably reduced in size, and the spaces between them correspondingly dilated. The substance of the brain was in an apparently healthy condition. The lateral ventricles were greatly distended with fluid, and the tissues bounding them were slightly softened by it. The vessels at the base presented scarcely a trace of atheromatous deposit. Upon the left orbital plate of the frontal bone was a small hemispherical tumor, which projected about a quarter of an inch, and measured nearly a third of an inch across its base. It was opaque and white, somewhat soft and elastic, and presented a surface smooth, polished, and continuous with that of the surrounding healthy dura mater. A depression, into which the little mass fitted, existed in the surface of the brain in contact with it, and the olfactory nerve, though uninjured, was turned out of its course by it.

On removing the dura mater, the tumor was seen to originate in its substance, the bone beneath being wholly unaffected. On section it appeared of uniform character throughout, and yielded cream-like juice on pressure. Both the juice and sec-

DESCRIPTION OF PLATE I.

The figures from 1 to 6 illustrate Dr. Bristowe's case of Tumor, probably Epithelial Cancer of the Dura Mater. Page 4.

Fig. 1. Nuclei and cells.

Fig. 2. Involucra, &c., in the centres of some of which earthy deposition is taking place.

Fig. 3. Globular earthy masses, probably transformations of the preceding.

Fig. 4. Fibres acted on by acetic acid; showing in one (*a*) an elastic filament, in the other (*b*) many nuclei.

Fig. 5. A fibre in which earthy matter is being deposited.

Fig. 6. Enlargement in the course of a fibre.

The figures from 7 to 11 illustrate Dr. Bristowe's report on Dr. Peacock's case of Cholesteatomatous Tumor of the Brain. Page 23.

Fig. 7. Cells from the interior of the tumor; (*c c c*) Atrophied nuclei.

Fig. 8. Cholesterine from the interior of the tumor. This and the cells were irregularly mingled.

Fig. 9. Nucleated cells from the surface of the tumor.

Fig. 10. Cells of the like kind, from the same situation, but of much smaller size and less fully developed.

Fig. 11. Superficial structureless lamina.

Fig 1

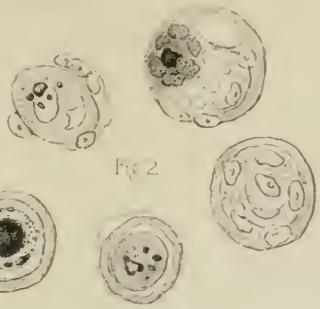


Fig 2

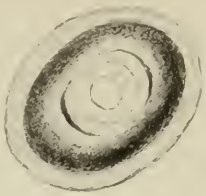


Fig 3

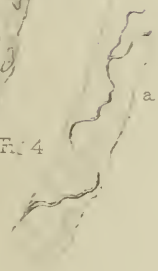


Fig 4

Fig 5

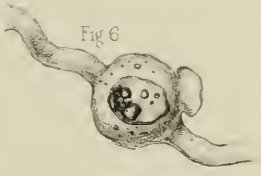


Fig 6

x 420

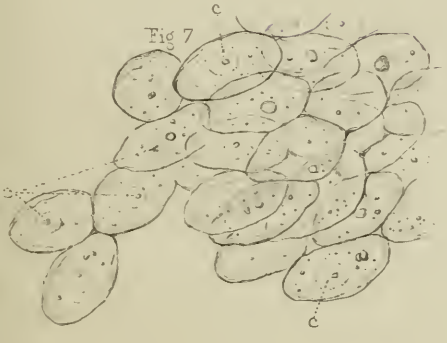


Fig 7

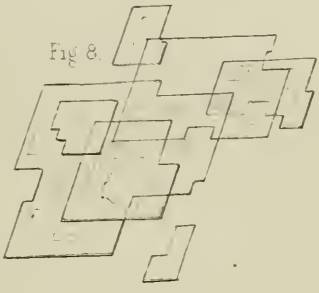


Fig 8

Fig 10

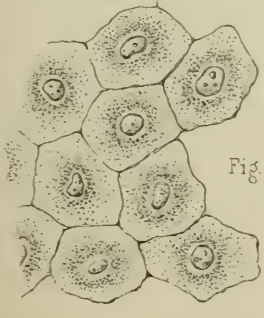


Fig 9

Fig 11

x 420

tions from the tumor presented very remarkable microscopical characters. Small nucleated cells, none of which had a distinctly squamous-epithelial character, were present in large numbers (Plate I. Fig. 1.), together with the involucra, brood cells, and other forms of cell so characteristic of epithelial cancer. (Plate I. Fig. 2.) Mingled with these were many globular or ovoid bodies (Plate I. Fig. 3.), which were encroached on centrally by a transparent, refractive, nearly homogenous substance, which dissolved slowly in acetic acid. In some cases the centre presented simply a few granules of this deposit; in others almost the entire body was occupied by it; and the mass thus formed was slightly tuberculated on the surface, was easily cracked by pressure, and after the action of acetic acid displayed a concentric arrangement (which even before was slightly appreciable), and in some instances exhibited numerous nuclei —facts tending to show that these bodies were simply altered involucra. Besides these, fibres existed in tolerable abundance; they were more or less cylindrical, with very definite outlines, and a faint tendency to longitudinal striation; they varied in diameter from about the $\frac{1}{1000}$th of an inch downwards. They ran in various directions, and were generally somewhat convoluted. They swelled up on the addition of acetic acid, and, in some of them, delicate elastic fibres were made visible by this means. (Plate I. Fig. 4[a].) Most of them contained no nuclei, but in some of the larger ones these bodies were very abundant, and resembled those existing in the nucleated cells. (Plate I. Fig. 4[b].) Some of the fibres were studded with rows of refractive particles, and in some were contained imperfect fragmentary cylinders of refractive material, like that forming the roundish masses before mentioned. (Plate I. Fig. 5.) In very many cases, fibres were seen either at their extremities, or in some part of their course, to swell up or to bulge out into globular or ovoid bodies, resembling the transformed involucra. (Plate I. Fig. 6.)

I will not pretend to decide upon the cause of the cerebral symptoms which brought about the death of the subject of the present communication; yet, in spite of the prominence which has been given to the dura matral tumor in the preceding

description, I venture to express a doubt whether that had really anything to do with them; for, it must be recollected that the tumor was very small, and that, beyond producing a certain amount of pressure, it had excited no visible change in the portion of brain that was in contact with it. I am much more inclined to believe, that the atrophy of the brain, which was well marked, was connected with the symptoms manifested during life, than that the tumor produced them. The case was brought, however, under the notice of the Society, chiefly with reference to the tumor itself, and my subsequent remarks will be limited to the consideration of its structure and nature.

In the course of my examination of it, there were two points that specially struck me; first, the close resemblance, in many of its characters, to certain tumors of the dura mater which have been described by Dr. Hughes Bennett, Dr. R. Quain, and others; secondly, the equal resemblance, in other points, to the epithelial variety of cancerous growths. It resembled the former in the presence of large numbers of round or oval transparent refractive bodies, which presented concentric markings, and on the application of pressure, cracked in the radial direction, which were soluble in acetic acid, and consisted of an earthy material deposited in an organic basis. It was allied to the latter, by the fact of the existence, in considerable abundance, of the peculiar cells and involucra which characterize epithelial cancer.

Now, which of these structural elements is to be looked on as the more important; which of them is to be considered as indicating the essential nature of the tumor, is, I think, a problem not difficult to solve. In the first place, these earthy concretions are, so far as I know, characteristic of no particular form of disease, but are found, with remarkable frequency, in different parts of the brain, and in different affections of the structures connected with it; thus, in addition to their existence in tumors of the dura mater, they are found abundantly in the Pacchionian bodies, in the Pineal gland, in the choroid plexuses, and in many other parts of the brain or its meninges: and secondly, if the formation of these bodies is traced in the present case, it may easily be seen that their appearance was a

secondary, and, so to speak, an accidental phenomenon : thus, one found a few granules of earthy matter in some of the involucra, in others these had coalesced, and a globular earthy mass occupied its centre, while in others, again, the earthy matter had involved the entire body ; nor was the earthy material confined to these concentric growths, but similar deposits were found existing in the substance of many of the fibres; at one time in the form of numerous refractive granules, in others of transparent, nearly homogenous, axial cylinders. Whence it would appear, that the earthy transformation was but a late change; that it was a degeneration of pre-existing formations, a form of degeneration the liability to which they had inherited from the parent structures in which they were developed ; and if this view, as to the signification of the earthy deposit be correct, it is to the other element of the growth that we must look for the determination of its nature.

Now it is not my present intention to go into the pathology of epithelial cancer, but, from the description I have given, and by reference to, and comparison of, the drawings accompanying this communication, it will be seen that those which I look on as the essential and primary structures resembled in every important particular those of epithelial cancer. The points in which this tumor differed from such specimens of that affection as I have been in the habit of examining, are the following :—

1st. The cells were much smaller than usual, and the epithelial character was imperfectly marked.

2nd. The involucres and fibres were converted in many instances into earthy masses.

3rd. The naked eye character, so commonly observed, namely, the exudation, on pressure, from numberless points, of soft, white material, resembling comedones, was absent.

With regard to the first point it may be remarked, that the cells observed in epithelial cancers differ very remarkably in different cases ; and that the difference in this respect between this case and others is no greater than frequently exists between some of the best marked specimens of the disease.

With respect to the second point it may be urged that the peculiarity is merely an accidental one, and that its presence or

absence can have nothing whatever to do with the essential nature of the disease; and in answer to the third objection I can only say, that though the character mentioned is a very common and characteristic appearance in epithelial cancer, it is certainly not present in all cases. But, in addition to these arguments, and in favour of the cancerous nature of this tumor, I may call attention to the fact that in its naked eye characters, it exactly resembled some growths of an undoubtedly malignant character springing from the dura mater, which were brought before the Society by Dr. Peacock and myself, and are described in the 7th and subsequent pages of the 4th Vol. of the "Transactions:" the microscopic appearances were, however, widely different, as in that case the tumor consisted entirely of small nuclei.

From a consideration of the characters presented by this tumor, the only conclusion I can arrive at is, that it is a diseased condition of the dura mater resembling epithelial cancer in all important anatomical characters. Considering, however, that this was the only morbid growth present; that from the entire absence of other, or secondary manifestations of the disease, one is under the necessity of forming a judgment from anatomical characters only, which, unfortunately, so often deceive us; a doubt may still reasonably arise as to whether it is to be looked on as *functionally* cancer, or in other words, whether it is cancer at all. This, of course, I cannot venture to decide; but certainly if epithelial cancer possesses recognised microscopic characteristics, which distinguish it from all other growths, then this tumor possessed them and must be classed with such.

Dr. Bristowe, 21*st of March*, 1854.

3.—*A Brain and Dura Mater taken from a man, after a blow on the head.*

The blow produced a scalp wound and temporary insensibility. The man had attended at King's College Hospital as an out-patient for a week or ten days, without serious symptoms. He then began to complain of pain in the head, and had rigors and general nervous excitement, for which he was admitted as

an in-patient under Mr. Partridge. Symptoms of purulent absorption then appeared; the clammy perspirations, dusky countenance, and accelerated pulse, being well-marked. In a few days the patient died with comatose symptoms, indicating pressure on the brain. The outer table of the cranium, near the parietal eminence, was deprived of periosteum to the extent of one inch and a half square, and showed a fissure about an inch long—but with *no* depression whatever. The inner table was evenly depressed for the same length, to the extent of about a line. Between the dura mater and bone at this point was a collection of thick yellowish white pus. In the superior longitudinal sinus was an elongated opening, communicating with a deposit of pus in the substance of the dura mater, apparently around one of the Pacchionian bodies, and which communicated with the deposit upon the surface. The two layers of arachnoid were more than usually adherent, and in the meshes of the pia mater, extending for about four inches along the side of the longitudinal fissure, and on the surface of the brain, was a diffused deposit of pus, which penetrated between the sulci and extended along the course of the veins. In the lungs were numerous small abscesses circumscribed by consolidated and congested portions of lung.

Mr. John Wood, 18*th of April*, 1854.

4.—*Disease of the Brain, arising from Caries of the Temporal Bone, after Scarlet Fever.*

P. R. æt. 12, on the 13th of February complained of rigors and general *malaise;* these were followed by febrile symptoms and pain behind the left ear. On the 15th a small abscess was observed behind the ear, which, when opened, discharged a sanguineous fluid. There was a slight degree of stupor. The discharge continued without relief to the pain. On the 20th he had somewhat improved, pain less, stupor diminished, discharge had taken place from the meatus as well as from behind the ear. On the 21st another abscess formed over the mastoid process; pulse was small and frequent, the discharge very fœtid. 22nd: Decidedly improved in every respect, but the pain and feverish

symptoms returned on the 23rd in an aggravated form, the drowsiness had so much increased that he required to be roused up to take his food, and he soon fell back into the same state. He gradually became more weak, the urine and fæces were passed involuntarily, the stupor increased, and the prostration was extreme. On the 1st of March he had two severe rigors; he constantly cried out from the severe pain in the head. Until the 6th of March he suffered intense pain in the head; on the evening of that day it became so acute as to cause him to scream out; the attacks came on at intervals of ten minutes. He was quite sensible, and had almost constant rigors of a very severe form. During the succeeding seven days, he suffered much less pain; there was a copious sanious discharge from the ear and from the abscess. On the 15th, the stomach became irritable, and rejected everything that was introduced into it. The pain at times was extreme. On the 16th, at twenty minutes past twelve, he became suddenly convulsed, the face and chest were of a deep blue, the pulse became imperceptible at the wrist, the pupils fixed and dilated, and in this state he died. Upon inquiry it was ascertained that this patient had scarlet fever two years previously, and that this was followed by a constant discharge from each ear, and a considerable diminution of the power of hearing. Since the fever he had been subject to frequent head-aches, languor, and drowsiness.

Autopsy.—The bloodvessels of the dura mater were highly congested. In the sulcus lateralis was a portion of necrosed bone, about three quarters of an inch long and half an inch broad; this was detached from the surrounding bone; between this bone and the dura mater was a considerable quantity of purulent matter; this abscess opened behind the ear. An abscess was found in the substance of the middle lobe of the cerebrum. Upon examining the ear, the lower half of the membrana tympani was found to have been destroyed, and the inferior margin of the upper half was attached to the promontory, and thus the cavity of the upper part of the tympanum and the mastoid cells was closed, and the matter there secreted had no exit. The tympanic mucous membrane was thick and ulcerated in parts. In the opposite ear the lower half of the membrana

tympani was absent, but the remaining part was not connected to the promontory. The mucous membrane of the tympanum was thick, but it was not further affected. The bone was quite healthy.

Mr. Toynbee said that his object in bringing forward these specimens was, if possible, to afford some clue to the causes which originate caries of the petrous bone, in cases of chronic catarrhal inflammation of the mucous membrane of the tympanum. It was generally supposed that disease of the bone took place in scrofulous children. There was no doubt that in the very large number of these cases a scrofulous tendency existed; but there was disease of the bone in only a comparatively limited number. Mr. Toynbee was disposed to think that the peculiar arrangement of the remnant of the membrana tympani, whereby a free egress of the secreted matter was prevented, was the cause of the caries in the present instance, as well as in others he had met with. Mr. Toynbee, 21*st of March*, 1854.

5.—Phlebitis with Fibrinous Clot, plugging the Left Middle Cerebral Artery. Abscess in the Spleen.

The specimens were taken thirty-four hours after death, from an apparently robust young woman, æt. 20, who died of puerperal phlebitis in the London Hospital. The right lower extremity was uniformly œdematous, the left was covered with loose shrivelled integument, having distended superficial veins. There were a few petechial spots over both legs, and dusky red blotches about the left knee and right ankle.

Post-mortem.—The vessels of pia mater were remarkably deficient in blood. Those over the convexity of the left hemisphere so empty and colourless that they could not be readily traced. The vessels on the base of the brain were free from disease, but the left middle cerebral artery was obstructed at the junction of its first branch by a firm yellowish clot, and for about the space of half an inch on either side of this clot, the vessel was filled with coagulated blood. The subarachnoid spaces and cerebral ventricles contained an amount of serous fluid which is seldom seen in subjects dying at this age.

On laying open the middle cerebral artery, its lining membrane was found to be perfectly smooth and polished, and unattached to the clot. Under the microscope, the clot presented all the appearances of semi-organized fibrin, its section shewing fibrillated striæ.

The substance of the brain was generally anæmic, especially in the left hemisphere, where no red points were visible on section. The consistence of the organ was diminished, but not more in one half than the other. The nervous pulp was not diffluent nor in the least disintegrated, but moist, and not so coherent as natural. There was no perceptible difference in the relative firmness of the corresponding corpora striata and thalami optici. The specific gravity of the left seemed to be less than that of corresponding parts of the right hemisphere; as was tested by noting the different rapidity with which equal and corresponding portions of the brain sank in water. By this test the specific gravity of left optic thalamus seemed to be most diminished. There were evidences of recent circumscribed pleurisy, and the subjacent portions of the lungs were of a darker colour than natural, with here and there yellow spots and patches; they were moreover non-crepitant, resilient, and sank in water. Section of those portions shewed the ordinary appearance of purulent infiltration, with here and there larger circumscribed collections of pus. The bronchial tubes were filled with puriform mucus. The pulmonary veins contained recent vermiform clots, but were free from old and firm clots of fibrine, as were also the pulmonary arteries. The heart was uncontracted, the right auricle contained a loose dark clot; the right ventricle about three ounces of fluid blood. No deposits on any of its valves, which were perfectly healthy. The blood was fluid, except in the inferior cava, common iliacs, and both femoral veins, which were filled with firm buff-coloured fibrin adherent to their walls. No appearance of suppuration having commenced in any of these veins. The left femoral was much diminished in calibre, and felt hard (cord-like).

Spleen, about twice its ordinary size, having in its lower half a large abscess containing half a pint of well-formed pus. Into this abscess a triangular piece of buff-coloured spleen hung, being

almost detached from the healthy tissue of the organ above it. On section this portion was unusually firm and dense, and of a dark lilac tint. It had the appearance of a patch of "Capillary Phlebitis," and doubtless having lost its vitality had excited suppuration. I laid open some of the larger arteries and veins extending into this portion, and found only the arteries filled with fibrin. There were no similar infiltrations into any other organs.

The uterus was healthy, except that its lining membrane, near the fundus, was roughened, but nothing could be scraped from the surface. The vagina, was of a livid colour but there was no suppuration around it.

In the course of the sheath of the left iliac and femoral vessels, was a large abscess, extending from Hunter's canal upwards, through the pelvis, to the origin of the common iliac artery. It was external to the sheath, and contained perhaps two pints of well-formed pus.

History. On her admission, the 7th of March, 1854, she was weak, pale, and anxious. Her left lower extremity was enormously swollen, painful, and pitted on pressure. But no indication could be felt in the course of the superficial veins and lymphatics. Her pulse was 120, small and feeble. Her sleep was stated to be disturbed and unrefreshing.

She stated that she had always enjoyed remarkably good health, and had given birth to her first child by an easy labour. Ten days before she had caught cold by imprudently getting up on the third day after delivery; then the swelling of the left leg commenced with rigors. It had been treated by leeching and low diet.

Under the use of a liberal diet and stimulants, together with quinine and morphia, she improved up to the 13th; then severe rigors and great febrile disturbance, with relaxed bowels, set in and continued, with occasional vomiting, up to the time of her death, which took place on the 13th of April.

The rigors, which lasted about half an hour, recurred twice in the twenty-four hours, at noon and midnight, with singular regularity.

On March the 25th, about noontime, she became suddenly hemiphlegic of the right side, her mouth was drawn to the left side, she was unable to speak, but retained her consciousness. In this state she continued, without any contraction of the muscles, or dilatation of the pupils.

Remarks.—This case is a good illustration of white softening of the brain with its usual symptoms during life, arising from partial if not complete obstruction in the middle cerebral artery. My friend Dr. Kirkes, who was the first to point out to the Profession this plugging of the middle cerebral artery as a cause of Hemiphlegia, &c., has shown that the obstructing clot is derived from the vegetations so commonly found on the valves of the heart, after acute rheumatism. There is, so far as I know, no recorded instance in which this complication has been observed before or after death in cases of phlebitis. The occurrence of fibrinous deposits in vascular organs, as the spleen, kidneys, &c., has been frequently noted in the examinations of bodies that have died of phlebitis, and have consequently been termed patches of capillary phlebitis. Now as these morbid appearances were always present to a lesser or greater extent in Dr. Kirkes' cases, he concludes that they arise from mechanical obstruction in the capillary vessels, and such a view is confirmed by the present specimen, where there is obstruction of a larger vessel.

It is difficult to conjecture why, if the clot in the middle cerebral artery was derived from the diseased veins, as was doubtless the case, it was not arrested in the pulmonary capillaries, especially if, as is commonly believed, the capillaries in the lungs are smaller than in most other parts of the body. Is it possible that a minute particle of coagulated fibrine passing through the lungs to the left side of the heart, there exerted a coagulating influence on the fibrine of the blood, and so formed the nucleus of this clot?

Other smaller clots may have been arrested in the capillaries of the spleen, and so produced the patch of capillary phlebitis.

Dr. Septimus Gibbon, 18*th of April*, 1854.

6.—*Cancerous Tumor in the posterior Lobe of the Right Hemisphere of the Brain.*

R. W. æt. 54, a shoemaker, had enjoyed good health up to within five years of the present time; since then he has complained of pain in his chest and side. Two months ago, he suffered from numbness in his left hand and left leg, but he had been about up to the last two weeks; for the last week he could not move his left leg; several weeks before he had had pains in the top and back of his head. He spoke but little the night before admission to the Hospital, and was heavier and more sleepy than usual, but took his medicine.

Ten P.M. He spoke to his wife, and is in a half-conscious state; he moves his *right hand* to remove the light from his eyes; his left arm lies immovable by his side, and falls heavily when raised. He moves both legs, but the *left* is more rigid than the *right;* the pupils are small, but act; he occasionally puffs his cheeks and grinds his teeth, and he keeps his mouth firmly closed.

22nd. He remains unconscious; when the right eyelid is raised it is closed by muscular contraction; the left seems to fall by its own weight, and the tears run towards the nose; the *right* pupil is larger than the *left*, and more susceptible to light; the *left* leg is quite rigid, and extended, and is not excited by tickling, whilst the right is.

He died on the 23rd.

Post-mortem.—At the upper and lateral portion of the posterior part of the right hemisphere of the brain, the dura mater is rough, and adheres, for a circumference of about three quarters of an inch, to a round, projecting, slightly fungus-looking growth, opposite to which the skull is roughened. This projection is the upper part of a cancerous growth, the size of an orange, lobulated, hard at points of its circumference, and reaching down to the lower part of the cerebrum. It occupies the greater part of the posterior lobe, is surrounded everywhere, except below, by cerebral matter, in appearance perfectly healthy, and well defined in outline; for though the cerebral matter adheres at some parts, in none did it seem to pass

into the tumor; it does not reach to, nor manifestly affect the ventricles, or other parts of the brain. In appearance, and when microscopically examined, it is of a cancerous nature; some of its central portion is soft and yellow, the matter being degenerated into granular, well-defined, particles, and cells containing dark (fat?) granules; the hard, and, in some parts, crispy portions around, exhibit a large number of nucleated and spindle-shaped cells, when the juice scraped from them is examined under the microscope.

A large cicatrix was found extending transversely across the lesser curvature of the stomach, near the pylorus; the adhesions and condensations of parts around, showing the extent of inflammation which must have been thereby produced.

Dr. MARKHAM, *1st of November*, 1853.

7.—*Case of Chronic Disease of the Brain, giving rise to Symptoms resembling Chorea.*

J. D., æt. 65, a coachman, of large, muscular conformation, and of rather intemperate habits, had always enjoyed excellent health until six years since, when he had a fit in the night, supposed to be epileptic. In the morning, all the characteristic symptoms of chorea, but in an aggravated degree, were present. These in a few days somewhat subsided, and he resumed his occupation as coachman to the family with whom he had lived for upwards of twenty years. The involuntary movements shortly afterwards so much increased, that he was compelled to give up his situation. He was attended by a practitioner for some time, without benefit; he then had recourse to mesmerism and homœopathy with a similar result, and was eventually admitted a patient of the Western General Dispensary; three years after this he came under my care.

At this time he presented a most grotesque, but painful appearance; his whole frame was in constant and violent, but inharmonious, action; his eye-balls were prominent and staring; his speech was indistinct, from apparently the effects of a partial paralysis, and a peculiar spasmodic closing of the lips whilst talking. When requested to put out his tongue, some time elapsed

before the mouth could be opened, the tongue was then thrust out with a jerk, and as suddenly retracted. It was also found that by directing his attention to the performance of one thing at a time, many of these disordered actions were controlled. This was peculiarly evident on his holding out a chair with either hand, and then walking; whilst thus loaded he could do so, it might almost be said, steadily, until fatigue compelled him to drop his load, when the actions returned, but, for a time, less in severity.

During sleep he was generally quiescent; occasionally, however, he had twitchings of his eye-lids.

The peculiarity of his gait, and his excitable temper, created for him enemies in the boys of the streets; and after one of his encounters with them, about six months before his death, he fell on the back of his head. This rendered him delirious for two days; but, after appropriate treatment, he returned to us again, with his symptoms somewhat increased, as well as his irritability of temper. Shortly after this he had an attack of acute bronchitis, of which he died.

During the time he was under treatment, he suffered frequently from obstinate constipation, œdema of the legs, dysuria, and two slight attacks of mania, induced by his intemperate habits.

His son informs me that about twenty years ago he was thrown from his coach-box on his head, which rendered him insensible, but in two or three days he resumed his work: he adds, that he thinks this fall made some alteration in his manner.

Post-mortem. — Conformation good, muscular system well developed, with but little deposition of fat, the cranium larger than natural.

The calvarium was very adherent, being removed with difficulty; whilst doing this, about twelve ounces of fluid mixed with blood escaped. The dura mater was very considerably thickened and opaque, with numerous and extensive deposits of lymph on its surface, more especially at the base. The glandulæ Pacchioni were very numerous and large. The pia mater very vascular and elevated, from a large amount of clear fluid beneath it; this, with what previously escaped, amounted to about thirty ounces. The pia mater being removed, the brain presented a very pale

appearance, firmer than usual, and its sulci very much separated and very deep. The cineritious portions were paler and thinner than usual. The medullary substance was very firm and pale, with not the slightest appearance of vascularity. The ventricles were very large, and filled with fluid, and the plexus choroides was very vascular and turgid.

The blood-vessels at the base of the brain were unequally dilated, and presented a large deposit of atheromatous matter.

The cerebellum did not exhibit any deviation from the natural appearance. The weight of the brain without the membranes was forty-two ounces and a half.

Permission was not obtained to examine the chest.

Dr. Hale, 17*th of January*, 1854.

8.—*Fibrous Tumor in left Ventricle of the Brain; Bony Deposit in the Arachnoid membrane of right hemisphere.*

The patient from whom this specimen was obtained had come to London shortly before his death, to be under Dr. Watson's care, by whom the notes of the case during life were furnished. The patient was 62 years of age. The earliest indication of cerebral disease was that, twenty-seven years ago, he had pain in both legs; soon the left leg was drawn up, then the right; afterwards he lost all power of feeling both in them and in his arms as far as to the elbows. From this he soon recovered, and held a responsible office in one of the Dock-yards. Of late his habits have been inactive, and he has lived generously. In the spring of 1853 he began to be subject to pain in the right side of the head, principally over the right brow, with a sense of stiffness about the eye and that side of the nose. The pain was not acute or constant, yet it recurred several times daily, and also during the night; sometimes with throbbing, and occasional dimness and confusion of vision, but without affection of mind. Cotemporaneously he had retchings and slight sickness before breakfast. In the end of October the pain became more severe, as if there was a forcing out of something through his ears; veratria ointment was employed, after which the pain settled in the parietal bone, and so acutely, that for its relief

he was bled from the arm and by leeches, and was purged by calomel. After a month he had a recurrence of the severe paroxysms of pain. On the 24th of December he came to town. Four days afterwards, having walked to Dr. Watson's residence, he informed him that during the preceding night he had been seized with difficulty of speech and paralysis of the left arm, both of which went off immediately. He had had diarrhœa and sickness the day before. When he returned from his visit to the Hotel, he became sick, and vomited much yellow matter, and lost power over the right arm; spoke thickly, and was giddy. Although Dr. Watson quickly attended upon him, the attack had been recovered from before his arrival. The sickness returned in the evening, and he became decidedly hemiplegic on the right side. The intellect was apparently entire. He was almost choked in attempting to swallow. Everything seemed turned upside down to him. He died January the 2nd, 1854, the fourth day after the seizure.

Post-mortem examination.—The only part examined was the head. There was an absence of fluid in the arachnoid cavity; partial opacity of the membrane in both hemispheres existed, with much effusion of serum in the subarachnoid tissue. In the arachnoid membrane covering the right hemisphere, an inch from its most anterior part, and at an equal distance from the longitudinal fissure, were two thin plates of bone, laid close to each other, so as to appear one; conjointly they were an inch in length, and half an inch in breadth, with the thickness of an eighth of an inch in the centre, and shelving at their edges, so as to be quite thin; they had a pearly-white colour, and on being examined microscopically by Mr. Tomes, were found to consist of true bone. Neither in the dura mater above, nor pia mater below, these bony scales, was there any increased vascularity, opacity, or other sign of inflammation. The brain on being sliced was found much charged with serum; but not unusually vascular. Both lateral ventricles were greatly and uniformly dilated with clear serum, computed to amount to about four ounces; the interior surface being firm and smooth. From the floor of the anterior part of the left ventricle, to the inside of the corpus striatum, between it and the septum luci-

dum, there projected free into the cavity, a tumor of irregularly-globular shape, of a bluish-white colour, about the size of a large molar tooth, and fixed upon a thick pedicle, not unlike a sea anemone. Its base was attached superficially to the floor of the ventricle, a little in front of the anterior commissure. From its firmness of structure it appeared to the touch to consist of fibrous tissue; and on microscopical examination by Mr. Sibley, such was found to be the case, save a thin layer on the surface which was composed of epithelial scales. No particular change was observed in the parts immediately adjacent to the tumor. But at the base of the brain, on the left side, extending from the fissure of Sylvius, by the crura, to the side of the pons Varolii, there were thickening and adhesions of the arachnoid and pia mater; this lesion was obviously of old standing; and it was probably caused by inflammation, excited at a distant period by the tumor on its first formation. Both vertebral arteries contained firm, dark, coagula, which adhered to their walls; and the basilar artery, for half an inch from its commencement, was dilated and covered with atheromatous deposit.

Remarks.—Mr. Shaw proposed as a question:—Whether, as the bony plates in the arachnoid membrane were situated near the part of the head where the patient had suffered intense pain for the last eight months of his life, they could have had any share in producing it? He did not think that from the scales of bones themselves such could be the effect. But he did not regard it as improbable that, when a large quantity of serum had accumulated in the lateral ventricles, there should have been increased pressure of the surface of the hemispheres on which the plates were deposited, against the interior of the calvarium, so as to have given rise to severe headache, varying in intensity with differences in the cerebral circulation. He added his belief that the tumor in the ventricle had existed for many years; and that the distension of these cavities by serum, although excited by the presence of the tumor, was probably of comparatively recent occurrence.

Mr. Shaw, 17*th of January*, 1854.

9.—*Cholesteatomatous Tumor of the Brain.*

The following account of this case was furnished by Dr. Thurnam. The wife of a harness-maker, æt. 60, had shown symptoms of insanity for a considerable period, and more decidedly during one month, when admitted into the Wilts County Asylum, on the 6th of June, 1853. Before her marriage she had been in service as a lady's maid, &c. She had often been ill-treated by her drunken husband, who had squandered her little property and savings, and, during her last pregnancy, of her fourth child, upwards of twenty years ago, kicked her severely in the abdomen. After this the catamenia never reappeared, and her health was more or less disordered. For several years her home is described as having been one of filth, disorder, and vice. Her mind was gradually impaired, and with this she seems to have become intemperate and vicious, and her language and conduct were lewd and depraved.

She was of stout and large frame, with a remarkably slow, heavy gait; dark hair; sallow, waxy complexion; thick, and rather hesitating speech. The state of mind was one of partial imbecility and slowness of apprehension; but she was capable of assisting more or less in the domestic work of the ward. Her conduct was not observed to be incorrect; but, if not checked, she would at times indulge in obscene conversation. She remained much the same for upwards of half a year; the only change observed being that of the mind becoming somewhat more feeble and heavy, and her gait more infirm; she also complained of a heavy dull pain in the head.

On the evening of December 25th she appeared to be suffering from cold, for which a warm foot-bath and aperients were prescribed. Early on the morning of the 27th she experienced an attack of apoplexy, with convulsions, from which she never recovered. The ordinary remedies were had recourse to, but she rapidly became worse. The convulsions became more severe, stertorous breathing came on, and she died at 3 P.M. on the same day.

Post-mortem in twenty-one hours. Head.—Scalp very thick; a very considerable ecchymosis existed over the right side of

the frontal, and a still larger one over the occipital bone; the latter evidently of considerable duration; much fluid black blood escaped on dividing the scalp, dura mater, and superficial cerebral veins. Calvaria of almost globular form, very thin posteriorly, irregularly thick in the frontal region. More or less opacity and thickening of the arachnoid on the upper surface of the brain. Falx major unusually narrow in its anterior portion, and terminating inferiorly in a loose mesh of fibres. Moderate amount of serum in the pia mater, which was readily separated from the convolutions. Consistence of brain slightly soft, red spots not numerous (the blood being fluid appeared to have escaped on dividing the membranes). A few drachms of serum were contained in the lateral ventricles, and an ounce or two at the base of the skull. The Pineal and pituitary glands were large; the former containing a drop of serum, with one large and several minute granules of acervulus. A tumor, the size of a walnut, with a nodulated surface, and pearl-like colour and brilliancy, projected between the lower surface of the cerebellum and the back of the medulla oblongata. It was developed in the convolutions and under the edge of the right lobe of the cerebellum, projecting into, and pushing on one side the vermiform process, and extending slightly into the opposed surface of the left lobe. Upon examination, the tumor appeared to consist of granules of fatty matter inclosed in minute cysts of delicate fibrous tissue.

Weight of Cerebrum	38½ oz. av.
„ Cerebellum	6 „
Total Weight of Encephalon	44½

Thorax.—Slight emphysema and congestion of both lungs. Heart rather large, weighing twelve ounces. Cavities distended with fluid black blood, slight thickening without contraction of the free border of the mitral valve.

Abdomen.—Considerable dilatation of the colon, with contraction at two or three points. Liver large, mottled. Pancreas healthy. Spleen firmer than in health, weighed three ounces.

Kidneys small, pale, mottled, the fibrous tunics being very firmly adherent :—

Weight of right	$4\frac{1}{2}$ oz.
„ left	4 „

Uterus small, cavity of neck almost or quite obliterated. Ovaries small, containing numerous cicatrices.

Dr. Peacock for Dr. Thurnam, 21*st of February*, 1854.

Report on the preceding Specimen.—The tumor was about as large as a hazel nut, but somewhat irregular in shape and slightly nodulated. Its surface had a smooth, white, glistening nacreous appearance, and a considerable degree of toughness ; but in its interior these characters were wanting, and the tissue, though white, was soft and lustreless. The superficial pearly portion was distinctly laminated, and could be split easily into exceedingly thin but rather tough layers of small superficial extent ; an imperfect tendency to a like arrangement was visible in the central softer parts, the fragments torn from which assumed the characters of irregular flakes rather than of true laminæ.

A careful microscopic examination of the tumor was made, and the following appearances were noted. The soft internal portions consisted of irregularly polyhedral cells from about the $\frac{1}{400}$th to the $\frac{1}{600}$th of an inch in diameter (Plate I. Fig. 7.), interspersed with numerous crystals of cholesterine. (Plate I. Fig. 8.) The cells were coherent and modified in shape by mutual pressure. Their contents appeared to be fluid, but certainly not oily, though many of them contained refractive jelly-like masses of small but various sizes. No nuclei were visible in them at first sight, and, indeed, no true nucleus existed in any cell, though many of them were found to exhibit, at some part of their wall, an indistinct oval ring, which clearly was the remains of an atrophied one. The cholesterine was external to the cells, and collected, more or less, into masses.

The nacreous portion of the tumor was formed of flat polygonal cohering epithelial scales, the diameter of which was generally equal to that of the cells above-described. (Plate I.

Fig. 9.) They were slightly granular, and each contained a round or oval nucleus about the $\frac{1}{2000}$th or $\frac{1}{3000}$th of an inch in diameter, which was remarkably distinct, contained one or more nucleoli, and was surrounded by a transparent zone, against the outer margin of which the granular contents of the cell were accumulated in considerable quantity.

In several parts (the most superficial, I believe), cells were observed having the same characters as those just described, but of smaller size, and with nuclei disproportionately large. (Plate I. Fig. 10.) In addition to the above, from the surface of many parts of the tumor a delicate layer could be removed, which was structureless, or marked only by delicate and irregular lines, which appeared to be chiefly due to creasing. (Plate I. Fig. 11.) It seemed to be elastic, and had a considerable general resemblance to the fenestrated membrane of arteries. From the superficial portions of the tumor all cholesterine was absent, so that the pearly appearance was solely due to the character and arrangement of the epithelial scales.

It seems pretty obvious, I think, from a consideration of the characters exhibited by different portions of the tumor, that the newest formed structures existed on its surface, the oldest occupied its interior, and, consequently, that the growth is to be looked on as a cyst, the internal surface of which had produced and shed into its cavity successive crops of cells. On this view the structureless lamina is probably to be looked on as a basement membrane; but, however this may be, there is no doubt that the smaller and larger nucleated scales mark successive stages of growth, or advancement towards maturity, in the epithelium; while the plump cells, with wasted nuclei, represent older, retrograde, or defunct generations.

The presence of cholesterine remains still to be accounted for, and the following is the only explanation I have to offer:— I imagine, that at that stage of development in which the epithelium began to acquire thickness in addition to length and breadth, the material secreted into the cells was of an oily character, and that at one period in the history of the tumor all the cells occupying its interior were filled with this fluid; but that, after a time, when the cells there situated had lost the

little vitality they had hitherto possessed, the oil exuding from them was partially absorbed or removed, and partially deposited among, but external to them, in the form of cholesterine.

The chief difficulty in the way of this explanation lies in the fact, that the different stages of this process were not all present; but the objection hence arising may possibly be met by one of the following suggestions, either that the tumor had long been in an inactive state, and the changes before alluded to had had time to pervade its entire substance, or else that the tumor had in the first instance been fatty, but as growth advanced in it, the character of the superadded cells, or, at all events, of their contents, had undergone a physical, though, perhaps, not a physiological change.

The explanation I have volunteered, of the production of the cholesterine in this case, is, I think, borne out by the appearances observed in a cholesteatomatous tumor of the ovary, brought before the Society by Mr. W. Adams, and recorded in the 3rd Vol. of the "Transactions," page 401.

It is very possible that the tumor described by that gentleman, and which I had the opportunity of carefully examining, was not precisely similar to the present one in its mode of growth, but it resembled it in many particulars. Its surface had a laminated nacreous character; its interior was soft. The surface consisted of collapsed, flattened, and wrinkled cells, mingled with numerous plates of cholesterine. The interior was formed of plump cells, distended with oil, and with little or no cholesterine. Now, in this case, the true nucleated epithelial cells did not exist, and it appeared to me that it was a tumor consisting essentially and primarily of fat cells; that active growth had probably ceased in it for a considerable period; and that the superficial cells, which, from their wrinkled appearance, had evidently once been distended, had, on the cessation of their vitality, from their proximity to tissues living and capable of absorbing, given the first evidences of decay by yielding up their contents, of which the more soluble constituents had become absorbed, the less soluble being left behind in a crystalline form. Dr. Bristowe, 21*st of February*, 1854.

10.—*A Cyst at the base of the Brain, formed by the softening of Scrofulous Deposit: and clearly indicated during life, as to its position, by certain well-marked symptoms.*

The specimen consisted of a brain showing a cyst of about the size of a pigeon's egg situated in the right portion of the substance of the pons Varolii, and having thin and friable parietes. This cyst, when recent, was full of a yellow glairy fluid in which a number of light-coloured soft particles of albuminous matter existed, and was lined by a delicate but firm membrane.

The cyst extended outwards to the extent of about three quarters of an inch, also forwards and backwards so as to indent the right lobe of the cerebellum, and the under surface of the middle lobe of the right cerebral hemisphere, interfering by pressure with the fourth, fifth, sixth, and seventh pairs of cranial nerves on the right side.

The arachnoid tissue in the neighbourhood of the cyst, was thickened and opaque, and the lateral cerebral ventricles were expanded, and distended with a quantity of clear limpid fluid. In other respects the entire brain and the membranes were quite healthy.

The specimen was removed from a girl, æt. 18, who was admitted into St. George's Hospital in the following condition :— She was pale, evidently of a weakly disposition, and complained of a very "violent cold." When she attempted to smile or was made to whistle, the mouth was obviously, though not to any great extent, drawn to the *left* side. There was a kind of tottering and difficulty in using the left leg when she attempted to walk, and also loss of power in the *left* arm and hand. She complained of a general numbness, and also of loss of sensation, when pinched, up the whole of the left side as high as to the *middle* of the neck, and this was also the case with the *right* temple, and the right side of the nose and face as low as the base of the jaw. The right arm and leg were in a perfectly healthy condition. There was marked vascularity of the conjunctiva of the right eye and much lachrymation existed. The right eye-ball was drawn inwards, and though the patient could move it in other directions, she could not abduct it: and the pupil was rather

contracted, but tolerably active under its stimulus. The left eye-ball had perfect motion. Its pupil was rather dilated, acting under the application of light. The vision of the *right* eye was imperfect, and the patient was unable to close the right eyelids completely, the pupil being turned upwards and inwards on the attempt being made. There was a difficulty in trying to swallow or open the mouth, and a peculiar noisy inspiration whenever she breathed. These latter symptoms seemed at the time referable to enlargement of the tonsils which existed to a great extent. The bowels were costive, and the urine, which was free from albumen and was natural, was at times passed involuntarily. The tongue was clean and red, and protruded in a perfectly straight direction. The gums were spongy and red as if from the administration of mercury, and the pulse was small and quick. The mental powers appeared intact, and the patient intelligently related her own history and case. No pain was in any way complained of, and nothing unhealthy was discovered about the lungs or heart. On examination, her history proved to be as follows:—She had enjoyed good health until about two months before her admission into the Hospital, but had never menstruated. At that time she was, owing to cold, affected with hoarseness and sore throat, and about three weeks afterwards was afflicted with giddiness and pain at the forehead, which remained for about one month. At the same time a "numbness and tottering" of the whole of the left side of the body came on, and she was treated by a medical man: along with this the eye-sight on the right side began to fail, and the right side of the face became numb. For the first fortnight also after the numbness came on, the patient had double vision, though this did not last long. The giddiness and numbness, however, have remained ever since. The patient had never been affected with tinnitus or any visual illusions, or with any stiffness or pain of the neck or scalp, or yet with any cough or hæmoptysis or discharge from the ears or nose, but she had been deaf for some weeks of the right ear.

When admitted into the Hospital she was placed under the influence of mercury, and a blister, dressed with blue ointment, was applied to the nape of the neck. The bowels were carefully

regulated by senna, and she had the ordinary diet. She was shortly placed thoroughly under the influence of mercury; but of this she was herself ignorant, as she was insensible to its effects. When she had been in Hospital about fourteen days, she was observed as having become very obtuse, she was affected with loss of appetite, and frequent attacks of vomiting. The speech had become very indistinct. The conjunctiva of the right eye had become very highly vascular, and the cornea very dull, though the other eye was also suffused. The pupil of the right eye which was more contracted than the left one was turned upwards and inwards, and she always slept with the right eye-lids open. The pupils of both eyes acted. The pulse was 80, and the skin cool. The mercury was at that time discontinued, and another blister applied to the neck. Salines and milk diet were resorted to. After this the patient varied greatly. The tongue became dry, and the difficulty of deglutition and opening the mouth very great. The bowels were never open without the use of medicine. About ten days later the eye-sight, on the right side, had become still more impaired, and the pupil, which was more contracted, would scarcely respond to light. Vomiting became a more general feature in her case, and the mouth was more decidedly drawn to the left side. Later still, pain at the back of the head came on, but up to this time the appetite remained very great. Purgatives and blisters were the chief agents resorted to. After the patient had been in Hospital about seven weeks she was seized with an attack of what the nurse called a "fainting fit" whilst on the night chair, and a few hours later insensibility came on, with lividity of the face, foaming of the mouth, coldness of the surface, and depressed pulse; and after much "bronchial rattle" the patient died. On *post-mortem* examination, nothing except congestion of the lungs and accumulation of mucus within the bronchial tubes, beyond what has previously been described, was found.

Dr. J. W. Ogle, *4th of April*, 1854.

11.—*Specimen showing extensive Softening of the entire Spinal Chord without Discoloration thereof.*

The specimen consisted of the spinal chord, the whole of which was exceedingly softened, but the lower part of the cervical and the upper part of the dorsal portions were specially so, being of a cream-like consistence. The specimen was removed from the body of a young woman, æt. 27, who, previously to having been attended, had been ill for about three months, having complained at various times of colic-like pains in the abdomen, relieved, for the most part, by pressure. The pain remitted greatly, and finally disappeared until about three weeks before she came under treatment, when it returned with great urgency, and the patient then became sensible of great general debility, with loss of power and energy. At last she could hardly turn herself in bed, but could move her limbs separately, although with difficulty. She was in tolerable general condition when first seen, and the catamenia were regular, but the pulse was small and frequent, the tongue was furred, and there was loss of appetite; the eyes were suffused, and the face flushed, but the skin generally was cool. Salines, with the compound spirits of ammonia were given, and careful attention paid to the bowels. After some days the patient complained of great headache, with a feeling of numbness in the feet. The pulse remained quick and weak, and she had a very odd hysterical manner. Although at first the patient complained of no pain, yet, after a while, pain in the limbs came on, as well as in the head; but there were no tonic or clonic spasms of any of the muscles. She became less able herself to move her limbs, especially the lower ones, or to turn in bed; and any movement from without caused great pain in the neck and back. During this time the bowels were maintained in good order, by the use of medicine, and the skin was cool. After about ten days of treatment the patient became delirious, tossing her arms about in bed; incontinence of urine came on with intense thirst and dyspnœa. The pulse became more rapid, and the legs very painful on pressure. Stimulants were freely used without effect, and on the

evening of the tenth day, convulsions, with violent screaming, set in, and the patient died.

On *post-mortem* investigation the state of the spinal chord, as above given, was found.

On microscopical examination no appreciable alteration in the minute vessels of the structure of the chord was found; neither were there any appearances, such as are often interpreted as indications of inflammatory action, seen. The bones of the vertebræ and the spinal membranes were natural. The calvaria and the contents of the cranium were natural. The contents of the abdomen, excepting a fatty state of the liver, and occasional enlargement of the isolated intestinal glands, were natural. The lower and posterior parts of the lungs were very highly congested and exceedingly friable. The heart was natural.

Remarks.—In connection with this case one or two points are worthy of observation. In the first place the colic-like pains are noticeable; these, probably, had their origin in distension of the intestine by flatus, for we well know how injury of the spinal chord affects the various viscera; this may be by implication of those spinal fibres which are associated with the ganglionic ones distributed to those viscera, thus effecting a form of paralysis of the involuntary muscular fibre of the intestine, and allowing of accumulation of air. It may be, also, that a special neuralgia of the mesenteric plexuses of nerves may be occasioned, or, as it has been termed, hyperæsthesia of the mesenteric plexus. Taking the view of paralysis of the muscular fibre, it is remarkable that no very marked constipation beyond what ordinary aperients overcame, existed. These pains, simulating colic, remind one of those which oft-times simulate rheumatism, in diseases of the central nervous organs. The dyspnœa and the morbid states of the lungs, as seen after death, may well be referred to the interference with the action of the respiratory muscles, due to disorganisation of the chord; the loss of the powers of respiration producing, as we know by experiment and otherwise, a secondary alteration in the tissue of the lungs. The case presents no history of any kind of spasm or jerking of the muscles, and this accords with the

idea that such depends rather on disease of the membranes than on the central substance—which alone was affected in this case. Unfortunately, I have no note of the condition of the excito-motory functions, which, however, became doubtless lost in proportion to the encroachment of the spinal disorganisation.

The exact nature of such general softening of the chord, depending, apparently, not on any process ordinarily known as inflammatory, is yet an open subject. We may well suppose it analogous in character to the colourless softening of the central white parts of the brain, so much more removed as they are from active nutrition than more superficial parts; a change which may occur either with or without effusion of fluid into the cerebral ventricles. Dr. J. W. Ogle, 21*st of February*, 1854.

12.—*A mode of taking the Specific Gravity of Healthy and Diseased Brain.*

Dr. Sankey exhibited the apparatus and method used by him in ascertaining the specific gravity of the different organs of the body. The mode was in principle precisely similar to that often used in examining the hepatized lung. In that case a portion of the solidified tissue was taken and immersed in water, and if it was found to sink the fact was noted by the simple term that the lung in question was denser than water. The experiment thus conducted, though it proved that the density was greater than water, did not denote the extent by which its density exceeded that of water. To ascertain this more accurately, therefore, he had arranged, in glasses, fluids of different densities, varying from specific gravity of 1·025 to 1·070. The fluid was rendered of the requisite density by adding a sufficient quantity of sulphate of magnesia.

The apparatus which was exhibited consisted of a series of tall glasses, in which were immersed two specific gravity bubbles. Into the glass containing the solution of the specific gravity of 1·030 were immersed a bubble marked 1·031, which, of course, sank to the bottom, and one marked 1·029, which floated to the top so long as the fluid remained of the required specific gravity. Having the glasses thus arranged, which must vary

from the density 1·025 to 1·070 for the whole of the organs, to 1·048 for the brain only, they are ready for use. Thus, in order to perform the experiment, a small portion of the grey or white matter of the brain is taken, piece by piece, and dropped into the different glasses. By this means it will be speedily, of course, ascertained in which glass the piece to be tested will sink, and in which it floats. If it floats in the fluid of the density of 1·033, and sinks in a fluid of the density of 1·031, it is obvious its own density must be the mean of the density of the two fluids, or 1·032.

Two brains were exhibited, one taken from a child who died with head symptoms, and the other from a man who died retaining his mental faculties to the last.

The specific gravity of the grey matter in the last case was 1·030; that of the white matter, 1·038; while that of the child was much higher than the average. From an analysis of seventy cases the average density of the grey matter of persons dying without head symptoms was found to be 1·333; while that of the white matter was 1·040.

The case of the child was as follows :—

Case.—W. S., æt. 14. Admitted on the 17th of March. Had been ailing during six preceding days. He complained, when first seen, of pain in the frontal region; was restless, frequently left the bed in delirium, and talked much. He had, also, general pyrexial symptoms. The belly was blown, bowels relaxed; stools watery and very offensive. No spots. Pulse 120. On the next day the symptoms increased in severity, and there was occasional strabismus and twitching of the right leg and arm; but he gave correct answers when addressed. The severity of the pyrexial symptoms gradually subsided. The pulse gradually fell to 96, and then to 84; on six days after admission to 60. He gradually became more natural in manner; delirium entirely ceased. The squinting was not observed again, but the left pupil was noted to be larger than the right on the fourth day after admission. As the pulse fell the bowels became regular, the eye clear, and the appetite returned. On the eighth day after admission he was marked convalescent. His pulse was 72, eye clear, appetite good. He answered questions

correctly. The bowels were regular, and the stools natural. He was ordered convalescent diet. He continued to mend. On the twelfth day after admission his improvement continued, and the diet was increased. On the fourteenth day, when attempting to get out of bed, he fell upon the floor. Two days afterwards he became worse. His pulse fell to 52; he was drowsy, did not answer when spoken to; the breathing became hurried, and he died without convulsion.

Post-mortem examination.—The contents of chest healthy: no tubercle detected on careful searching for it. The intestinal canal was healthy throughout. The aggregated patches were very distinct in the upper part of ilium, and congested: the last two or three patches were normal. The kidneys were much injected. The rest of the organs normal.

The *Head.*—Convolutions closely packed. No marked injection of the vessels of the pia mater. A streak of white matter lies on either side of the vein in the temporal region. Surface of arachnoid sticky. White substance firm. Red points of divided vessels not numerous. Lateral ventricles much distended, containing three ounces and a half of limpid fluid. Inner surface of both ventricles and the floor dotted with ecchymosed spots of about a line in diameter. The fornix is entire, and (care being used) can be reflected back after division without injury. Its texture is soft. The soft commissure is wanting. Its position on the inner side of optic thalami occupied by a circumscribed patch of the size of a split pea, which is of a bright red colour; the redness being punctiform, or composed of numerous red dots. Base of brain normal. No tubercle detected in any part, neither on Sylvian fissure, nor on the surface of pia mater, carefully examined. No thickness or opacity of the arachnoid of the base.

Cerebellum healthy, weighed $5\frac{1}{2}$ oz.
Cerebrum, 2lbs. $11\frac{3}{4}$ oz.

Specific gravity of the grey matter of cerebrum .	1·040
Do. of white matter of do. .	1·042
Specific gravity of the grey matter of cerebellum	1·044
Do. white matter of do. .	1·040
Specific gravity of fornix, less than . .	1·025

The advantages (Dr. Sankey stated, in reply to a question) of this method over the ordinary mode of taking the specific gravity, were:—

The act is quickly performed. The density of all the organs of the body can be taken in a few minutes. The results were sufficiently accurate for practical purposes; and it can be performed upon pieces as small as a pea, which was important when testing the specific gravity of the grey matter.

Dr. Sankey, *4th of April*, 1854.

II.—DISEASES, ETC., OF THE ORGANS OF RESPIRATION.

1.—*The Lungs and Heart of a Child who had died from the pressure of a Tuberculous Gland on the Right Bronchus: the Left Lung having been previously destroyed by Pleuritic effusion which had been absorbed.*

The specimen showed a very large and universally crepitant right lung, the bronchus leading to which was flattened and compressed to less than half its calibre by a tuberculous lymphatic, the size of a pigeon's egg, which lay beneath the bifurcation of the trachea. The lower portion of the trachea itself was surrounded by a cluster of much enlarged bronchial glands, all of them infiltrated with tubercle, but it did not appear to have been compressed. The bronchus leading to the left lung was not interfered with, but the lung itself was a carnified mass, somewhat larger than a fist, all but useless for the purposes of respiration. It had been compressed by a pleuritic effusion, the date of which the history of the case assigned to about a year prior to the death of the patient. The fluid had been entirely absorbed, and the lung united to the parietes of the chest in every part by dense and almost cartilaginous false membrane. It was noncrepitant and cut like dried spleen; by inflation a small portion in its centre could be distended, but no air could be made to enter within an inch of its circumference. The patient from whom the parts were removed was a boy, aged six years, and the symptoms immediately preceding

DESCRIPTION OF PLATE II.

The figures illustrate Dr. Hyde Salter's description of an Ossific Mass deposited in the Pleura. Page 35.

Fig. 1. Section of a portion of the mass, showing the globular form of the points of calcification, the concave outline of the interglobular spaces, and the absence of true lacunæ or canaliculi. Magnified 200 diameters.

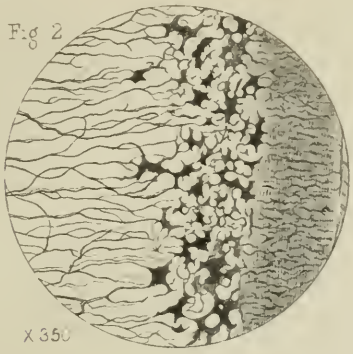
Fig. 2. The ordinary appearance of the granular layer of dentine. From Kölliker.

Fig. 3. The contour markings of the teeth, from a figure by Mr. James Salter, in the "Microscopical Journal." Magnified 200 diameters.

Fig. 4. Section of a portion of osseous mass in the pleura, showing a group of tubes, resembling those of dentine, running at right angles to the direction of the interglobular spaces.

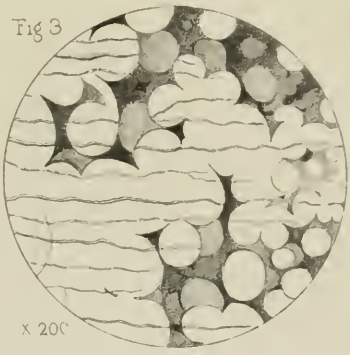
Fig. 5. Section of ossified aorta, showing analogous appearances of globules and spicular interspaces. From a specimen in Mr. Quekett's possession. Magnified 75 diameters.

Fig 2



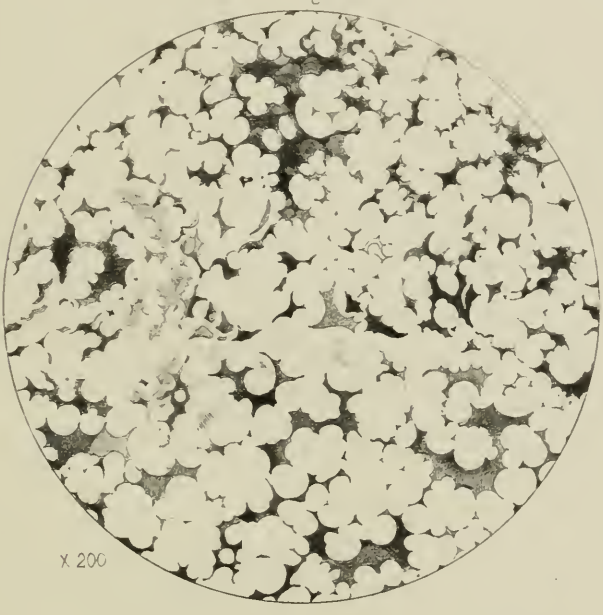
X 350

Fig 3



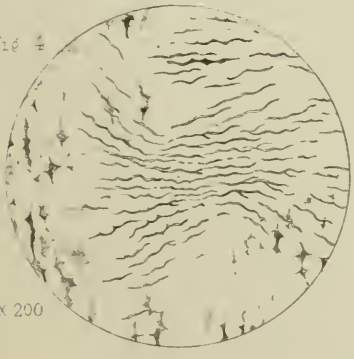
X 200

Fig 1



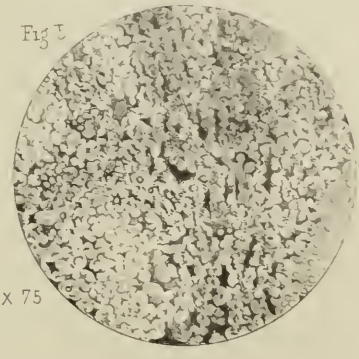
X 200

Fig 4



X 200

Fig 5



X 75

L.ᵗʰ Hyde Salter del. Tuffen West. sculp.

Ford & West Imp

death had been those of extreme persistent, and gradually increasing dyspnœa, unattended by the signs of inflammation.

Mr. Hutchinson, *6th of December*, 1853.

2.—*Ossific Mass deposited in the Pleura.*

This specimen was taken from a subject in the dissecting room of King's College, of whose previous history nothing was known, so that there was no account of the cause of death, of symptoms, or of any diseased condition with which the deposit might have been associated.

It was a mass about two inches and a half long, by two broad, and half an inch thick; the surface uneven and rather nodular, but smooth: it was covered with fibrous tissue, shreds of which might be torn off; in colour it was dark grey, but it had probably acquired this colour after death. It was embedded in the subpleural areolar tissue covering the diaphragm, and was perfectly free and unattached. It was hard and bony in texture, and when I nipped off a piece with bone nippers it cut like true bone. From its hard, tough density, so different from the soft friability of ordinary calcareous deposits, I anticipated that I should find, on a microscopical examination, that its minute structure was that of true bone, and not amorphous.

On grinding down some sections for examination, the structure was found sufficiently dense to admit of their being ground very thin, but manifestly more brittle and not so dense as ordinary bone.

On examining it with the microscope I found my opinion to be in part true, in part incorrect—the structure was evidently not amorphous, but it was not true bone. There were no traces of Haversian canals, lacunæ, or canaliculi, but small, variously-shaped and variously-sized, irregularly and thickly scattered opaque patches, some distinct and isolated, some confluent and irregularly branching: these black points and patches were evidently interstitial—interspaces filled with air, into which the Canada balsam had not permeated.

That the structure was not amorphous was shown,—Firstly,

by its having a definite direction: this was not everywhere visible, but in some parts was very conspicuous, imparting, when viewed with a low power, an almost fibrous appearance. Secondly, by the outline of the opaque interspaces consisting of a number of concavities, giving them, some a crescentic, some a star shape, some that of many crescents irregularly strung together, some like a scythe or pot-hook, some angular, indescribable masses, but all having concave borders. This appearance is plainly shown in Plate II. Fig. 1. Since, then, the outlines of the opaque interspaces are concave, the solid transparent portions of which these are interstitial must be convex or globular; and so they are. The whole structure, in fact, is made up of calcified globules, more or less run or fused together; where they are large and much run together, the interspaces are absent or few, and small—mere specks; where the globules are smaller and separate, the interspaces predominate, and the object is very opaque.

Now, looking at these appearances, I could not but be struck with the resemblance of this structure to the external or granular layer of dentine, or still more to the contour markings and patches of opaque interspaces and globular masses of dentine at which the markings abut, and which have all recently been shown by Mr. James Salter to be identical in nature, and to depend on an imperfect or arrested calcification of the animal material of dentine. The calcification centres at points, and spreading thence equally in all directions the transparent globules are formed, by continuous growth of which the interspaces are attenuated, and, by their complete fusion, ultimately effaced; only when this fusion is complete, is a perfect dentine formed. Just like this imperfect dentine of the contour markings is the specimen which I have been describing, the transparent part corresponding to the *dentinal globules*, and the opaque patches to the interglobular spaces. For the purpose of showing this close resemblance I have represented figures of the granular layer of dentine, and of the contour markings, and placed them in juxtaposition with those of the specimen under consideration. Plate II. Fig. 2, representing the ordinary appearance of the granular layer of dentine, is taken from Kölliker; and Plate

II. Fig. 3, representing the microscopical characters of the contour markings, is taken from a paper on them by my brother, Mr. James Salter, published in the "Microscopical Journal."

What is very extraordinary, and confirmatory of the views I have just mentioned, is, that in some of the specimens which I mounted, groups of tubules, exactly resembling dentine tubes, were seen. They are about the diameter of ordinary dentine tubes, running with a wavy parallelism, having traces of both primary and secondary curves, and showing in some parts a disposition to branch. The area in which they were placed was pretty transparent, and free from interglobular opacities, as if the calcification had been more complete than elsewhere. That they were quite distinct from the interglobular spaces, was shown, independently of their entirely different appearance, by their running at right angles to them, in this respect also resembling dentine, in which the tubuli and the contour markings run at right angles to each other. In Plate II. Fig. 4, I have represented a group of these tubuli; most of them are short, but that appears to arise from their being cut obliquely, just as we see in an oblique section of dentine. The perfect independence and oppositeness of direction of the tubuli and interglobular opacities are well shown in this figure.

Some time ago I made a drawing of the microscopical appearances of a section of the bony matter of an ossified aorta, which Professor Quekett kindly lent me for the purpose. The structure in that was very similar,—there were the same opaque patches with concave margins, the same globular form of calcification; and the description I gave of that would have done very well for the present specimen. I was at once struck with the similarity, and I have copied the figure I then made; now, I should say, eight years ago, and represented it at Plate II. Fig. 5.

We have, then, in these different specimens, a substance, not bone, nor resembling bone in any of its essential characters, but closely resembling dentine, especially that particular form of dentine which is imperfectly elaborated.

On examining, with the microscope, a decalcified portion of

the bony matter, the animal matrix was found to be distinctly fibrous, as in that of dentine.

From the three diverse sources from which similar appearances have been adduced—tooth, ossified aorta, and the present specimen—all, though differing in others, yet agreeing in the one point, of the ossification taking place in a fibrous matrix, are we not warranted in concluding it probable, that in all cases in which a fibrous tissue, not normally the seat of ossific process, undergoes calcific degeneration, the resulting structure has a certain resemblance to dentine, at any rate is much more allied to it than it is to true bone, and that the morbid calcification of various fibrous structures very much resembles the normal calcification of the animal material of dentine?

Dr. Hyde Salter, 18*th of April*, 1854.

3.—*Vegetable Fungus growing in a cavity of the Lung.*

E. C., a married woman, mother of four children, and 49 years of age, was in St. Thomas's Hospital from the 29th of November, 1853, to December the 21st. She had been labouring for two or three years under the ordinary symptoms of chronic bronchitis, and of this disease she died. She was examined on the 22nd of December, four-and-twenty hours after death. The body was of ordinary size, not emaciated, and the lower extremities were œdematous.

The right ventricle of the heart was dilated and hypertrophied.

The right lung was adherent, and the pleura contained a few ounces of serum. The lung was much reduced in size; emphysematous along its anterior margin; congested and sparely crepitant throughout; without trace of tubercle or other abnormal deposit. The bronchial tubes were highly congested, and filled with muco-purulent fluid. The left pleura was also adherent, and held about an ounce of fluid. The lung was larger and more crepitant than the right, but it was much congested, its anterior margin was emphysematous, and its bronchial tubes were in the same condition as those of the opposite lung. There was no deposit of tubercle, but in the apex were two

DESCRIPTION OF PLATE III.

The figures 1, 2, 3, illustrate Dr. Bristowe's paper on Fungus from a cavity in the Lung. Page 38.

Fig. 1. Mycelium of fungus.

Fig. 2. Fructification of the same. *a.* Head covered with sporules. *b.* Sporules partly separated: some are seen attached to the attenuated extremities of bottle-shaped processes. *c.* Head from which sporules are completely separated, or, possibly on which they have not yet appeared.

Fig. 3. Sporules. These figures are all magnified 900 diameters.

The figures 4 and 5 illustrate Dr. Bristowe's description of the minute structure of Casts from the Bronchial Tubes. Page 43.

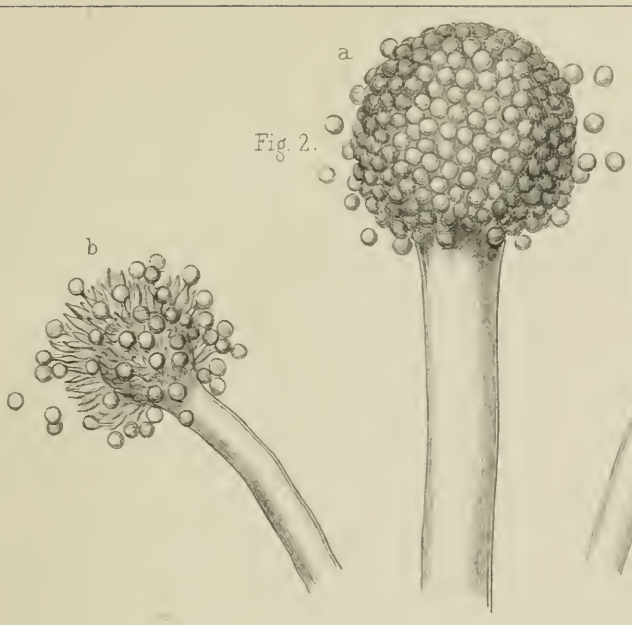


Fig. 2.

x900

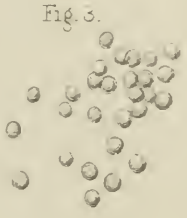


Fig. 3.

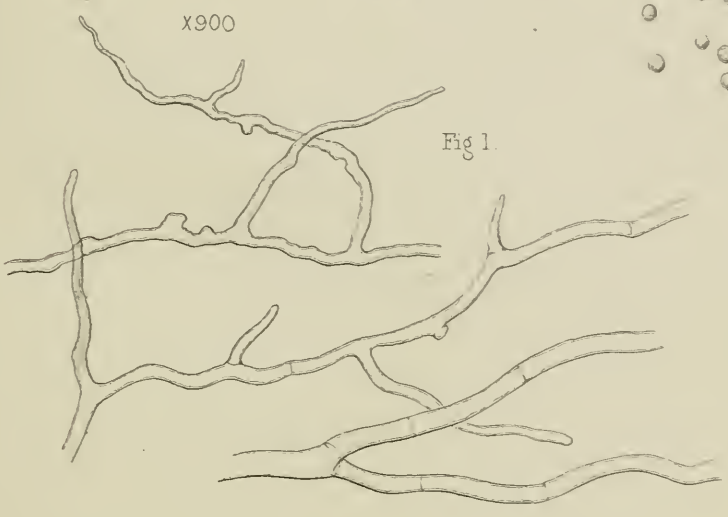


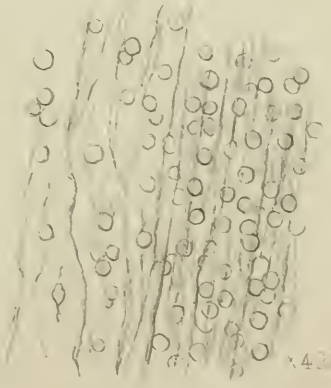
Fig 1.

Fig. 5

X 420

x900

Fig 4



x420

J.S Bristowe M.D del Tuffen West. sculp.

Ford & West Imp

communicating cavities, together about equal to a pigeon's egg. They were empty of secretion, but their parietes were moist, somewhat reticulated, and covered more or less by an opaque adherent film of fibrinous material. On the upper surface of the septum, by which the cavities were imperfectly divided, was a soft velvety mass, occupying an area about equal to that of half a finger-nail, and measuring close upon a line, or line and a half in thickness. It was dry and powdery on the surface, and had a dull greenish hue. It was firmly attached to the wall of the cavity, and was clearly a mould or vegetable fungus growing from it.

Under the microscope it exhibited a distinct mycelium, and a perfectly-developed fructification.

The mycelium (Plate III. Fig. 1.) consisted of delicate tubes, which terminated in undulated roundish points, and varied between the $\frac{1}{8000}$th and $\frac{1}{16000}$th of an inch in diameter; they branched in different directions, and presented here and there little bulgings, which doubtlessly were the commencements of new branches. The smaller ones displayed no visible transverse septa, but their substance appeared to be made up of two materials, having different refractive powers, one of which seemed essentially to form the tube, while the other occupied globular or moniliform cavities, situated in its axis. In the larger tubes, however, more or less distinct cross-lines, arranged at definite intervals, indicated a cellular structure.

The branches supporting the fructification were of considerable length, and much thicker than those belonging to the mycelium, indeed the largest measured about the $\frac{1}{2000}$th of an inch in thickness. They were cylindrical, without transverse septa, presented a well-defined limiting membrane, and pellucid structureless contents. At their free extremities they enlarged into globular or flask-like expansions, (Plate III. Fig. 2, *a*, *b*, *c*.) the greatest diameter of which was generally about twice that of the stalk from which they sprung. Their cavity was apparently perfectly continuous with that of the stalk, and their contents identical. The sporules (Plate III. Fig. 3.) were situated on these expansions, and in the perfect heads they were so numerous and thickly placed as almost to con-

ceal them. These bodies were globular, pellucid, and about the $\frac{1}{10000}$th or $\frac{1}{8000}$th of an inch in diameter; they were free, and attached singly to the attenuated extremities of bottle-shaped processes, which were of considerable, but uniform length, and thickly but regularly arranged on the receptacle from which they grew. The ripe sporules appeared to break away readily from their stalks, but the latter seemed invariably to be left cohering to the receptacle. Some of the heads presented very few sporules, some none; and though these peculiarities were sometimes due to the cause just alluded to, it is probable that they were sometimes owing to incomplete development. The largest complete heads measured the $\frac{1}{700}$th of an inch in diameter, but many were considerably smaller.

Remarks.—There was no appearance of tubercle in either lung, yet I am inclined to think that the cavity containing the fungus was of tubercular origin; at all events, the difficulty of accounting for its production is at least as great on any other supposition as on this.

The fungus clearly sprung from the walls of the cavity, and, most probably, had grown during the life of the patient; for, in the first place, there can be little doubt that the sporules were carried into the lung during life, since there is no natural cause which could have conveyed them thither afterwards. 2ndly. I believe it would have required a considerably longer period than four-and-twenty hours for the fungus to have attained the stage of growth in which it was discovered. And lastly, the section of lung, with the mould adhering to it, was laid aside in a moist place for twenty-four hours, under circumstances favourable for growth, and yet, at the end of that time, there was no appreciable increase of size, or alteration of character.

It is probably requisite, in order that a fungus of this kind may reach its perfect development, that the cavity which contains it should continue for some time in an empty or nearly empty state; for any considerable amount of secretion would scarcely fail to wash away and destroy it, or, at least, to prevent the completion of its fructification.

I am not very conversant with the lower forms of fungi, and

know of none perfectly identical with this; it has no resemblance to the *penicilium glaucum*, and is perfectly distinct from the ordinary mucor. Dr. Hughes Bennett has described a vegetable growth which he has observed in tubercular cavities, but the one under consideration differs materially from that, as may be seen on reference to his paper on the subject, and to the drawings accompanying it. In the first edition (the second I have not had the opportunity of consulting) of Robin's work on "Parasitic Vegetables," I find two drawings of fungi discovered in the lungs of birds; one by Müller and Retzius, the other by Deslongchamps. They are both represented on a small scale, and bear so much resemblance to one another as, probably, to be identical. There is also a considerable likeness between them and the one described by myself; but if the former are accurately copied from nature, the resemblance is not perfect, since their sporules are made to appear sessile on the receptacle instead of pedunculated. Dr. J. S. Bristowe, *3rd of January*, 1854.

4.—*Fibrinous Casts of the Bronchial Tubes.*

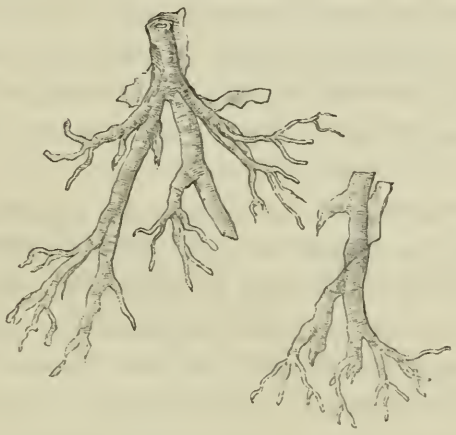
The patient who expectorated these plastic casts is a widow, æt. 25, at present under Dr. Fuller's care at St. George's Hospital. She is well made, of average robustness, of somewhat dark complexion, and pale, but not unhealthy in appearance. She states that her habits are in every respect temperate and regular. Her parents both died at the age of 59, of cholera: her father was a healthy man: her mother had suffered during nearly twenty years from cough and occasional hæmoptysis. She had five sisters and one brother, of whom two sisters and the brother survive. Her other three sisters are reported to have died of consumption: two at the age of thirty, and one at the age of fifteen. The latter is reported to have expectorated fibrinous casts of the bronchial tubes for at least two months before her death, and it is questionable whether she did really die of consumption. As a child, this patient enjoyed excellent health, and up to the present time she has not had measles, hooping cough, or croup; at the age of fourteen, however, she was seized with ague, and about a twelvemonth afterwards began

to suffer from cough and dyspnœa, accompanied by the expectoration of small pieces of plastic material. Not a winter has passed since that time without her experiencing a recurrence of these symptoms, which, during the last four years, have been of more than usual severity, and have not been confined to the winter months. The most severe attack she has undergone was last summer, when she was in St. George's Hospital under the care of Dr. Page. The dyspnœa at that time was so severe, that it was for some time doubtful whether the attack might not prove fatal. The casts at that time expectorated were tubular, and of much larger size than those now exhibited. Some of them were four inches in length, and at their large extremity about the diameter of an ordinary cedar drawing-pencil. Dyspnœa was a more prominent symptom than fever. She remained in the Hospital thirty-seven days, during the whole of which period she continued to expectorate these plastic casts in greater or less abundance. She came under Dr. Fuller's care on the 10th of last December, and then stated that she had continued to expectorate these masses at intervals ever since her discharge from the Hospital. During the last week, however, the cough and dyspnœa had become much more urgent, and the day before she applied to Dr. Fuller, she had expectorated a plastic mass of considerable size. There was no pain in the chest, and little or no fever, but the dyspnœa was so urgent, as to produce complete blueness of the lips. She was ordered calomel, and opium, and salines, and alkalies, in full doses. In the course of three days she expectorated another large plastic cast, the getting rid of which afforded great relief, and she has been easier ever since. The delicately-branched specimens now before the Society were expectorated five days ago. One of them is two, the other two and a half, inches in length, and neither of them at their large extremity exceeds in diameter a small cedar pocket-book pencil. Lately, she has not had hæmoptysis; but on several occasions, during the extreme violence of the cough in her former attacks, she spat a small quantity of blood. She states, that in a warm room and breathing warm dry air, she does not experience any inconvenience with the respiration; but that ever since her attack last summer,

she cannot long expose herself to cold and damp, without incurring the penalty of an attack of dyspnœa followed by expectoration of these fibrinous casts. The expectoration of the casts is usually preceded by incessant cough for a period of about three days. Dr. Fuller, *17th of January*, 1853.

Report on the preceding Case. — The portions of membrane expectorated are, including the subdivisions, each about an inch and a half in length, and appear to have been moulded in a bronchus of the third or fourth diameter and its branches.

Fig. 1.



The trunk is a line and a half in diameter, or about the size of a crow-quill; while the branches decrease in size till they become very minute. The membrane is white, firm, and elastic, and consists of distinct laminæ, arranged concentrically, but so slightly attached as to admit of a fine probe being readily passed between them: there is, however, no distinct cavity in the centre of the trunk, though the branches are in places hollow, and contain, here and there, spots of dark matter.

The result of Microscopic examination is reported by Dr. Bristowe, as follows:—"The structure of the casts was pretty uniform throughout. They appeared at first sight to consist of parallel and nearly straight fibres, intermixed with numerous roundish bodies about as large as blood-corpuscles. On closer examination, however, it was seen that the fibrous appearance

was in great measure fallacious, and was produced by the edges of delicate, transparent, nearly structureless laminæ, closely and concentrically arranged. Between these laminæ, the corpuscles existed in large numbers. (Plate III. Fig. 4.) They were more or less globular, for the most part uniform in texture, and solid, but occasionally hollowed out in their interior into a somewhat irregular cavity.

"Acetic acid produced expansion and partial solution of the laminæ, but was without evident action on the corpuscles.

"Towards the terminations of the minutest ramifications of the casts, mixed more or less abundantly with the structures just described, were compound granular cells, oil globules in irregular clusters, and ovoid cells, containing black carbonaceous (?) material, such as one frequently sees in ordinary bronchial mucus. (Plate III. Fig. 5.) The casts were evidently a fibrinous exudation, and had probably been deposited in successive layers."

Remarks.—The masses of membrane expectorated by Dr. Fuller's patient, are similar to those which, under the names of *bodies resembling worms; vessels* or *veins of the lungs; portions of the arteria aspera; polypi from the pulmonary vessels; bronchial polypus and plastic exudation from the bronchial mucous membrane,* have been described, and frequently figured, by writers from the fifteenth century to the present time; and it has even been thought probable, from passages in the writings of Hippocrates and Galen, that those authors had seen cases of the kind. More or less extended notices of this form of pulmonary affection have been published by Warren, Cheyne, and North in this country; by Chaussier and Louyer-Villermay, Andral, Thore, and Valleix in France; and by Murray and Michaelis in Germany. I have not myself met with any case in which patients have expectorated solid sputa assuming the form of the bronchial ramifications; but some time ago, a young man, labouring under advanced phthisis, brought to me a considerable mass of sputum which he had expectorated after severe fits of coughing, and which consisted of shreds of thin membrane which must have been effused from the mucous membrane of the trachea or larger bronchi. While House Surgeon of the Chester General In-

firmary, the late Dr. Thackeray also showed me a specimen of the so called *bronchial polypus*, expectorated by a patient of his, of whose history I have no further knowledge. In the Museum of St. Thomas's Hospital, there are two specimens of membranous sputum; one, of which there is no history, consists of several small pieces of branched, solid, and partially laminated membrane, very similar to the portions of membrane exhibited by Dr. Fuller; the other, more closely resembling a fibrinous coagulum, was removed from a patient of Dr. Barker's, of whose case an account is published in the "Medico-Chirurgical Transactions" for 1848.

From the memoirs before referred to, and the periodicals of this country, France, and Germany, I have collected the particulars of thirty-four cases in which membranous masses were expectorated, together with incidental notices of about fifteen or sixteen others; and the list could, I do not doubt, have been considerably extended, had my engagements allowed of my devoting more time to the research. The cases which I have collected are, however sufficiently numerous to admit of some general inferences being deduced from them, which may not be without their interest to the Society :—

1. *Sex.*—The expectoration of membranous sputa occurs more frequently in males than in females, probably in consequence of the greater frequency of bronchitis in men, from their exposure to the weather, and to alternations of temperature and other causes of inflammation. Of the thirty-four cases, twenty-five occurred in males, and only nine in females; and of ten other cases, less fully reported, but in which the sex of the patients is stated, eight were males and only two females.

2. *Age.*—It has generally been assumed by writers, that the plastic sputa most commonly occur in young persons, but this surmise is not borne out by the cases here collected. The ages of the patients are shown in the following table :—

5 to 10 years of age	3 cases.		40 to 50 years of age	2 cases.
10 „ 15	„	5 „	50 „ 60	„	2 „
15 „ 20	„	3 „	Adults . . .		5 „
20 „ 30	„	7 „	Middle aged . .		4 „
30 „ 40	„	3 „			

Thus, while in only eleven cases the patients were twenty years of age and under, in twenty-one they are stated to have been from twenty to fifty years, and in two from fifty to sixty; so that it may be inferred that though the affection is not limited to any period of life, it is most frequent in persons of middle age, probably owing to the influence of the same cause which determines its greater frequency in males. Morgagni relates the case of a man seventy-eight years of age, who expectorated membranes during a peripneumonic attack.

3. *Predisposition.*—The persons in whom the membranous expectoration has been observed, have generally been of originally delicate constitution, or have presented evidences of pulmonary weakness or disease for some years before the occurrence of the peculiar symptoms. Several are stated to have been of the strumous diathesis, or to have inherited from their parents a predisposition to consumption; some to have been subject to catarrhal affections, cough, dyspnœa, hæmoptysis, hoarseness, or aphonia; others, more advanced in life, to have been gouty or asthmatic; and yet others to have been reduced by the use of mercury, or by sea-scurvy. In six cases, however, it is expressly stated that the patients had enjoyed good health till the sudden occurrence of the symptoms which preceded the appearance of the peculiar sputa.

4. *Symptoms.*—The symptoms by which the expectoration of the membranous masses have been attended or preceded, have usually been those of subacute bronchitis,—sense of constriction and pain in the chest, difficulty of breathing, cough, and slight febrile symptoms. After these symptoms have continued for a few days, the dyspnœa has usually become so urgent as to threaten suffocation, and the cough extremely hard and dry; and then, suddenly, after a severe paroxysm, the patient has expectorated a portion of solid material, either with or without blood, but generally intermixed with the usual bronchitic sputa. The difficulty of breathing, and cough, are usually at once relieved, more or less completely; but recur again after an interval of a few hours, as the membranous exudation again accumulates upon the mucous membrane and becomes detached, to be again relieved after the expulsion of a further portion. These

stages may be repeated, at longer or shorter intervals, for several days, weeks, months, or even years; but most generally the exacerbations become much less severe after three or four portions have been expelled. With the symptoms now mentioned are combined the usual physical signs of acute or subacute bronchitis, sibilant, sonorous, mucous or subcrepitant rhonchus, with or without impairment of the natural resonance on percussion, and occasionally with deficiency or absence of the respiratory sounds. The symptoms are, however, much varied, both in kind, degree, and duration. In nine cases the inflammatory action was urgent, assuming the form of acute bronchitis, or pneumonia; in two the expectoration occurred during the course of fever of a low typhoid type, probably attending pneumonia; in two the patients laboured under advanced phthisis; and in seven the attack commenced with hæmoptysis; while in ten the symptoms appear to have been so trivial, that they would probably have attracted little attention, had it not been for the peculiar sputa by which they were succeeded. In three cases the patients had been expectorating the membranous material for a considerable period, and the symptoms with which the attack commenced are not stated in the reports.

Though, before the expectoration of the membranes, the cough is ordinarily very severe, and occurs in violent paroxysms, in some instances it is only trivial, and generally it becomes much less severe after a few portions have been expectorated, so that, in cases of long duration, the membranes seem to be expelled with very little effort. In one case it is stated that they were brought up with a slight hem; in another on awaking in the morning.

The membranous material appears in some cases to have been expectorated almost by itself, without any intermixture of other secretions, or of blood; but, in other instances, the expulsion was preceded or followed by the ordinary glairy or muco-purulent sputa of bronchitis; and, in yet others, by hæmoptysis, either only to so slight a degree as to tinge the membranes or other secretions, or very profuse, occurring in gushes of bright florid blood. The latter was the case in ten instances, while in

five others there was a slight flow of blood; but in the remaining cases there seems to have been either no escape of blood at all, or only so slight an appearance as not to attract attention. In some of the cases also related by the older writers, the expulsion of the membranes appears to have been effected without any hæmorrhage, as, notwithstanding that the idea which they entertained, of the membranous bodies being the blood-vessels or air tubes of the lungs, and consequently that their attention must have been specially devoted to this point, hæmoptysis is not mentioned as having occurred. The cases related by Bartholin and Tulpius were, however, all attended with copious hæmoptysis.

5. *Form of matter expectorated.*—The matters expectorated appear generally to have been moulded in bronchial tubes of the third or fourth diameter and their subdivisions, the trunk being usually reported as about the thickness of a writing quill, and the branches decreasing in size till they become very minute. In one case, however, the membrane extended from the trachea to the extreme ramification of the bronchus; and in several, the exudation seems to have taken place from a main bronchus. Most usually they seem to have been hollow cylinders of thin membrane, but, in some instances, they are reported to have been solid, elastic, and resistant, and, in that case, they are generally stated to have been composed of distinct concentric laminæ. In colour they are described to have been generally white, or of a pale-rose tint, but in some cases they are reported to have had a brown colour, and to have been deeply tinged with blood, or to have resembled partially decolorized coagulum.

6. *Duration.*—The period which elapsed, after the accession of the symptoms, before the membranous material made its appearance in the matters expectorated, varied from a few days to several months. But more generally they appear to have been expelled in a week or two, and to have first appeared when the inflammatory symptoms were already subsiding, and to have continued to be expectorated after all other serious symptoms had nearly or entirely been removed. The period which preceded their expulsion was usually short, only two or

three days, when the attack commenced with hæmoptysis; and more prolonged, as several weeks or months, when the premonitory symptoms were slight.

The amount of solid material expelled, and the period during which it continued to be expectorated, also varied considerably. In seven cases the patients appear to have brought up only one or two masses of membrane, but in most cases the solid sputa continued to be expectorated in masses, at intervals of a few hours or days, for from ten days to three weeks, and in some cases for a much longer period; while the patients suffered but little, or enjoyed good health, at other times. Thus in ten cases, in which the patients entirely recovered, the membranous sputa ceased to appear in a few days; in other cases they continued to be expectorated at short intervals, for one year, two years, three years, and seven years. Yet in other instances relapses occurred, after the health had been completely re-established, at the end of six months, two years, and, in one case, of probably a much longer period. One patient suffered during four successive winters from catarrhal fever, which continued with little relief for five weeks, and then subsided on the expectoration of portions of membrane; in the intervals he was quite well. Another, a boy of fourteen years of age, had an attack of bronchitis, during which, on the second day, he expectorated membranous sputa, which continued to appear till the twelfth day, when he entirely recovered. He was stated to have had a former more severe attack of a similar character, when nine or ten years of age, from which, however, he had entirely recovered.

7. *Result.*—Of the thirty-four cases analysed, in twenty the patients seem to have entirely recovered their health; in four, the membranes continued to be expectorated at intervals; and ten are reported to have died sooner or later after the masses were expectorated. The ultimate result of this affection depends, however, upon the disease in which it occurs as a complication. Thus, in two cases in which the membranes were expectorated during the progress of phthisis, the patients died; in one instance in a few days, in the other a month after. In a case in which the patient laboured under some form of acute inflammation, death occurred in a few days. In two

cases in which there were symptoms of low fever, probably complicating pneumonia, the patients only survived one day and six days. In three cases, in which violent hæmoptysis preceded the expectoration, the patients died, from returns of the bleeding, on the second day, the seventeenth, and the twentieth. In a fourth case, which also commenced with hæmoptysis, the patient died of phthisis in eighteen months; and in the tenth, that of a female, who had laboured under incipient consumption with laryngeal complication, there was a sudden aggravation of the latter symptoms, for which tracheotomy was performed. After the operation, membranous masses were several times expelled; and, notwithstanding repeated attacks of bleeding from the wound, the patient rallied and the wound healed; but death occurred from gradually increasing exhaustion, six weeks after the operation. On examination the larynx was found ulcerated, and the lungs tuberculous. In these cases it will be seen that the fatal result was dependant on the original disease of which the membranous exudation only constituted a complication; unless, in the three cases of hæmoptysis, the hæmorrhage is to be ascribed to the separation of the solid material from the bronchial mucous membrane. In other cases, where the expectoration complicated more or less active bronchitic attacks, though the expulsion of the solid matter was attended with more urgent cough and dyspnœa than attends the expectoration of the ordinary secretions, there seems to have been little danger to life, and the symptoms usually subsided at the end of a few days.

8. *Nature and Cause.*—After this brief summary of the chief inferences to be drawn from an analysis of the published cases of plastic exudation, it only remains to allude to the cause to which the effusion of fibrinous material from the bronchial mucous membrane, is to be ascribed. The views which were entertained by the older writers are sufficiently shown, by the various modes in which the matters expectorated are described, as stated at the commencement of this Report; but it is remarkable that, though the profession in this country, at the end of the seventeenth and beginning of the eighteenth

century, seem clearly to have understood the nature of the expectorated material, yet, notwithstanding the writings of Ruysch and Morgagni, very erroneous notions continued to prevail in France and Germany, till a much later period.

Cheyne, following Michaelis, divides the so called "bronchial polypi" into two classes. "The first occurs only in connection with hæmoptoe, and it appears to be simply the coagulum of blood, moulded into shape by the bronchial vessel into which the blood had been poured;" and this form he states to be generally connected with consumption, and usually to be followed by further, and perhaps fatal, hæmorrhage. The second species differs materially from this; the polypi are "white, generally ramified, lamellated, sometimes solid, sometimes tubular; in consistence much more dense." Though the membranous masses do, however, assume the forms here described, I quite agree with Dr. Watson, in doubting the correctness of the views of Dr. Cheyne as to the difference in their mode of production, which has been supposed to be indicated by their external appearances. I should rather infer that both forms depend upon the effusion of fibrine from the mucous membrane; and probably the greater or less intensity of the attendant inflammation may be in part the cause of the presence or absence of hæmorrhage. In the one case,—as in hæmorrhagic pleuritis or pericarditis,—the effusion may be the result of more intense inflammation, so that the membrane formed may not only contain blood globules, but its separation may be effected with difficulty and with the escape of more or less blood. In the other form,—analagous to simple pleuritis or pericarditis,—the inflammatory action may be less intense, and consequently the membrane effused may be but little coloured, and very slightly attached to the surface of the bronchi, and consequently may readily separate without hæmorrhage being caused. That the membrane was not a mere coagulum, is shown in several of the cases in which there was copious hæmoptysis, by the solid material having been white,—not of the yellowish or reddish tint of decolorized clots.

The precise cause, however, which leads to the effusion of fibrine from an inflamed mucous membrane, is not clear. It

cannot depend on the intensity of the inflammatory action, for there is no proof either in diphtherite, croup, or plastic exudation from the bronchial mucous membrane, that the inflammation is peculiarly intense. Neither does there seem any evidence that the extension of the inflammation to the submucous tissue, is the cause of the fibrinous effusion. It would rather appear due to some peculiarity in the constitution of the individual, or in the cause giving rise to the disease. The operation of the epidemic influence in causing membranous effusions, is shown in diphtherite and in acute capillary bronchitis, when occurring as a complication of influenza, or of typhoid, or the eruptive fevers. It is, however, probably some individual peculiarity which determines the effusion, in cases of plastic exudation from the bronchial mucous membrane; but I do not know that there is any proof that this peculiarity consists in the excess of fibrine in the blood; and the statement before given, disproves its being dependant on the early age of the persons affected with the disease.

In the following table, references are given to the cases analysed in this Report, and to others less fully narrated by the original authors.

APPENDIX.—*Published Cases of the, so called, Bronchial Polypus, or Plastic Exudation from the Bronchial Mucous Membrane.*

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
1. "Acta Eruditorum," Anno 1682, Lipsiæ, 1682, p. 218, and "Journal des Savans," 12mo. tome pour l'année 1684, p. 60.		F.	Had suffered, for several weeks, from heat in the chest.	Brought up suddenly a large quantity of blood, which was checked for three days, and she suffered only from some difficulty of breathing. On the fifth day the hæmoptysis recurred, and she expectorated a branched membranous body.	Continued to spit blood and pieces of membrane, and died, with symptoms of pulmonary inflammation, on the twentieth day.
2. Clarke. "Phil. Trans." vol. xix. 1697, p. 779.		M.	Had been ill, at intervals, for four years.	For three years had coughed up polypi, preceded by severe cough and pain in the chest, which were regarded by the relatives as worms; but Dr. Lister, to whom the report was sent, stated that they were "a viscous secretion" from the bronchial membrane.	Not stated.
3. Bussière. "Phil. Trans." vol. xxii. 1700–1, p. 545.	5	M.	Consumptive, and had had a dry cough for a year, and occasionally spat blood.	Shortly before death expectorated what appeared to be "vessels of the lungs;" and on examination afterwards, a thin film was found extending from the larynx to the extremities of the bronchi.	Died.
4. Morgagni, "On the Seats and Causes of Disease," Alexander's translation, vol i. p. 597, letter 21, sects. 19 and 20. Morgagni also mentions that a man,	Young.	M.		In the case of a young man who died of peripneumony in 1704, shreds of membrane were expectorated, mixed with blood and mucus; they resembled the bronchial ramifications. The patient died in a few days.	Died.

Name of Author, Date, and Reference	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
78 years of age, expectorated polypous concretions mixed with blood, on the fourth day of a peripneumony, of which he died four days after.					
5. Struve. In "Acta Med. Phys. Nat. Cur." vol. i. Norimb. 1727, obs. 96; quoted in Michaelis "de Angina Polyposa:" Gottingæ, 1778, p. 294, c. 13.	12	M.	Previously healthy.	Suffered during four successive winters from violent bronchitic attacks, which were only partially relieved after five weeks, when he obtained entire relief, on expectorating portions of membrane, hollow, and resembling a vein. In the intervals he was quite well.	Recovered.
6. Samber. "Phil. Trans." vol. xxxiv. 1728, p. 262.	50	M.	Gouty and had had a cough for six months.	Vomited a large quantity of blood, and soon after expectorated a polypus, and died of consumption a month after.	Died.
7. Nicholls. "Phil. Trans." vol. xxxvii. 1731–2, p. 123.			Asthmatic, but otherwise well.	After an attack of inflammation of chest with pleuritic pains, he coughed up phlegm, resembling worms, tinged with blood, and had expectorated similar matters, either pale or tinged with blood, for seven years.	Not stated.
8. Kellner. "Act. Nat. Cur." vol. v. 1740, p. 283, obs. 74.	27	M.	Father had died of consumption; and he had been, previous to his marriage, subject to bleeding at the nose.	Seized, in 1734, with violent hæmoptysis, and on the sixth day brought up pieces of membrane, and died on the seventeenth day.	Died.
9. Schuster. "Act. Nat. Cur." vol. vii. 1744, obs. 44, p. 126.	19	M.	For some time previously out of health.	Expectorated, after a severe cough, a membranous substance, which resembled a vessel about three inches long, and of the size of a quill and branched. The expectoration does not appear to have been attended with any escape of blood or other serious symptom.	Recovered.

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
10. Dalby, or Dalbis. "Journal de Médecine, Chirurgerie, Pharmacie, etc." par M. Vandermonde: Paris, 1759, t. xi. p. 42.	22	F.	Delicate and liable to palpitation.	Was confined, and some months after was taken with fever, pain in the side, rapid respiration and violent cough, and expectorated, on the fourth day, a piece of membrane, white, solid, and branched, and of the thickness of a writing quill, without apparently any blood. Died on the sixth day.	Died.
10*a*. Ibid. Op. cit. p. 370.	40	M.	Full habit, and fond of drinking and singing.	Suddenly attacked with hæmoptysis, which was relieved by bleeding. After a violent fit of coughing he expectorated a piece of flesh, and the cough and spitting of blood ceased. Enjoyed good health for a year, and then became phthisical, and died in eighteen months.	Died.
11. Marcorelle. "Hist. de l'Académie des Sciences," an. 1762: Paris, 1764, p. 53. M. Marcorelle mentions having seen similar matters expectorated by a woman during inflammation of the chest.		M.	Long subject to difficulty of breathing, cough, and expectoration.	In 1751, was taken with great difficulty of breathing, pain of chest, and cough, and, after a severe paroxysm, expectorated a hollow ramified body, about three inches long, and soon after entirely recovered. There was no bleeding at the time, but the matters expectorated, were, for a few days, mixed with pus.	Recovered.
12. Warren. "Med. Trans." vol. i. p. 407. 1767.	8	F.	Of strumous habit.	Taken with symptoms of subacute inflammation of chest, and, on awaking in the night of the twelfth day, coughed up a solid membrane, and continued to expectorate similar material every few days, for a year, when scrofulous disease occurred in the heel, and the pulmonary symptoms disappeared. The membranes were solid or tubular, sometimes very frail, sometimes resistant — generally of a white colour, but, once or twice, tinged with blood.	Recovered.

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
13. Murray. "Novi Commentarii Gottingæ," t. iv. 1774, "Comment. Phys. et Math." p. 44.	21	M.	Of phthisical tendency, and had suffered from cough for some months.	Suddenly seized in 1770, with spitting of blood, and in a few days expectorated masses of membrane, mixed with blood and mucus. These continued to recur with attacks of hæmoptysis, for some months, and then ceased. He recovered entirely, and continued well, after an interval of two years.	Recovered.
14. Dixon. Duncan's "Medical Commentaries," vol. ix. 1783–4, p. 254. This case was seen by Drs. Cullen and Warren. The writer mentions that the celebrated Professor M'Laurin occasionally expectorated similar matters.	48	M.	Gouty, but otherwise healthy.	Was seized with catarrhal symptoms and hoarseness, and soon after began to spit up solid material, of a white colour, which was expectorated with a severe cough, and was preceded by constriction of the chest; both which symptoms were relieved after the expectoration. The attacks ceased at intervals, and were aggravated during cold weather and by exposure.	The concretions still continued to be expectorated at intervals, nearly two years after the first appearance of the symptoms.
15. Moyle. "London Medical Journal," vol. vi. 1785, p. 252.	Surgeon.	M.	Originally of delicate constitution.	Was seized, in 1772, with slight hæmoptysis, cough, and hectic symptoms. In 1776, had a severe cough, and expectorated a large quantity of blood, and, two days after, brought up a polypous concretion, with some coagulated blood on the surface. The difficulty of breathing was at first much relieved, but, the day after, the hæmoptysis returned, and he died almost immediately.	Died.
15*a*. John Hunter. Works by Palmer, Plate 22, and p. 13, 1837. Case occurred about 1785	22	M.	Weakened by having taken mercury.	Suffered from violent cough, and pain in the chest, and expectorated mucus mixed with blood, and, after a fortnight, portions of membrane:	Recovered.

Name of Author, Date, and Reference	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
				these became very numerous and larger, and the cough declined, and then ceased entirely.	
16. Acherius. "London Medical and Physical Journal," vol. viii. 1802–3, p. 102.	15	F.	Attacked, six weeks before, with vomiting and gastric symptoms, and recovered at the end of eleven months, and continued well a year and a half.	Suffered from aguish symptoms and wasting, with severe cough and dyspnœa, and soon after began to spit up pieces of membrane, either with or without blood and mucus, and then experienced relief, but, six months after, the symptoms returned, and the membranes were brought up with a dry cough, and tickling in the throat. This soon entirely ceased.	Recovered.
17. Mr. Brennan. "London Medical and Physical Journal," vol. viii. 1802–3, p. 360.	40	M.	Addicted to spirit drinking, and had suffered from sea-scurvy.	Admitted into Hospital from ship at Chatham, with symptoms of low fever, and treated by stimulants, and soon after expectorated pieces of membrane, and died the following day. Had bled at the nose, but had not spat blood.	Died.
18. Cheyne. "Pathology of the Larynx," &c., 1809. See also the paper on "Bronchial Polypus," as originally published "Ed. Med. and Surg. Journ." vol. iv. 1808, p. 441. Dr. Cheyne refers to a specimen in Dr. Munro's Museum, which had been expectorated by a patient during a peripneumonic attack.	50 to 60	M.	Declining in health for some months.	Early in May was seized with symptoms of acute bronchitis, and, after a few days, expectorated, at intervals, membranous masses, which appeared to have been formed on the mucous membrane of the lower part of the trachea and bronchi. He was repeatedly bled, and the blood drawn was cupped and buffed. Only two small pieces were expectorated after the 15th of May, and he was entirely convalescent on the 20th, when the last report is given.	Recovered.
19. Raickem. "Bullet. de la Faculté de Médecine," t. iv. 1814–15, p. 38. With Report, by MM. Chaussier and Louyer-Villermay.	12½	F.	Lymphatic temperament, and subject to catarrhal affections.	At the age of 12, having suddenly suppressed an old issue, six months after, she was seized with symptoms of subacute bronchitis, and after having first expectorated a viscous substance, began to cough up casts of the bronchi and their	Recovered.

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
				ramifications. These peculiar sputa ceased in a few days, but again appeared, at intervals, after the lapse of a year, and when she was otherwise in good health.	
20. Iliff. "Lond. Med. Rep." vol. xviii. 1820, p. 207.	56	M.	Enjoyed generally good health.	Taken with inflammation, from cold, and began to expectorate a jelly-like substance, resembling the bronchial ramifications; he had severe cough and dyspnœa, which were relieved by the expectoration.	Recovered in three months.
21. Casper. "Brit. and For. Rev." vol. ii. 1836, p. 554. Quoted from "Wochenschrift für die gesammte Heilkunde," No. 1. 1836.	12	F.	Lymphatic scrofulous habit; had had slight hoarseness for many years, and which continued after the attack.	Taken with inflammatory symptoms; relieved in four days, and three days after began to expectorate, with severe cough, yellow ramified bodies, and in following twelve days expectorated twenty-two pieces; generally bringing up one every morning and evening. She was then otherwise quite well.	Recovered.
22. North. "Lond. Med. Gaz." vol. xxii. 1838, p. 330.	21	M.	Attacked, at age of four years, with inflammation of lungs, from which he recovered entirely, and was well and strong afterwards, excepting a slight cough.	At 17 years of age cough became more severe, and he began to expectorate curdy matter, and after a time had very severe cough, and expectorated large quantities of casts of bronchial tubes for several days, but without febrile symptoms. He recovered in a few days, and remained well for two years, when he was again attacked with cough and dyspnœa, followed by return of membranous expectoration, slightly tinged with blood, but these symptoms again soon subsided.	Recovered, and had remained perfectly well for two years.
23. North. "Lond. Med. Gaz." vol. xxii. 1838, p. 330.	17	M.	Always delicate and liable to cold, and had slight cough.	Sudden attack of cough and dyspnœa, and then began to expectorate concretions; dulness on percussion above the clavicle, but no fever or pain of chest. After several weeks, had recovered en-	Well a year and a half after last attack.

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
				tirely, when the symptoms returned, and on third day the expectoration recurred, and continued very frequent for many days. He again recovered and relapsed after a period of several weeks, and expectorated a few polypi, but finally recovered entirely.	
24. Watson. Lectures, "Lond. Med. Gaz." Dr. Watson also mentions Dr. Paris having had a patient who coughed up considerable quantities of membranous casts for a long period.	Professor. Middle aged.	M.	Previously remarkably stout and healthy.	Sudden attacks of hæmoptysis every few days, without cough, followed, after a period of three weeks, by the expectoration of membranes in a branching form. These casts were of two kinds, one solid and somewhat coloured, the others tubular, white, and membranous.	Recovered.
24*a*. Watson. Lectures "Lond. Med. Gaz."	Barrister. Middle aged.	M.	Had suffered for nearly a year from huskiness of voice.	Sudden expectoration of small quantities of fluid blood, followed by expulsion of masses resembling fibrinous coagula, and branched.	Recovered.
25. Canc. "Dub. Journ." vol. xvii. 1840, p. 116.		M.	Lymphatic temperament, but enjoying good health, and inclined to obesity.	Taken with symptoms of pneumonia, and after six days, when he was recovering, the usual russet sputa were replaced by membranous casts from the bronchial tubes, the expectoration of the casts being preceded by suffocative cough; relieved by the expectoration. The membranous expectoration ceased in a few days.	Recovered.
26. Dr. Corrigan. Ibid. Op. cit.	40	M.	Seems to have been long out of health, and described as resembling a person in the last stage of cardiac disease.	Had peculiarly hard cough and difficulty of breathing, and expectorated casts from mucous membrane of bronchial tubes, which ceased in a few days.	Recovered.
27. Starr. "Lond. Med. Gaz." vol. xxv. 1840, p. 736.	22	F.	Took cold when 2 years of age, and had	Seized with symptoms of subacute bronchitis, and in about ten days began to expectorate masses	Recovered.

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of health.	Mode of attack, and History of case.	Result.
			almost entire loss of voice ever after.	of membrane, resembling ramifications of bronchial tubes, tinged with blood; catamenia irregular, but she was not materially indisposed. Recovered in a short period.	
28. Ranking. "Lond. Med. Gaz." vol. xxviii. 1841.	20	M.	Had suffered from three previous attacks of hæmoptysis, within a few months, with palpitation and catarrhal symptoms, giving rise to suspicion of phthisis.	Seized one morning, on awaking, with expectoration of mucus mixed with blood, together with membranous masses, expelled by hawking. Little the matter with him except slight bronchitic symptoms, and improved in three or four days, and soon entirely recovered.	Recovered.
29. Barker. "Med.-Chir. Trans." vol. xxxi. 1848, p. 51.	22	F.	Of irregular habits.	Attacked nine months before, after three months of delicate health, with cough, aphonia, and dyspnœa, and these symptoms suddenly became very urgent, and tracheotomy was performed nine days after her admission into St. Thomas's Hospital. She was nearly suffocated at the time when a clot of blood was removed, and with it portions of membrane, and she rallied. Five days after, the symptoms again became urgent, the bleeding recurred, and similar matters were removed, and she then improved, so that the wound healed and she breathed freely, in about a month. But she died, exhausted, six weeks after the operation. After death the laryngeal mucous membrane was found extensively ulcerated, and the lungs contained much tubercle.	Died exhausted, of laryngeal ulceration, hæmorrhage, and phthisis.

Name of Author, Date, and Reference.	Age.	Sex.	Previous state of of health.	Mode of attack, and History of case.	Result.
30. Thore, fils. "Arch. Gén. de Méd.' 4me. série, t. 20, 1849, p. 295.	14	M.	Healthy constitution, but had had similar, though much more severe, attack, when 9 or 10 years of age, and was then not expected to recover.	Was suddenly seized with symptoms of violent pulmonic inflammation; two days after, with a severe fit of coughing, he expectorated pieces of membrane of a tubular form, and pale rose colour, and branched. He continued to have severe fits of coughing, and to expel similar membranes, every day or two, for ten days, but he was otherwise much relieved after the second day. He had been entirely well for four days, when the report ceases on the fourteenth day.	Recovered.
31. Ibid. A patient of M. Lassère, of Montauban.	9	F.	Of very delicate constitution — rachitic — and whose mother died of phthisis, soon after her birth.	After having presented symptoms of hectic for three months and a half, she suddenly expectorated, with a severe cough, pieces of membrane, mixed with mucus and streaks of blood. For the next fifteen days she continued to expectorate similar matters, every second or third day, being much easier in the intervals.	Recovered. The report terminates on the eighteenth day, and the serious symptoms had subsided a few days after the first appearance of the membranous sputa.

Cases incidentally noticed.

Bartholin "Hist. Anat. Rar." cent. 3, hist. 98, Hafniæ, 1657. A man labouring under phthisis expectorated a branch of the pulmonary artery; a very imperfect plate.

Tulpius "Obs. Med. Amstelodami," 1685, lib. 2, cap. 12, saw two instances of portions of the pulmonary artery expectorated. One in a young man who brought up a large branch with hæmoptysis, and died a month after; the other, a man of mature age, who died soon after having expectorated two large branches, after hæmoptysis. With two good plates.

Moellenbroccius "Misc. Cur. Nat. Cur." anni 1671, Norimbergæ, obs. 91, p. 166. A person who, in 1648, spat up portions of the vena arteriosa and recovered.

Mackius "Ibid," Decuria 2, annus 10, anni 1691, obs. 102, p. 182. The case of a man, 26 years of age, who in 1670, spat up a large quantity of blood; the bleeding, after being arrested for a time, recurred at short intervals; after a severe cough, he expectorated a portion of the arteria aspera, and recovered.

Cheselden "Anatomy of Human Body," Second edit. London, 1722. Tab. 19 represents a polypus expectorated from the bronchi; communicated by Dr. Oliver Horseman; and which is stated to afford a good illustration of the mode of division of the bronchi.

Bontius "Diseases of India;" translated into English 1769, states that in 1629 he examined a man after death, in whom he found portions of the bronchi lying loose, and separated from the rest, and mixed with other secretions, similar to those expectorated during life.

De Haen "Rat. Medendi," 1761, vol. 1, p. 106, states that a person, labouring under pleurisy, ejected a piece of membrane, without other sputa; and, after death, a similar mass was found lining the trachæa and bronchi.

Senac "Traité de la Structure du Cœur," 1783, t. 2, p. 412. s. 2, liv. 6, chap. 6, p. 412, states that he had seen a man, after urgent difficulty of breathing, expel a white elastic mass, which had the form of the bronchial tubes.

M.M. Chaussier and Louyer-Villermay, the reporters in the case of M. Raickem, "Bullet. de la Faculté" t. 4, 1814–15, state that they saw in M. Corvisart's "clinique," a young soldier, who, after having had itch irregularly cured, had violent fits of coughing, and, during two or three months, expelled at intervals membranous casts of the bronchial tubes, and ultimately recovered. They also state that specimens of this kind of expectoration, were preserved in M. Lobstein's Museum at Strasbourg.

Lemery, "Hist. de l'Académie des Sciences," An. 1704, Paris, 1745, p. 23. A man spat up, with phlegm, membranous substances, mixed with blood; they were hollow and ramified, and appeared to have been moulded in the bronchial tubes.

M. Le Bœuf, "Mém. de l'Acad. de Chirurg." t. 4, 1774, p. 449, is stated to have sent to the Academy of Surgery a specimen which appeared to be the "vessels of the lungs." They were expelled, after taking turpentine, by a man. This case is reported on by M. Sue.

Laenec does not appear to have met with any case of this description; and confounds them with cases of polypoid growth from the mucous membrane.

Dr. Stokes mentions having seen two cases of membranous expectoration; one, with Dr. Marsh, in a middle aged female. The further particulars he does not give.

Dr. Crisp has mentioned to me having exhibited, at the London Medical Society, a specimen of this form of sputum, expectorated by a female, 33 years of age. But I have in vain sought for further particulars of the case, in the periodicals in which it was said to have been reported.

I have also found references to this subject in some of the older medical authors; but they are too imperfect to be quoted.

Since the table was drawn up and the report written, I have seen the article by Valleix, "Bronchite Pseudo-Membraneuse," in the "Guide de Médecin Praticien," t. 2, p. 142, Paris, 1843. The only cases there referred to, which are not here given, are two by M.M. Cazeaux and Barth.

M. Valleix bestows much care in pointing out the diagnosis of cases of plastic exudation, and supposes that the "bruit de soupape" may be regarded as in some degree pathognomonic; but this exists in other forms of bronchitis, and is absent in many of this description, so that no great importance can be attached to it. The symptoms and signs do not differ from those of ordinary acute or subacute bronchitis; and the appearance of the membranous masses can alone point out the true nature of the affection.

At the Meeting of the Society, March 21st, Dr. Peacock exhibited specimens of membranous sputa, ejected by a boy, eleven years of age, a patient of his, at St. Thomas's Hospital. He had had several previous attacks since he was six years of age; and the masses had, during the last attack, been expectorated at intervals, for five months. He presented the usual symptoms of subacute bronchitis, and was of phthisical constitution. The masses were white, solid, branched, and expectorated occasionally alone, occasionally with other bronchitic sputa, but never with blood. He sometimes spat up many pieces in a day.

Dr. Peacock, 31*st of January*, 1853.

III.—DISEASES, ETC., OF THE HEART.

1.—*Malformation of the Heart. Contraction of the Right Auriculo-ventricular Orifice, with two small Apertures in the Septum-ventriculorum.*

The female infant, which was the subject of this case, first came under the care of Dr. Peacock at the City of London Hospital for Diseases of the Chest, on the 1st of March last. It was then reported to suffer from frequent paroxysms of difficulty of breathing; during which the face and upper extremities became very livid, and the heart beat violently. The child was unusually livid when born, but it acquired a more natural colour, and again became darker at the end of the first week. The palpitation and dyspnœa were ob-

served at the end of the second week, and the symptoms had continued till she was brought to the Hospital, when three months old. The parents were both healthy, and the mother especially so. They have had five other children; of whom the fourth suffered during infancy from difficulty of breathing, which it out-grew; and the fifth seems to have died of laryngismus stridulus when about five weeks old.

When first seen, the child was so restless and cried so constantly, that no satisfactory examination could be made. A carminative mixture was prescribed.

On the 22nd of March the following notes were taken :—"The child has had no severe paroxysm since she was first seen; but the hands and face have been constantly more or less livid; there is, however, now no blueness beneath the nails. The mother states that the left arm and hand are always of a darker colour than the right, and that the limb is somewhat swollen; and such is certainly the case at present. The lower extremities are of the natural colour. The heart beats violently, and there is a systolic murmur, audible over the whole of the front of the chest, but most intensely in the præcordia, and to the left of the lower part of the sternum. It is also very intense at the upper part of the sternum and beneath the left clavicle, but is less distinct on the right side of the sternum. Behind it is only indistinctly audible; but it is somewhat louder to the right than to the left of the spine. There is some dulness in the dorsal regions, especially the left. Bronchitic rhonchi are heard in all parts of the chest. The pulse is regular and equal at the wrists. The child becomes very livid when excited, as by crying, or by even the slightest exposure to cold." From this date the paroxysms continued less frequent and severe, and the child had generally a more natural appearance; but it did not thrive, or rather, it became more emaciated.

In the beginning of June it took hooping cough, under which the other children laboured at the time. The symptoms then became much aggravated; the breathing was rapid and laborious, and the heart beat violently; during the fits of coughing the face and extremities were intensely livid,—almost black, and suffocation seemed impending. The left arm and hand

were at all times larger and darker coloured than the right. The child died convulsed on the 29th of June, when about seven months old.

The body weighed twelve pounds avoirdupois, and was much emaciated. There were some adhesions between the two layers of pericardium at the apex of the heart. The heart weighed two ounces and a quarter avoirdupois. Its form was somewhat more pointed than usual: the apex was formed by the left ventricle. Both auricles contained coagula, and the left was very much distended by firmly coagulated, but dark coloured blood. The right auricle was of ordinary size; the Eustachian valve distinct. The right ventricle was small, but its walls were thick and dense. The pulmonary artery was of unusually large size, its orifice admitting the passage of a ball of twenty-one French lines in circumference. The right auriculo-ventricular valves were thickened and adherent at their angles, so as to contract the dimensions of the orifice. The orifice admitted a ball measuring twenty-four lines in circumference. On the auricular surface of the valves there was a thick exudation of recent lymph. The walls of the left auricle were thicker than usual; the cavity was large. The foramen ovale was closed, but the fossa was depressed towards the left side. The left auriculo-ventricular aperture had a circumference of eighteen lines. The walls of the left ventricle were less firm than the right. The aorta arose, as usual, from the left ventricle, but near the orifice there were two openings in the septum ventriculorum, by which the ventricles communicated; and these apertures were much larger on the left than on the right side. Both openings led into the right ventricle behind the auriculo-ventricular valves, and the largest had a circumference of six lines. The ductus arteriosus was completely closed. The glands at the root of the lung and in the course of the large vessels were much enlarged. The thymus gland was large. The lungs were, in some places, collapsed, in others emphysematous: much viscid mucus was contained in the smaller bronchial tubes, in the collapsed portions of the lungs. The liver, spleen, and kidneys were engorged, but otherwise healthy.

The case possesses interest:—First. As showing disease of the

tricuspid valve, which must have commenced during intra-uterine life. It thus illustrates the mode of origin of those cases of tricuspid valvular disease, in which the segments are found entirely united at their edges, so as to form a membranous diaphragm, extended across the right auriculo-ventricular aperture, and only perforated by a small opening in the centre. It has been subject of discussion, whether these cases should be regarded as the result of disease before or after birth. I am inclined to believe the former to be the correct view, and the case related confirms this opinion.

Secondly. It favours the view which ascribes the production of cyanosis to congestion. Though there existed some deficiency in the septum of the ventricles, the openings were too small to have transmitted any considerable quantity of blood; and, from the form of the apertures, it was evident that the flow which took place must have been from the left ventricle into the right. The cyanosis could not, therefore, have depended on the intermixture of venous with arterial blood; and the only explanation which could be afforded of its presence was, that it depended on congestion of the venous system; an explanation which entirely accords with the aggravation of the symptoms which occurred after the child suffered from hooping cough.

Dr. Peacock, 18*th of October*, 1853.

2.—*Malformation of the Heart. Great Contraction of the Pulmonary Orifice; deficiency in the Septum Ventriculorum, and open Foramen Ovale.*

This specimen had been sent to Dr. Peacock by Mr. Marshall of Mitcham.

The heart was of large size, and, the right ventricle, especially, hypertrophied and dilated. The pulmonary orifice was so greatly contracted, owing to the adhesion of the valves, that a cylinder of six and a half French lines in circumference, could only be introduced into the vessel. The trunk of the artery was also of small size. The septum of the ventricles was very considerably deficient at the base, so that the aorta arose from both ventricles—the opening from the right ventricle into that

vessel, having a capacity of twenty-one French lines; that from the left ventricle, of only twenty-four lines.

The foramen ovale was so largely open as to admit of the passage of the fore-finger. The ductus arteriosus was closed.

This specimen presented a very characteristic example of that form of malformation which, since it was first described by Sandifort, about the middle of the last century, has proved to be the most frequent deviation from the natural conformation of the heart. The symptoms during life were also characteristic. They are thus described by Mr. Marshall :—

"G. S., æt. six years and a half, was born at the full period, and was rather dark coloured; and did not run alone till he was twenty months old. His mother stated that, at the fifth month of her pregnancy, she was much frightened. When the child was three years and a half old, he had a fit, and was paralysed on the right side. The face soon recovered, but the arm and leg were ever after weak, particularly the former. As the child has increased in size, so have his symptoms increased. His breathing has become shorter, so as to be hurried on the slightest exertion; and the surface has acquired a deeper tinge. My first acquaintance with the case occurred two years since, when he was brought to me suffering from extreme dyspnœa, even when at rest, which was unusual with him. His condition at that time was as follows :—

"Skin of a purple hue; the eyes large, and appearing to start from the orbits; conjunctivæ slightly injected; extremities very purple; nails almost black; and ends of fingers very flattened. The action of the heart was tumultuous and forcible; the sounds confused; and the respiration quickened: the chest narrow and prominent in front. A few days before his death he took measles, and had passed mildly through the disease, when he was seized with convulsions, recurring every few minutes, and terminating in coma, with dilated pupils, and the eyelids half open. The fæces and urine were passed involuntarily, and the surface of the body was darker than usual and the conjunctivæ highly congested. He died on the evening of July 31st, 1853; and the body was examined thirteen hours after death. The head was not examined; but all the organs of the chest and abdomen,

except the heart, were found healthy, though much congested.

Dr. Peacock remarked that he was glad to have the opportunity of exhibiting this and the last described specimen (p. 64), of malformation to the Society at the same time; for they both, though in different ways, threw light on the cause of the cyanosis which had existed during life. In the latter case, in addition to the contraction of the pulmonary artery, there was a considerable deficiency in the septum of the ventricles, and an open state of the foramen ovale; a large intermixture of venous with arterial blood, must, therefore, have taken place. In the former case, however, the venous blood, probably, did not enter the general circulation at all, and, certainly, not to any considerable extent: the intermixture could not, therefore, in this case, have been the cause of the cyanosis. In both, however, there was congestion of the venous system; in the one case intense and permanent, and the cyanosis was, therefore, intense and permanent also; in the other slight and temporary, and the cyanosis was also slight and temporary. He thought it impossible, with such cases before us, to hesitate in deciding as to congestion being the cause of cyanosis; though, doubtless, the intensity of the colour was affected by the amount of blood subjected to the influence of the air; and probably, also, for the production of cyanosis, it was necessary that the obstruction should have been congenital.

Dr. Peacock, 18*th of October*, 1853.

3.—*Abnormal condition of the Valve at the Root of the Pulmonary Artery, with consequent hypertrophy of the parietes of the Right Ventricle of the Heart.*

The specimen was a heart removed from a girl of about 14 years old. The valve at the commencement of the pulmonary artery, instead of consisting of three segments, was simply reduced to a diaphragm pierced by a foramen of about the size of a small pea. There were rudiments, as it were, of three corpora Arantii at the margins of the valve, but no division whatever. The walls of the right ventricle were very

greatly thickened. On the left side of the heart there was found an unnatural condition of the aortic valve, whose flaps bore indication of disease. Two contiguous flaps had their adjoining angles torn away, as it were, from their attachment to the aorta, and subsequently united to each other at a lower level. There was also a slightly atheromatous state of the root of the aorta. The foramen ovale was not patent, neither was the ductus arteriosus.

The heart was removed from a girl who died about ten days after being first seen professionally. When visited she was complaining of pain in the limbs; pain on pressure over the cardiac region, and considerable general febrile excitement. She had slight cough and hurried respiration; quick, but regular pulse; and the heart's sounds were, both of them, attended by a *bruit* of considerable loudness, heard most audibly at the base of the heart. She had been for some years affected at times by dyspnœa, but had never, according to the history obtained, suffered from chlorosis or marked debility. Her face was florid; her figure was well filled out; and the catamenia were regular. She had a peculiar wildness of manner and expression which attracted attention, but which was not unlike hysterical excitement. She had leeches applied to the cardiac region, and took salines and antimonials. When seen, three or four hours afterwards, she was evidently suffering from incipient delirium, which became more confirmed and settled. The dyspnœa became greater and attended by cough without any expectoration. She was put under calomel and opium; but, notwithstanding every attempt, it was impossible to affect the gums very decidedly. She became more bewildered, and finally insensible; moaning greatly. The cardiac sounds did not change in character; and she gradually sank, and died in spite of all endeavours. It became necessary to omit the antimony, and to have recourse to stimulants.

On *post-mortem* inspection the lungs were found very congested; and an increased quantity of reddish fluid was found in the pericardial and pleural sacs; besides the unnatural state of the heart already described. The other organs of the body were healthy.

In this case it seems undoubted that the conservative hypertrophy of the walls of the right ventricle was sufficient to prevent the cyanosis which otherwise would have arisen from the obstruction at the root of the pulmonary artery.

The defect of the pulmonary valve was probably an original malformation; but it is more than probable that the condition of the aortic valve was the result of intra-uterine disease.

Her mother stated, that from her childhood the patient had been unable to take strong bodily exercise, owing to palpitation of the heart and dyspnœa being thus brought on.

Dr. J. W. Ogle, *15th of November*, 1853.

4.—*Two Cases of Diseased Hearts.*

Dr. Brinton thought these cases would interest the Society from the fact, that although in both a lesion of the aortic valves had been diagnosed during life, yet the symptoms, as well as the *post-mortem* appearances of the two, offered a marked contrast.

Case 1.—M. Y., æt. 24, a sempstress, of slender and ill-developed form, had always been feeble, and very subject to dyspnœa. In December last these symptoms became greatly increased, and were accompanied by violent palpitation, and dull pain in the præcordia.

Admitted an in-patient of the Royal Free Hospital, April 20th. Her skin was of a yellowish-white colour, and slightly puffy appearance. Respirations about 40 per minute. Pulse 140, and offering the peculiarity incident to aortic regurgitation, in a remarkable degree.

The lungs were healthy, but somewhat œdematous below, and offered a noisy respiration above. The heart was enlarged; its first sound thin and prolonged; its second sound altogether inaudible.

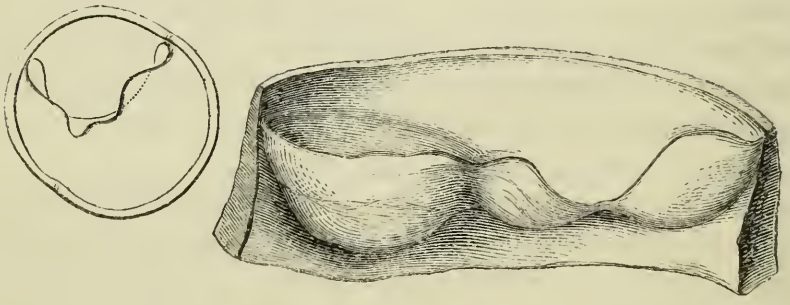
The symptoms rapidly increased in severity. The palpitation became accompanied by fainting fits; and the pulsations occasionally rose to 180 per minute. The pain, retaining its dull character, spread over the whole epigastrium and belly. Enormous œdema gradually supervened. She died on the 21st of June.

The *treatment* found most beneficial was a generous diet, a moderate quantity of wine, prussic acid and salines, dry cupping to the subscapular regions, and cautious acupuncture of the legs.

During life there was no difficulty in diagnosing disease of the aortic valves; and the date of her symptoms, as well as her appearance, had led me to suspect (what the absence of all rheumatism from her history somewhat strengthened) the congenital character of her disease; but neither the signs nor symptoms of the case allowed me to lay much stress on this conjecture.

The *autopsy* exposed a largish heart, with thin pale walls, and valves of remarkable tenuity. The semilunar valves of the aorta are seen devoid of corpora Arantii; they have abnormal and uniform thickness, and a very convex edge. Two of them are partially united by what has every appearanceof a congenital malformation. The nature of this may be best explained by the accompanying diagrams, of which Fig. 2 is a transverse

Fig. 2. Fig. 3.



section of the aorta just above the valves, and Fig. 3, the vessel slit up lengthwise. The least developed valve is that occupying the side of the aorta opposed to the pulmonary artery.

Case 2.—B. æt. 35, a picture-frame maker, hitherto healthy and temperate, was attacked, in December last, with acute remittent pain in the sternal region, attended by dyspnœa and palpitation of distressing severity and greater duration. These symptoms increased up to the date of his application as an out-patient at the Royal Free Hospital, on August 31st.

His skin was pale; his pulse, weak, and about 110 per minute,

was suggestive of aortic regurgitation in a moderate degree only. The heart was scarcely at all enlarged. The diastolic sound was muffled, but not exactly blowing, and was encroached on (in point of time) by a loud systolic bellows-sound over the aortic valves. The latter was very distinct up the aorta, but dwindled rapidly towards the apex of the heart, though audible there.

The diagnosis was disease of the aortic valves; but the comparatively slight affection of the pulse, and the site of the sound, led me to expect coexistent disease of the aorta; a conjecture which the intense and remittent character of the pain, almost an *angina pectoris*, rather strengthened.

The symptoms remained nearly stationary for one month, apparently relieved by the tonic and sedative treatment adopted. On September 26 he was suddenly attacked with an agonizing pain between the shoulders, increased in every attitude but the erect one. After this had lasted three days, a violent fit of vomiting came on, followed, in an hour, by death.

The aorta is seen to be atheromatous and dilated just above the semilunar valves. The latter are thickened, and, at their edges, cartilaginous. The corpora Arantii are long and irregular, one segment of the valves is scarcely half the width of either of the others, and its pouch is little more than a vertical chink. Whether this is due to original conformation, or to diseased contraction, is hard to say. But as this valve is otherwise the more diseased of the three, is opposite to the most atheromatous part of the aorta, and equals its fellows in depth, the latter view seems the more probable.

The coronary arteries are extensively cartilaginous; though scarcely calcified. Dr. Brinton, 18*th of October*, 1853.

5.—*Old standing Disease of Aortic and Mitral Valves, with Hypertrophy and Dilatation of the Heart, which appear to have produced no inconvenience till a short time before death. Pulmonary apoplexy.*

W. H., a silk-trimmer, æt. 33, was admitted into St. Thomas's, under Dr. Barker's care, on the 29th of November, 1853, and died on the 2nd of December following.

He states that he had enjoyed perfect health until two months ago; that he had never had rheumatism; and had never previously complained of palpitation or other abnormal sensation in the situation of the heart. At the time above mentioned he was carrying a bale of silk up stairs on his shoulders, when it fell on his loins and sprained his back. This was succeeded by cough and slight palpitation, but not sufficient to prevent him following his occupation. Ten days before he came to the Hospital he says he caught a severe cold; his palpitation increased; his legs began to swell, and five or six days after this he began to spit a little blood. He continued at work until his admission. During the time he was in the Hospital, he laboured under very severe orthopnœa, had a cough, and spat a little blood. There was great dulness over the heart, and considerable impulse, with a double murmur most distinct over the aortic valves. The urine was scanty but not albuminous; and his legs were œdematous.

The *post-mortem* examination was made the day after his death. He weighed nine stone three pounds, and his height was five feet eleven inches.

Chest.—The pericardium occupied a much larger share of the front of the chest than usual, and was universally attached to the heart by old cellular adhesions. The heart was much enlarged. From the upper margin of the aortic valves to its apex it measured five inches, and it weighed twenty-four ounces avoirdupois. The walls of the left ventricle were three-quarters of an inch thick in the thickest part; of good colour, and firm; the cavity was very much dilated; the aortic valves were greatly diseased, and presented nodules of earthy matter along their attachments, and each was adherent to its neighbour from the angle half way to the corpus Arantii. The parts thus united were, in other respects, but little altered; the remaining portions, however, were contracted, and very much thickened. The lining membrane of the septum ventriculorum for three-quarters of an inch below the valves was thickened. The chordæ tendineæ were several times their natural diameter, much shortened, and, at their insertion into the mitral valve, nodulated, and filled with earthy matter. The mitral valve was

exceedingly thick and rigid, and chiefly so where it joined the tendinous cords. The anterior curtain was dilated and convex towards the auricle, and its ventricular surface presented several little patches in which the earthy deposit was exposed and in process of breaking down. The mitral orifice admitted only of the passage of the fore-finger. The lining membrane of the left auricle was thickened and opaque, especially in the neighbourhood of the valve. The right ventricle was dilated, but not in proportion to the left. The right auricle and the valves on the same side were healthy.

The left pleura presented a few adhesions at its upper part. The lung was of medium size, for the most part crepitant and healthy, though slightly congested; and in the anterior corner of its lower lobe was a recent apoplectic clot, about half a cubic inch in bulk. The bronchial tubes were more than usually injected, and loaded with tenacious and slightly opaque secretion. The right pleural cavity contained about a pint of serum, and there were a few old adhesions both at the upper and lower parts. The lower half of the upper lobe of the right lung, its middle lobe, and the greater part of its lower lobe, were covered by an exceedingly thin layer of recent lymph. Near the lower edge of the lower lobe were several yellowish-white, slightly elevated patches, varying from about a square inch in area to a smaller size. They were somewhat irregularly, though abruptly, marginated, and situated beneath the pleura. The lymph was most abundant in their immediate neighbourhood, though not so much on as around them, and it seemed probable that they had acted as foci of inflammation. The greater part of the upper and middle lobes was congested, but crepitant. At the anterior angle of the upper, was a small, well marked, apoplectic clot. At the lower edge of the lower lobe were several clots, together, perhaps, two or three cubic inches in bulk, and varying in size between that of a walnut and that of a filbert. Their circumference was well defined, and consisted of a buff-coloured layer about half a line thick, of which the yellow patches seen on the surface of the lung formed the superficial portion. The interior, however, retained the ordinary appearances. It seemed evident that these clots were of older date

than the others, and that the loss of colour in their superficial layer was due to absorption of the colouring matter. The remainder of this lobe was sparely crepitant, but otherwise healthy. The bronchial tubes were in the same condition as those of the other lung.

There was little worthy of notice in the other parts. The spleen and liver were adherent to the diaphragm, and the liver presented the nutmeg character. The kidneys were congested, but apparently healthy. The aorta was studded with atheroma in its whole length.

It must often have struck those who are in the habit of following cases from the wards to the dead-house, how, in one instance, an apparently slight imperfection of the heart, a single incompetent valve, a change that in a superficial examination might easily have been overlooked, has caused, rapidly and distressingly, all the secondary ills of cardiac disease; while in another the most extensive changes of structure have produced but little disturbance, or even no inconvenience. The preceding case is a good example of the latter kind. From the inspection it was evident that the chief part of the heart affection, was the result of inflammation. From the history it is clear that it was of very old date, and probably originated in infancy, or even in fœtal life; at all events, at a time to which his memory could not reach; yet, in spite of the inadequate valves, and of the consequent hypertrophy and dilatation of the heart itself, no annoyance, no uneasy feeling in the chest or elsewhere, had been experienced by the patient till within two months of his death. Probably he had really been the subject of palpitation, but, from its habitual presence, it had passed unnoticed as a part of his natural sensations, and the loss of it he would, not unlikely, have looked upon as a symptom of disease.

Another point in this case is worthy of notice. There was pulmonary apoplexy, and one or two of the clots had already undergone changes. Their superficial layer had become decolorized, and they had excited a little inflammation in the pleura over them. The resemblance between them and some of the commencing lung-abscesses of pyæmia, will, I think, be apparent to most of those who are accustomed to see such

cases. This fact is, to a certain extent, favourable to the views entertained by Hasse and older pathologists, as to the nature of secondary abscesses, which they suppose to originate in hæmorrhage into the tissue of the lungs.

Dr. Bristowe, 20*th of December*, 1853.

6.—*Malformed and Diseased Aortic Valves. Arrested Phthisis ?*

The specimen was removed from a female æt. 80, who had for a considerable time suffered from chronic cough with asthmatic breathing, and who died suddenly when walking up stairs. The left lung was found, on *post-mortem* examination, contracted, and occupying a small space at the apex of the left thoracic cavity; its tissue was marked with the remnants of cavities which probably had healed many years; the contracted lung adhered to the surrounding walls. The right lung was very much enlarged by emphysema, and extended to the left side of the sternum.

Cretaceous deposits about the size of a nut were found in both lungs, embedded in condensed tissue. The substance of the heart was natural. The aortic valves were diseased, affording a marked example of obstructive disease, originating in fusion, probably during fœtal life, of two of the segments.

The right and left segments are seen entirely united, so as to constitute one large valve, with a well marked frænum on its upper surface, the posterior segment is also adherent to the adjacent valves. All the valves are considerably thickened by bony deposit, at parts nearly an eighth of an inch in substance, the valves are thus rendered immovable, and the aortic orifice is converted into a narrow fissure, so that the blood must have had considerable difficulty to force its passage from the ventricle. The ventricular surface of the deposit is fissured in three points.

Mr. Obre, 21*st of February*, 1854.

7.—*Deposit of Bone on the Aortic Valves.*

A gentleman about 50 years of age, who had for a long period suffered from palpitation of the heart and difficulty of breathing,

after a long walk, suddenly fell dead. The *post-mortem* examination revealed the lower portion of the inferior lobe of the left lung in a solid state from previous inflammation, and adherent to the surrounding walls; the lungs were healthy with this exception. The heart was natural in size; the aortic valves alone were diseased, a mass of bone being embedded at the adherent angles of the right and posterior valves. The bone is dense and nodulated, and has hanging attached to it a portion of membrane, separated from the edge of the right valve; the bony deposit was split through, and in a line with the torn edge of the valve, showing that they must both have given way at the same time, and probably from some sudden impediment to the flow of blood, so producing the sudden death.

Mr. Obre, 21*st of February*, 1854.

8.—*Case of Diseased Aortic Valves.*

This heart is from the subject of Mr. Haynes Walton's case of aneurism of the posterior tibial artery (*see* p. 111). The man, W. J., a coal-heaver, æt. 27, first came under my notice on the 27th of December, 1853, when he applied at St. Mary's Hospital as a casualty, having, as he said, sprained his legs, the right more especially, by pushing forward a heavy load, and ever since he has had pains and aches in them. On examination, the leg felt hot, and was painful; over the right calf there were some purple, purpuric like spots; no pulsation detected. The *heart* was also examined, and no murmur then existed. He was a well-made man, and by no means anæmic; he confessed that he had lived hard. He was ordered some medicine and left. He called again on the 29th; said he was better, but had a little cough. He came again on the 10th of January, 1854, when he looked ill and much pulled down; he laboured under much feverish excitement, and his pulse was 123 in the minute. He was at once sent to bed; and now the tension being removed, there was a visible pulsation in the calf, and the stethoscope gave evidence of an aneurismal whiz. There was also great excitement of the whole arterial system. By pressure of the stethescope over any artery, as the radial, a loud whiz was

produced. He was subsequently bled, &c. The case had, on admission, ceased to be under my charge, Mr. Lawrence being, at the time, Mr. Coulson's house-surgeon; but I find a note in my book, February 25th, that there was a loud double murmur over the base of the heart, heard also along the course of the great vessels. He was operated on, on the 18th of March, 1854, when I administered chloroform and used a drachm and a half, which was given very carefully and gradually on account of the condition of heart. The pulse, from 120, sank to 110 per minute, but was regular the whole time. The breathing became rather hurried, and the surface was, if possible, more pallid, and moist, and clammy. On returning to sensibility the pulse again reached 120; and, I believe, continued as frequent up to his death. At this time he was a mere shadow, and could with difficulty be recognised as the man who applied at the Hospital in December.

Mr. J. W. Trotter, 18*th of April*, 1854.

Report on the condition of the Aortic Semilunar Valves in the preceding Case:—In the present state of the preparation it is not easy to say decidedly what was originally the condition of the valves; but, after careful examination, I infer that they were only two in number—forming an example of the kind of malformation, by defect, which consists in the fusion of two of the segments into one. The two valves, now existing, consist of one, which, from having the coronary arteries arising behind it, may be regarded as the representative of the right and left semilunar valves, and has a width of nineteen and a half French lines. The other, the analogue of the posterior valve, has a width of only fourteen and a half French lines. The frænum which, in cases of fusion of the semilunar valves, usually exists, and indicates their former point of separation, is very imperfectly marked; but this is often the case, and may depend on the union having taken place at a comparatively early period of fœtal life. It is also common when the patient does not die early. The sinus of Valsalva behind the posterior valve is somewhat dilated.

The free edges of both segments are much thickened, and

studded with fibrinous deposits intermixed with earthy material.

Both valves present large perforations, and the edges of the openings are rounded and smooth. A portion of the fold of the larger valve, which would partially close the aperture, hangs from one side, as if it had been first torn from its connections, and then pushed back by the current of blood. These openings were certainly formed during life. The free edge of the larger valve is entirely torn from the rest of the fold, but the edges are ragged, and the laceration doubtless occurred after death. The anterior fold of the mitral valve is studded with small, recent deposits of fibrine, probably from having been in the course of the regurgitant current flowing from the aorta into the ventricle. The valve is also thickened, and on the ventricular side there are several small apertures which perforate the endocardium, and in some cases form slight protrusions on the auricular sides. These were probably formed by the softening of atheromatous material, and the insinuation of the blood into the small sacculi so produced.

Whatever may have been the original condition of the valves, I have no hesitation in regarding them as having been, for a *long period*, so extensively diseased, as to lead to obstruction to the flow of blood from the ventricle into the aorta; and, for a *more limited period*, to have been incapable of closing the aortic orifice, so as to have allowed of very free regurgitation from that vessel into the ventricle.

Dr. Peacock, 16*th of May*, 1854.

9.—*Extreme Hypertrophy of the Heart, apparently without sufficient associated disease to account for its production.*

H. R., a ship-smith, æt. 41, was admitted into St. Thomas's Hospital, under Dr. Barker's care, on the 29th of November, 1853. He has always been hearty, and enjoyed good health till about two years ago, when he caught cold, which was followed by cough, pain in the chest, and palpitation. Eight months since his legs began to swell, and soon the œdema extended to the rest of his body, but he continued at his work till

four months ago. He has never had hæmoptysis. When admitted into the Hospital his extremities were cool, his skin perspiring, and his face somewhat livid; he was anasarcous, but the chief swelling was in his legs; his breathing was rapid, and he laboured under orthopnœa; there was evidence of considerable effusion into both pleura, but chiefly into the right; rhonchus and sibilus existed on both sides of the chest, but his cough was not very distressing; there was increased dulness in the precordial region, and, at one time, it was supposed that there was considerable pericardial effusion; the action of the heart was feeble, and its sounds, though faint, were perfectly distinct and apparently healthy; the pulse was weak and very rapid; the urine was albuminous. He continued in much the same state up to the time of his death, which happened on the 6th of December, at 11. 45, P.M.

Autopsy, on the 7th of December, 1, P.M. — A tall stout man. Height, six feet two inches. Weight, fifteen stone eleven pounds. Body generally, lower extremities especially, œdematous.

Chest.—The pericardium and heart occupied a larger portion of the anterior surface of the chest than natural. The pericardium was healthy, but contained an ounce or two of fluid. The heart was of very large size, but apparently proportionate in all its parts. It weighed, when empty of clot, as nearly as possible, twenty-seven ounces avoirdupois. The walls of the left ventricle measured an inch in thickness about half way between the apex and the base; and those of the right at the corresponding point, a quarter of an inch. The muscular tissue was of good colour and firm. The aortic valves were perfectly healthy. A few patches of atheroma were found on the mitral valve, but it was otherwise healthy, and altogether competent. The valves on the right side were also in a normal condition; the cavities contained a little partially decolorized coagulum. The commencement of the aorta presented a few patches of atheroma, and a few similar were scattered about in other parts of the vessel. Its calibre appeared normal throughout; at the cardiac orifice it measured three inches and a half in circumference.

The right pleural cavity contained about a quart of clear serum, but there were no adhesions. The serous covering of the lung was universally thickened and opaque, though smooth and polished. The thickening and opacity were greatest at the lower part; but here and there, and chiefly at the edges, the lung had partially forced its way, and slightly protruded through its thickened and contracted covering. These changes were clearly due to old or chronic inflammation. The lung was of moderate size and somewhat congested, but crepitant throughout. The left pleura presented a few adhesions, and held about half-a-pint of serous fluid. The lung was very voluminous, congested, and crepitant, and its surface was everywhere thickened and opaque, like that of the right. The bronchial tubes of both lungs were congested, and contained a large quantity of somewhat viscid mucus.

Abdomen.—The peritoneum contained about a pint of serum; its surface was more or less thickened and opaque in its whole extent. The capsules of the liver and spleen were thickened, and attached by a few adhesions to neighbouring parts. The liver was rather large, and unequally congested; it had a nutmeg appearance, and was not fatty. The spleen was apparently healthy. The kidneys were somewhat reduced in size. On removing their capsules their surfaces were found markedly granular, but without appearance of cysts or of mottling. They were a little congested throughout, and the cortex appeared slightly atrophied. Under the microscope it was seen that many of the Malpighian bodies were quite healthy, though congested: a good many also, but certainly the minority, were atrophied, and possessed thick, laminated walls. Most of the tubes were filled with epithelium, the cells of which cohered less than usual, so that very few epithelial casts were observed floating in the field of the microscope. The cells seemed also a little more opaque and granular than usual. In some of the tubes were cylindrical, tuberculated clusters of refractive crystalline bodies: a few contained a small quantity of slightly coloured granular matter, probably the remains of sanguineous effusion; and in a very small number indeed there was a lining of opaque-looking, oily, or exudation matter, which probably

was deposited in the cells. The stomach and intestines were healthy, but their peritoneal surface was a little congested.

The above case is of interest, inasmuch as there was an enormously enlarged heart without any apparent disease of valves or other parts to which the enlargement could be traced. The man was a large and heavy man, but his bulk could not possibly account for the addition of more than an ounce or two to the ordinary average. There was some degree of chronic bronchitis, but this disease was not in an advanced stage, and probably had not reacted on the heart, for its right side was not disproportionately hypertrophied. The kidneys were granular, yet they were not much diseased, and there was a nutmeg liver. But neither the affection of the lungs, nor that of the kidneys or the liver, was more than one finds usually associated with chronic heart disease and dependent on it.

Whatever, then, may have been at the bottom of the mischief, I feel little doubt but that of the visible deviations from the healthy condition, the hypertrophy of the heart was the primary and most important one; and if this opinion be correct, it is pretty clear that simple hypertrophy of the heart is of itself sufficient to produce all those secondary affections which usually follow incompetence of the valves. How the hypertrophy originated in this case I know not. Whether it was congenital, whether its exciting cause was hard work, or whether it was in any way consequent on the cold that he laboured under two years before death, I cannot venture to say; but I am inclined to believe that the true explanation lies in one or other of the first two alternatives.

Dr. Bristowe, *20th of December*, 1853.

8.—*Cases of Fatty Degeneration of the Heart.*

The following cases of fatty degeneration of the heart, occurring within a short time of one another, and illustrating different points in the pathology of this affection, were thought worthy of being brought under the notice of the Society.

First Case.—J. D., æt. 35, was admitted into St. Thomas's, under Dr. Barker's care, on the 14th of March, 1854. He had suffered from cough, emaciation, and debility for five months, but became suddenly, and much worse, ten days before admission. When first seen he manifested well marked signs of pneumonia, the lower two-thirds of the left lung being nearly solid. The pulse was feeble, and intermitted at every eighth or tenth beat. On the 16th, in addition to the signs of pneumonia, loud creaking sounds were heard over the whole of the left side of the chest; but no abnormal sound distinct from that produced in the pleura was noticed over the region of the heart. The respirations were about forty in the minute, and the pulse continued intermittent to the last. He died on the 17th.

Autopsy.—The body was slightly jaundiced.

Chest.—The tissues occupying the anterior mediastinum were much congested, and infiltrated with serous effusion. The cavity of the pericardium contained several ounces of very turbid, yellow fluid; and every part of its surface was covered by a soft, flocculent, straw-coloured deposit of lymph; the villous character of which became very apparent when the heart was placed in water, under which circumstances many of the villi were seen measuring one-quarter, or even one-third of an inch in length. The deposit was most abundant on the posterior surface of the heart; and in this situation several bands of lymph extended between the opposed surfaces. It averaged about a line in thickness; and, being somewhat coherent, and, at the same time, very slightly attached to the pericardial surface, it admitted of being removed in a layer, leaving the serous membrane beneath highly congested. The heart was natural as to size, and its muscular tissue appeared firm, and, for the most part, healthy, and of good colour; but the outer half of the walls of the right ventricle, and a superficial layer of the left, about a line in thickness, though apparently healthy in other respects, presented a very pale-yellowish hue, which passed insensibly into the naturally coloured tissue of the more internal portions of the muscular walls, but contrasted remarkably with it. The valves of the heart were healthy; the cavities were

contracted and contained a small quantity of partially decolorized coagulum. On examining the pallid portions of the muscular tissue of the heart under the microscope, it was distinctly seen that the muscular fibres had completely lost their transverse striæ and that the sarcolemma was occupied by innumerable minute globules of nearly uniform size, which gave the fibres a soft nebulous appearance. This alteration in the character of the muscular fibres, which was apparently an early stage of degeneration, was limited to the pallid portions of the heart. All the fibres in the parts immediately in contact with the inflamed pericardium were thus affected; but in passing towards the healthier looking tissue, transversely striated fibres began to mingle with them; and in the naturally coloured portions all the fibres presented the healthy striated structure. In some of the affected fibres the granules appeared to have coalesced, and the fibres were thickly studded with larger oil-globules, such as one sees in the later stages of fatty degeneration. The diseased tissue did not appear to be more brittle than the healthy.

It is scarcely necessary to give the remainder of the *post-mortem* account in detail. Suffice it to say that a large portion of the left lung was hepatized; that the left pleura was extensively inflamed; and that on the right side there was pleuritis also, but to a less degree; that, judging from the amount of fibrinous effusion in each serous cavity, it seemed probable that the inflammation had begun on the left side of the chest, had extended thence to the pericardium, and from it to the right pleura; and lastly, that the liver presented well marked biliary congestion, which, associated with the jaundiced condition of the body, rendered it probable that slight inflammation of this organ had occurred a little before death.

Second Case.—J. W., æt. 68, a short, fat man, was brought dead to St. Thomas's Hospital on the 3rd of January, 1854. He was a lodging-house keeper, of very steady habits, and he had not been previously noticed to be in ill health; he had of late however been very desponding on account of pecuniary embarrassments, and was reported to have expressed an opinion

that he should not live long. On the morning of the day in question, he had been to a loan office, and on coming out was observed by the passers-by to stagger as he came down the steps, and subsequently to lean himself against the wall. Assistance was at once afforded him, and he was carried forthwith to the Hospital, on the way to which, and in from three to five minutes after the first symptoms, death took place.

Autopsy.—On opening the pericardium, it was found to contain about a quarter of a pint of bloody serum, and the heart was concealed and enveloped in a bag of dark-coloured coagulum which measured about half an inch thick in front, and three quarters of an inch behind. The heart weighed sixteen ounces and a half. It seemed very slightly enlarged, but a considerable quantity of fat was deposited about the right ventricle, and the latter appeared to have been compressed and flattened by the pericardial effusion. On examining the heart, a lacerated opening, three quarters of an inch long, was found at the posterior part of the left ventricle, about an inch from the ventricular sulcus, and parallel to it. The laceration of the pericardium did not quite correspond to that of the muscular wall. On opening the left ventricle it was observed to be quite empty; its walls a little increased in thickness, and of good colour and consistence. The aortic valves were a little thickened by atheromatous deposit, and nodules of earthy matter were situated along their attached margins. The diseased condition was probably not sufficient to interfere with the circulation, or at most, it could have caused only slight obstruction. The anterior curtain of the mitral valve was atheromatous, but competent; the posterior curtain presented, about its attachment, many nodules of earthy matter, but was apparently capable of preventing regurgitation. On carefully examining the rupture it was found to be most extensive near the pericardial surface, and thence could be traced upwards and forwards as a narrow channel to the endocardial layer. The internal aperture appeared to be very small, and was concealed and lost among the columnæ carneæ. A little coagulated blood was effused among the lacerated fibres; and the muscular tissue of the walls, for some little distance around the laceration had a pale-yellowish,

mottled appearance, which was in marked contrast with the healthy condition of the other portions of the heart. The walls and valves of the right ventricle appeared healthy in every respect; its cavity was empty. The auricles were healthy and empty. The coronary arteries presented a good deal of atheromatous degeneration, but the change was not extreme, and not specially abundant in the vessels leading to the seat of rupture. On examining the muscular tissues of the heart with the microscope, it was found that generally the fibres presented more or less oil deposited in longitudinal strings, although the transverse markings were very fairly shown. But in the mottled part, near the laceration, fatty deposit in the fibres was very abundant. In most, all traces of transverse, or even of longitudinal markings, were absent, and the fibres were rendered very opaque by, and thickly studded with, oil globules, of rather small size, but in which there seemed a tendency to unite. In many cases one part of the fibre appeared tolerably healthy, or only slightly affected, while another part was fatty to an extreme degree. There was also noticed in the diseased fibres a remarkable brittleness, or tendency to break up into small fragments, which floated about in large numbers in the field of the microscope. This was not observed in the muscular tissue of other parts of the heart, and is interesting as bearing on the cause of the rupture. The aorta presented a large amount of atheromatous and earthy deposit throughout.

The walls of the chest and abdomen, and the great omentum, contained a considerable quantity of fat. No other organ of the body presented appearances worth recording.

Third Case.—B. R., æt. 11, a well grown, and moderately stout boy, of rather fair complexion, was admitted, on November 15, 1853, under the care of Dr. Bennett. He was extremely pale and anæmic. His manner was heavy and oppressed. Over almost the entire cutaneous surface, but especially on the chest, was a copious eruption of small purpura spots. The gums were rather swollen, soft, and, to a certain degree, spongy; they bled readily when touched. The breath of the patient had a faint, disagreeable odour; tongue pale and almost clean; pulse

large, a little jerking, but extremely compressible, 106; skin warm; bowels confined. It appeared that he had been employed as a rope-maker's boy, and had not been very well cared for. His usual diet had consisted of bread, butter, cheese, milk, rice, potatoes, with fresh meat about once a week. His illness had begun by spots appearing on the neck and chest six weeks ago, they spread gradually over his body, and his gums soon after began to bleed, and once or twice the nose also bled; he also became very feeble and lost his colour.

From the time of his admission up to the 18th of December, he appeared to have mended considerably under treatment; the spots had quite disappeared and he had gained strength, though he had scarcely at all improved in colour, remaining pallid to an extreme degree. On the morning of this day, however, a new symptom showed itself. The notes of the case say :—"He is up and walking the ward, but walks with an unsteady gait, has a peculiar vacant, puzzled expression of countenance, and complains that he can scarcely see. The brows are knit and frowning, but he does not suffer any pain. The pupils are dilated and sluggish.

"19th. The loss of vision is more nearly complete than yesterday; he cannot distinguish even large objects, though he has good perception of light. He complains of headache, and of pain around the orbits, and states that he sees birds, beetles, &c., all of a black colour, moving about near him. This delusion is so strong, that he frequently attempts to catch the spectral objects. The pupils are widely dilated, the left quite insensible to light, the right extremely sluggish. Pulse 100, small and jerking; skin hot; tongue a little furred."

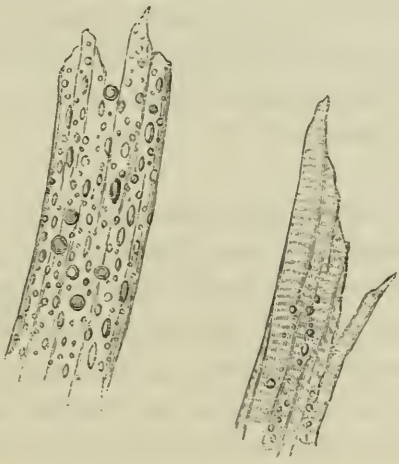
From this time up to the 31st, on which he died, the blindness and muscæ continued more or less perfectly. Hæmorrhage, occasionally copious, took place from the nose, and sometimes blood was vomited and passed by the bowels, but no petechiæ appeared. He became so anæmic that his lips were scarcely distinguishable from the surrounding skin. On the evening of the 29th he began to complain of pain in the belly, and during the ensuing night, and up to the time of death, he was continually shouting and screaming, though he continued to be

quite rational and sensible when spoken to. He remained sensible to within five minutes of his death. No convulsions occurred at any time, and his pulse though exceedingly rapid and feeble, was regular to the last.

Autopsy.—There was a considerable quantity of fat in the integuments of the chest and abdomen.

The heart was of natural size and apparently for the most part healthy. The muscular tissue however, was very pale, without being flabby, and the surface bounding the left ventricular cavity, including that of the columnæ carneæ, was finely mottled. The cavities contained small fibrinous coagula, with scarcely a trace of colouring matter. On examining the muscular tissue of the heart with the microscope, it was found to be in an extreme state of fatty degeneration. In most of the fibres all trace of striation was absent and they were filled with oil globules of various and often large size. (Fig. 4.) In some

Fig. 4. Fig. 5.



cases the transverse markings were present, but more or less indistinct, and even in most of these a few longitudinal strings of oil globules were visible. (Fig. 5.) There did not appear to be any unusual degree of brittleness in the affected fibre.

The left pleura was healthy; the left lung was of natural size, œdematous but crepitant throughout, and anæmic to an extraordinary degree. A few slightly congested spots were scattered

about, and on the lower angle of the upper lobe were a few petechiæ. The right lung was enveloped in a thin and recent layer of fibrine; it was crepitant, smaller than the other, and scarcely so pale or so œdematous.

Abdomen.—The mesentery and great omentum contained a considerable quantity of fat. All the abdominal viscera were remarkably anæmic, but otherwise healthy.

Head.—The dura mater was colourless. The surface of the brain was quite bloodless, and of a uniform whitish colour, like that of curd soap; in the anterior part, no vessel, either capillary or other, could be seen; and at the posterior part very few were observed, and these carried almost colourless fluid blood. The same anæmic condition obtained at the base and sides of the brain. The fluid in the subarachnoid tissue was decidedly not more abundant than usual. The large vessels at the base were healthy. The whole tissue of the brain was found to be as bloodless as the surface, and even the choroid plexuses had only a faintly-pinkish tinge. The lateral ventricles were of ordinary size, and did not contain more than a drachm of serum each. The substance of the brain was of natural consistence throughout, and there was no appearance whatever of tuberculous or other deposit.

Remarks.—The above interesting cases may be usefully compared and contrasted. In each there was fatty degeneration of the muscular fibres of the heart; but the ages of the patients presented a wide range, the anatomical characters of the disease were somewhat different in each, and in each the fatty degeneration had a different origin, and was differently related to the symptoms manifested during life, and to the fatal event.

In the first case, the patient, a man æt. 35, died of pericarditis; and the degeneration, which was in the earliest stage, and strictly limited to the muscular tissue of the outer surface of the heart, was clearly a sequel of the pericardial affection, and probably due to extension of inflammation into the substance of the muscle. This is a condition which probably exists to a greater or less extent in all cases of pericarditis, and one which

may play an important part in deranging the functions of the heart, or in laying the foundation of grave and permanent organic mischief; and, indeed, it remains an interesting object of inquiry as to how far muscular tissue thus impaired, is capable of recovering its healthy character. The possibility of reparation is probably in an inverse ratio to the amount of disease; so that, while a heart slightly and superficially deranged may be perfectly restored, a heart deeply and extensively disorganized must necessarily retain indelible traces of the acute disease under which it has laboured. In proof of the occurrence of the former event one need only examine a few hearts, the pericardia of which have been obliterated by by-gone inflammation, to discover that in most of them the superficial layer of muscle is as healthy as the deepest layer, although it must have been in some, and probably has been in all, the seat of such degeneration as existed in the case under consideration; and, as probable examples of the latter event I may cite certain cases of what is called fibrous degeneration of the walls of the heart, associated with pericardial adhesion, of which Dr. Risdon Bennett has furnished an example in the 3rd Vol. of the Society's "Transactions," and in which the existence of pericardial complication appears to indicate that the affection originated in an inflammatory attack rather than that it was the consequence of a process of simple degeneration.

The second case above related is one of that common class of which so many specimens have been brought under the notice of the Society, in which a local degeneration has been followed by rupture and death. The degeneration here, and probably that in most cases of the kind, appears to be a manifestation of that tendency to decay which exists in all animal bodies after they have passed the middle period of life, and which, probably, may be hastened, or delayed, or localized in one tissue rather than another, by previous habits, by previous disease, or by predisposition. Of this downward tendency there is no need of adducing proof, and that its manifestations may be found, to a greater or less extent, in every tissue of the senile frame, is undoubtedly true; but it is also a fact, and one very hard indeed to explain, that in nearly every instance, one tissue, or

a portion of one tissue, undergoes changes of degeneration out of all proportion to those taking place in the remainder of the organism. Thus, at one time, the nervous system is the first to succumb, the brain becoming atrophied, or softened, and the patient fatuous; at another time, the osseous framework is that in which the inroads of decay become most evident. In some individuals the vascular apparatus chiefly suffers, the consequent phenomena varying strangely, according to the seat of the change; thus, in one case, the valves of the heart become ossified, producing death by cardiac incompetency; in another the arteries, weakened by atheromatous deposit, yield and rupture; while in a third, the vessels of the extremities become blocked up by a similar product, and senile gangrene ensues; and finally, (to pass over innumerable examples of the same law) a certain part of the muscular tissue of the heart, as in the present case, may become degenerated, either directly, or secondarily to degeneration of the vessels leading to it. Since the cardiac affection in these cases is one following and dependant on progressive and incurable deterioration in the nutritive functions of the system, it follows that the degeneration itself is a progressive and inevitable process; but one which, though it will not admit of cure, and perhaps not of arrest, may still allow of its ill effects being temporarily alleviated or delayed.

It seems to be a fact, though a curious one, that the localization of the disease is one of its most dangerous features; for a heart either uniformily strong, or uniformily weak, would contract upon its contents with a force proportioned only to the strength of its muscular walls, and, though it might be possible, under certain circumstances, for a rupture to occur in either of them, still there would, I conceive, be little or no more probability of such an accident happening in the feeble heart than in the strong one; whereas, on the other hand, in a heart whose parietes are strong and vigorous, excepting at one spot, one can easily understand that the muscular tissue of the healthy part, when acting up to its own maximum of strength, would exert such an amount of force of traction or pressure on the enfeebled point as it would be wholly unable to

withstand, and, consequently, before which it would yield, and finally rupture.

In the last case of the series the degeneration was clearly the result of long continued deterioration of the blood. The heart, both to the naked eye and under the microscope, presented the well marked character of extreme fatty degeneration; yet it is strange that, with such an extent of disease, so little evidence of it should have been manifested during life; indeed, it may be said that the functions of the heart were normally performed, for, though its action was quick and feeble, it was perfectly regular, and its sounds presented the healthy character. The explanation of this seems to be, that the heart, though diseased, was impaired only in proportion to the rest of the body, and that the contractile power which it retained was perfectly adequate to meet its requirements; though it would have proved altogether incompetent could the organ have been transplanted into an otherwise healthy frame.

How far the state of the heart aided in producing the fatal termination, and how far it would have impeded recovery, are speculative inquiries on which I shall not dwell. Whether, indeed, the heart ever could have perfectly recovered its healthy state, may fairly be a disputed question; but one of which I am inclined to take the favourable view, though, probably, the capability of recovery in these cases, as in the first, would be proportioned to the amount of the disease.

Lastly, before leaving the subject, it may be as well to draw attention to an important character in which the second case differed from either of the others; namely, that the diseased fibres were remarkably brittle; a peculiarity which was not observed in either the first or the third of the cases above described. Dr. Bristowe, 21*st of March*, 1854.

9.—*Aneurism of the Left Ventricle of the Heart.*

J. T., a cook, æt. 53, was admitted into St. Thomas's Hospital, under Dr. Barker's care, on the 20th of December, 1853. He had generally enjoyed good health, and it did not appear that he had ever suffered from rheumatism. Eighteen months

ago he had an illness similar to the present one, which lasted seven weeks. From the end of that attack to the commencement of this, which occurred seventeen days before admission, he stated that he had been in tolerable health, complaining of nothing more than occasional slight cough, and a little shortness of breath. The present illness began with pain in the chest, in the epigastrium, and between the shoulders, accompanied by cough and dyspnœa. The day before he entered the Hospital his legs began to swell. During the time he was under observation, he manifested symptoms of slight bronchitis, associated with extreme dyspnœa, which appeared so disproportionate to the affection of the lungs, that Dr. Barker, anticipating disease of the heart, was induced to examine that organ more than once, with the greatest care, but at no time did he succeed in detecting anything abnormal either in its sounds or action.

He died exactly one week after admission, and was examined two days after death. Body middle sized, not emaciated. Extremities somewhat œdematous.

The pericardium was universally, closely, and firmly attached by old membranous adhesions. The heart was much increased in size, and, when empty of clot and divested of pericardium, weighed twenty-four ounces. The walls of the left ventricle were scarcely thicker than natural, and their muscular tissue was healthy, but the cavity was considerably dilated. The aortic valves were perfectly natural, and the orifice of normal dimensions. The mitral valve, and parts connected with it, were equally healthy. The endocardium lining the upper half of the ventricular septum and the posterior wall of the ventricle was much thickened, and very opaque. Behind, below, and between the aortic and mitral orifices, and, therefore, at the upper part of the junction of the septum and posterior wall of the ventricle, was an oval orifice, half as large again as the mitral, which had very distinct, prominent edges, and which communicated with an aneurismal pouch, about as large as a small hen's egg. The pouch projected backwards opposite the junction of the four cavities of the heart, and encroached, more or less, upon all of them. The inner and under parts

of the auricles, but more particularly of the right auricle, were protruded by it, and their cavities were proportionably diminished. The upper and back part of the right ventricle was similarly encroached on. The cavity of the right ventricle was enlarged, its walls were hypertrophied, and the membrane covering the posterior part of the septum was thickened and opaque. The pulmonic and tricuspid valves were healthy. The lining membrane of the auricles was thickened; but otherwise these cavities presented nothing unusual. Both auricles and ventricles contained recent decolorized clot. The walls of the aneurism diminished in thickness from its orifice towards its convexity, where they did not exceed a line. To the naked eye it appeared as if the muscular tissue was prolonged over the aneurism, but under the microscope it was seen to diminish gradually as it approached the thinnest part of the walls, and at length entirely to vanish, becoming replaced by fibrous tissue. Neither the muscular tissue of the heart nor that of the aneurism appeared to be in anything like a fatty condition. The upper part of the aneurism was filled by an adherent, and somewhat laminated, clot. The aorta, in its whole length, was very irregular and atheromatous; but without distinct deposit of earthy matter.

Both pleuræ contained a considerable quantity of serum. The lungs were enveloped in old false membrane. They were crepitant throughout. There was neither emphysema nor dilatation of tubes, but in the apices were a few small chalk-like concretions.

The kidneys were very slightly atrophied, their cortical parts had a faintly branny appearance, and they contained a few small cysts. Under the microscope the Malpighian bodies were generally observed to be more or less atrophied, though many were perfectly healthy. The convoluted tubes, for the most part, were in a normal condition. A few contained exudation matter, and microscopic cysts were present in tolerable abundance. The liver was somewhat indurated and congested, but no other organ presented unhealthy appearances.

Dr. Bristowe, 21*st of February*, 1854.

10.—*Lateral or partial Aneurism of the Heart.*

This preparation was removed from a man between 60 and 70 years of age, a shoemaker, who was a patient of Mr. Henry Ewen, of Long Sutton, near Wisbeach. He had suffered from distressing dyspnœa, and, for some weeks before he died, the pain in the region of the heart was of the most agonizing character.

On examination after death there existed extensive serous effusion into the cavities of the chest and anasarca.

The heart is of large size, and at the apex of the left ventricle there is an aneurismal cavity. The anterior wall of the left ventricle retains its normal thickness till about one third from the base, when it becomes thinner, and the muscular tissue is partly the seat of the fibro-cartilaginous transformation. These changes gradually increase till, in the lower third, and thence round to near the middle of the posterior wall, the cavity is only bounded by a layer of fibro-cartilaginous tissue, from two to three lines in thickness. Over this space there is a decided bulging of the ventricular parietes, and, on the external surface, the two layers of pericardium are adherent by old cellular attachments. The cavity of the aneurism is partially filled by coagulum, which is distinctly laminated and partially decolorized, and in this, when recent, Mr. Ewen found an oval cavity containing serum.

The mitral and aortic valves are atheromatous, and the lining membrane of the aorta is also roughened by deposit beneath it. The two auricles and the right ventricle are much dilated, and the latter also hypertrophied. The coronary arteries are extremely diseased. From the preparation having been for a considerable time in spirit, it is impossible to ascertain the condition of the muscular tissue.

Dr. Peacock, 16*th of May*, 1854.

11.—*Congenital Malformation of the Heart. Absence of the Right Auriculo-Ventricular Orifice, Patulous Foramen Ovale, Defective Interventricular Septum.*

On the 4th of October, 1853, Dr. Sieveking was called to see a baby, æt. 6 weeks, whose bowels had become deranged; the motions being very frequent, and of a green colour, and once accompanied by slight hæmorrhage. There was also much straining, and frequent rejection of food. A warm bath, and a change in the diet of the mother appeared to restore the infant's health, and nothing peculiar was remarked, either in conformation or appearance; the report, on the 7th of October, is, that the mother continues to do well, and the baby's bowels are in good order. On the 18th Dr. Sieveking was again called in; the child having had a slight cough since the previous Sunday (the 16th), which did not attract any attention till an attack resembling syncope supervened in the afternoon, with sudden pallor and death-like appearance. On the supposition of the cough being of a bronchitic character, a dose of Ipecacuanha wine had been administered in the morning. Dr. Sieveking found it breathing about seventy times in the minute, having trifling cough, occasional catching in the breath, as of impending suffocation, without discoloration or great pallidity of the face. There was no trace of cyanosis, the complexion being of a normal character. The abdomen was soft; the bowels were freely open; the motions yellow; the feet cold. The urine had been scanty since the morning. Posteriorly the air was heard to enter freely into both lungs; anteriorly the pulmonary sounds were disguised by a blowing systolic murmur of the heart, which was found to act very violently. The murmur was as loud as when heard in adults, and was distinctly audible even through the clothes. Evident relief was afforded by the application to each calf, for eight minutes, of mustard poultices (one part mustard to two of flour). A gentle diuretic mixture, containing one grain of nitre and eight minims of liquor Ammoniæ acetatis, was ordered, but very irregularly given. On the 20th of October the breathing is reported as continuing much accelerated. There had been frequent suffocative attacks; the

features getting sharp and sunk; the heart acting violently; the systolic murmur continuing unchanged; the child evidently becoming weaker. There was still a marked desire for food; the bowels acted twice during the day, and a large bread-and-water poultice, applied to the abdomen several times during the day, by Dr. Sieveking's directions, was each time followed by diuresis. A beef tea enema (one ounce and a half) given in the morning was retained about half an hour; the act of sucking, constantly caused sickness and suffocative attacks, till the afternoon, when the breast was taken freely. The diuretic medicine had been retained. Some slight mucous räles were heard at the posterior surface of the thorax in the evening. Ordered half a grain of mercury with chalk, and the poultices to be continued, and the medicine and breast to be alternated every hour, if possible. The night, from the 20th to the 21st was one of constant anxiety; the child, however, alternately rallied and fell away until the 23rd of October, when it died in the night; life during the last twenty-four hours being kept up by ammonia and cow's milk poured down the throat. Several times death appeared to have secured its victim, but it rallied, and shortly before the fatal issue the bowels and kidneys gave evidence of their healthy action. The surface retained its normal temperature and colour almost to the last. It was only on the day of death that there was any blueness, and that only in the finger and toe nails.

The *post-mortem* was made on the second day after death; the surface presented no peculiar features. There was much *post-mortem* sugillation in the dependent parts. The lungs were found pale and exsanguine anteriorly, somewhat congested posteriorly, but perfectly crepitant and normal in structure throughout.

Heart.—The size of the heart was considerably above that of a child of two months. The right auricle was distended by black coagulated blood. The pulmonary artery was twice the size of the aorta. The foramen ovale was completely open, so as to permit the first phalanx of an adult finger to be passed into it. The left auriculo-ventricular opening showed no abnormity, except that the mitral valve would not suffice to close the passage, but the left ventricle was very large, and appeared

to occupy the entire cavity appropriated to the right and left ventricles. At the origin of the pulmonary artery, the parietes of the heart were unusually prominent, and, on cutting through them, the knife penetrated into a small cavity, communicating freely with the orifice of the pulmonary artery, and with the left ventricle; from the latter it was partially divided by a fleshy column, extending from midway between the apex and right auricle to the base of the heart. This column, which was not discovered at first, evidently represented the septum ventriculorum; the circular opening at the upper part was about a line and a half in diameter. There was no trace of a communication between the right auricle and ventricle. The pulmonary valves appeared healthy. The division between the auricles and the ventricular portion of the heart was formed by an unusually deep sulcus.

The current of the blood then passed from the right auricle entirely into the left auricle, from this into the left ventricle, and thence, partly by the pulmonary artery, partly by the aorta, into the lesser and greater circulation. A thorough mixture of the venous and arterial blood was necessarily effected, yet no cyanotic symptom was manifested, and, without the stethoscope, few would have surmised the presence of the lesion. It is surprising that, with the amount of derangement shown by the *post-mortem* examination, the infant should have lived as many weeks as it did, in comparative health.

Dr. Sieveking, 1*st of November*, 1853.

12.—*Malformation of the Heart, from a Child who had suffered from Cyanosis. Imperfect septum of the ventricles. Rudimentary right ventricle, which was divided into two chambers by a fleshy septum between its sinus and its infundibular portion.*

The subject from whom this specimen had been removed was a girl æt. 11, who, throughout life, had suffered constantly from cyanosis in an aggravated form. She was very puny and ill developed, had clubbed fingers, and an extremely livid aspect; was incapable of any exertion, and being unable to support her temperature without the aid of artificial heat, used to pass her

time either in bed or sitting close to the fire. There was a loud *bruit* always heard over the cardiac region, but the details of physical examination were unfortunately never noted. She was an inmate of a workhouse, in Yorkshire, and the *post-mortem* was made by Mr. Keyworth, of York, to whose kindness Mr. Hutchinson was indebted for an opportunity of exhibiting the specimen.

The heart was of average size, and almost its whole bulk consisted of an hypertrophied left ventricle. When cut open, at first sight it was taken for an example of single heart, but on further examination, there was in the upper part of the ventricular wall a second, very small, imperfectly separated chamber, the analogue of the right ventricle. Some stout columnæ carneæ marked the position of the septum of the ventricles; but the communications were large and free. The aorta and pulmonary artery were full sized, and their valves, excepting from injuries during dissection, were normal. The two auricles were of normal dimensions and shape, their septum was complete, the foramen ovale being quite closed. The rudimentary right ventricle was divided into two chambers by a fleshy septum, a line and a half in thickness, and situated about four lines below the insertions of the pulmonic semilunar valves. Its infundibular portion was thus extremely small, whilst its sinus was about capable of containing a large almond. In the centre of the septum, which by the microscope was proved to be muscular, was a small opening, through which nothing larger than an ordinary probe could be passed, and which was still further narrowed by small masses of adherent fibrine.

In attempting to explain the cause and progress of this singular malformation, the conjecture seemed probable that the starting point had been furnished by the abnormal fleshy septum in the right ventricle. By this an extreme obstacle had been opposed to the pulmonary circulation, for the better overcoming of which, the ventricular septum had been allowed to remain deficient, thus allowing of the power of the left ventricle being added to that of the incompetent right one. The amount of blood habitually circulating through the lungs must, nevertheless, have been extremely small, since the only access to the pulmonary artery was through an aperture but just capable

of admitting a probe. By the still further narrowing of this diminutive canal, by means of adherent fibrine, death had probably been caused. It was much to be regretted that the exact circumstances preceding death had not been noted, and that at the autopsy no organs, excepting the heart, were permitted to be examined.

Mr. Hutchinson, *15th of November* 1853.

13.—*Traumatic Rupture of the Ventricular Septum of the Heart, without any laceration of the Pericardium.*

A boy, æt. 12, having, in the month of February, 1853, fallen from the top of a house into the area, was shortly afterwards admitted into St. George's Hospital in a state of perfect insensibility, with compound fracture of the lower jaw, and compound fracture of both thighs. He never rallied, and lived about four hours after the accident.

At the *post-mortem* examination no traces of injury were observed about the external parts of the chest; not a single rib was broken, and the only injury about the lungs was a slight bruising on the anterior part of the left one. There was no blood in the pericardium. On the anterior surface of the heart corresponding to the upper part of the septum, and about half an inch below the origin of the pulmonary artery, there was a bruised appearance of the size of a shilling, which was situated immediately under the serous covering; but this membrane itself was not torn through. On further examination, this spot was found to correspond to a laceration of the muscular structure of the heart, extending through the upper part of the septum in its whole thickness, and bringing about a communication between the two ventricles, through which a probe was readily passed from one cavity into the other. The laceration on the right side of the septum measured about half an inch in depth in the antero-posterior direction, but on the left side there was merely a small hole just sufficient to allow of the passage of a probe. In one or two other points, however, where there was also a bruised appearance of this part of the septum, the lining membrane of the left ventricle, separated

from the muscular structure, was the only portion of the septum remaining. One or two of the fleshy columns on the left side of the septum were also slightly torn, but the rupture did not extend deep into the substance; and on the fore-part of the heart there was also a slight laceration spreading through the muscular structure of the anterior wall of the right ventricle. The cavities of the heart were of their natural size and thickness, and the muscular structure was throughout quite healthy. The cardiac vessels were also healthy, and no other traces of injury were observed on any other part of this organ.

In addition to the injury of the heart, the brain presented general contusion of its surface, with fracture of the middle fossa on the left side of the skull. There was also laceration of the spleen, with a compound fracture of the lower jaw, and compound, comminuted fractures of both thighs.

Mr. Prescott Hewett, 20*th of December*, 1853.

14.—*Case of Rupture of the Septum Cordis.*

The gentleman who was the subject of this case was a patient of Mr. Brendon's, and for the specimen and history, Dr. Peacock was indebted to Mr. G. F. Lane. He was about 62 years of age, had enjoyed, generally, good health, and was in the practice of going from Highgate into Town every morning, and returning in the evening. Four or five days before his death, he felt, one evening, after his return home, a slight pain in the chest, exactly over the ensiform cartilage, and, as he had occasionally suffered from muscular pains, he was supposed to be rheumatic, and treated accordingly. He was soon relieved, and, indeed, remained at home only two days, and that, not because he felt ill, but from having no engagements at his office. On Wednesday evening, the 22nd, after his return home, he had a light dinner, which he enjoyed, and took three glasses of sherry with it. At about half past ten o'clock, he said he should go to bed, and his wife noticed that he hurried up stairs, undressed rapidly, and immediately got into bed, but this would not have attracted attention had it not been for the result. His wife then observed that his breathing was rapid, and said that he had walked up

stairs too fast, but he made no reply. Immediately after he jumped out of bed, went to the night chair, and again lay down. His wife asked him why he so immediately returned to bed, to which he merely answered, that he supposed he might get into bed. His breathing then became more difficult, but not so as to alarm his wife much, till half an hour had elapsed, when she sent for Mr. Brendon, who arrived at twelve o'clock, and found that the gentleman had then been dead some minutes.

Post-mortem examination. — The chest only was examined. The venous system was loaded with blood, and the veins, about the upper part of the mesial incision for opening the chest, bled freely. There was about an ounce of bloody fluid in the pericardium. The lungs were healthy; the left ventricle was empty, and the right contained a little semi-coagulated dark blood. The heart was large, weighing fourteen ounces and a half avoirdupois. There was a considerable deposit of fat following the course of the vessels, and especially on the anterior surface of the right ventricle. The attached pericardium, chiefly on the right ventricle and auricle, was thickened, and displayed several white patches, and at the posterior part of the organ there was a deep discoloration of the surface, from the infiltration of blood into the subserous cellular tissue. The left ventricle was of large size, and its walls were thicker than natural. In the septum ventriculorum, about one-third from the apex of the left ventricle, there was a large rupture. This commenced behind the attached fold of the mitral valve, and extended across the septum, in a somewhat crescentic direction, penetrating to the apex of the right ventricle, into which it opened by a laceration sufficiently large to pass the point of the fore-finger. Posteriorly, it perforated the entire thickness of the wall of the ventricle, so as to be separated from the cavity of the pericardium only by the serous covering; and, above the extravasated blood, produced a swelling, projecting into the right auricle. The substance of the heart was generally flaccid, and, in the neighbourhood of the rupture, obviously fatty. The mitral and aortic valves, and especially the latter, were opaque and much thickened. The coronary arteries were studded with patches of atheroma and bone. The aortic orifice

was considerably less capacious than natural, only giving passage to a ball measuring thirty-three French lines in circumference, while the pulmonic aperture admitted one measuring forty-two lines.

I have been favoured by Dr. Bristowe with the following report of the appearance under the microscope:—"The muscular tissue of the apparently healthy portions of the heart presented, universally, unusual indistinctness of the transverse striæ, and, in many of the fibres, beads of oil were arranged in longitudinal strings.

"The pale and mottled portion (that in which the rupture had occurred) presented variable appearances under the microscope. Many of the fibres were but little diseased, whilst others were degenerated to the last degree. The latter were opaque, and all trace of definite structure was often completely replaced by innumerable and densely aggregated refractive globules, in some cases exceedingly minute, in others of considerable size, and evidently oily in their character. Many fibres were observed, which, in one part of their course, were tolerably healthy, and, in another, greatly diseased,—the transition being more or less abrupt. The diseased fibres were not uniformly distributed, but appeared to be, for the most part, collected into groups; they presented also a marked brittleness, or tendency to break into fragments." Dr. Peacock, 18*th of April*, 1854.

15.—*False Aneurism of the Arch of the Aorta, from a Child four years old.*

The aneurismal tumor was about the size of two chestnuts placed side by side. It hung from the under surface of the descending part of the arch of the aorta downwards into the pericardium. By its upward pressure the arch of the vessel had been pushed upwards, and its transverse portion looked much longer than natural. The pulmonary artery had been compressed by the downward pressure of the tumor, to the under side of which it adhered: its coats were a little thickened. Externally the aneurism was smooth, and covered by a reflected layer of pericardium. Its walls were tough and firm. The orifice of communication with the artery was a transverse slit about

a quarter of an inch long and an eighth broad; it was a little jagged. The lining membrane of the vessel was smooth and perfectly healthy up to the very edges of the orifice, where it ceased abruptly, and was not prolonged into the neck of the tumor. The thin coats of the vessel appeared to have all been destroyed, and not dilated. With the exception of that already noticed in the pulmonary trunk from pressure, no other disease, either of the heart or any part of the arterial system, was detected. The aneurism, when laid open, had been found to contain laminated coagula, which, in several parts, did not adhere to its sides: they varied in thickness from a line to the eighth of an inch. Examined by the microscope these coagula showed only the ordinary appearances of decolorised fibrin; and no remains of gland structure, or of any other foreign matter, could be detected in the sac. The walls of the sac itself, when freed from adhering coagula, were found to have a smooth lining, and to consist of a tough fibrous membrane of from one to two lines in thickness.

Mr. Hutchinson believed that the tumor had originated externally to the artery, probably as an abscess, glandular or otherwise, and had acquired its aneurismal character by ulcerating into the vessel. The age of the patient, the appearance of the opening, the absence of any other disease of the arterial system, and the presence of tubercle in the lungs, and of some small, chalky concretions, in the bronchial glands around the trachea, all tended to support this conclusion.

The specimen had been obtained by Mr. Filliter, of the Queen Adelaide Dispensary (for whom Mr. Hutchinson exhibited it), from a little girl æt. 4 years, who died after a ten days' illness, of acute, and, apparently, idiopathic pericarditis. There had been no symptoms indicative of aneurism, but for several weeks previously to her death the child had been noticed to be very irritable in her temper.

Mr. Hutchinson, *6th of December*, 1853.

16—*Aneurism of the Aorta opening into the Œsophagus.*

A labourer, æt. 32, was admitted into the London Hospital on the 10th of November, 1853, suffering from hæmatemesis.

His health had been good up to the time of the present attack. He stated that while walking in the Docks, he suddenly felt giddy and faint, and on recovering, found himself on the ground, with a quantity of clotted blood about him. He again vomited clots of blood on two distinct occasions on the same day. He was ordered gallic acid. His depressed condition did not admit of a careful stethoscopic examination. There was no pain in the head or abdomen; but a slight cough, with a slight catching pain in the cardiac region of the chest. The pulse was 90, soft.

He died suddenly on the night of the fourth day after admission, a fresh attack of bleeding having come on.

The stomach was found full of blood, and the source of the hæmorrhage was traced to the opening of an aneurismal sac into the œsophagus. The aneurism originated from the descending portion of the arch of the aorta, about three quarters of an inch below the origin of the left subclavian artery, by two apertures, one of which was of an irregular oval form, and about five lines in its longest diameter; the other was situated a few lines above this, and was much smaller. The aneurism was about the size of a chestnut, and was situated between the descending aorta and œsophagus, and it opened, by an aperture, about three quarters of an inch in diameter, into the latter canal. The sac had apparently originated in destruction of the internal coats of the artery, as the lining membrane could be seen to cease just within its orifice. Its cavity was filled by firm, but not decolorized coagula, and the opening into the œsophagus was partly blocked up by the clot. The internal coats of the arch of the aorta were extensively atheromatous and puckered, and around the origin of the aneurism there were several small but deep depressions in the coats; in front of the origin of the arteria innominata, there was a small opening about a line and a half in diameter, which led into a cavity which would have contained a small bean, and was filled by decolorized coagulum. This small cavity evidently originated, like the larger one, in the erosion of the lining membrane of the artery, and it formed a small projection on the exterior of the vessel. Mr. N. Ward, *17th of January*, 1854.

17.—*Aneurism of the Arch of the Aorta of several years' duration, filled with firm laminated coagulum.*

G. A., æt. 47, a publican, short in stature, consulted Mr. Stanley, at St. Bartholomew's Hospital, in October, 1847, for a large pulsating tumor in the right breast, which was rapidly increasing. The tumor was semi-oval in shape, of considerable size, and projected to the right of the sternum, almost immediately behind the nipple. Its long axis was oblique, and corresponded with the direction of the fibres of the lesser pectoral muscle. Although no *bruit* was audible, the aneurismal nature of the tumor was at once manifest. The pulse, in both radials, was feeble, and the superficial veins of the left side of the neck were turgid and dilated. The lower edge of the second rib, a portion of the whole thickness of the third, and the upper edge of the fourth, had been removed by absorption. He did not complain of much pain, but more of a general sense of uneasiness and oppression. His respiration was increased in frequency, he had a troublesome cough, and expectorated large quantities of a clear slimy mucus.

He had suffered from pain in the chest, of a sharp spasmodic character, for a year, before he consulted Mr. Stanley, and he had been teased for some time with a hacking cough, accompanied with expectoration of a clear adhesive mucus. An external swelling was first observed about five months before; it was then of small size, and pulsated strongly.

The disorder being obviously irremediable by art, the man was advised to return home, and keep himself as quiet as possible. In conformity with this advice he remained in bed, and took nothing but beef tea, milk, and light puddings. The tumor rapidly increased, and pulsated more strongly. Three months after his consultation with Mr. Stanley it equalled in size and shape the half of a cocoa-nut, had produced absorption of part of the second and fifth ribs, and had entirely removed about two inches and a half of the third and fourth. The greater distension and varicosity of the superficial veins of the neck and abdomen, joined to the aggravated cough and increased difficulty of breathing, seemed to show that the disease was

advancing, both within and without the chest. It was now Christmas, 1847, and from this time no further enlargement of the external tumor was observed; its walls gradually lost their compressibility, and slowly hardened, first at the extreme convexity and then at the base. The pulsations, too, progressively diminished in force, and by the end of March, 1848, were scarcely perceptible.

While these changes were taking place in the tumor, the man himself had become pale, emaciated, and so feeble as to require an improved diet and stimuli. He had not left his bed for six months, but in the spring he began to move about in a wheel chair. The respiration was laboured, and the cough remained troublesome, but neither seemed to get worse. The external tumor became, at length, pulseless, hard, and incompressible, and stood up like a solid growth from the right wall of the chest. In this state he lived four years and a half; and might probably have lived longer, had not the general election of 1852 excited him to deviate from the tranquil and abstemious habits which he practised. He exposed himself imprudently, was seized with suppurative pleurisy, and died.

A *post-mortem* examination fourteen hours after death, disclosed the following :—The right lung was shrunken, and closely compressed against the necks of the ribs and bodies of the vertebræ. The left lung had suffered no particular interference, and did not appear enlarged. Both pleuræ had been attacked with recent inflammation; and pus and croupous lymph were found in the right sac. The heart and great vessels, together with the sternum and front wall of the right side of the chest, were removed in one mass.

The heart was small and flabby; its muscular substance pale and friable; and the ventricular walls, both of the right and left cavities, were reduced to nearly half their usual thickness. The valves and nutrient vessels were, however, apparently healthy.

The aorta was unnaturally thin; and patches of atheroma and of calcareous substance were diffusedly scattered in the internal coat as far as the termination of the arch, beyond which point they were not observed.

The aneurism measured seven inches and a half in its long horizontal axis, and four inches in its vertical one. Its surface was hollowed before and behind by a depression which corresponded in front with the sternum, and behind with the trachea. The lower border of the second, and upper border of the fifth ribs, and nearly four inches of the third and fourth had disappeared. The aperture by which the aneurism communicated with the aorta was oval, had a round well-defined edge, and measured one inch and a half by one inch. It was placed in the upper part of the posterior wall of the aorta, at the commencement of the arch, just before the origin of the brachio-cephalic trunk, and led into a cavity capable of holding a horse chestnut. The whole remainder of the aneurism had been filled with firm, laminated coagulum, of a dull red colour. The walls of the tumor were formed by a strong and tawny fibrous tissue, in which plates of calcareous matter were deposited.

Mr. Harvey Ludlow, 21*st of March*, 1854.

18.—*Disease of the Arterial System. Aneurism of the Subclavian, Femoral, and Popliteal Arteries.*

A gentleman, æt. 66, was attacked with pain of a neuralgic character in the arm, fore-arm, and hand of the right side, in the spring of the year 1851, and having sought relief in vain in the country, he came to the metropolis and consulted many of the physicians and surgeons of eminence, but no benefit was derived from the means adopted. In the latter part of the year 1851 he came under the care of Mr. Walton for an ophthalmic affection; and, at his request, Mr. Walton met in consultation, consecutively, Dr. Marshall Hall and Mr. Paget about the affected arm. There was incessant pain over the entire member from the shoulder downwards, and any jerking movement, especially riding in a hackney carriage, aggravated it. No rest at night could be obtained without large doses of morphia. No part of the extremity was swollen, nor was there any atrophy, notwithstanding a diminution of the muscular force, manifested by inability to grasp or hold as firmly as with the other hand. A careful examination failed to detect any tumor

or other mechanical cause of the disease, and although there were some enlarged superficial cervical glands, it was not easy to associate them with the arm affection, in the relation of cause and effect. After this period he travelled about, and continued to consult different persons, yet never got more relief than the opium afforded. On the 25th of November Mr. Walton was called from town to tie his femoral artery for a popliteal aneurism in the right leg, that had been discovered five days previously. He was emaciated to an extreme degree. The aneurism was about the size of a small orange, and had increased to more than twice the dimensions from the day on which it was noticed. The augmentation was upwards and inwards in the course of the artery. Examination of his body detected dilatation of each femoral artery close to Poupart's ligament, an aneurism at the upper part of the chest on the right side, supposed to be of the arteria innominata, and valvular disease of the heart; added to these, the urine contained traces of albumen and a small quantity of blood. The popliteal aneurism was, by Mr. Walton's suggestion, treated by pressure on the femoral artery; and consolidation was progressing most favourably, the pulsation having nearly ceased, when, on the 12th day, a sudden increase at the upper part of the tumor, with a sense of fluctuation, indicated an extensive effusion of blood. Considerable œdema of the leg now supervened, and the use of the tourniquet was discontinued. Amputation was then proposed to the patient (not by Mr. Walton) and strongly insisted on, but rejected. More blood was poured out beneath the integuments, mortification commenced around the knee-joint, and death ensued on the 1st of January, 1854. Mr. Walton made the *post-mortem* examination in conjunction with the family attendants. Inspection of the chest revealed the cause of all the arm symptoms. There was a large aneurism (preparation exhibited) of the subclavian artery, that completely covered the brachial plexus of nerves and pressed tightly on them. The aneurismal tumor commenced at the arteria innominata, and was entirely in front of the artery. The disease had involved all the branches that are given off from the subclavian, in a manner that rendered any trace of them impossible. Certain dilata-

tions in the tumor, seemed to correspond to their origin. There was considerable fibrinous deposit in several of the pouches, of which there were many. The centre of the first rib was completely absorbed from the pressure of the tumor. The right femoral and popliteal arteries only were examined (preparation exhibited). The dilatation of the upper part of the artery already alluded to, was to the extent of three inches, and sufficiently capacious to admit the little finger. The coats of this part of the vessel, as also the remainder of it, were partly atheromatous, and partly bony. The popliteal artery had not any ossific deposit, but was merely atheromatous. The point of rupture was on the side of the vessel, very small, and the edges of the aperture were thick and smooth.

Mr. Haynes Walton, 21*st of February*, 1854.

19.—*A large Aneurism of the Posterior Tibial Artery.*

Mr. Walton said that the case to which the specimen referred possessed surgical detail of practical importance, but as this would be noticed elsewhere he should confine himself to those points alone which were directly connected with the mass, as an example of pathological anatomy. (For additional facts in the history of the case see page 78.) A man, æt. 29, was admitted into St. Mary's Hospital on the 10th of January, 1854, with an aneurism in the calf of the leg, just below the ham, and which was of some weeks' duration. Among the chief peculiarities of the patient's state of health, was a very remarkable thrill of the arteries, whereby all the larger vessels felt as if superficial; and even when the thighs were covered by the bed clothes, the femoral arteries could be felt beating through them. The treatment by "compression" on the femoral artery was commenced at once. However, in spite of the most assiduous attention, the course of the disease was progressive for a month, when a cessation of increase for about ten days seemed to promise success. After this the increase was very regular; and with augmentation the tumor got softer. The man became much emaciated, and was placed on water cushions. It was decided in consultation that, as the fullest trial had been

afforded to the "pressure plan" without benefit, the femoral artery should be tied; and, on the 18th of March, Mr. Walton operated, and placed a ligature around that vessel. On the 28th of the same month the patient died suddenly. Mr. Walton remarked that he had not traced the vessel which was diseased, but merely reflected the muscles of the calf, and made a small opening into the aneurism, in order to show the form and extent of the aneurism, as also the fact that coagula chiefly, and not layers of fibrine, filled the irregular sac. To have made any further dissection would have been to destroy these appearances. The tumor commenced just about the termination of the popliteal artery, and passed downwards to the extent of seven inches. The circumference was fifteen inches. By the side of the popliteal artery, as it entered, or was connected with the aneurism, was a small scale of bone. The lower and greater portion of the posterior tibial artery was traceable on the back of the fascia of the leg covering the aneurism.

The cause of death was readily traced to disease of the heart, the valves of which, (the aortic,) were much disorganised; indeed only one seemed capable of acting (*see* p. 79). A rent across one of the two so changed, had been, he believed, immediately fatal. Mr. Walton proposed to make a more minute examination of the aneurismal mass.

Mr. Haynes Walton, *4th of April*, 1854.

Report on the preceding Specimen.—The specimen consisted of the leg-bones and muscles dissected, and exhibited a large aneurismal tumor, seven inches in length and four inches in diameter, situated on the posterior aspect of the bones, commencing a little below the head of the tibia, and protruding anteriorly between them. The fibula was very perceptibly bent outwards, and the tibia appeared to be somewhat curved inwards by the aneurismal protrusion between them, so that the interosseous space was increased in the upper third. The interosseous membrane was destroyed to a great extent, and the posterior surfaces of the tibia and fibula were superficially eroded.

Situation of the Tumor. The chief peculiarity in this respect was that the tumor was not placed between the superficial and deep layer of the muscles in the situation of the posterior tibial artery, but the deep muscles were principally superficial to it. The flexor longus was entirely superficial; the tibialis posticus muscle appeared to be expanded equally round the tumor, so that a section through the centre of the tendon below, carried upwards into the aneurismal sac, showed an expansion, as it were, or spreading out of the muscular fibres around the mass. In an early stage, either the aneurismal dilatation, or the extravasated blood from a rupture of the artery or sac, (for the nature and formation of the aneurism was not clearly traceable from an examination in its present state,) had probably insinuated itself between the heads of the tibialis posticus muscle, separated the muscular fibres, and advanced towards the interosseous membrane.

Distribution of the Arteries. The posterior tibial artery entered the sac at its upper part, three quarters of an inch below the origin of the anterior tibial, and just above the origin of the peroneal artery. It entered the sac abruptly, and did not exhibit any aneurismal enlargement above this point. The coats of the popliteal and femoral arteries were free from atheromatous deposit, and appeared to be healthy. The lower part of the posterior tibial artery had been detached from its connection with the sac, so that its relation could not easily be made out; however, its cut end was three inches distant from the entrance of the upper extremity of the artery into the sac, and the lower portion of the vessel lay superficially on the posterior aspect of the tumor. This part of the artery appeared to be in process of obliteration, and I think had not transmitted blood for some time; its walls were atrophied, and the middle coat softened, so that, in laying open the vessel the middle coat remained in the centre, in a soft and somewhat pulpy looking mass, at first sight resembling clot; this condition existed for an inch and a quarter below its cut extremity; just below this a branch entered the vessel, and from this point downwards the artery was in a healthy condition. Dissecting from below upwards, the peroneal artery was traceable into the

walls of the aneurism at its lower part, where it was soon obliterated and lost; a branch, nearly as large as the artery itself, entered this vessel a little below its obliteration, and from this point downwards, the cavity was free and the artery normal.

The anterior tibial artery was considerably enlarged, but normal in all other respects.

The aneurismal sac was in all parts very thin and lined only with a small quantity of laminated fibrine; it was filled with recent black clot.

The popliteal vein was obliterated for two inches of its length above the upper border of the aneurismal sac, by old adherent clot; above this point an inch of free and recent clot existed in the cavity of the vein. The vein was lost in the aneurismal sac.

The femoral artery was in a healthy condition at the seat of ligature; both extremities were firmly sealed; the upper portion was filled by an adherent clot, partially decolorized, half an inch in length; the lower portion was free from clot, and presented only a small portion of organized new material in a membranous form at its sealed extremity.

The posterior tibial nerve passed over the posterior surface of the aneurismal sac in a flattened and expanded condition, but occupied its normal position with respect to the artery and vein where these vessels were traceable.

The heart.—Only a portion of the base of the heart, including the valves, was submitted to my examination. The aortic valves were very extensively diseased; they were generally thickened and loaded with atheromatous and fibrinous deposit, containing a considerable quantity of cretaceous matter. Two of the valves exhibited large and very distinct aneurismal dilatations in their central portions, with well-defined orifices; one of these pouches was perforated, but whether by rupture during life, or post-mortem laceration, was not determinable. Two of the valves were held together along their free borders by the abundant fibrinous deposit before adverted to, and the aortic orifice was therefore much diminished. The mitral valve was generally thickened, and studded with patches of atheromatous deposit;

DESCRIPTION OF PLATE IV.

The figures in this plate illustrate Mr. Salter's specimens of Erratic Vascular Canals in Teeth, associated with a development of bone in the pulp cavity. Page 115.

Fig. 1. Inferior Dens sapientiæ. The dotted line indicates the course of the vascular canal.

Fig. 2. Section of the same in outline, enlarged 2 diameters. Vascular canal piercing the pulp cavity of one of the fangs.

Fig. 3. Part of the foregoing section (Fig. 2.) where the vascular canal enters the pulp cavity. The canal is lined with *crusta petrosa*, and in the pulp cavity, opposite the entrance of this canal, is also a mass of this tissue. Magnified 75 diameters.

Fig. 4. Superior molar, with three vascular canals piercing its neck.

Fig. 5. Mass of cancellated osseous tissue—resembling true bone—involving an island of dentine, from the crown of the foregoing. Magnified 75 diameters.

Fig. 6. A portion of the same. Magnified 200 diameters.

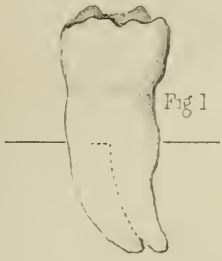


Fig 1

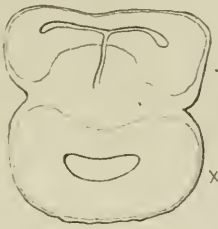


Fig 2

x 2

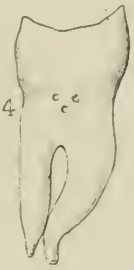
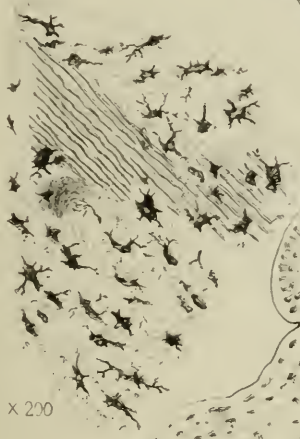


Fig 4

Fig 3

x 75

Fig 6



x 200

Fig 5

its ventricular surface was roughened and coated with adherent fibrine; the thickening of this valve was less at its free border than in its central and attached portions. The auriculo-ventricular orifice did not appear to be diminished, and the valve was probably efficient. Mr. W. Adams, 18*th of April*, 1854.

20—*Drawings of the Appearance of the Surface of the Heart in two cases of Purpura.*

One of these drawings was exhibited in 1845, at the meeting of the British Association, accompanied by the first notice of the occurrence of the effusion of blood, or of fibrinous exudation coloured with blood, in the subserous cellular tissue on the surface of the heart, in cases of purpura. The patient was a sailor, and the case one of ordinary scurvy.

The other drawing represented precisely similar appearances, and Mr. Wells observed, that in the only cases in which he had examined the body after death, in purpura, it was singular that the same condition of the heart was observed. The subject of the second case was a brewer, who drank very large quantities of beer, and had suffered both from gout and syphilis. He died after a long continuance of albuminuria, and more recently had spots of purpura on the extremities, with bloody discharges from stomach, bowels, and bladder.

Mr. Spencer Wells, 21*st of March*, 1854.

IV.—DISEASES, ETC., OF THE ORGANS OF DIGESTION.

1.—*Erratic Vascular Canals in Teeth.*

The accompanying figures are intended to represent certain abnormal conditions of structure that occurred in two molar teeth. The abnormalities in question are — the presence of *erratic canals* passing obliquely from the pulp-cavity to the outer surface of the fang; and, associated with this, a development of bone in the pulp-cavity, and lining these canals.

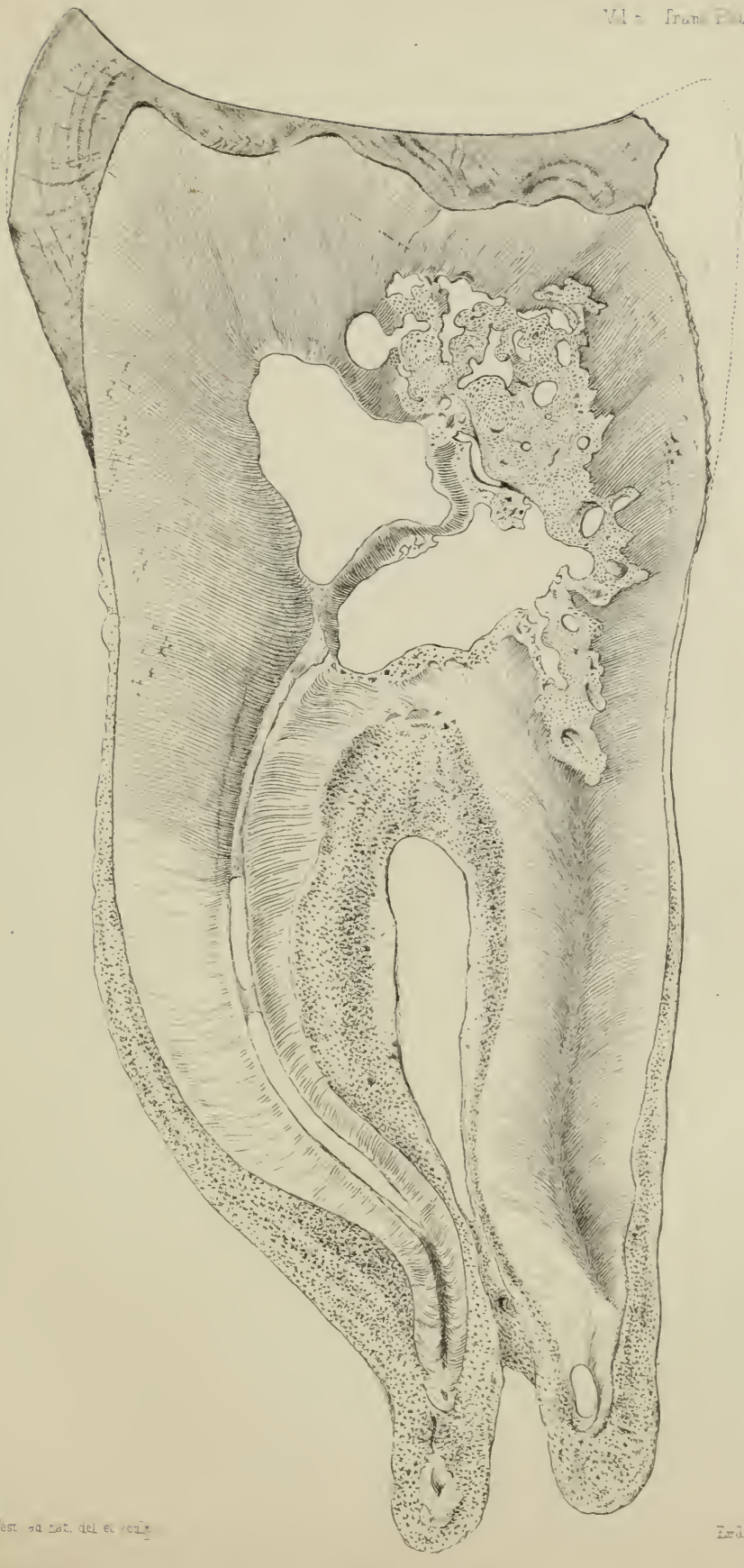
The first specimen was a wisdom-tooth of the lower jaw. The fangs of this tooth were much soldered together by Crusta petrosa. Passing vertically up between them, was a vascular canal containing a small bundle of blood-vessels; this canal, having ascended about two-thirds to the neck, made a curve, and passed horizontally into one of the fangs, piercing it, and entering its pulp-cavity. A section of the tooth, at this horizontal portion of the canal, is the subject of the accompanying figure. (Plate IV. Fig. 1.) The canal is first seen in the mass of Crusta petrosa between the fangs; it then pierces one of them at right angles. (Plate IV. Fig. 2.) The canal is nearly parallel with the dentinal tubes, and measures about the $\frac{1}{150}$th of an inch in diameter. Upon subjecting this specimen to microscopical scrutiny, it is found that the canal is lined with osseous tissue, having the character of ordinary tooth-bone. In the pulp-cavity itself, opposite the entry of this vascular canal, is another mass of tooth-bone. In this tissue the lacunæ are numerous, distinctly formed, and presenting the aspect which is usual in Crusta petrosa. (Plate IV. Fig. 3.)

The other specimen is far more remarkable. It consisted of a molar, in which three canals pierced the neck, just below the edge of the enamel. (Plate IV. Fig. 4.) These canals were short and horizontal. Upon sawing the tooth vertically in half, it was found that the substance of the tooth around these canals, extending considerably in the crown and down one of the fangs, presented an unusual aspect; it was yellower and clearer than normal dentine, and it had, moreover, a cancellated appearance.

On submitting a section of this tooth to the microscope, it was found that this peculiar, doubtful, tissue, was bone—resembling very closely ordinary cancellated osseous tissue. About a fourth of the crown and neck of the tooth presents this appearance: it is not that the normal tissue is lined with tooth-bone, but the dentine is replaced by osseous tissue. Upon referring to the figure (Plate V.), it will be seen that the whole of the margin of the section is of normal dentine: the osseous tissue is not merged by degrees into that tissue, but is limited by a very defined edge, irregular and jagged, but sharp: the osseous

DESCRIPTION OF PLATE V.

This figure illustrates Mr. Salter's specimen of three Vascular Canals piercing the neck of a Molar Tooth, in which a considerable portion of the crown of the tooth was occupied, not by dentine, but by cancellated osseous tissue. The Vascular Canals (See Fig. 4, Plate IV.) abutted upon the cancellated bone. Magnified 10 diameters. Page 116.



DESCRIPTION OF PLATE VI.

This plate illustrates Mr. Salter's specimens of Tumors connected with the Teeth. Figures 1 to 7—Epulis, *see* Page 118. Figure 8, Vascular Tumor connected with the Dental Periosteum, *see* Page 117.

Fig. 1. Epulis tumor between right upper lateral incisor, and canine tooth.

Fig. 2. Diagrammatic view of section of the foregoing tumour, with ideal representation of the alveolar process and teeth (also in section) over which it grew. Enlarged about 5 diameters.

Fig. 3. Small cells contained in the fibrous meshes of the Epulis tumor.

Fig. 4. Compound cells.

Fig. 5. Cells having a relation to fibrous tissue.

Fig. 6. Bony spiculum from this tumor, showing the form of the extremity and the general arrangement of the lacunæ. Magnified about 40 diameters.

Fig. 7. Portion of the same, with the formative blastema on its outer surface. Magnified about 250 diameters.

Fig. 8. Vascular tumor connected with dental periosteum. *l.* Neck of tooth. *n.* Point to which the gum had receded.

Fig. 3.

Fig. 4.

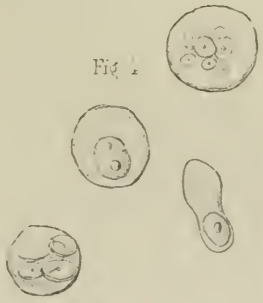


Fig. 5.

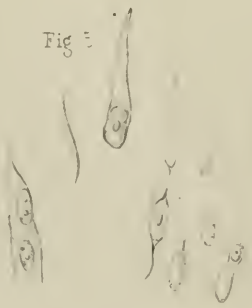


Fig. 7.

Fig. 1

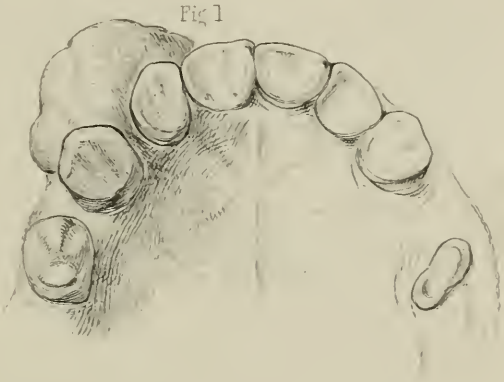


Fig. 2.

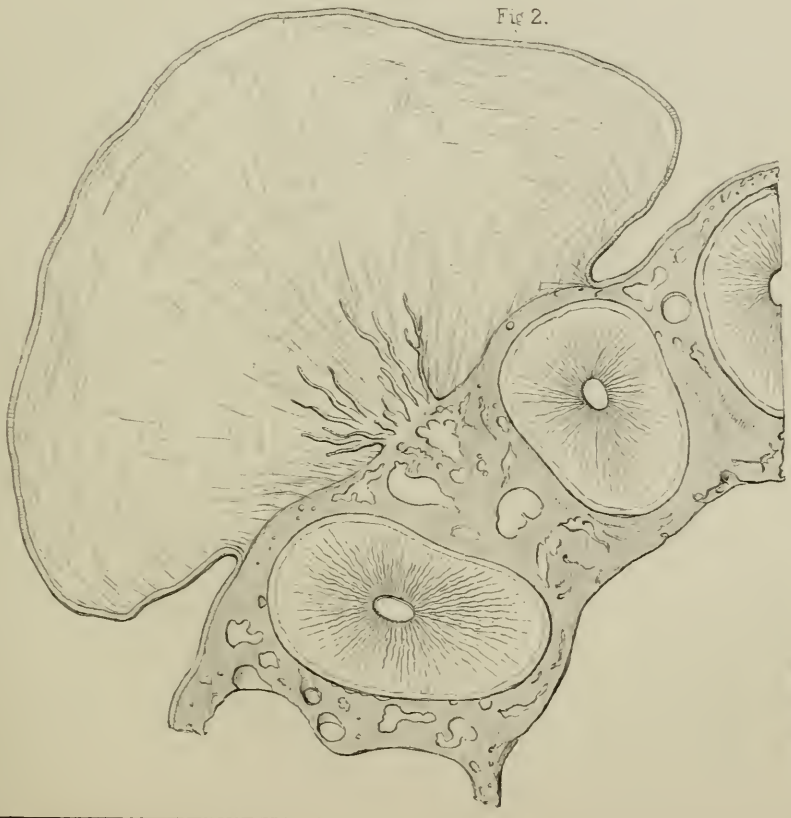


Fig. 8.

Jas Jaffer Esq & T W del Tuffen West sculp.

Ford & Weir Imp 54 Harrison Gardens

tissue presents circular, oval, and irregular interspaces, like ordinary cancellated bone. Upon examining this structure with the higher powers of the microscope, it will be seen that it resembles ordinary bone more than Crusta petrosa—the lacunæ are smaller, more uniform, both in size and arrangement, and the canaliculi are fewer and smaller, and altogether less conspicuous than in the latter tissue. Moreover the laminæ are even and regular, and are parallel with all the irregularities of the inner surface of the pulp-cavity, and the varied outlines of the cancelli. Mixed up with these laminæ and among them are, here and there, to be seen some small isolated patches of dentine. (Plate IV. Figs. 5 and 6.)

The author believes this specimen to be unique.

Mr. James Salter, *7th of February*, 1854.

2.—*Vascular Tumors connected with the Dental Periosteum.*

This tumor (Plate VI. Fig. 8.) had existed in the mouth about twelve months before its removal. When first noticed it was the size of a pea, and situated on the outer left side of the upper jaw, near the edge of the gum. It gradually and slowly increased for eight or ten months, without producing any inconvenience; then, for the first time, it gave trouble by its often-repeated bleeding when slightly touched, or even spontaneously. This tendency to hæmorrhage rapidly and considerably increased, and, for some few weeks before its removal, it bled, during the night, in large quantities, and the patient was frequently awoke by the blood trickling into the glottis, her person and the pillow being saturated with blood.

The tumor, before its removal, was of the size and colour of a Morella cherry, deeply, and irregularly lobulated, and attached, close to the edge of the gum, by a pedicle, at a point corresponding to the second molar tooth. It was plump, tense, and elastic. It was not ulcerated in any part. The tooth which was in contact with the tumor, and to which, as the event proved, it was attached, was loose and tender; and, from the absorption of the alveolar process, and the receding of the gum, the neck, and about half the fang, were exposed and naked in the mouth.

Upon removing the tooth, the tumor came away with it, and attached to it, and at once shrivelled up to less than half its previous volume; was soft, flabby, and of a pale flesh-colour. The portion of the tooth which was below the gum was much covered by adventitious fibrous tissue,* and it was to this that the tumor was attached by its pedicle.

Upon *microscopical examination* the tumor was found to consist of a congeries of numerous blood-vessels and connective tissue, among which there were no cells. The outer surface was covered with mucous membrane. On the convexities of the lobules were numerous papillæ, like those of the gum, covered in by a dense cuticular epithelium. In the fissures between the lobules the mucous-membrane was soft, and the epithelium globular.

From the *history* of this tumor, (its tendency to excessive bleeding, and the great alteration in size and character it underwent upon its connection with the body being broken,) and from its *anatomical structure* (consisting, as it did, mainly of blood-vessels), it appears to have been *par excellence* a VASCULAR TUMOR, possibly of the nature of nævus. And from its firm attachment to the adventitious fibrous tissue around the fang of the tooth, it would seem to have originated from that structure, with whose blood-vessels it was obviously connected by its pedicle.

It is now more than a year since this tumor was removed, and there has been no return of the disease.

Mr. JAMES SALTER, *2nd of May*, 1854.

3.—*Specimens of Epulis.*

The term "Epulis" has been vaguely applied to various

* The fang of a *perfectly healthy* tooth has no fibrous tissue adherent to it, and, when removed, it slips out of its socket without any rupture of the alveolar periosteum, except at the edge of the alveolus and the extreme point of the fang. When, however, the tooth has become loose, especially by absorption of its socket, an adventitious fibrous tissue—a sort of dental periosteum—is developed, and the union of the tooth to the jaw by the articulation "*gomphosis*" is converted into a ligamentous union. It was in the fibrous tissue thus produced that this tumor had developed itself.

tumors that are found in and beneath the gums. The etymological meaning of the word (επι *upon*, ουλα, *the gums*,) entirely referring to position, and not to structure, is likely to have caused, and to continue, this confusion.

Where, however, distinction has been drawn, the term Epulis has been applied to those hard and densely fibrous tumors that arise from the surface of the alveolar processes, involving the periosteum, and, by their expanding growth, stretching the otherwise healthy gum over them.

These are essentially different in origin, history, and anatomical structure, from the loose flaps and often pedunculated masses of gum—mere hypertrophied integument—that are not unfrequently seen in the neighbourhood of decayed teeth, and to which the designations "Polypus" or "Fungus" of the gum have been appropriately given.

Correctly to understand the pathology of Epulis, we must consider the *history* as well as the *anatomy* of the disease. The history of Epulis is singularly characteristic and uniform.

The following are the histories of two well marked examples of this tumor:—

M. S., a healthy woman, æt. 45, applied to me, at Guy's Hospital, on the 13th of May, 1853, in consequence of a tumor in the mouth. Upon examination, a tumor (Plate VI. Fig. 1.), the size of the first joint of the fore-finger, was found situated on the front of the upper jaw, just above and over the right canine and lateral incisor teeth—the axis of the tumor about corresponding to the interval between these teeth. The tumor was hard, smooth, slightly lobulated, and had the colour and general appearance of the surrounding gum. It caused no pain, and showed no tendency to bleed: it was no where ulcerated, tender, or inflamed. The contiguous teeth were all perfectly sound.

The following is this woman's account of the original appearance and progress of the tumor:—Fifteen years ago it was first seen, then of the size of a split-pea. It grew regularly, and with equal progress, for three years, till it had attained about its present magnitude, and, during this time, it never bled or caused pain. It was then removed, for the *first* time; being extirpated by a surgeon in the country. Shortly the

tumor again appeared, and, at the end of three or four more years it had grown to the same size, and was removed, for the *second* time. Again the tumor appeared; and again, after the same interval, it was removed—then for the *third* time; and now, for the *fourth* time, after a lapse of the same period, it has acquired the same dimensions.

The operation of removal consisted simply in cutting away the tumor level with the contiguous gum: nothing was done to the alveolar process or teeth.

The teeth were perfectly sound, and had never caused the slightest pain: they were, however, somewhat separated from each other by the deep growth of the tumor between them: before its appearance they were in actual contact.

On this occasion I removed the tumor—this being the fourth time the operation was performed, fifteen years after its first appearance, and twelve after its first removal.

On cutting away the tumor I found it attached by a broad firm base to the periosteum of the alveolar process, and in the centre of its base were spicula of bone, projecting and radiating into its substance. There was much obstinate bleeding from the centre of its attachment, which appeared to communicate with the cancelli of the maxillary bone.

Miss A. S., a young lady of good constitution, æt. 19, five years ago first noticed a small tumor on the left side of the upper jaw, over the canine tooth. At the end of two years it had grown to the size of a horse-bean. It was then removed by Mr. Bell, being cut away even with the neighbouring surface. At the end of two and a half years more, a tumor of the same size had again formed, and was again removed by Mr. Bell. On each occasion the tumor was of a rounded form, with an expanded base firmly adherent to the periosteum of the alveolar processes. It was smooth, hard, and covered with healthy-looking gum. It had never been ulcerated, painful, or inflamed, nor has it bled. On the last occasion, I had an opportunity of examining it, and I found that the centre of its base was occupied by spicula of bone. The neighbouring teeth were all quite sound.

It is now six months since it was removed, and the tumor is again appearing.

[It will be observed that in neither of these cases was any attempt made for the radical extirpation of the Epulis tumor. In the first example the *necessary removal of the neighbouring teeth* was declined by the patient; and in the latter it was not recommended, on account of the as-yet trivial character and extent of the tumor. I say "the *necessary removal of the neighbouring teeth*," and that expression refers to an important point in the pathological history of these tumors. It is this:—that as long as the alveolar process remains, upon which the tumor grew, and which must necessarily be as long as the teeth, that are implanted in it, are not removed, so long will the tumor be inveterate, so often will it return, however accurately and carefully it may have been removed. But when the alveolar process is gone, it shows no tendency to return. And it is a remarkable circumstance that the spontaneous absorption of the alveoli that follows the extraction of the teeth is, of itself, *in many instances*, where the disease is confined only to these processes, enough to prevent its recurrence. That is to say, if the tumor be removed to a level with the gum, and the contiguous teeth be extracted, the alveolar process vanishes by absorption, and the disease no more returns; though the same operation, without the removal of the teeth, may have been performed unsuccessfully any number of times previously; and this, too, where the teeth are quite sound, and apparently unconnected with the tumor.]

The tumors from both these cases were subjected to a minute examination; and were found of the same structure in all essential particulars. The first, however, from its more precise structural arrangement and greater size, is here selected for special description. (Plate VI. Fig. I.)

The tumor was broad-based and continuous over its whole attachment with the alveolar periosteum. Upon its removal, it did not collapse or diminish sensibly in size. It measured about ten lines in breadth and seven in thickness.

A section of the tumor, at right angles to its surface, displayed externally a smooth unbroken layer of mucous membrane

—of healthy gum. The centre of its base was occupied by spicula of bone passing up and radiating into its substance. Between these two, constituting the great bulk of the tumor, was a mass of dense interwoven fibrous tissue. Upon examining the latter with a lens, magnifying it some six or eight diameters, it was found to exhibit a definite and tolerably regular arrangement. Distinct and compact bundles of fibrous tissue passed from the basal attachment straight to the surface; and other bundles of fibres, at right angles to these, were arranged parallel to the external surface. Thus, a definite interlacing mesh of considerable regularity was formed, having intervals of a more or less quadrilateral shape. The meshes were densely tenacious and fibrous; the interspaces were occupied by a tissue having more the character of fibro-cartilage. In the accompanying figure (Plate VI. Fig. 2.) this general arrangement is represented—rather diagrammatically, but correctly; it exhibits a section, not only of the tumor, but of the alveolar processes and teeth, from which, and over which, it grew; the latter, of course, is ideal — it shows, however, the position and proportion of the parts in question.

Upon submitting the tissues of this tumor to higher magnifying powers, I found that—

The *external layer* consisted of *healthy gum*, which had been simply expanded by the growing tumor. The *fibrous meshes* were composed of *ordinary white fibrous tissue.*

Among the meshes, and especially in the intervals between them, were multitudes of *cells of three distinct characters*:—

1. *Small cells* with a single nucleus. These were round or oval, of $\frac{1}{1500}$th to $\frac{1}{1000}$th of an inch in diameter. They were extremely abundant. (Fig. 3.)

2. *Large compound cells*, much resembling those found in fibro-cartilage. They measured about $\frac{1}{400}$th of an inch in diameter. There were very few of these cells. (Fig. 4.)

3. *Cells partly developed into fibres*, — in all stages of the change. Some of these measured $\frac{1}{300}$th of an inch in length, and $\frac{1}{1200}$th in breadth. (Fig. 5.)

The *spicula of bone* were numerous. They consisted of little cylindrical fibres of bone, very slender; some of them were

branched, and most of them were joined into a common base. The extremities of these spicula were rounded, like the end of a finger. (Fig. 6.) Upon examining them with high powers, they were found to present ordinary bone structure, and were, at the time, evidently growing both in length and breadth.

The lacunæ of these spicula were all arranged parallel to their outer surface, and immediately external to their surface was a formative blastema, soft, clear, and nearly structureless, containing some small cells* (or nuclei, whichever they may be called) of the same general form and size as the lacunæ, parallel to them, and evidently destined for their formation. (Fig. 7.) The almost structureless blastema gradually merged into a distinctly fibrous lamina—a periosteum covering each spiculum.

The tumor from the second case was also closely examined. It consisted, in essential particulars, of the same structures. The arrangement of the fibrous meshes was, however, less marked; and the spicula of bone were larger and less cylindrical. Mr. James Salter, 16*th of May*, 1854.

4.—*Fatty pendulous Tumour of the Pharynx and Larynx.*

J. A., æt. 80, a robust man of active habit, was under the care

* The occurrence of these thin, fine spicula, growing on the periosteal surface of bone, afforded, from the circumstance that they could be viewed with the periosteum and nutritive blastema undisturbed, and *in situ*, an admirable opportunity of witnessing the development of bone, as it occurs by superficial growth. And I here saw some of the circumstances pointed out by Mr. Tomes and Mr. De Morgan, relative to this process. ("Phil. Trans. R.S.," 1853. Plate I.)

The cells above alluded to are the "*osteal cells*" of these observers: they were, however, less abundant than seen by them, and all of them were oval. Their purpose, for the production of lacunæ in bone about to form, appeared to me to be obvious and unmistakable. In size, form, and direction, they were similar to the already existing lacunæ, and they only wanted a few short canaliculi, and to be embedded in the more refracting (*i.e.* calcified) mass, to be identical. In no case had these cells the outer secondary investment, spoken of by Messrs. Tomes and De Morgan: nor did they aggregate in masses so as to form laminæ of bone substance.

From what these specimens exhibited, it seemed to me that the subfibrous, indeed almost structureless, blastema, was itself being calcified, while the osteal cells formed the lacunæ.

of Messrs. Randolph and Rust, of Westminster, to whom Mr. Holt was indebted for the opportunity of exhibiting the specimen. About twelve years since, the patient's attention was directed to his throat, from an occasional, but then increasing, sensation of choking, of no material moment when he was calm, but becoming urgent upon excitement; this gradually became more frequent, and he was aware of some swelling, or slight bulging, at the upper part of the throat. About four years prior to his decease, during the act of vomiting, a large mass became protruded, and to prevent immediate suffocation he was compelled to return it as speedily as possible. He was at all times better enabled to swallow solids than fluids, for as his powers of mastication were not good, he took the precaution of cutting his food into very small pieces. In swallowing fluids he occasionally experienced great difficulty and choking, but latterly, from taking everything very slowly, he was comparatively comfortable. His voice was husky, but occasionally distinct, more especially if perfectly calm; but when excited, it became gurgling and inarticulate. He died suddenly while smoking his pipe, and it is conjectured (there not being any person present), that the fumes of the tobacco produced sudden cough and displacement of the growth, by which immediate suffocation ensued. Upon a *post-mortem* examination, the viscera generally were found in a healthy state, and there was nothing to account for immediate dissolution beyond the presence of the tumor and its attachments. Upon examining the pharynx, a large, pendulous, fatty tumor was detected, filling the pharynx, and extending downwards towards the œsophagus to the extent of nine inches. It was attached by an envelope of mucous membrane and fibrous tissue to the left side of the epiglottis, dragging it downwards and to the left side, so as entirely to prevent perfect closure of the larynx; it was also connected with the upper part of the pharynx; but, with these exceptions, it hung perfectly loose in the pharynx and œsophagus. Several fatty tumors of small size were noticed in the neighbourhood.

Mr. Holt remarked, the foregoing case was especially interesting:—First, from its rarity and the large size of the tumor. Secondly, from the imperfect closure of the glottis, as a conse-

DESCRIPTION OF PLATE VII.

The figure illustrates Mr. Holt's case of pendulous Fatty Tumor of the Pharynx and Larynx (Messrs. Fergusson and Partridge's Report, p. 125).

a a. Tumor.

b. Epiglottis.

c. Rima glottidis.

d. Back view of a portion of the trachea.

e. The pharynx laid open.

f. A bristle passed beneath the tumor to show the limit of its attachment.

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quence of the altered position of the epiglottis, thus affording frequent opportunities for the introduction of foreign substances. Thirdly that it should not have produced some permanent dyspnœa, or alteration of the voice.

Mr. Holt, *7th of March*, 1854.

Report on the preceding Case.—The pendulous masses (Plate VII.) consist of adipose tissue, which, in the larger mass, is arranged in layers, separated by fibrous membrane. The examination of the larger tumor under the microscope (using a low power—quarter of an inch) shows the interior portions to consist chiefly of fat, with an external investing layer of varying thickness, situated immediately underneath the mucous membrane, and composed of fibrous tissue. In some parts of the larger swelling, where it had a yellow colour apparently underneath the investing mucous membrane, the fat tissue crossed out through the fibrous tissue to the surface. The tumors are only loosely connected to the submucous tissue.

The fibro-cellular investment is thicker in the largest and most pendulous mass, than in the small ones.

Mr. Fergusson and Mr. Partridge, *21st of March*, 1854.

5.—*Cancer of the Omentum, &c.*

J. M., æt. 66, was admitted into University College Hospital 11th of September, 1852, a plasterer, who had lived well, but had never been a hard drinker; had never had acute rheumatism, and had, indeed, considered himself a remarkably healthy man; for twenty years past he had had hæmorrhoids, but it was only within the last four or five years that they had bled at times; for three months they had been much worse. He was subject to constipation.

About three months before admission, he first noticed that the abdomen was swollen, and since then it had steadily increased in size; he had not suffered from any pain in the hepatic region or in the shoulder; anasarca in lower extremities only commenced three weeks before admission.

When first examined in the Hospital he was decidedly emaci-

ated, but emaciation of the face was out of proportion to that of the rest of the body; no œdema of face or arms, but considerable swelling of both legs. Abdomen very considerably enlarged; barrel-shaped and symmetrical on the two sides of the median line. Circumference, over crista ilii and umbilicus thirty-eight inches and a quarter. Abdominal parietes somewhat red and shining, and very tender on pressure; the veinous trunks between the umbilicus and sternum were slightly enlarged. Abdomen exceedingly tense, and on palpation no tumor could be felt in any part of it; a considerable portion, about and above the umbilicus (as the patient lay on his back), was resonant on percussion; the lateral portions of the abdomen and the epigastric region, were dull on percussion; the level of dulness varied with the position of the patient; fluctuation was very distinct. No enlargement of spleen or liver detectable, but the latter was pushed very high up into the thorax. He was suffering from considerable bronchitis and severe congestion of the lungs; no disease of the heart; the piles were large, red, and very painful.

On the 21st of September the abdomen was decidedly less tense, and measured only thirty-seven inches over umbilicus. Fluctuation was very distinct; the anterior part was tympanitic; the latero- and postero-lumbar regions of both sides were dull, but the dulness was not absolute, though in these regions of the left side it was decidedly greater than on the right side. At this examination, on palpation over the latero-lumbar and part of the antero-lumbar regions of the left side, the ends of the fingers came in contact with a resisting body, separated from the parietes by a considerable layer of fluid, and extending from the groin upwards to within two inches and a half of the umbilicus, whence its upper border appeared bounded by a line extending towards the outer part of the left hypochondrium. Lying on the left side caused a greater amount of tympanitic sounds in the right latero-lumbar region on percussion, than lying on the right side did in the left corresponding region.

By the 13th of November, the quantity of fluid in the abdomen had so much decreased, that the circumference was only thirty-five inches and three quarters, and then "a solid mass of some size was felt in the abdomen, knotted on the

surface; the sensation given to the fingers being excessively like that of a compound cystoid growth (ovarian, in female) lobulated largely and smally; of unequal consistence, some parts hard, resisting, others considerably softer, fluctuation was even suspected in one part of the mass; it was movable freely laterally, somewhat so downwards, very little upwards." On the 16th, it was likewise noted that there was "clear resonance in left flank turning round towards the kidney; clear resonance also in the left hypochondrium and in splenic region." *The mass increased somewhat, but the abdomen diminished in size,* so that on December the 7th, it measured but thirty-three inches and a quarter in circumference. At this date the mass was very much softer and scarcely felt nodulated at all. The "straw-tint" of the face was not well marked. On the 4th of January the mass was found to be more tense and resisting, and over its proper area the sound on percussion was everywhere dull. After this the abdominal fluctuation became again more distinct, and the circumference of the abdomen increased gradually, so that on February the 3rd, it was noted as thirty-six inches and a quarter in circumference. He left the Hospital on March the 19th, the mass having further enlarged, there being distinct fluctuation in it, besides ascitic fluctuation.

This patient was re-admitted under the care of Mr. Erichsen, on the 3rd of October, in consequence of his having cut his throat. He died on the 15th; but the day before his death Dr. Hare saw him, and found the abdomen very tense (thirty-six inches and a half in circumference); the left side appeared a little fuller than the right, but a little above the *right* groin there was an oval tumor, about three inches by two, immediately under the parietes, and raising them, at the highest part, nearly half an inch. The whole anterior part of the abdomen, except, perhaps, the upper part of the epigastrium, was dull on percussion; it presented, also, fluctuation, but the sensation communicated to the fingers was rather that of a "knock" than of a succession of small waves, and, in the small oval tumor above alluded to, the fluctuation seemed to be more distinct than over the rest of the abdomen. There was *resonance* on percussion in *both postero-lumbar regions*, but rather more in the

right than the left one. No enlargement of liver, spleen, or kidneys to be detected.

Post-mortem.—On cutting into the abdomen, below the umbilicus, a sacculated cavity, closely adherent to the peritoneum, was opened, and six quarts of a dirty purplish-red coloured and turbid fluid were removed. The anterior wall of this cyst on its inner surface exhibited fungous, almost grumous, masses of dirty brown-red colour, protruding into its interior. This cyst, carefully separated from the anterior wall of the abdomen, was found to have no connection with any solid organ, but appeared to be formed in the great omentum. In consequence of the fungous looking masses of various sizes here and there projecting from its inner surface, the walls of the cyst varied much in thickness, being at some parts (where these large masses projected) above an inch thick, while over other parts it was not a quarter of an inch thick, and appeared to consist only of thickened omentum and condensed cellular or fibrous tissue. Connected with this large cyst by omentum and adhesion, was a cancerous mass, the size of two large eggs, in the main solid, but easily broken down in some parts, firm in others, and containing several cysts, some with pale and clear, and others with grumous contents, such as before described. The prominence above the right groin was found to be due to a sub-cysto-cancerous mass, similar in character (but containing only one cavity) to the one just mentioned; it formed part of the walls of the large cyst. In the left lumbar region another of the same cysts was found, the walls of which were harder than those of the rest, but contained soft cancerous matter and sub-cysts as elsewhere. All the glands examined in the mesentery and great omentum presented the appearances of infiltration with cancerous matter, and appeared to be undergoing changes into the cystoid form, similar to others above described.

The *liver*, greatly pushed up under the ribs, and much misshapen, corresponded by its inferior border to the fifth intercostal space; it was closely adherent to the diaphragm, and closely matted inferiorly to the stomach and pancreas; transverse measurement nine inches; from above downwards five inches and a half; thickness three inches and a half; pale in colour. It

presented, at the upper border, some depressions corresponding to masses (of about the size of a walnut), perfect specimens of soft hæmatoid cancer, which were in a manner encysted by the peritoneum, where it turns off from the diaphragm upon the liver. There were also some small nodules of the same kind under the peritoneum of the under surface of the liver. The substance of this viscus was apparently quite free from these cancer-masses, but its section was very pale and greasy-looking to a high degree; exceedingly fragile; its injection hepatic and portal. The cancer-nodules under the peritoneum of the inferior surface of the liver had so distended this membrane in some places as to make peduncles; one of these nodules was excessively soft in the centre, so that a sort of cavity was produced, forming a transition to another, which, practically speaking, was a cyst of the size of a walnut, the walls being partly serous and partly cancerous, and its contents a grumous fluid. The walls of the gall-bladder were very thin; it contained a couple of good-sized calculi, and a considerable number of minute, almost black, ones; the long absence of healthy bile was shown by the pale, almost white, colour of the mucous membrane.

The *kidneys* presented nothing remarkable, with the exception that in one of the pyramids of the left kidney there was a small pea-sized body, globular, semi-transparent, yellow, and of a cartilaginous feel when cut.

The *spleen* was free from cancer in its substance; but there were some cancerous masses about the hilum. No cancer of the lungs or heart.

The specimen presented several points of interest, both pathologically and as regards the observed phenomena of its progress during life. When Dr. Hare first saw the patient, thirteen months before death, he was manifestly labouring under *ascites*, and the tumor which, doubtless, then existed, although comparatively small in size, was undetectable, in consequence of the extremely distended and tense condition of the abdominal walls. After the abdomen diminished somewhat in size, the tumor was detected, and although obscurely made out at first, yet, by degrees it was felt more and more distinctly, till, at the end of

two months, the knotted and lobulated character of its surface was manifest, and some fluctuation in the tumor itself was even suspected, distinct from that of the fluid contained in the abdomen. The abdomen, which had become much smaller, again increased in size; but at this time the umbilical region and contiguous parts, which had at first been tympanitic, were found to be dull on percussion, while the lumbar regions, which were at first dull, now gave a clear stroke-sound. The abdominal tumor, itself containing fluid, had replaced the ascites.

Pathologically, the greatest point of interest was that connected with the origin of the large cyst-like cavity. Its walls were studded over with, and, in a great measure, made up of, cancerous matter, the colour of which corresponded with that of the fluid contained in the cavity. As already described, all the glands in the mesentery, so far as examined, were affected with cancer, and there were also nodules of cancer under the peritoneum, covering the liver. Wherever found, these cancer-masses were more or less softened in the centre, and in some of the larger masses the softening had gone on so as to produce one or several cavities, some of which were of considerable size : in fact, the cancer-masses presented in their centres the various stages between slight softening and the very large cystoid cavity already described. Many of the masses were surrounded by a kind of capsule of condensed cellular or fibrous tissue, and in the case of the large cyst it is probable that, as it became more and more dilated, the cancer-matter which had at first, as in the smaller specimens, entirely surrounded the softened portion, became broken up or separated into masses of various sizes which then studded, as it were, the walls of the surrounding capsule. This capsule thus came to form part of the inner surface of the large cyst, and by secreting a thin fluid, which became mixed up with effused blood and softened cancer matter, contributed materially to the formation of the large quantity of fluid found in the cyst.

An interesting case of encephaloid disease of the uterus with secondary affection of the neighbouring lymphatic glands is recorded in the last volume of the Transactions of this Society (p. 224). In that instance the cancerous nodules had assumed

DESCRIPTION OF PLATE VIII.

The figures in this plate illustrate Dr. Handfield Jones's specimens of Diseased Stomach. Page 131.

Fig. 1. A vertical section of the mucous membrane (*a*) of the stomach of T. P., (p. 131) from about mid-region. The tubes are wasted and replaced by (*b*) fibroid tissue. *c*. Fat.

Figs. 2, 3, 4, Remnants of tubes acted on by acetic acid.

Fig. 5. A vertical section of mucous membrane in mid-region (from the stomach of J. L. p. 133). A deposit of nuclear particles in the corium of the mucous membrane is seen encroaching on the lower ends of the tubes. *d*. Tubes; the whole length of these is not figured. *e*. Nuclear deposit. *f*. Fibrous tissue.

Fig. 6. A cyst-like cavity occupying the whole thickness of the mucous membrane of the stomach (from L. F., p. 134). All the surrounding tissue is pervaded by a nuclear deposit, obscuring and atrophying the tubes. *g*. Represents the basement membrane. *h*. The mucous tissue. *i*. The sub-mucous tissue.

Fig. 7. A cyst lying in a nuclear deposit situated in the superficial layer of the mucous membrane of the stomach. *k*. The basement membrane. *l*. Tubes. The diameter of the cyst equals one sixty-sixth of an inch.

Fig. 8. Nuclear deposit.

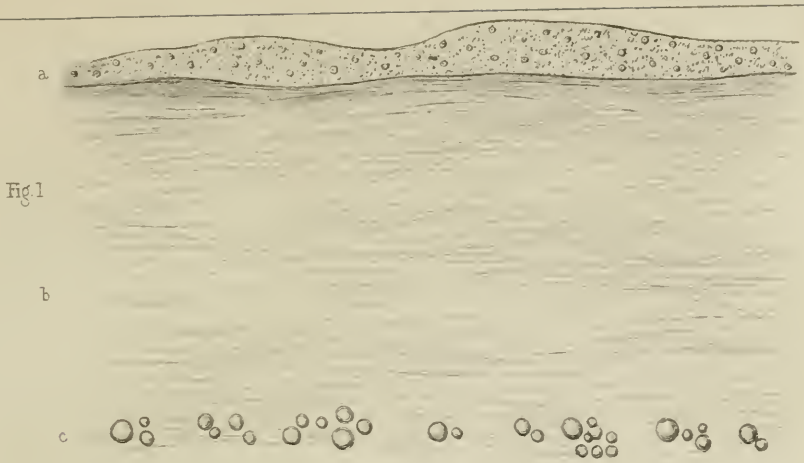


Fig 1

Fig 5.

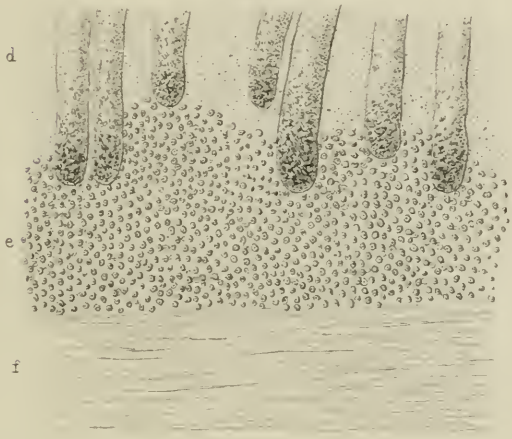


Fig 2.

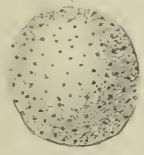


Fig 3

Fig 4

Fig 6.

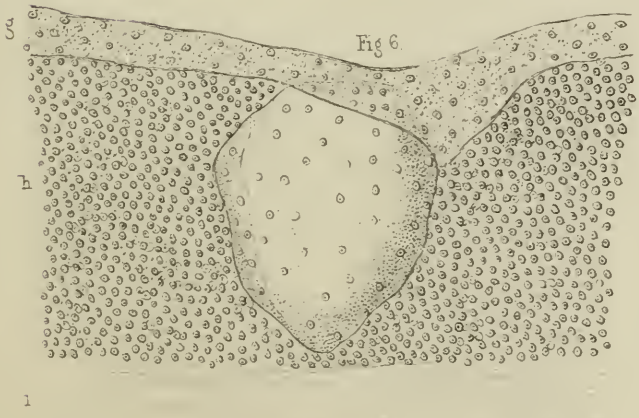
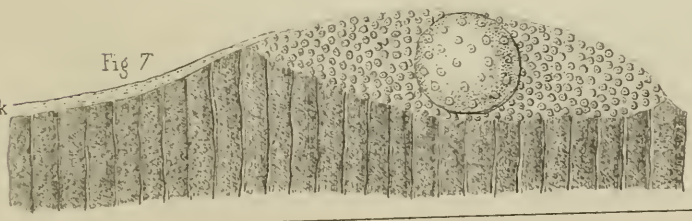


Fig 8.

Fig 7



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a cyst-like character, and the view which Dr. Bristowe, who exhibited the specimen, took of the formation of these cavities is very similar to that suggested above, though the opinions were arrived at quite independently. The two cases, indeed, mutually illustrate each other.

Dr. Hare, 18*th of October*, 1853.

6.—*Two Cases of Disease of the Mucous Membrane of the Stomach.*

T. P., æt. 62, has lived quietly, worked hard, and been a good deal exposed to the weather. He is extremely anæmic, his legs have been somewhat anasarcous, and he has some cough and mucous expectoration. There were systolic and diastolic murmurs audible; a loud systolic at the apex, which beat at the normal site, and a diastolic in the course of the ascending aorta, as well as a systolic also. On each side of the neck the systolic murmur could be heard, but loudest on the left. The breath-sound in the lungs was pretty healthy. The impulse of the heart was extended, its pulsations were felt in the epigastrium. There was no arcus senilis. He states that he was never laid up until this attack, and does not remember having had any previous illness. His legs were stained of a coppery hue up to the garters. The anæmia continued; he had occasional diarrhœa, but improved, on the whole, during several weeks' stay in the Hospital. Soon after going out he caught cold, and was confined to his bed for some time. He returned to the Hospital in a much weaker state, diarrhœa came on again, and he sank in a few days.

At the *post-mortem* there was observed extreme anæmia, together with much emaciation. The heart was large; its walls hypertrophied; the muscular tissue of a good colour. The aortic and mitral valves were efficient, but rather thickened; those of the right side were quite healthy. The ascending aorta appeared to be dilated, but its coats seemed to be tolerably healthy. There was an unusual distribution of the arteries; the left carotid being given off from the arteria innominata. At the orifice of the left subclavian there were some rough ossiform

deposits. There was a general atheromatous state of the thoracic and abdominal aorta, and some bony plates in one or two parts. There was some hypertrophy of the lining membrane (the fenestrated) of the iliac arteries. The other organs appeared healthy. The interior of the stomach was bile-stained, but it did not appear diseased.

On very careful microscopic examination (*see* Plate VIII. Figs. 1, 2, 3, 4,) it was found that the mucous membrane of the stomach was highly atrophied; its glandular tubes had in great part perished; in a vertical section there was scarce a trace of them to be seen, only a thin layer representing the remains of the mucous membrane, with a thick stratum of fibroid stuff lying under it, and containing, at its lower part, numerous fat vesicles. The wasted mucous tissue consisted of a moderately distinct basement-layer, with a substratum of granular matter, and indistinct nuclear particles. There was no trace of epithelium on its surface, neither columnar, nor that which so commonly exudes from the orifices of the tubes. On adding acetic acid, there were brought into view some remains of the tubes, though considerably altered from their natural condition. One appeared as an imperfect tube, rather the lower part of one, slightly bulged at its blind extremity; another as an oval cyst, with a short truncated neck; another as a smaller-sized spherical cyst, containing some granulous matter and oil molecules. The two former contained only an indistinct granulous or granulo-fibrous matter. After the action of acetic acid, the fibroid tissue exhibited very numerous indistinct nuclear corpuscles in a fibroid stratum; it was not rendered completely transparent by any means. There was no trace of vascular injection in the mucous membrane.

There are several points worth noticing in this case :—First, the anæmia, which arose and increased until it proved fatal without any apparent cause. Second, the murmurs, which were unusual in point of time and place, a functional systolic not being generally audible at the apex, and a functional diastolic being also very rare. Third, the extreme atrophy of the glandular structure of the stomach, which seems to have been primary, not resulting from any previous inflammation. It

was, probably, not the cause of the anæmia, but a coincident occurrence, a failure of vital power in a solid tissue, as well as in a fluid. The absence of symptoms of indigestion is remarkable, and not easily explained.

J. L., æt. 45, nursery gardener; admitted September the 23rd. Has lived and drank hard at times. Had rheumatic fever ten years ago, was cupped and blistered at that time. Has lost much flesh during the last month. Is now low, weak, and nervous. He had typhoid fever, with pneumonia, of which he died on October the 7th, the lung having become hepatized.

At the *post-mortem*, the body was well-formed. There were old adhesions in both pleuræ, most in the left. The right lung was extensively consolidated, except at its anterior part; it weighed three pounds one ounce. The left weighed one pound ten ounces. The heart was adherent throughout to the pericardium; the adhesions were of some length. The liver was pale, of a yellow tint, and granulated. The kidneys were pale, granular on the surface, but not much wasted. The stomach was of a very light-pale pink-colour, in the greater part of its mucous surface, with one or two patches of a blackish-grey. On close inspection, there was observed some appearance of mammillation, small whitish spots appeared elevated, and separated by narrow and more coloured depressions. The naked eye detected nothing else abnormal.

The muscular coat was not thickened. In the mid-region (*see* Plate VIII. Fig. 5. *a*, *b*, *c*,) the tubes were tolerably natural; there were very few perfect cells in the epithelium. In the dark blackish parts there was a deposit of black pigment in the tubes, especially at their lower ends; there was also some inter-tubular deposit. Yellow pigment-granules, in small groups, were observed; here and there, it appeared to be extra-tubular, and was quite similar to that which is often found as the result of hæmorrhage. In the cardiac portion there was rather more appearance of atrophy of the tubes, especially of their epithelium; there were patches of black pigmentary deposit. In the pyloric region there was considerable inter-tubular deposit of nuclei and fibroid matter, which had taken place

chiefly in the corium of the mucous membrane, and around the lower ends of the tubes; there was also a great deal of yellow pigmentary deposit. The tubes in this part were much obscured, but, as they could be occasionally made out distinctly, they were probably not much atrophied. The Glissonian sheaths of the liver were very much thickened, and there was development of new fibrous tissue in the medullary cones of the kidneys.

This case may be contrasted with the former, in the circumstance that while there had evidently been inflammation of the mucous membrane, the tubular structure was not atrophied, or, but slightly. Spirit-drinking, no doubt, had been the cause of the gastritis, the traces of which were manifest in the pigmentary deposits, black and yellow, and, probably also, in the fibroid formation which had taken place in the pyloric region.

The changes in the liver and kidney I consider as of allied character, no doubt dependant on the unhealthy state of the blood, which the habit of drinking had induced. Fibroid formation in the mucous membrane of the stomach, I believe, also takes place as the result of a similar blood crasis, independently of inflammation.

Dr. Handfield Jones, 18*th of October*, 1853.

7.—*Cystic Formations in the Stomach.*

L. F., æt. 16, after three or four months' illness, died with general tuberculosis, the lungs, bronchial and mesenteric glands, the peritoneum, omentum, kidneys, and spleen being all affected. Her appetite had been bad, but there were no special stomach symptoms.

The stomach, on a superficial inspection, appeared pretty healthy, the reaction of the mucus covering it was acid; the mucous membrane had a slightly pinkish-tint of vascular injection. On closer examination of the mucous surface in the splenic region, there were seen a great number of minute spots of clear opalescent aspect, looking a good deal like little vesicles. but manifestly depressed below the level of the surrounding mucous membrane. On holding up the membrane to the light,

these spots were seen as translucent vacuolæ, giving to the membrane, by their number, an areolated aspect. On making a vertical section of the tissue through one of these spots, it was seen that the tubes of the natural structure were completely absent, and that a cavity, containing only some nuclear particles and a clear fluid, occupied the whole thickness of the mucous membrane. (*see* Plate VIII. Figs. 6, 7, 8.) The adjacent part of the mucous membrane was pervaded to a greater or less extent by a deposit of nuclear particles, among which were seen fattily degenerating debris of tubes. The tubular structure in the mid-region was generally pretty healthy, but there were nuclear deposits here and there, often of considerable size; one of these lay just at the surface, beneath the basement membrane, and contained a cyst filled with clear fluid.

Similar cysts have been found occasionally in other specimens generally connected with nuclear deposits. It seems not improbable that a process of the same kind, or one very analogous, is that which gives rise to the perforating gastric ulcer. In the nuclear deposits, which may form at any level in the mucous membrane of the stomach, cystic cavities are produced in accordance with the like (unknown) conditions which occasion their development elsewhere. These cavities go on extending in depth, and increasing in size with the surrounding deposit of nuclear particles, and at length perforate the coats in the way they are known to do. It will be observed in the accompanying sketch that the cystic cavity has quite reached the surface of the stomach wall,—there is only a very thin film of membrane which still closes it in, and makes it differ from an ulcer. The clear cut edge of the perforating ulcer would easily be produced by a process such as that now described. Dr. Handfield Jones, 20*th of December*, 1853.

8.—*Medullary Cancer. Tumor of the Pyloric End of the Stomach.*

Mr. M., æt. 63, a robust muscular man, of regular habits, rather a small eater, had enjoyed very good health till January last, when he began to complain of indigestion, flatulence, and

a slight gnawing pain at the pit of his stomach. He had never received a blow, but was in the habit of occasionally pressing at the pit of the stomach with the weight of his body on the end of a horizontal lever, in his business as a book-binder. The pain was never severe, and only on one occasion had he tenderness. This was four months after the commencement of indigestion, when improper food induced vomiting, and pain at the pit of the stomach and between the shoulders. Purgatives then given produced black motions, probably from exudation of blood, and he soon considered himself well, but for a sense of unusual weakness, and sallowness of complexion amounting to jaundice.

I first saw him on the 25th of October, when his face was so bloodless as to resemble wax of a pale lemon-colour, and without any expression of pain, which, indeed, he had not even on pressure. He was very weak, but by no means thin—on the contrary, unusually fat and muscular. Frequent flatulence and eructations showed feeble digestion. His tongue was white and pallid, and he was altogether remarkably anæmic. As he reclined on his back, a considerable and hard moveable tumour was felt, free from tenderness on fair pressure, extending across the scrobiculus cordis, from the margin of the left ribs nearly to the right. Mr. M. continued without vomiting, pain, or other distress than progressive exhaustion, until during the prevalence of diarrhœa seven weeks ago, probably from eating rather more of pheasant than he could digest, he had numerous serous stools, sometimes slightly tinged with blood. At other times his digestion was correctly performed, though feeble, and his motions natural. He died from exhaustion on the 1st of December.

On inspection about thirty hours after death, fat was abundantly found under the skin surrounding the abdominal organs and in the omentum.

At the lesser curvature of the stomach, and surrounding all but the lowermost portion of the pylorus, where a clear tube of healthy mucous membrane conveyed food separately from the disease, was a large ulcerated cancerous tumor, nine inches in length, as it surrounded the pylorus, and three

in its greatest width. It was very red, and deeply fissured by prominent fungoid growths. Examined at Guy's Hospital with the microscope, it showed compound cells of various irregular forms, considered to be of a malignant type, also numerous granules and fat globules. The stomach was large, its coats attenuated and soft. The pyloric valve and the duodenum appeared healthy.

The other organs, so far as allowed to be examined, merely presented an extremely anæmic condition.

Mr. E. Pye Smith, *20th of December*, 1853.

9.—*Medullary Cancer and Ulceration of the Stomach.*

W. S., æt. 61, a robust farmer, of a large frame and active habits, an excessive eater, had had intense mental anxiety for some years previously to his last illness. The duration of this illness was about eighteen months, commencing with occasional attacks of "gnawing pains" at the pit of the stomach, in the region of the lesser curvature, and in the spine opposite, recurring as often, when the stomach was empty, as after eating; at length this pain became almost constant, accompanied with vomiting and progressive wasting and loss of strength.

Fourteen months before his death, a severe attack of vomiting was occasioned by eating a very hearty supper of mutton-chops and pickled onions when greatly fatigued. This was followed by a severe collapse and diarrhœa, and by an attack of gout in his right foot, by which he had been affected only once before, ten years previously. While the gout continued he had no pain in his stomach. There was never any tenderness on pressure carefully made, neither had he heart-burn, eructations, or flatulency. His complexion became sallow, and his lips pallid, and there was progressive emaciation with loss of strength. Towards the close of life, also, vomiting became more frequent and urgent.

Inspection sixteen hours after death.—The body was greatly attenuated. The head was not examined.

Chest. — There were old pleuritic adhesions at the upper

part, on both sides, but the lungs were sound. The sac of the pericardium was universally obliterated by adhesions, which were evidently of ancient date. The mitral valve presented some slight thickening and opacity from a yellowish deposit in its tendinous curtain. The aortic semilunar valves were likewise affected, and near the sesamoid body of one, there was a small warty-like excrescence.

There were also two patches of bony deposit, the larger two inches long, and a quarter of an inch wide, between the outer coat of the base of the ascending aorta, and the reflected portion of the pericardium.

Abdomen.—There was about a pint of bloody serum in the pelvic cavity. The stomach contained about sixteen ounces of dark coloured thick fluid, and its capacity was greatly augmented, its pyloric extremity was completely occupied by ulceration as large as an orange, which, at one spot where the omentum was attached, had very nearly perforated all the coats of the stomach. There was some thickening of the pylorus itself, but not of very firm consistence, extending to the duodenum. The pylorus would only admit the little finger; and the duodenum was also much contracted. The fungous growths of the ulcer were whitish in colour, and very soft in texture. The liver, spleen, and pancreas were healthy. The kidneys were much firmer in texture than natural, and the membrane of the right kidney very readily peeled off. The bladder was filled with urine.

A portion of the specimen of medullary cancer, viewed under a microscope with the addition of acetic acid, showed numerous well-defined cells of various shapes and sizes filled with nuclei, and having a granular appearance.

Mr. E. Pye Smith for Mr. Ewen, 20*th of December*, 1853.

10.—*Simple Chronic Ulceration of the Stomach, two large Perforations closed up by adhesions to the Liver and Pancreas.*

R. G., æt. 57, had been a hard drinker; his illness lasted two years; he had frequent vomiting, and, towards the close, the vomited matters resembled coffee-grounds; there was con-

stantly more or less pain at the scrobiculus cordis, and great emaciation.

After death an ulcer, four inches and a half long and one inch wide, (originally, perhaps, two ulcers, for at two parts the stomach had been perforated, and then closed by adhesions to the liver and to the pancreas,) was found occupying the anterior and upper part of the lesser curvature, close to, and extending as far as, the pyloric valve. The larger ulcerated part was circular, one inch and a half in diameter, with the edges very much thickened. At its base appeared the smooth peritoneal covering of the liver, which during life had become firmly adherent to this part of the perforated stomach. The stomach itself formed a large pouch. The duodenum appeared healthy.

Mr. E. Pye Smith for Mr. Ewen, 20*th of December*, 1853.

11.—*Specimens of Diseased Stomach.*

J. M., æt. 49, dying with anasarca and granular degeneration of the kidneys.

The stomach contained much bilious fluid; there was a large ulcer, the size of half-a-crown piece on the posterior wall, near the junction of the splenic and mid-third; there was another smaller ulcer on the anterior wall; both this and the larger one have clear cut margins, which are adherent to the subjacent tissue. The smaller ulcer is of oblong shape; its bottom seems to be formed by condensed submucous tissue, that of the larger one shows the fibres of the muscular coat dissected clear. Near the larger one, on its left side, is the firm cicatrix of an old healed ulcer. The pyloric region is extensively darkened by black pigmentary deposit. The general aspect of the mucous membrane is not healthy; it appears mottled, and deficient in smoothness.

In the splenic region the tubes were tolerably healthy; their epithelium abundant; there were nuclear deposits in some parts of the subtubular tissue extending up among the tubes; the capillaries were much injected. In the mid-region the tubes had completely disappeared in one specimen; their place was

occupied by nuclear particles and fibroid tissue; the basement membrane was gone. In a second the tubes were also obliterated by nuclear and fibroid deposits, but the basement one persisted quite distinct; here and there some remnants of the tubes could be made out. There was but little vascular injection. In the pyloric region the tubes were very much obscured by infiltrating nuclear and fibroid deposit; the basement membrane was very indistinct, the epithelium of the tubes was degenerating fattily. The black pigment, in this part, was deposited in the form of masses, in the superficial part of the membrane. The muscular coat was much thickened in the vicinity of the pylorus. A section carried through the smaller ulcer showed the tubes in the vicinity tending to disintegration, but still tolerably distinct; there was a great deal of nuclear deposit diffused among them, and in some parts there was much congestion of blood. The base of the ulcer, in a vertical section, showed condensed areolar tissue, infiltrated on its surface, and for a little depth, with granulous exudation, containing nuclear corpuscles, in small numbers.

— M., æt. 63, dropped down dead suddenly, after a journey of eighty-six miles, in cold frosty weather. He had arcus senilis, and had had one "fit," as it was called, before. The lungs were healthy, except a little cretaceous deposit at the apices and back parts, and some surrounding puckering, and corresponding adhesions. There was a slight pericardial patch. The heart was hypertrophied, weighed twenty-one ounces; its valves were all tolerably healthy, but the mitral orifice seemed enlarged; it admitted five fingers. The cavity of the left ventricle was enlarged; the walls were fattily degenerated in numerous patches. The liver, kidneys and spleen were healthy. On the serous surface of the stomach, in the splenic region, and at the back part, there was an ulcer the size of half-a-crown piece, which had quite clear cut edges, was perfectly circular, and extended to the mucous coat in depth; there was no thickening around it, or traces of inflammation. The tubes in the splenic region were tolerably healthy, but there was a notable amount of nuclear formation in the subtubular tissue. In the

mid-region, the tubes were healthy. In the pyloric, they were more or less obscured and wasted by interstitial nuclear and fibroid formation, and their lower ends were aggregated into bunches.

Near the great curvature, and in the splenic region, there was a patch, about one-third of an inch wide, of a dull, dead yellow colour, depressed centre, and serrated margins, which appeared to be a deposit of concrete fatty matter in the substance of the mucous membrane, between the tubes, as their orifices could still be discerned on the surface. It was quite opaque, except at its edges, where it showed opaque masses and globules lying at the margins of the mass.

Dr. Handfield Jones, 17*th of January*, 1854.

Report on the preceding Specimen.—The pseudo-ulcer is about an inch in diameter, and perfectly circular. Its surface is formed by the exposed submucous tissue, its circumference by the abrupt edges of the perforated serous and muscular tunics. Neither these parts, nor the tissues in the neighbourhood, present to the naked eye any appearance of thickening, of unhealthy deposit, or of any other deviation from the normal character; and under the microscope they exhibit an equally healthy appearance, and a total absence, so far as we can detect, of pus-cells, exudation corpuscles, or inflammatory deposit of any kind.

The only point in favour of its being an ulcer appears to be its shape.

Under these circumstances we can scarcely avoid the conclusion that the appearance in question is an accidental and *post-mortem* one. It is true, that in our own attempts to produce such a breach of surface, we have not succeeded in making any so perfectly circular as this; yet, we conceive it quite possible, and, indeed, probable, under favourable conditions. For example, it seems not unlikely, that a vertical incision, evenly and perfectly dividing the serous and muscular coats of the stomach (such an incision as might be accidentally produced on cutting through the abdominal parietes) would, if the stomach were distended at the time with flatus, and its parietes on the

stretch, gape to such a degree as to produce an appearance identical with that under consideration.

At all events, however difficult it may be to account for its form, otherwise than on the supposition of its being an ulcer, we think that that circumstance alone cannot outweigh the evidence we have adduced in opposition to that view.

Drs. Lionel Beale and Bristowe, *7th of February*, 1854.

12.—*Specimens of Diseased Mucous Membrane of the Stomach.*

The surface in the splenic region (in No. 1,) at the lower part presented numerous spots, about the size of a pea, much more prominent than the intervening surface, and, when held up to the light, appearing much thicker and less translucent than the parts around. These prominent spots were much more numerous and closer together in the lower part of the mid-region, in the upper part of which, and, in the pyloric, there was marked mammillation. In the prominent parts, the tubular tissue remained, and was healthy; in the thinner, intervening, they were very much atrophied, amid an overwhelming infiltration of nuclei, with circumscribed nuclear deposits. This condition resembled a good deal that of the granular kidney; the parts remaining prominent in both being comparatively healthy.

Dr. Jones also exhibited the mucous membrane of a child's stomach, æt. 5, which had been macerated in dilute hydrochloric acid, so as to display the solitary glands, which were seen as opaque, dead-white, circular, or streaky spots, embedded in the mucous tissue. These solitary glands he thought identical with the nuclear masses or deposits mentioned on former occasions.

Dr. Handfield Jones, *4th of April*, 1854.

13.—*Cancer of the Pylorus.*

J. P., æt. 50, a collector. Has generally had good health and good digestion. Was taken ill twelve months ago, with a

sudden sensation of a "lump" in the stomach, and discharge of clear water, with dyspnœa. This lasted severely about half an hour, and then went off, but he has had returns of it now and then since. Is very anæmic and pale. Greatly emaciated last six weeks. He feels as if he could eat, but the stomach turns against food when it is brought before him. "The less and the lighter food he takes the better." Vomiting commenced six months after he was first attacked; it was so severe, that he brought up everything he took, with a great deal of dark phlegm and clear water for about two months, up to the last week, during which his stomach has been quieter. From the commencement of his attack he has been much troubled with flatulence until last week or ten days. Bowels very regular; they have been very costive. Eye natural, not too clear. No epigastric tenderness. The liver extends some four fingers' breadth below the ribs; it is not pushed down; the heart is not covered. No tumor to be felt in the region of the stomach. All his relatives healthy. The heart appears to be enlarged, it can be felt pulsating below the nipple, and in the epigastrium, first sound weak, second clear. Has been subject to palpitation of heart for years; he is of a very excitable nature. Had a violent catarrh for some months before he was attacked with the symptoms referable to the stomach. He sank slowly, and died of inanition.

At the *post-mortem*, the body was observed to be greatly emaciated. Lungs and heart tolerably healthy. The intestines were very shrunken. The liver contained several masses of cancerous disease, one about the size of a cricket-ball, and in the posterior part of the right lobe had a large cavity in its centre containing almost clear fluid, while the wall was lined by cancerous matter. The kidneys and other organs were healthy, except the stomach. This organ was contracted; the reaction of the fluid of the surface was alkaline. The mucous membrane of the greater part of the stomach appeared pretty natural, the submucous vessels injected, the surface pale. At the pylorus and for two or three inches towards the cardia there was a thick layer of cancerous matter, which occupied the situation of the submucous tissue, and had also involved the mucous membrane almost completely. The latter could be traced on to the surface of

the cancer like a thin layer of varnish, but was not separable from it. The cancerous layer terminated towards the left by an irregular, but defined margin, beyond which, at a little distance, there were a few small nodules of cancerous matter seated in the mucous membrane. The muscular coat was hypertrophied a good deal in the vicinity of the pylorus, and gradually diminished towards the splenic end. The tubular structure of the mucous membrane was much atrophied, and pervaded by an abundant interstitial nuclear deposit. The cancerous substance consisted of a sparing quantity of stromal fibre with very abundant cell substance consisting of ordinary looking nuclei, small nucleated cell particles, abundant granular stuff, and some granular globules. There were also a few cells containing several nuclei. Along the lesser curvature there were numerous enlarged glands, which contained a whitish matter, having very much the aspect of encephaloid, and yielding an abundant milky juice; this was made up of small sized cell particles provided with ordinary nuclei, and of very numerous particles closely resembling those of columnar epithelium both in their shape and apposition to each other.

Dr. C. Handfield Jones, *7th of March*, 1854.

14.—*Stomach showing Abnormal Development of the Solitary Gland.*

E. S., æt. 11, died after only a few hours' illness, the symptoms being obscure. The small intestines were studded with bodies like millet seeds, some as large as a small pea, and Peyer's patches were much enlarged.

The stomach was red-stained in the splenic region, and presented in this part a multitude of whitish pin-head sized spots, several of which were perforated by a small hole. In the mid-region the same were seen, but less manifest, and not presenting any perforations. In the pyloric region the surface was covered with larger whitish prominent spots, which gave a kind of mammillated aspect. A vertical section under the microscope showed in the splenic region numerous large nuclear deposits, some circumscribed, others more diffused and encroaching on

the tubes considerably. In the mid-region there was little trace of nuclear deposits; the tubes were healthy. In the pyloric region the tubes showed some tendency to atrophy; the prominent spots mentioned above were found to consist of nuclear masses which had attained a most unusual size, and extended in some parts almost through the whole thickness of the mucous membrane. In the duodenum there were numerous similar prominent spots, many of them showing large orifices. These were also made up of nuclear masses.

A dog's stomach which had been macerated in acid, and which did not show any trace of the solitary glands which are identical in structure with the nuclear masses occurring in the human stomach, was exhibited at the same time. It is quite certain that, in the above case, the solitary glands had attained a very unusual development, such as must be regarded as morbid. There is sufficient evidence to show that they are normal formations in the stomach as well as in the intestines, though they do not appear to be present in all animals; but it may certainly be said that the more they are developed the more is the efficient secreting tissue interfered with. My inquiries go to prove that they derange the structure of the mucous membrane of the stomach, either by encroaching unduly upon the tubes, or by liquifying after they have attained a certain magnitude and forming cavities by which the tubes are completely destroyed. A remarkable feature of the above case is the development of the solitary glands so extensively throughout the gastro-intestinal track.

Dr. Handfield Jones, *2nd of May*, 1854.

15.—*The Stomach of an Insane Patient filled with Cocoa-nut fibre, which caused Death by perforation of this viscus.*

The specimen was taken from the body of a young man, æt. 22, subject to epilepsy with maniacal excitement. He had suffered from the former disease nearly all his life, and his usual mental condition was that of imbecility, alternating with periods of great excitement. He would eat any substance which came in his way—gravel, rags, dirt, excrement, &c., and

he had had at different times slight attacks of diarrhœa, by which he seemed to get rid of them easily enough.

Up to the 10th of last April his health was as good as usual. At 5 o'clock in the morning of that day, he sat up in bed, and complained of great pain in the abdomen. This was followed by the symptoms of acute peritonitis, with tendency to early death by asthenia. The diagnosis was intus-susception with possible perforation; the parietes of the abdomen being tense and exquisitely tender. No tumor of the epigastric region was observable. He died in somewhat less than twenty-four hours from the attack.

Post-mortem.—There was found a perforation larger than a shilling, situated at the small curvature of the stomach, with dark-coloured and ragged edges. The peritoneum was in a state of universal inflammation. On opening the stomach, there was found a mass about four pounds in weight, composed almost entirely of cocoa-nut fibre, with bits of string, &c. The mucous membrane was healthy, except at the seat of ulceration.

It is believed, owing to the position in which this person was placed, that the cocoa-nut fibre with which the stomach is filled had been there some time, probably many weeks, before the fatal perforation of its coats took place. If so, it is very remarkable that he appeared to be in his usual good health, took and digested all his meals, and was well nourished with all this stuff in his paunch.

Dr. Quain for Dr. Bucknill, *16th of May*, 1854.

16.—*Cases illustrative of Local Jaundice of the Liver.*

The following details of some cases, in which there occurred abnormal pigment production in the liver, are worth recording, as illustrating the pathology of jaundice.

Case 1. — A female died, æt. 74, after an operation for femoral hernia. The body was very fat; it was not reported to be jaundiced. The lungs were healthy, but congested. The heart was rather large and very fat, and its muscular tissue

was extremely soft and lacerable. The valves were healthy, except a small calcareous deposit in the mitral; the aorta was healthy. There was slight fibrinous exudation on the intestines. The greater part of the strangulated portion of intestine was in a sloughy state, the rest of it was thickened. The intestine above was distended by fæces, that below was empty; neither were inflamed. The liver was rather large and its surface pale.

The non-dilatation of the minute ducts, the slight degree of tinging of the hepatic cells, and the extra cellular position of the pigment in the yellow spots, are worthy of remark.

The hepatic and common ducts of the liver were obstructed by large calculi. The larger ducts in the interior of the liver were greatly dilated, and filled with thick bile, but the smaller ones did not appear to be so; in large portions of the liver there was no appearance of dilated ducts. In some parts there were bright yellow spots, which seemed to mark accumulations of biliary pigment; the colouring matter, however, did not appear to be in the hepatic cells. These bodies were not much altered, they were somewhat shrivelled and of a yellowish tint. A large duct was injected, and a careful examination made of the smaller, apparently terminal, ramifications, from which it resulted that the latter were not dilated; they were quite as small as those of healthy livers. The kidneys were granular, mottled and small.

Case 2.—A female had for a long time jaundice and hæmatemesis. She died with immense extravasation of blood into the submucous tissue of the jejunum near its commencement. The liver was of a deep greenish tint and soft texture; its cells were, many of them, of a like tinge, many of them also merely contained pale granulous matter. Their nuclei were distinct. Many of them appeared somewhat stunted and irregular in shape. There was very little free pigment matter. A large calculus was impacted in the hepatic duct, and all the smaller ducts were much dilated. The hepatic artery was also much enlarged.

The jaundice in this case was of long duration, and the cells were much more coloured by pigment than in the former case.

Their starved condition was probably the result of the pressure exerted on the portal vein by the dilated duct; and the enlargement of the hepatic artery was no doubt compensatory to supply the loss of that blood which should have arrived by the portal vein.

Case 3.—A female, æt. 28, admitted 11th of June, 1852. She was confined of a healthy child four months ago, and was well for some time after. She sickened with headache, vomiting, pains in her limbs, and debility, which have increased up to the present time; there was pain felt on pressure being made over the uterus. She was unable to give any account of herself; her teeth were covered with sordes. The eyes hot and dry. She died in six days. The brain, lungs, and heart were healthy, and also the uterus, except some superficial ulceration around the cervix. The liver weighed three pounds three ounces, it was of pale aspect, and mottled with dark greenish spots. On microscopic examination there was found complete fatty transformation, most marked on the margins of the lobules. In various parts there were largish greenish patches pretty well defined, not altered as to consistence and showing the outlines of lobules. In these patches the cells were more broken up than in the pale part, and the oily matter was in smaller drops, with some very faintly-seen diffused pigment. The kidneys were large and mottled. The cortical tubes were very much broken up, and there was often little to be seen but epithelial detritus. There was hæmorrhagic extravasation into the tubes and the Malpighian capsules.

The typhoid symptoms in this case no doubt proceeded from the condition of the blood brought on by the renal degeneration. The local pigmentary formations in the liver were probably the result of a degenerative process somewhat analogous to that affecting the kidneys; they were not occasioned by obstruction of the common duct.

Case 4.—M. K., æt. 50, admitted the 14th of September, is jaundiced, and has the aspect of severe organic disease. The bowels are open daily, stools rather dark; abdomen swelled; she

has felt ill during two or three days; she has cough and dyspnœa; her urine is faintly acid, not albuminous. 30th, abdomen tense and tympanitic; bowels relaxed. 5th October, bowels relaxed, motions clay-coloured. 13th, bad cough; motions very green and offensive. 14th, bowels acted twice, better. 22nd, patches of ecchymosis appeared on the upper part of chest. She died from asthenia on the 27th.

Post-mortem. The lungs were emphysematous; there was considerable effusion into the left pleura; the right was obliterated; the heart was small, its valves rather thickened and atheromatous; a white patch on the pericardium. Universal chronic thickening of the peritoneum, with considerable serous effusion into the cavity. Kidneys tolerably healthy.

The gall-bladder was full of a thin olive-coloured bile, but was not greatly distended. The duodenal end of the ductus choledochus was impervious; there was a large indurated gland in its vicinity and thickening around it. The cut surface of the liver was of a dark red, with patches scattered here and there of a general circular shape, indented margins, and a colour varying from green, which was the prevailing, to a bright red. The ducts were stained yellow-green, and the larger ones were much dilated, so that in portal canals cut across, their area equalled that of the vein. The patches were often far apart, and a good extent of the cut surface appeared quite free. There were here and there discoverable, on minute inspection, spots resembling orange-coloured grains. In one part there was a white-grey nodule with a distinct enveloping membrane; it contained a fatty-like substance made up of granular and oily matter, and stunted nuclear corpuscles. The green patches showed under the microscope nothing but coloured oily-looking matter, the orange were dissolved completely by nitric acid, with strong effervescence. No hepatic cells existed in the coloured parts; they were tolerably natural in the remaining parts of the organ, but contained much dark pigment. The glandular tubes of the stomach were imbedded in fibroid matter of new formation, and were very much atrophied.

It seems pretty certain that the obstruction in this case could not have been complete, as bilious stools were passed

certainly thirteen days before death and probably later. The gall-bladder was not nearly so much dilated as in the following case. These circumstances make it probable that the green patches were not solely the result of the backward pressure of the pent-up bile, but were in part the result of a degenerative process as in the former instance.

Case 5. E. A., died with universal jaundice a short time after having fractured her thigh by a fall. The kidneys were wasted and granular; the glandular tubes of the stomach had almost entirely disappeared; the mucous lining was pale, and not manifestly altered to the naked eye. The gall-bladder was enormously distended by tolerably healthy bile, the lower end of the common duct was quite plugged up with a sandy matter consisting of biliary pigment, and the ducts in the interior of the liver were filled with a bilious fluid, thickened with sandy pigmentary deposit. There was no bile in the intestines. The liver was of its ordinary reddish colour in most parts; in some it was mottled by patches of a yellowish-grey. There was an accumulation of biliary pigment in the central cells of the lobules, and oily accumulation in the marginal; the cells were rather wasted, and there was some thickening of the Glissonian sheaths. No difference was perceived between the condition of the reddish main mass and that of the paler patches. The small amount of pigment in the hepatic cells is remarkable, considering the very large quantity that was precipitated in the ducts, as well as the absence of pigmentary accumulation in the form of extra cell masses.

In conjunction with these cases I would refer to the common condition of the liver as we find it on *post-mortem* examination in the healthy state. The central parts of the lobules is the seat of vascular congestion; the blood, as its current slackens, collecting chiefly in these capillaries, which group around the radicles of the veins. The cells lying in the interstices of these capillaries are almost invariably those which contain yellow pigment; those more peripherally situated are comparatively free. An exaggeration of the above condition is very common

in cases of obstructive heart disease, the blood being thrown back on the right side of the heart gorges the whole venous system and notably that of the liver. Hence the central two-thirds or half of the lobular capillary plexus becomes intensely congested, forming dark-red patches, which are exactly limited by, and strongly contrast with, the dull, whitish hue of the fattily degenerated marginal portions. This produces the most exquisite specimens of the nutmeg liver. The dark-red colour of the central patches is deepened by the condition of the cells in those parts, which become laden with orange pigment of the brightest and deepest tint. It seems as if the hæmatine of the blood in the capillaries underwent change in an extreme degree into pigment matter in these central cells. In cases of long standing, these cells at length disintegrate and break up into mere masses of brown-red granules.

The conclusions to which the above facts seem to point, are :—

1. That interference with the outflow of bile into the intestine causes dilatation, chiefly of the gall-bladder and larger ducts, and not at all of the smallest.

2. That this arrest of the bile-flow tends to produce local or general jaundice of the liver itself, but does not do so necessarily, at least for some time.

3. That local jaundice of the liver, that occurring in spots, and general jaundice, such as occurs in acute yellow atrophy, affecting the whole organ, may be produced without any such obstruction.

4. That very considerable accumulation of yellow pigment in the hepatic cells may be chiefly, if not entirely, dependant on vascular congestion, long protracted, the exuding hæmatine undergoing changes in the liver similar to those which are seen when it exudes in other parts.

5. That from the comparatively small number of the coloured spots, and their often wide separation, in cases of local hepatic jaundice, there seems reason to conclude that derangement of the action of the ultimate ducts is materially concerned in their production. If this were not so, the spots ought to occur at

every point where a duct terminates, as the backward pressure must tell alike on all.

Dr. Handfield Jones, 15*th of November*, 1853.

17.—*Deposit on the Liver, Kidney, and on the Peritoneum, in a Case of Typhus.*

A. L., æt. about 26, when first seen was in the last stage of typhus. She had been ill three weeks, and seemed completely prostrated. She sunk on the third day after. On examination, the body was found much emaciated, the skin presented many small petechiæ of a dark colour. The liver, kidneys, and peritoneum were studded with minute dark spots, of apparently the same nature. The kidneys were larger than usual, soft, friable, and spotted as above. A section showed a similar deposit, principally in the tubular portion.

Microscopic examination of this Specimen by Dr. Quain.—The deposit in the kidney, examined with the microscope, was found to consist of granules and oily particles; of small cells without nuclei; and of small imperfect nuclei, many naked; and of nucleated cells. The cells were generally smaller than the glandular cells of the kidney. The deposit occupied and filled the tubes and Malpighian bodies.

Dr. Pollock, 20*th of December*, 1854.

18.—*Specimen of Lobulated Liver, from a Child.*

J. M., æt. 3 years and 10 months at the time of his death. First came under treatment in August, 1853, at the St. Marylebone General Dispensary. At this time he had very considerable ascites, with general anasarca. The dropsical swelling had come on about three months before, after hooping-cough. There were enlarged veins on the surface of the abdomen, and the urine was albuminous and contained (according to Dr. G. Johnson,) in September small waxy casts but no oil.

This state of things continued till his death, January 11th,

1854. For the last two months, however, the urine had come away by dribbling, the œdema of the prepuce preventing a full stream; none could be obtained for examination.

During this time, he had an attack of acute pleurisy; another of erysipelas of the scrotum, following punctures, from both of which he recovered; and finally one of peritonitis, which killed him. The bowels were either relaxed, or easily kept open, during the whole of his illness. He never had jaundice. He had the pale pasty complexion, which the kidney disease would account for.

On a *post-mortem* examination great distension of the abdomen, with a serous fluid, containing, however, many flakes of recent lymph, which in some parts formed adhesions between the intestines, was found. The fluid was thicker and more puriform in the most depending parts.

Liver very small, not reaching to the margin of the false ribs. Weight thirteen ounces, with gall bladder attached. Curiously lobulated, resembling the appearance of a lobulated kidney. The capsule of Glisson opaque and thickened. Old adhesions between the opposed sides of the lobules. Portal veins pervious to the second divisions, beyond which they were not traced. The bottom of each fissure, between the lobules, contained a pervious branch of the portal vein. Under the microscope, the liver cells are seen to be opaque, granular, containing very few oil globules.

Kidneys enlarged, mottled on the surface, pale. Weight of each three ounces. Most of the tubes of the cortical portion are full of casts of oil-containing epithelium.

Heart and lungs healthy.

The left pleural cavity obliterated by old adhesions.

Brain not examined.

Dr. Quain for Dr. Armitage, *4th of April*, 1854.

19.—*Cirrhosed Liver, from a temperate Man, aged 22 years.*

J. A., æt. 22, was admitted under my care into the Metropolitan Free Hospital, the 13th of September, 1853. A pale, light-complexioned, fair-haired lad, not unhealthy in appearance.

The abdomen is enormously distended; fluctuation being distinctly perceptible over its whole surface. The integuments about both ankles, as well as the scrotum, are œdematous. Tongue is clean; pulse quiet; appetite good; no thirst; the urine is very scanty, high-coloured, depositing a very abundant pink sediment (lithate or purpurate of ammonia). Bowels are regular; there is no blue margin to the gums. He sleeps well.

History.—A house-painter by occupation. Married, and having two children. His mother and wife, who were closely questioned, confirm his statement as to the temperance and regularity of his habits. About four months ago he first began to suffer from dyspepsia, of which the only symptom was uneasiness, and sense of weight in left hypochondrium for about three hours after taking food. Six weeks ago, after exposure to cold, he had a severe attack of diarrhœa, at the same time his urine was high-coloured, but natural in quantity; two weeks afterwards his belly suddenly swelled up, and has since been gradually increasing in size. He had no jaundice, nor anasarca of the legs, previously.

The circumference of the abdomen now measures thirty-nine inches at the umbilicus; thirty-seven inches, two inches above; and thirty-seven inches and a half, two inches below that level. The epigastrium is remarkably prominent. As he lies on his back the abdominal parietes are very tense, and are resonant on percussion around the umbilicus and above it.

Auscultation.—The heart's sounds are sharp and flapping; otherwise healthy. Respiratory murmur natural throughout both lungs. The day after admission it was noticed that the left side of the abdomen was tender, and that it became resonant on percussion, when the patient rested on the opposite side, as was also the case with the right side; that not more than four ounces of urine (loaded with lithate of ammonia) were passed in the twenty-four hours, and that the stools were healthy.

Treatment.—Mercury was given to affect the system for one month, and, at the same time, hydragogues, purgatives, and diuretics, were exhibited to lessen the ascites; but the fluid continued to accumulate, and, on the 20th of October, it being necessary to have recourse to tapping, my colleague, Mr.

H. Ludlow, drew off twelve and a half quarts of reddish-coloured, opalescent fluid. This fluid had an alkaline reaction, specific gravity 1010, and, on the application of heat or nitric acid, it gave a copious precipitate of albumen.

The patient, who was comatose before the paracentesis, never rallied, but lingered five days in a like state, and died from asthenia, without having the least jaundice, or any fit or convulsion.

Post-mortem, made twenty-two hours after death. — Rigidity normal. The membranes and substance of the brain were decidedly congested. The ventricles contained an unusual amount of serum.

In the *peritoneal* cavity was found a large quantity of yellow clear fluid.

The *stomach* was very large and prominent, occupying the whole of the epigastric and hypogastric regions, was much congested, having dark green discoloration along its lesser curvature.

The *peritoneum* was everywhere coated with a layer of "false membrane," which peeled off, but not very readily. The small intestines were not coherent, but the liver was very firmly adherent to the first portion of duodenum. The mesentery was infiltrated with serum.

The *spleen* was four times its natural size; section, of a deep red colour; consistence, natural.

The *liver* small, about half it natural size. Its surface coated with a thin transparent layer of lymph. Its edges rounded, and its surface much nodulated. When sliced, it appeared generally pale from containing little blood, and the cut surface had a mottled appearance, from the ordinary liver substance being interlaced with white fibrous tissue. The substance was remarkably tough and elastic.

The *bile-cells*, under the microscope, appeared healthy.

The *gall-bladder* contained a moderate quantity of citron-coloured bile. Dr. Septimus Gibbon, *4th of April*, 1854.

20. — *Biliary Calculus discharged through an Opening in the Abdominal Walls.*

A woman, æt. 60, applied to Mr. Simon, on the 11th of October, complaining of a painful ulcer at the umbilicus.

On exposure of the part, there was seen a red surface of skin, six or eight inches wide, having at its centre (close above the navel) an ulcerated opening with thickened foul edges. Co-extensive with the reddened skin there was very firm and well-defined induration, involving the whole thickness of the abdominal parietes, and seeming, at its depth, to cohere with internal organs. The patient's linen was stained yellow, by a thin discharge, which issued from this opening, and which was apparently bilious.

The woman's account of herself was, that, fifteen months previously, a hard and painful tumor had formed in this locality, had ulcerated (giving vent to profuse discharge), and had subsequently retained a fistulous aperture. During this time she had experienced habitual pain, with frequent aggravations, and had been entirely confined to her house—sometimes to her bed — by this suffering, and by the attendant impairment of her health. Small quantities of blood had, at times, been admixed with the discharge.

She had always been subject to inconvenience in her digestive organs, and, twenty-two years ago, had suffered from jaundice.

The abdominal tumor was so sensitive as to forbid much manual examination; but the long continuance of an ulcerated opening, with foul thickened edges, in the centre of so well-defined a hardening of the abdominal wall, and giving vent to bile-tinged fluid, suggested a suspicion that the disease might consist in some carcinomatous ulceration, which, on the one side, had perforated either the biliary apparatus or the intestine, and, on the other, had traversed the integument.

The patient was accordingly recommended to come into St. Thomas's Hospital, and, on the following day, was admitted under Mr. Simon's care. On her arrival, she produced a large biliary ovoid calculus—an inch and a half in length, by three

quarters of an inch in breadth, which, in the interval, had passed through her umbilical fistula, causing great pain in its discharge.

From this moment her inconvenience was at an end. The edges of the opening at once lost their unhealthy character. The massive induration rapidly softened away. The aperture closed. She left the Hospital on the 31st of October, with no trace of hardness remaining, suffering no pain, and having only a small cicatrix on the verge of her umbilical fossa.

Mr. Simon quoted two cases from St. Thomas's Hospital, where a process of discharge, similar to the above, had appeared to be in progress at the time of death. In one (whereof the preparation is preserved in the Museum) there was found beyond the fundus of the gall-bladder, a cyst, constructed of dense cellular tissue, communicating with the gall-bladder by a small ulcerated opening, and completely filled in its interior by a concretion of cholesterine. In another of such transitional cases (*Post-mortem* Book, October 19th, 1850,) the fundus of the gall-bladder was found communicating, by an ulcerated opening, a quarter of an inch in diameter, with a cyst about as large as a pigeon's egg, formed of condensed cellular tissue, coherent with the abdominal wall anteriorly, and filled with irregular masses of concrete biliary matter and small calculi.

These two cases, and the one first reported, would represent in succession the steps by which such discharge of calculi may be effected; their passage from the bladder by ulceration; their inclusion in an abscess-like cyst; the cohesion of this with the parietes; and the perforation of these investments.

A further step, or more extreme consequence, is illustrated by Andral: "Précis d'Anat. Path." I. 241. Several biliary concretions had been discharged at the opening of an acute abscess over the situation of the gall-bladder. Complete recovery followed; but after death (which occurred some months later from other disease) the gall-bladder was found to be completely destroyed, and its place was occupied by dense areolar tissue.

Mr. Simon, 1*st of November*, 1853.

21.—*Biliary Calculi discharged from the Umbilicus, recovery. Death by Phthisis and Emphysema.*

A. M., æt. 67 when he died. For ten years previous to his death he had often been under medical care for spasmodic asthma, complicated occasionally with bronchitis and colicky pains of the abdomen. Whilst resident in the country he was attacked with gall-stones, which were ultimately passed at the umbilicus, of which he gives the following account in writing to a friend:—

"I told you some time ago of the complaint I had, viz., a running through the navel, which also discharged a number of stones, about *thirty*, of the size of small nuts, and ever since there continues to run at times a kind of yellow matter. About three weeks ago another stone came through as large as the end of my thumb. I have no uneasiness about the navel, nor any sensation of pain. The spasms I used to feel before I left London have all subsided, but the discharge of matter is frightful, and must wear me out if it lasts long; my breath is much easier than it was, but I feel weakness and languor."

About three months subsequently he wrote again to his friend to the following effect.

"Since I wrote to you last I have had every prospect of approaching death. I became so low and worn out that my friends expected my dissolution was near. One evening, about a month ago, feeling myself very faint, I called for a little spirits. It was brought to me, but in drinking, it went, as we say, the wrong way. I instantly lost my breath, and was dreadfully convulsed. At last, however, my breathing became tranquil; but mark what followed, *the running at the navel stopped at once*, and has never since commenced again. I am, therefore, of opinion that one of the stones, being forced into the bilious duct by the great muscular exertion, is the cause of the stoppage of the matter. I am very weak, but much better than I was."

About three years after that report he came again to London, and was then placed under my care. The wound at the umbilicus was healed, and he never felt any inconvenience from

that source afterwards. He was very feeble, and had repeated attacks of bronchitis with copious muco-purulent expectoration and hectic fever; and although greatly relieved by leeches, blisters, mild mercurials and expectorants, his maladies continued to prey upon his constitution and produced much depression. From the low sensations he experienced he addicted himself to taking laudanum, which he continued for two years, increasing the dose gradually until he took three teaspoonsful daily. I tried to substitute henbane for the opium, but it was of no use. He gradually altered for the worse, had constant wheezing, headache, copious muco-purulent discharge from the bronchial membrane, and ultimately orthopnœa. There also supervened spasms of the abdomen, constipation of the bowels difficult to remove, great languor and feebleness of the circulation, and great bodily emaciation, under which complication of maladies he died about two years after coming again to London, and about five from the closing of the fistula.

Dissection.—A pint of serous fluid in the right side of the thorax; right lung enormously distended and emphysematous; many of the air-cells greatly dilated, three of them being as large as walnuts. Several old tubercles and small vomicæ throughout the upper part of this lung, and purulent fluid in abundance in the bronchial tubes. The left lung universally and firmly adherent to the costal pleura by a thick false membrane. This lung was completely disorganized, and apparently of little use, consisting chiefly of tubercles and numerous small vomicæ, and one large one, at the superior and posterior part; they all contained purulent fluid, as did also the bronchial tubes.

Stomach large and distended with air and fluid; pylorus rather thicker and harder than natural; intestinal canal free from disease; one small irregular biliary calculus embedded in the diaphragmatic surface of the right lobe of the liver, none elsewhere. Structure of the liver healthy; its peritoneal coat, however, was preternaturally adherent to the anterior abdominal parietes by membranous adhesions. The omentum was adherent to the umbilicus, as was also a thick cord of dense white

colour. This cord, the size of a small quill in circumference, extended from thence towards the liver, and upon examination, was found to communicate with the remains of the gall-bladder, which, having been destroyed in great measure, was only pervious to a small extent. Its lining membrane was of the usual reticular character and smeared with bile.

The membrane lining the vena porta was distinctly of a yellow colour.

The peritoneal coat of the spleen was of a dense white colour, very hard and converted into cartilage.

Pancreas. The kidneys and bladder were healthy.

I have brought the case narrated above before the notice of the Society in connection with one of a similar nature detailed a few meetings since by Mr. Simon, as it shows by *post-mortem* examination, the correctness of some of the suggestions of that gentleman, and also because, so far as my experience goes, cases of this kind are not of every day occurrence.

They generally occur, as might be expected, in persons advanced in life, and usually end in recovery.

It is questionable whether the cord, which is so clearly seen in this preparation, is part of the gall-bladder altered by distension and inflammation; or whether it is a simple canal, degenerated into a cord, which led from the gall-bladder, and opened at a distance from the umbilicus, but eventually communicated with that part. The mode of its attachment to the gall-bladder would support the former view (in which case, it is probable that this viscus, distended with gall-stones, reached to the umbilicus, when the inflammation and suppuration were set up, by which they were discharged); the appearance of the cord, however, favours the latter.

The patient's supposition, that a stone impacted in the gall-duct by vomiting was the cause of the sudden cessation of the discharge, was a very natural one; dissection, however, proves it to have been erroneous. It is difficult to explain the sudden stoppage of the discharge, upon any other ground than a coincidence—the suffocation having occurred just at that particular time, when, without it, the same result would have followed, unless it be supposed that the faintness tended to diminish the

inflammatory action still going on, but the suddenness with which the discharge ceased, militates against such a supposition.

The continuance of the discharge for nearly four months after the last stone passed, is also worthy of note.

In the 35th vol. of the "Medico-Chirurgical Transactions," there is detailed an interesting case, in which a fistulous orifice formed near the umbilicus, and discharged pus, and subsequently pure bile, which was found on dissection to communicate with one of the smaller biliary ducts. A gall-stone was also impacted in the ductus communis choledochus, and jaundice was a consequence; which, curiously enough, went off about a week after the abscess was opened, although the stone remained impacted in the duct as before. In the case narrated above, it will be seen that a calculus was embedded in the diaphragmatic surface of the right lobe of the liver, but that there were none elsewhere.

This case also affords a good illustration of emphysema of the lungs, a great part of the right lung having the air-cells very much dilated; three cavities, as large as walnuts, distended with air, being observed. I would advert also to the coexistence of phthisis and emphysema, of which this case is a good illustration. I do so, more particularly, because it has been asserted, that the two maladies do not coexist, a circumstance which has been made the ground for producing preternatural dilatation of the air-cells, as a means of averting or curing consumption. How far this is true, as a rule, my experience is not sufficiently extensive to decide, but that it is not an invariable rule, this, with other cases, sufficiently demonstrates. Mr. R. R. Robinson, *20th of December*, 1853.

21.—*Specimen of Abscess of the Liver containing a large mass of Agglutinated Biliary Calculi, opening by Ulceration into the Duodenum and Common Bile Duct.*

The specimen consisted of a part of the right lobe of the liver, having the duodenum adherent to it. This portion of the liver, as well as the adherent intestine, formed part of the

boundaries of an abscess whose walls were exceedingly shreddy, and offensive in odour, and which, besides a quantity of foul dark-coloured fluid, contained a number of variously sized, polygon shaped, biliary concretions, agglomerated and retained together by inspissated bile and mucus, and forming a mass about equal in size to a small hen's egg. This mass, from its size and shape, &c., had evidently been formed originally in the gall-bladder, of which no traces could be found. Ulceration of the bladder had been set up and had spread to the neighbouring structure of the liver; and thus an abscess containing the gall-stones had arisen. The liver was large, and the right lobe at its under surface was of a very dark colour and very softened, as if undergoing decomposition; and to this part the transverse colon, as well as the duodenum, was adherent. Two rounded and ulcerated openings existed between the abscess and the interior of the duodenum, and a similar one between the abscess and the interior of the common bile duct, the largest of these being equal to a fourpenny piece in diameter. The openings had all the appearances of having been formed some time. The inner surfaces of the duodenum and gall-duct were otherwise natural. The cystic duct was natural, and could be traced into the abscess of the liver. The other parts of the liver were in a very fatty state, and the various arterial branches of the cœliac axis were very atheromatous. Of the other abdominal organs the kidneys only were diseased. They together weighed sixteen ounces. They were very fatty, softened, and congested, having much fat about their pelves, and their surfaces were granular. Within the thorax recent fibrin was found to a great extent in the pleural cavities, and patches of so called "lobular pneumonia" chiefly at the surfaces existed in one or two parts of the lungs. The heart weighed seven ounces and a half, and the pericardial sac was distended by a quantity of clear amber-coloured fluid. The cavities of the heart were dilated, containing very small clots, and the walls of the ventricles were somewhat thickened. The root of the aorta and the flaps of the mitral valve were slightly affected by yellow opaque patches. On examining the cranium a tolerable amount of fluid was found in the sub-

arachnoidean tissue, and a very highly atheromatous state of the cerebral arteries.

This specimen was removed from the body of a man of middle age, whose history, as far as it could be gathered, is as follows:—Whilst waiting in the waiting-room at St. George's Hospital along with other patients, he had a desire to use the water-closet, and whilst there he was affected by what was supposed to be an attack of syncope, and died almost immediately afterwards. Nothing of his antecedent history could be obtained. The body was exceedingly obese and the skin jaundiced. In this case, doubtless, the gall-bladder had become distended by the gall-stones, and ulceration followed; inflammation set up thereby, gradually destroyed its coats and extended into the liver; and probably purulent absorption had occurred, as we may suppose, from the lobular pneumonia and the colour of the skin. The cause of death was doubtless the immense accumulation of fluid in the pericardium oppressing and interfering with the heart's action, already weakened by disease and poisoned blood. The presence of gall-stones to such an extent well accords with the great obesity of the patient and the accumulation of fat in the various organs.

Dr. J. W. Ogle, 21*st of February*, 1854.

22.—*Large Biliary Calculus passing by an Ulcerative process into the Intestines, and causing Death by Obstruction of the Bowels.*

Mrs. S., æt. 69, the mother of five children, had for twenty years past been very obese. She has had good health until three months ago, when she had, during a fortnight, slight pain in right hypochondrium, with fever; but unaccompanied by either sickness or constipation. She recovered, but was more sedentary than before, and her bowels are believed to have been lately irregular, and sometimes costive.

On Tuesday, the 25th of April, 1854, she began to feel sick, and soon vomited bile and gastric fluid in great quantities; the bowels acted freely. I found her complaining of thirst, and of slight general uneasiness in the abdomen, rather marked in the hepatic region; a pulse of 82, rather sharp and weak; hot

skin, and clean red tongue. The abdomen was everywhere soft, and fairly resonant, except near the umbilicus, where there was a thick deposit of subcutaneous fat, and only tender when I pressed firmly towards the liver. The entire colon appeared to me free from accumulation, and there was no hernia. The kidneys acted.

Calomel and opium, with hydrocyanic acid in an effervescent state gave some relief.

On the third and fourth days vomiting became more and more frequent and urgent; and, during these days, she probably vomited one gallon and a quarter of bilious fluid. The bowels did not act at all, but an enemata brought away a little pale tenacious fæces. Urine was still moderately secreted. There was no tympanitis, and little general tenderness of the abdomen; occasional cramps in the left leg; and increased anxiety of countenance. On the fifth day her powers began to fail; vomiting continued, of very offensive smell, and less abundant. Still, no one point in the abdomen was peculiarly painful. Nor could I plainly find any internal or external cause of obstruction; though an obstruction, insuperable and gradual, between the duodenum and ileo-cæcal-valve seemed certain.

On the fourth day Mr. Hilton had suggested that all her symptoms arose simply from fæces obstructing the colon, and that powerful enemata might remove them. I accordingly passed an elastic tube nine or ten inches up the rectum, and injected warm soap and water as forcibly as practicable: but the sigmoid flexure was evidently so contracted that it immediately returned with very little fæces.

On the fifth day Mrs. S. became comatose, and died early on the sixth from the attack.

Post-mortem examination thirty hours after death.—Fat, one inch and a half thick, was deposited over the abdominal muscles. No effusion or other result of general peritonitis appeared. The jejunum, ileum, and ascending colon much inflated, occupied the abdominal cavity, on first view.

The stomach was healthy. The jejunum, for an extent of from thirteen to thirty inches from the pylorus, was increas-

ingly inflamed and distended. At this latter part the inflated jejunum showing the square arrangement of vessels characteristic of inflammation of the peritoneum was soft, and tore easily, and contained an oblong mass, which could be pushed onward only with considerable force, and so completely obstructed the intestine that nothing could pass. This solid mass, four inches and a half in its longer, and two inches and a quarter in its shorter, circumference, of the shape and size of the gall-bladder itself, was marked by its dilatation at the commencement of the cystic duct, and consisted of hardened bile, of a very dark-brown colour, and pungent odour. Below this obstruction the ileum was pale, and not distended either by air or the accumulation of intestinal secretions; above, the bowels contained merely sanguineo-mucous secretions. Four inches of the transverse colon and the sigmoid flexure were quite empty, pale, and contracted to less than the size of one's little finger, as was the rectum for at least ten inches of its length.

On raising the liver, its concave surface was found to be occupied by firm fibrinous adhesions surrounding Glisson's capsule; in the midst of, and protected by, which, was an ulcerated communication from the almost absorbed gall-bladder into the duodenum, half an inch below the opening of the common duct into it. It is inferred that through this the above-described large mass of bile had lately passed.

Mr. E. Pye Smith, *16th of May*, 1854.

23.—*Ulceration and Perforation of the Bowels in a case of Fever of Relapsing Type* (*Typhus?*). *Intestinal Hæmorrhage. Death at the end of Two Months.*

G. P., æt. 26, a strong, muscular man, but, nevertheless, of a strumous habit, by trade a bricklayer, was apparently in perfect health the beginning of September, 1853. He went to the theatre and slept on the top of the omnibus coming home, and was soon afterwards attacked with fever of remittent type (typhus?). He came under treatment the 10th of September, with the ordinary symptoms of fever, but with a remarkable

flush upon the cheek, which was observed (although not constantly) from the first, and a tendency to relaxation of the bowels. He was treated by rest in bed, milk diet, salines with colchicum, hyocimus, Dover's powder, and mercury with chalk.

The fever progressed much in the ordinary way until the 22nd of September, when he was seized with severe hæmorrhage from the bowels and great tenderness of the abdomen, more especially in the situation of the right hypogastric, or rather iliac region, nausea, an anxious and shrunken countenance, and great prostration of strength. On this occasion he lost more than a pint of blood, apparently venous, in a short time. Lead and opium were administered, and at first cold bread and water poultices were applied to the abdomen, and subsequently tepid ones. Upon the occurrence of hæmorrhage he became so low, had such a dry brown tongue, with sordes about the mouth, that wine was indicated and taken, and under this plan in a few days the bleeding entirely subsided, the fever diminished, and the tongue became moist; he did not, however, altogether lose the flush upon the cheek.

On the 28th of September, being weak, the chlorate of potash was given in infusion of quassia, and with decided advantage, as the fever almost entirely subsided and his appetite returned, indeed became very keen, as, in spite of remonstrance, he ate decidedly too much, and in consequence the bowels became relaxed, the motions of a thin watery character, and pale yellow colour, not inaptly compared to pea-soup. This state was quickly checked by small doses of laudanum.

On the 10th of October another attack of fever occurred, apparently partly in consequence of errors of diet and partly owing to the state of the atmosphere, which was warm and damp, and favourable, therefore, to the development of fever, which was very prevalent at the time in the neighbourhood; recourse was therefore again had to the saline treatment.

On the 15th of October there was again a discharge of blood from the bowels, but the lead and opium being immediately resorted to, and the poultices being again applied, it entirely subsided in a short time, and altogether the loss was very much less than on the first occasion.

Shortly after this second hæmorrhage the fever went off entirely, he was free from pain, his tongue became quite clean and moist, and his appetite ravenous. Although he was considerably reduced, he was enabled to sit up a little; upon first attempting to do so, however, he fainted away, but by degrees he regained strength and was enabled after a time to go into another room. His appetite being very great, in spite of warning he ate too much; he took an egg for breakfast, and had meat and porter for dinner; and consequently, on the 7th of November he was again attacked with fever. On this occasion he had more pain in the abdomen, more especially towards the lower part, which was tender on pressure. He complained of pain and difficulty in making water: the urine was scanty and high coloured, depositing the pale-red lithates upon standing; his countenance became more shrunk and anxious than it had ever been before, and the flush on the cheek increased. He was occasionally sick, and although the bowels were tolerably regular the actions were disposed to be frequent, and more especially when he turned upon his left side. His pulse was remarkably quick and feeble. Fearing atonic peritonitis and perforation of the bowel, a mustard plaster was applied to the abdomen, and subsequently fomentations. Milk and farinaceous diet alone were strictly enjoined, and opium given three times a day. From this time, however, there was no improvement; on the contrary, the pain became increased, indeed agonizing, all over the abdomen, but more especially in the hypogastric region. He complained, moreover, of increased difficulty in micturition, although it was evident that there was little or no urine in the bladder. He became very restless; there was more anxiety of countenance, the sickness was more constant and the urine more scanty. The tongue became very dry; the flush on the cheek very intense; a cold, clammy perspiration bedewed the skin; the pulse became thready and almost imperceptible; he sank very rapidly, and died on the 12th of November.

There was never any clear evidence of the rose rash on the skin.

Dissection.—Thirty-one hours after death. The body very

much emaciated; face still exceedingly anxious (so characteristic of abdominal mischief) and the flush still visible on the cheek; decomposition commencing.

Thorax.—Right lung healthy, unadherent; left, fragile and universally attached to the costal pleura, both quite free from tubercle. About an ounce of very yellow serum in the pericardium; numerous white lines, but no patches, in the course of the coronary vessels.

Abdomen.—A thick greenish purulent fluid issued from the abdomen upon incision, although in no great quantity. The great omentum was adherent to the symphysis pubis and to the peritoneum covering the fundus of the bladder, but was easily separable; underneath this a fold of the lower part of the ileum was firmly but recently attached in the same situation; the peritoneum of this fold of bowel in two places was infiltrated with blood, and apparently in a state of slough. On opening this part of the bowel several ulcers were seen; some were irregular and much congested, and had destroyed all the coats but the peritoneal, and in one place that also was perforated to the extent of a split-pea, but there had been no escape of the intestinal contents into the general cavity; there was, however, a general softening of the bowel at this part. In other places the ulcers were free from congestion, were smaller and rounder, and appeared like simple erosions. Several portions of the small intestines were thickened, their peritoneal coat was very vascular, and there were a few, but very few, flakes of lymph upon it. The peritoneal coat of the sigmoid flexure of the colon and rectum was excessively infiltrated with blood, and all the coats of these portions of the canal were very much thickened, hard, and heavy, but carefully examined internally there were no ulcers visible. The cæcum, parts also of the ascending and transverse colon, were examined and found quite free from ulceration. The stomach appeared healthy—there was a very free discharge of yellow fluid from the mouth; the liver was large and slate-coloured upon its surface, pale within; there was some yellow bile in the gall-bladder; the spleen was large, slate-coloured, and spongy; there was nothing abnormal about the kidneys; the peritoneum covering the fundus of the

bladder was excessively infiltrated with blood, like that of the peritoneum of the different portions of the bowel in this situation. The mucous membrane, however, was pale and quite healthy, and there was not any urine in the bladder; the mesenteric glands were enlarged, hard, and red.

The circumstances which chiefly attract notice in this case, are, the duration of the disease, the hæmorrhage, the errors in diet, the situation of the ulcers, the character of the inflammation, and the non-escape of the intestinal contents notwithstanding that perforation of the bowel had taken place.

Mr. R. R. Robinson, *15th of November*, 1845.

24.—*Great enlargement of the Aggregate and Solitary Glands of the Intestine, in a case of Asiatic Cholera.*

E. D., æt. 23, admitted into Guy's, October 27th. He was a labouring man, and in good health, apparently, till the day before admission, when he was seized with purging, and appeared unusually prostrate. Mr. Tibbett saw him, and prescribed ordinary remedies for diarrhœa. The case appeared rather to be choleraic diarrhœa than true cholera, and, although he was prostrate, he did not pass into a state of collapse. Vomiting came on, and the motions became very loose, though they were said not to be of rice-water character. He took ice and soda water. Two grains of opium were administered, but were at once rejected. He raised himself in bed on the fourth day, and almost at once passed into a state of syncope and died.

The inspection of the body was made five hours and a half after death. The body well developed. The limbs were rigid, and the voluntary muscles of a very deep colour.

The *lungs* were slightly congested at their posterior part; but were not otherwise affected. The pleuræ quite free from adhesions.

The *pericardium* was healthy, and the heart of usual size, its weight ten ounces. The right side contained pitchy blood and coagula; the left was nearly empty and moderately contracted. The valves were healthy.

Abdomen.—The intestines were somewhat distended with gas;

they were doughy and yielding to the touch. The peritoneum was healthy. The liver was pale and soft; the acini indistinct; weight two pounds thirteen ounces. Spleen small and moderately firm, its weight four ounces. The kidneys were slightly congested, of normal size, the surface smooth and the tunic readily separable.

The urinary bladder was empty.

The contents of the small intestines were like barley-water. The mucous membrane pale and œdematous. The solitary glands were much enlarged; but the patches of Peyer's glands at the lower part of the ileum had a very unusual appearance. About a foot from the cæcum they became very distinct, the surface being raised into minute nodular eminences. The lowest patches of these glands, however, presented rounded polypus-like eminences, nearly half an inch in length; these covered the whole surface of the glands. On examination, the ordinary villi were found upon these growths, but both villi and glands contained an immense number of nuclei, about $\frac{1}{6000}$th of an inch in diameter, which were unaffected by acetic acid; and, with these, granular matter. The ordinary Peyer's glands seem to contain similar nuclei; but there appeared here to have been an unusual growth of this, so called, gland structure, and the appearance was increased by the œdema of the whole membrane. No epithelium was observed upon the mucous membrane or in the mucus; but rounded cells of varied sizes were seen.

The solitary glands in the large intestine were also much enlarged, and had contents similar to those in the small intestine.

Dr. Habershon, *6th of December*, 1853.

25.—*Rupture of the Bowel (Ileum) from a contusion of a Reducible Hernia.*

Mr. Shaw exhibited a specimen of small intestine ruptured from a blow on the pad of a truss. The patient, æt. 40, a cabinet-maker, had been subject for two years to inguinal hernia of the right side; it had not descended during the last four months, and he wore a truss.

On the 11th of November, 1853, he was pushing a heavy table, when his feet slipped and, as he fell forwards, the pad of

his truss struck against the edge of the table. The pain was great and he fainted. He walked home, and within two hours from the accident was conveyed to the Hospital. The sac of the hernia was empty; on coughing no bowel protruded; dragging on the testicle gave him no pain; pressure above the internal abdominal ring caused him to wince; and he had pain without pressure in the epigastrium. His skin was cold, his face pale, his pulse weak, and he had nausea. Shortly, symptoms of acute peritonitis, attended with incessant vomiting, arose, and on the fourth day he died.

Post-mortem examination.—In the peritoneal cavity there was a pint of fluid like liquid fæces; the convolutions of the intestines were glued with lymph; in the right iliac region the vascularity and adhesions were greatest; on the anterior face of a fold of ileum, a foot and a half from the cæcum, lying midway between that part and the bladder, too large to have been all contained in the hernial sac, was a circular hole, wide enough to admit a goose-quill, and from which flatus and yellowish fluid escaped. Through the ruptured peritoneal and muscular coats the mucous membrane protruded, forming something like a fringe to the edge of the opening. In the neighbourhood of the hernial sac the peritoneum was very vascular and thickly lined with lymph; the orifice of the sac readily admitted a finger; the interior was free from inflammation; it did not reach more than an inch beyond the external abdominal ring. Neither under the skin, nor amongst the muscles near the sac, was there ecchymosis. A part of the diaphragm, the pleural, as well as the peritoneal surface, was coated with lymph. Between the muscular fibres and pericardium, on the anterior aspect of the right auricular appendage of the heart, were several insulated patches of ecchymosis.

In explanation of the rupture of the bowel, in this case, Mr. Shaw remarked that, although, from the patient's account, the truss usually performed its office effectually, yet it is obvious that when he was exerting himself, at the time of the accident, to push forward the table, a knuckle of intestine must have been protruded into the sac; and, at the moment when he tripped and struck the truss against the edge, this knuckle

getting between the pad and the os pubis, was ruptured by the force of the blow.

He adverted to a case where, from a somewhat similar accident, fatal peritonitis had been produced. The patient had congenital hernia, with bowel and omentum adhering to the sac. In a dark night, having a burden on his back, he struck his groin against a post, fainted, and was conducted home: in three days he died of peritonitis. From the neck of the sac upwards the signs of inflammation were strongly marked; but below, the contents of the sac, including the testicle, were free from inflammation. This case occurred under Sir Charles Bell, who made a model to exhibit the appearances.

Mr. Shaw, *6th of September*, 1853.

26.—*Traumatic Ulcer in the Small Intestine of a direct Inguinal Hernia, consequent on a Kick.*

A man, æt. 39, was admitted into the London Hospital under the care of Mr. Curling, on December 31st, having received a severe kick on a rupture which he had had for nine or ten years, which was always reducible, and for which he had never used a truss. Agonizing pain was the immediate consequence of the injury, followed, in a short time, by excessive depression. Symptoms of general peritonitis shortly supervened, increased rapidly in severity, and ended fatally on the fourth day after the admission of the patient.

On the *post-mortem* examination (which was made forty-eight hours after death), slight evidence of contusion was remarked over the seat of the hernia. The abdominal cavity contained about a quart of turbid fluid, without any trace of blood or fæculent matter. The intestines were glued to each other and to the omentum by recent fibrinous exudations; but the results of inflammation were more evident about the lower fourth of the ileum, a portion of which, about four inches long, formed the hernial protrusion. On drawing forth this loop from the large hernial sac (which could be done easily), the opposing surfaces, and the mesentery in connection with it, were seen covered with a continuous layer of fibrinous exudation. On removing

this fibrin, a rent was observed on the upper surface of the mesentery, seven eighths of an inch in length. It was at right angles to the long axis of the gut, and was prolonged through its attached border, and its mucous and muscular coats, into the cavity, where it had an irregularly circular appearance, the circumference prominent and everted, and the opening allowing of the passage of the end of an ordinary pencil-case. The surface of the mesenteric rent, and the continuity of it in the intestine, were covered with recent fibrin. The whole length of the remainder of the alimentary canal was healthy.

Mr. N. Ward, 17*th of January*, 1854.

27.—*Diseased Intestine, from a Case of Typhoid Fever.*

S. H., female, æt. 21, died of typhoid fever, after twenty-three days' illness. There was persistent diarrhœa throughout. The urine was albuminous, apparently as the result of the disease. Both lungs were congested posteriorly, and the right hepatized, or nearly so, in parts. Kidneys large, weighing six ounces and a half, each. The absorbent glands along the attachment of the mesentery to the intestine, and at its root, were much enlarged and inflamed. There were very numerous ulcers in the lower portion of the small, and in the large intestine. These had taken place in solid masses of exudation, of about the size of a pea, which had formed in the solitary glands of the large intestine, and in spots of the agminated of the small intestine. The solitary glands of the large intestines were seen here and there in their normal state, consisting of simple masses of nuclei lying in the deeper part of the mucous membrane. Besides the ulcers in the small intestine, there was a vast number of small whitish prominent spots about the size of a pin's head, or rather larger, which were situated in the substance of the mucous membrane, and consisted of masses of granulous matter, containing a few corpuscles. There was nothing to show that these were enlarged solitary glands. The case was brought forward for the purpose of raising the question, whether in the exanthem of typhoid fever, the deposit takes place constantly in the solitary glands, or whether it does not

often also occur as an ordinary deposit of exudation matter in the mucous membrane, just as a variolous pustule forms in the substance of the skin. This seemed to have happened in the foregoing case.

Dr. Handfield Jones, 16*th of May*, 1854.

28.—*Prolonged Constipation. Sacculated Colon.*

Mr. Gay exhibited a lad, æt. 7, of healthy appearance, who was admitted into the Royal Free Hospital, in July, 1853. Four years ago he had an attack of typhus fever, accompanied with abdominal tenderness and dysentery.

On recovering, his bowels became so exceedingly torpid, that it was necessary to administer strong purgatives, or enemata, in order to procure any evacuation from them. This torpor gradually increased, so that after about two years these means failed of having any effect whatever. *During the three months prior to his admission nothing whatever passed from his bowels;* and he was accordingly sent from Rochford to Mr. Hogg, of Finsbury, and he then came under Mr. Gay's care. Notwithstanding this condition of the bowels, his health had not apparently suffered in the least degree; his appetite had in no respect failed him; nor had he been sick but on one or two occasions, and then in consequence of his having taken unwholesome food. His body, however, had gradually enlarged—to the size of forty-nine inches in girth; but without material inconvenience to his respiratory organs. On examining the abdomen, it was found to be uniformly very tense; the recti muscles were rigid, but the oblique and transversales, especially on the left side, were flaccid, and had evidently yielded more passively than the recti, to the distension within. Along the left side, there was a considerable prominence or broad ridge, corresponding to an enlarged descending colon, and its sigmoid flexure. Just below the navel a portion of intestine had protruded, apparently through a rent in the linea alba; it could be reduced, but not retained within the abdominal walls. The abdomen was in parts (varying, as was afterwards found, from day to day) resonant on percussion, but, for the most part,

dull; and on palpation distinctly gave an impression as though it was distended with solid lumpy matter. A series of remedies were used, but without effect; and it was not until after the expiration of three weeks that any fæcal matter was obtained from the bowels; and then only by the following alternative: — A speculum was passed into the rectum; and, after dilating the sphincter, the tube of an enema syringe was passed high up into the bowel, and its contents washed out by a stream of warm water, which was kept continuously playing upon them for the space of nearly half an hour. The distension of the sphincter seemed to excite peristaltic action, and thus materially to assist in dislodging the contents of the bowel.

A large quantity of fæcal matter, hard and black, and much resembling common cinders in appearance, was by this means brought away. This operation has now been repeated several times with similar results, and with the effect of reducing the size of the abdomen to that of twenty-six inches in circumference.

At present on passing the tube into the bowel, there is little doubt but that it enters a capacious and tolerably flaccid sac; and that this sac is formed by a distended and, in all probability, a palsied condition of the descending colon, and its sigmoid flexure. A bandage is kept constantly applied around the abdomen; the confection of black pepper, aloetic purgatives, strychnia, and other remedies have also been given, but as yet no spontaneous effort whatever has been at any time made by the bowels to relieve themselves. The urine has been constantly of a deep colour, of a high specific gravity, and laden with lithic acid and lithates.

Mr. Gay thought the case interesting; 1st, on account of the relation of the state of the lower bowel to the dysenteric attack; and 2nd, from the fact, that persistent and complete constipation of the bowels might exist for four months without occasioning any interruption to the processes essential to the general function of nutrition.

Mr. Gay, 18*th of October*, 1854.

29.—*Imperforate Rectum and Anus.*

The specimen was taken from a child born eight days previously. The mother had been attended in her accouchement by a midwife; no advice had been sought on account of the malformation that existed in the child, and it only came under observation in consequence of the mother being seized with puerperal peritonitis, which terminated fatally within twenty-four hours of the supervention of the first symptoms.

On examination of the child a slight depression was observed at the ordinary situation of the anus, over which the integument was continuous. By pressure with the point of the finger a bulging and obscure sense of fluctuation was perceptible, conveying the idea of the rectum terminating in a *cul de sac* at a little distance from the surface; the abdomen was slightly distended; vomiting had occurred once. The child was in *articulo mortis* when it first came under surgical observation, and it was evident that the time had passed for any operation to be of avail, therefore no attempt was made to remedy the condition of parts; death took place a few hours afterwards.

On *post-mortem* inspection evidence of inflammatory action was observed, the whole of the intestines being agglutinated together by lymph. Tracing the large intestine the rectum was found empty and collapsed, and terminating about half an inch from the external surface; the onward passage of the contents of the bowels was prevented by the colon being bent at an acute angle upon the rectum and dipping down into the pelvis. This portion of the colon was distended with meconium, it was considerably dilated on one side and adherent to the small intestines. On trying to separate these adhesions the colon was lacerated, the tissues at the point being of a deep colour, and much softened in structure. It was this portion of the intestine which was felt by the finger when pressure was made externally.

Mr. T. J. Ashton, *7th of February*, 1854.

Report on the preceding Case.—There existed a scarcely recog-

nisable depression in the usual situation of the anus, without any puckering or folds of skin.

Underneath the anal integument there existed a pale, thin, but quite distinct, external sphincter muscle, only remarkable in being imperforate, *i.e.*, in possessing no central aperture.

The rectum, a little enlarged, descended to within a quarter of an inch of the integuments; its termination was slightly puckered and conical, adhering by dense cellular membrane to the subcutaneous tissues.

Mr. PARTRIDGE, 21*st of February*, 1854.

V.—DISEASES, ETC., OF THE URINARY AND GENERATIVE ORGANS.

1.—*Kidneys in Bright's Disease.*

Dr. Semple had attended the man at intervals for the last five years for scrofulous abscesses, which were treated locally, and also generally, with some success. Two months ago he contracted fever and was admitted into the Fever Hospital, from which he was discharged in a very weak state, and was admitted into the Islington Infirmary. Besides general weakness he suffered from anasarca, which led to an examination of his urine; this was found to be highly albuminous and of low specific gravity. He was accordingly treated for Bright's disease, had warm baths thrice a-week, Dover's powder at night, small doses of Potassio-tartrate of Antimony with spirits of Nitric ether, and compound Jalap powders. By these means the dropsical accumulations were nearly entirely dispersed, and the man became better in all respects, but on the 31st of October, without any marked symptoms, he died quite suddenly and unexpectedly.

On a *post-mortem* examination, no particular disease was found in any of the organs except the kidneys, which were much larger than usual and their colour mottled; the proper coat peeled off readily, and the cut surface of the kidney presented a granular appearance. On examining a small portion

under the microscope, a great number of epithelial scales were observed, with the debris of tubercles; a few fat globules, and some mineral matter (probably phosphates) choking up the tubes in some instances.

Dr. Semple, 1*st of November*, 1853.

2.—*The Remains of Abscesses (?) in the Kidney.*

M. T., æt. 31, admitted into St. Thomas's Hospital under the care of Dr. Peacock on the 27th of September. He stated that he had been ill fifteen weeks, and that his indisposition commenced with cough, and pain in the left side. He had previously enjoyed good health, but had been very intemperate.

He then suffered chiefly from cough and difficulty of breathing, with prostration of strength and symptoms of fever. His face was puffy and his complexion sallow, and the lower extremities were somewhat œdematous. The præcordial dulness was increased in extent, and there was some deficiency of resonance at the upper part of the left side and also in the left dorsal region. Respiration was attended with some rhonchus, especially on the left side; and a feeble, though distinct murmur, accompanied the impulse of the heart, and was most clearly heard below the mamma. The pulse was feeble and intermittent. From this time he gradually got worse; he had a severe cough and difficulty of breathing, and, latterly, vomited or expectorated much blood; he had frequent sickness and vomiting, and lay in a very torpid state, though he answered questions when addressed. The urine was very albuminous, and contained also a phosphatic deposit.

He gradually became weaker and died comatose.

Autopsy.—The right kidney (the specimen exhibited) was small and lobulated. On removing its capsule the surface appeared remarkably white, and gave a vague impression of fluctuation. On opening it, its cortical and medullary substances were found to be completely destroyed, and the space occupied by cavities varying between the size of a walnut and that of a Spanish nut, the parietes of which ranged from half a line to a line in thickness, and consisted of a dense fibrous structure.

The contents of the cavities was an opaque white substance of uniform character, soft but not fluid, and resembling very fine moistened plaster of Paris. The cavity of the kidney was much reduced and did not appear to contain any similar deposit; its mucous membrane had the same characters as the walls of the cavities and was somewhat congested. About an inch from the hilum of the kidney the ureter was obliterated for the eighth of an inch by adhesions, and from this point to the bladder, it was reduced in calibre, but pervious and healthy.

The putty-like material under the microscope presented a large number of imperfect, broken down cells, having much the appearance of pus, a quantity of free granular matter, small oil globules and occasional plates of cholesterine. It did not effervesce on the addition of acid.

The above changes were very like those which take place in tuberculous disease of the kidneys; but partly from the absence of tubercle elsewhere, and partly from the uniform nature and consistence of the deposit, as well as from its microscopic characters, I am induced to believe that in this case the material discovered was concrete pus, the result of by-gone suppurative inflammation of the secreting structures of the kidney.

In the *post-mortem* examination, which was made somewhat carelessly, and in the absence both of Dr. Peacock and myself, it is stated that there was slight recent pleuritis of the right side, congestion and œdema of the lungs with pulmonary apoplexy, considerable hypertrophy of the heart without valvular disease, a nutmeg liver, and slight atrophy of the left kidney.

Dr. Bristowe, *15th of November*, 1853.

3.—*Case of Abscess of the Left Kidney, passing behind the Colon and opening in the Groin.*

A lady, about 53 years of age, stout, of florid complexion, complained, about three years before the time of her death, of distressing pain, more or less paroxysmal, in the region of the left kidney. This region was also tender on pressure. She was feverish and vomited. She had no rigors. The urine was scanty, high-coloured and acid, but contained neither blood

nor pus. She was treated for nephritis, by leeches, calomel and opium, and salines, and got well. During the following year this lady's health continued tolerably good. She had one or two attacks of bronchitis in the winter, and occasionally suffered, but not very severely, from her former pain. Whilst at the sea-side during the last autumn, she, one day, whilst the weather was very hot, took some prolonged exercise, and in the evening was seized with her usual pain (in the left side) but in an unusually severe form. Her sickness was distressing, and this state of matters continuing, her health suffered much. She was stated to have had also an attack of inflammation of the bowels at this time. A great variety of remedies were tried with partial success, and she was at last so far recovered as to be capable of being removed to Town in an invalid carriage.

On then examining the seat of distress, Dr. Quain found that there was considerable subcutaneous œdema in the left lumbar region, extending forwards towards the umbilicus. The surface of this œdema presented a deep flush, giving somewhat the impression of the presence of erysipelas. More careful examination showed that this superficial œdema was situated over a deep-seated solid tumor, occupying a situation corresponding to the left kidney. There was at this time much constitutional disturbance, loss of appetite, and more or less constant sickness. The patient could only lie on her back. She could move both her legs equally well; there was no œdema of either leg, but there was considerable pain and tenderness, extending from the seat of the tumor down to the left foot. The urine was scanty, and contained large numbers of pus globules, which produced a turbid brownish-yellow deposit. Dr. Watson and Mr. Fergusson saw the patient in consultation; several remedies calculated to relieve the more distressing symptoms were suggested, with a greater or less amount of relief to her suffering. At length, after six weeks thus spent, fluctuation was observed in the left inguinal region, nearly opposite the situation of the internal inguinal ring; and from a puncture made by Mr. Fergusson, there came in a jet, some two or three pints of dirty, excessively fœtid pus, which continued to flow to the extent of at

least four pints in all, on pressure being made from the right to the left side of the abdomen. The patient felt some relief, and the size of the solid tumor was greatly diminished. On the following day the bowels did not act; and on the day following again, some purgative pills were given, without any effect. Constipation persisted, and, notwithstanding all the remedies used, including injections by a long tube, &c., the bowels did not act, and she died in twelve days from the day on which the abscess had been opened. She had more or less constant, though not fæcal, vomiting, during this period, and the abscess continued to discharge. The duration of her last illness was about four months.

Post-mortem.—The body was generally fat. The abdomen only was examined. This examination exposed the cyst of an enormous abscess situated behind the descending colon, extending from the diaphragm to the pelvis; the anterior wall being formed by the colon and its peritoneal attachments; the posterior wall by the lumbar muscles and bones. This cyst communicated with the external opening made in the groin. The cyst contained fluid similar to that discharged through the opening during life. A further examination showed the following state of matters:—

The *left kidney* was atrophied; none of its secreting structure remained. The pelvic portion consisted of a series of cysts varying in size from that of a marble to that of a walnut. They communicated with each other. The parietes of one of these cysts were ulcerated, and by an opening (situated posteriorly) of the diameter of a swan's quill, communicated with the large abscess. The contents of the cysts in the kidney escaped during its removal from the body. On tracing the ureter it was found much constricted, at about an inch from its commencement. The constriction amounted to almost a complete obstruction, the canal barely admitting a bristle. There was no very apparent cause for this contraction, but it is remarkable that a like contraction existed in one of the Fallopian tubes. Here the contraction, however, formed a complete obstruction, behind which existed a cyst the size of a large walnut. The right kidney was large and fatty.

The *liver* was large, firm, and mottled.

The *bowels* were examined with reference to the origin of the constipation, and it was found to depend on a distortion of the colon. This bowel had been pushed forward and inwards by the large cyst when full. When this cyst was emptied by the operation, its anterior wall collapsed, drawing with it the attached colon. In the change of position the bowel became turned on itself, at the commencement of the descending colon, and by this turn its calibre was seen to be completely obstructed. Thus a mechanical obstruction of the colon was the immediate cause of the distressing vomiting and exhaustion which led to a fatal termination, which itself was the result of emptying the sac which lay behind it.

There were one or two cysts, about the size of large walnuts, found in the right oviduct as previously mentioned.

Dr. Quain remarked, that the case, in a diagnostic point of view, was one of considerable interest. Abdominal tumors are always difficult of diagnosis as to their seat and nature. In the present instance the opinion as to the probability of this tumor being connected with the kidney was favoured by

1. The history of the case, which showed the commencement and existence for several years, of renal disease.

2. The condition of the urine indicated the continued presence of disease of some portion of the urinary organs, and there was no indication of this disease existing in the urinary passages or the bladder.

3. That the tumor was not a lumbar abscess was shown by the absence of symptoms referrible to the vertebral axis, and by the facility of movement retained by the lower limbs.

4. That the tumor was not ovarian was shown by its seat, which was higher up and farther back than are ovarian tumors generally. Neither could it be an enlarged spleen, which would have been situated higher up, probably mobile on pressure, and more defined in form. The seat of the tumor explained the absence of œdema of the leg; a fact which assisted in arriving at the conclusion formed and expressed before death, *viz.*, that the kidney was, more than probably, the seat of an abscess or cystiform disease. Dr. Quain, *20th of December*, 1853.

DESCRIPTION OF PLATE IX.

The Figures 1, 2, illustrate Mr. Conway Evans's case of Kidney with Cysts. Page 183.

Fig. 1. A portion of left kidney containing cysts.

a. a. Dilated denuded tubes with thickened walls, seen more or less transversely.

b. b. Denuded tubes in process of atrophy. Walls also thickened.

c. c. Tubes, of various sizes, lined with round or oval transparent cells; each cell having a single nucleus.

d. Malpighian body.

e. Transverse section of a comparatively healthy tube.

f. Fibrous matrix of kidney.

Fig. 2. shows a portion of the right, apparently healthy, kidney.

a. Transverse sections of comparatively healthy tubes.

b. Longitudinal section of a similar tube.

c. Two denuded tubes cut across more or less transversely.

d. Portion of a Malpighian body.

e. Fibrous matrix. Magnified 200 diameters.

Figures 3 to 6 illustrate Mr. Conway Evans's description of the microscopic appearances in Mr. Part's case of Malignant Disease of the Kidneys, Pleura, and Mediastinum. Page 189.

Fig. 3. Cells from kidney.

Fig. 4. The like treated with acetic acid.

Fig. 5. Section of kidney.

Fig. 6. Cells from the morbid growth in the mediastinum. Magnified 200 diameters.

Fig. 7 illustrates Mr. Hutchinson's Report on Mr. Thompson's case of Cancer in the Prostate, Spinal Column, &c. Page 206.

a. From the prostate.

b. From the tumor within the spinal canal.

c. From the lymphatic gland. These specimens show:—

1stly. Cancer cells of all shapes.

2ndly. Oil globules, free and in the cells.

3rdly. Free nuclei of cancer cells.

4thly. Much granular matter and disintegrated tissue.

Fig 1

Fig 2

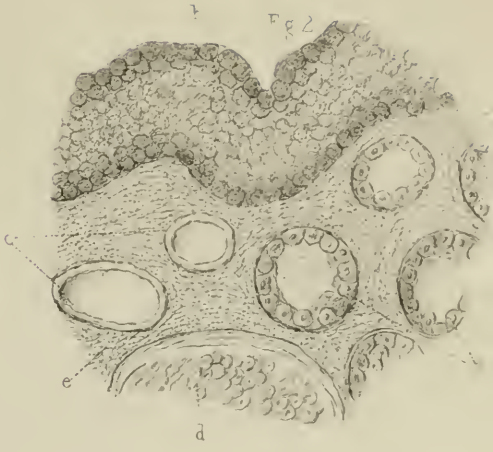

Fig 5

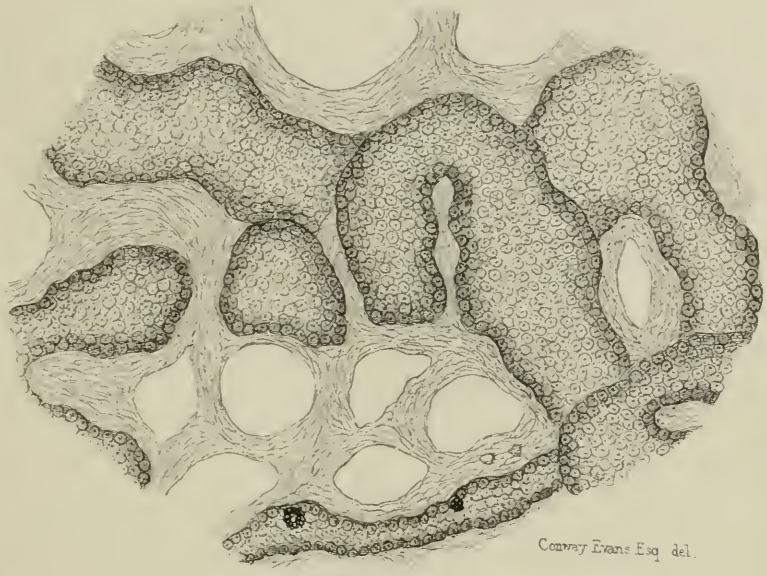

Fig 6

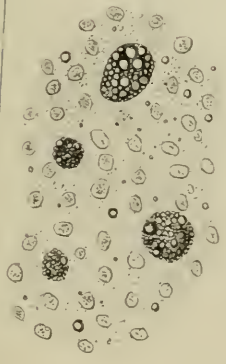

Fig 7

Fig 3

Fig 4

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4.—*Kidney with Cysts.*

— H., æt., 41, was sent into King's College Hospital, under Dr. Budd, on the 14th of December, 1853, by Dr. Guy, under whose care he had been as an out-patient of the Hospital since the 10th of October. When brought into the Hospital, he was suffering severely from dyspnœa; his legs were highly œdematous; and there were well-marked signs of the circulation through the chest being greatly impeded. The jugular veins were much distended. In consequence of the fainting condition in which the patient was, the heart was but very cursorily examined. It had a kind of tumbling motion. The urine was of the natural colour, of acid reaction, and not a trace of albumen could be found in it, although carefully looked for, the usual precautions being observed.

I may add, that the urine of this man was also examined in October, by Dr. Guy, when no evidence of the presence of albumen could be detected.

The patient died a few hours after his admission, whilst the nurse was lifting him up in bed.

The body was examined forty hours after death; the following were the appearances observed:—

The *brain* seemed to be healthy.

The *pulmonary pleuræ* were everywhere adherent to the thoracic parietes; the adhesions were very firm, though more so on the right side than on the left. The *lungs* presented no other morbid appearance than that of being gorged with blood, being freely crepitant throughout.

The *heart* was large and flabby; the right cavities dilated; the left ventricle considerably hypertrophied. The valves appeared to be healthy, except the mitral, which was slightly thickened. There was no fluid in the pericardium.

The *liver* was of about the normal size; but it had a nutmeg appearance, and seemed to be in an early stage of cirrhosis.

The *right kidney* was of the natural size, and weighed five ounces and a quarter. It looked quite healthy, the surface being smooth, the lobular markings distinct, and the normal

relations between the cortical and medullary portions being seen to exist when the organ was cut into. Indeed several very good observers pronounced the organ to be healthy, so far as the unaided eye could determine.

The cortical substance of the *left kidney*, when cut into, had very much the appearance of a piece of honeycomb, being almost wholly converted into a mass of cysts varying greatly in size—from that of a pin's head to that of a large pea, or even larger—and which were filled with a yellowish, transparent, glutinous material, looking very like common size.

This gelatinous matter presented, under the microscope, merely a finely-granular appearance, without any trace of organization, fatty matter, or crystals. It seemed to be albumen, or some modification of that substance, as it became still more solid on the addition of nitric acid; it almost wholly dissolved in water. The aqueous solution obtained in this way coagulated on the application of heat, or on being treated with nitric acid; and, when further examined, gave evidence of its containing a comparatively large amount of sulphuric acid, and a small quantity of phosphoric acid, but not a trace of chloride.

This kidney (left) weighed five ounces, and, when examined under the microscope, the following were the appearances observed in it:—

The epithelium, in the healthiest-looking tubes, deviated considerably from the normal characters, having a thickened and opaque appearance. Great numbers of tubes were simply denuded; others denuded and dilated; whilst many others, also denuded, were much smaller than the natural size, perhaps in an atrophic condition; and the walls (basement membrane) of many of the damaged tubes appeared to be somewhat thickened. Besides these there were very many tubes, both exceeding and falling short of the normal dimensions, which appeared to be lined by a layer of round or oval, transparent cells, somewhat larger than those of pus, and each containing in its interior a single, well-defined nucleus. (Plate IX. Fig 1.) The Malpighian capillaries were thickened and opaque; but the intertubular vessels were in many parts injected. The condition

of the arterial coats was doubtful; some arteries appearing to be somewhat hypertrophied, while others were decidedly healthy. Most of the straight tubes contained a considerable quantity of oil, which, for the most part, appeared to be in their epithelial lining.

The epithelium in the *right* (healthy looking) kidney presented an opaque and thickened look throughout; and here and there a denuded tube, either in process of dilatation or of atrophy, or having about the normal diameter, could be seen, but the proportion of these denuded tubes to the comparatively healthy ones was exceedingly small. (Plate IX. Fig. 2.) Most of the Malpighian capillaries were red and transparent; but a few were opaque and thickened. The arterial coats were not hypertrophied, and in neither kidney was anything like a fibrinous cast observed in any of the tubes.

The points in the case of pathological interest appear to me to be these :—

1. The fact of one kidney being so extensively diseased, whilst the other seemed to the naked eye quite healthy; and the nature of the conditions tending to bring about the result.

2. The fact of the apparently healthy kidney being shown by microscopic examination to be in essentially the same condition as the other—the difference being, most probably, merely one of degree, the morbid process having made much less progress in the right kidney than in the left.

3. The existence of disease of such a nature—in the one kidney in an advanced stage, in the other in a comparatively early stage—without the presence of albumen in the urine either the day the patient died or two months previously, and therefore the strong probability that the urine was not albuminous at least during the two last months of the patient's life.

Mr. Conway Evans, *17th of January*, 1854.

5.—*Cancer of the Kidneys, upon the Pleura and Mediastina.*

Mr. T. A., æt. 22, unmarried, of small stature, spare and compact figure, with large head and full-sized chest, came under Mr. Part's care in January, for a primary syphilitic sore on the

prepuce, for which he was subjected to mercurial treatment, producing slight soreness of the gums.

Nine months previously, he had had secondary syphilitic ulceration of the throat, which had been cured by iodide of potassium with sarsaparilla.

He has resided in the country for the last two years, during which time he has led a very gay life, and hunted a good deal; has been frequently thrown from his horse. For several years he has been the subject of vesicular emphysema in both lungs, with slight enlargement of the thyroid gland.

The sore on the prepuce improved under the mercurial action, but did not entirely heal, and on the 9th of February he again came to Town to consult Mr. Part, in reference to the sore. At this time the breathing was unusually laboured, he had the appearance of a person suffering from asthma, and he presented symptoms of bronchitis, indicated by sibilant and sonorous rhonchi over the greater portion of both lungs, except at their bases, where there was dulness on percussion, with absence of respiratory murmur at first, but afterwards tubular respiration became manifest. The bowels were regular. Urine healthy, not albuminous.

He was desired to go home to his friends in Town, and go to bed, and was put under saline treatment of small doses of Tartar emetic with Citrate of potash and ammonia, to avoid lowering him. Blisters were applied to his sides and kept open several days. His diet was ordered to be somewhat nutritious, and a little wine and water was given from time to time.

Under this treatment he appeared to be progressing favourably till about the 14th. The rhonchi had almost entirely disappeared from both lungs, leaving a loud vesicular breathing over the upper two-thirds of the chest, with prolonged respiratory murmur; but there still remained the dulness on percussion, with isolated spots yielding tubular respiration. Vocal vibration existed completely. There was an extraordinary bulging on both sides, especially on the right, at the seventh rib. The ribs were regularly elevated and depressed during respiration, and the intercostal spaces were dilated and flattened. His strength at this time began to fail; his pulse became very rapid;

the respiration was much more difficult, especially when lying down. He was quite unable to lie on his back; and preferred the sitting posture, with the body inclined forwards, resting the elbows on his knees, or his arms upon a table in front of him, and the head reclining upon them. In one of these positions he passed most of his time, usually sleeping in the latter. He seldom remained long in bed, being unable to breathe there. His sleep was uneasy and disturbed, and he frequently awoke alarmed, and panting for breath. There was now increased enlargement of the thyroid gland, with a very harsh laryngeal murmur in the neighbourhood of it. He was becoming very much emaciated. The liver was considerably pushed down, being felt nearly as low as the umbilicus. The breathing was abdominal and pectoral. Nitro-muriatic acid with Chloric æther was prescribed, and a repetition of the blisters ordered.

His restlessness now very seriously increased, and he was unable to remain in bed. Hydrochlorate of morphia was given at bed time, which procured him some sleep.

He had never, during the whole course of his illness, suffered from pain in any part of the chest.

On the 20th the assistance of Dr. Todd was obtained, of whose notes the following is an abstract. "When I saw him he was breathing hard, like an asthmatic, but without blueness of the face or enlargement of the veins. There was loud vesicular breathing over the whole chest, with more or less dry rhonchus as in spasmodic asthma, with prolonged expiration. On the base of the right side there was marked dulness on percussion, bulging of the lateral region, and very decided displacement of the liver. Vocal vibration not entirely absent over this region. The ribs moved as freely as elsewhere in breathing, and the intercostal spaces were as widely dilated. The breathing was pectoral and abdominal. All the muscles of the chest were called into active exertion in respiration, and all the intercostal spaces were large and widened as in emphysema; no evidence of enlargement or displacement of the heart. He had orthopnœa. Lying on the back was particularly distressing to him." The treatment was continued with the addition of iodine paint applied to the sides.

On the 26th the morphia was discontinued, owing to the continual wandering produced by its use, but was resumed on the 28th from other sedatives failing to procure sleep, or amelioration of the dyspnœa.

Iodine paint was at this time applied to the enlarged thyroid with the effect of diminishing its size, especially two lateral prolongations, extending along the upper borders of the clavicles, which almost disappeared under its use, and with them, the laryngeal murmur.

On the 8th of March Iodide of potassium was prescribed internally with temporary relief to the dyspnœa; but this was only transient, the dyspnœa gradually increased and the inability to lie became greater. "The breathing on the left side in front assumed a peculiar wheezing, almost whistling character, as of air forcing its way through a very narrow orifice. This character pervaded the whole lung, with prolonged respiratory rhonchus. On the right side the breathing had much the same character; wheezing rhonchus, with here and there loud vesicular murmur; pulse very rapid, as in pericardial effusion.

"Many of the symptoms denote the presence of a cyst between the liver and diaphragm, especially the bulging of the right lateral region and the displacement of the liver. But this would not explain the sounds on the left side." (Dr. Todd's notes.)

From this time he became rapidly worse, being very weak and emaciated; and on the 13th of March, at Dr. Todd's request, he was seen by Dr. Addison, who conjectured a mediastinal tumor or effusion: the dulness on percussion had now extended as high as the nipple, and Dr. Addison proposed to make a more extended examination the following day, but he died in the course of the night.

Dissection thirteen hours after death.—The body was much emaciated; the intercostal spaces were wide and flat; there was a considerable enlargement of the right hypochondria, indicating displacement of the liver. The other portions of this region were somewhat tympanitic. On opening the chest a large quantity of dark coloured fluid escaped from both cavities, amounting to several pints. The lungs, which must have

floated loosely, were compressed into a very small size. There were no adhesions of the pleura, but the costal and diaphragmatic portions were studded with adherent growths (cancerous) of a triangular shape, varying from one to three inches in length, and possessing a breadth usually of about two-thirds of their length. Both the anterior and posterior mediastina were occupied by a large mass of cancerous matter, similar to the growths on the pleura, occupying the situation of the thymus gland, and enclosing the lower end of the trachea; together with the primary divisions of the bronchial tube, in its substance, narrowing the calibre of those tubes to less than half their original size. The mass extended downwards, enclosing the parts contained within the mediastina to their lowest portions, pushing back, and partially surrounding the heart.

The *heart* was small and contracted.

The *lungs* were very much compressed in size, and exhibited several spots of disease analogous to that in the mediastinum. There were also numerous masses of grey tubercle, varying in size from a pea to that of a pin's head.

The *fluid* in the right pleural cavity seemed to press down the diaphragm and with it the liver; this probably explained the free motion of the ribs on the right side.

The *liver* was apparently healthy in structure, but was somewhat enlarged and possessed a bright colour.

The *kidneys* were enlarged to more than double their natural size and thickly studded with yellowish-white spots, varying from the size of a small marble to that of a large walnut. Some of these were raised slightly above the ordinary surface of the kidney, while others were not elevated, giving an uneven surface to the organ. On making a longitudinal section, the white spots above alluded to appeared confined to the cortical substance.

Mr. Conway Evans examined the recent specimens, and his report is appended.

Mr. PART, 21*st of March*, 1854.

Mr. Evans writes:—

"The *liver* was somewhat enlarged, but, to the naked eye, presented a perfectly healthy appearance throughout. On examin-

ing it under the microscope, however, the cells exhibited a very peculiar, pale, and unsubstantial appearance, and were considerably smaller than natural, perfectly devoid of oil-globules, and, in most instances, entirely untinged by biliary colouring matter.

The *kidneys* were of great size, about equal in weight (the right weighing nine ounces and three quarters), and alike in appearance. They presented to the unaided eye the general characters of very perfect specimens of cancerous disease of these organs; but their exact appearance, though easily recognizable when once seen, is very difficult to describe with any degree of accuracy.

The renal capsule could be readily stripped off, and the kidneys were then seen to be studded over their surface with many whitish, more or less circular, nodules, varying greatly in size, the largest being, perhaps, of the size of a florin; and several were slightly raised above the surrounding gland-tissue, so as to give to the surface an undulating character.

These whitish masses (which were of much firmer consistence than ordinary renal tissue) though at first sight appearing circumscribed, were not really so, but they gradually blended into the normal-looking cortical substance, the latter having a very pale, but otherwise healthy, look, the lobular markings being quite distinct; whilst on the whitest portions all traces of these markings were almost entirely obliterated, though several largish stellate veins still ramified here and there over these parts.

On cutting through the kidney, longitudinally, the whitish growths were seen to be almost wholly confined to the cortical substance, scarcely at all invading the medullary portions, and internally the general appearance was very similar to that observed on the external surface of the organ.

The enlargement of the kidney appeared chiefly to depend upon an increase in size of the cortical portion, while the medullary cones seemed to occupy about that amount of space which they usually do in a state of health.

On subjecting sections of the whitest parts of the kidney to microscopical examination, the appearances observed were these:—

The whole specimen at first sight appeared to be almost made

up of small, round or oval, non-nucleated cells, which contained in their interior very finely-granular matter. These cells were not at all unlike, in their general characters, those of ordinary *pus*, only that they were considerably smaller, less constant in shape, and underwent no apparent change on the addition of acetic acid, except that they became rather more transparent than previously, and perhaps, also, less defined. (The appearance of these cells, both before and after being treated with acetic acid, is shown in Figs. 3 and 4. Plate IX.) The tubes could at first be scarcely distinguished, but the plexus of intertubular capillaries was beautifully injected, so as to represent by its network the position which the tubes really occupied. The Malpighian capillaries were perfectly transparent and healthy, and filled with red blood, and these bodies (Malpighian) existed in the whitest parts of the organ, in, apparently, the normal proportion.

On carefully washing a section of the whitest portions, the tubes could be very distinctly seen, of about the normal diameter, but lined, or, perhaps filled, with the small cells already described. On further washing and macerating, the ordinary meshes of the matrix, apparently not hypertrophied, became quite distinct.

In the healthiest-looking parts of the kidney, the renal epithelium had a peculiarly pale appearance, but remained adherent to the tubular walls, so as to leave the canal in the centre quite free. There was no hypertrophy of the coats of the minute arteries.

The juice, which could be squeezed out from the diseased portions, contained the small cells above described, in great numbers, much finely granular matter, and a few free oil-globules. A section of the kidney is represented in Plate IX. Fig. 5.

The *morbid growth* in the *chest* presented, under the microscope, great numbers of cells, precisely similar to those above described as existing in the kidney, placed, apparently, in the meshes of a fibrous matrix, in which blood-vessels freely ramified; scattered among them were many large, oval or round cells, filled with oil-globules, and a good deal of free oil, (Plate IX. Fig. 6).

The microscopical appearances of the fungoid masses projecting from the costal pleuræ, were very similar to those of the morbid growth in the front of the chest, except that the amount of free oil was considerably greater in the former than in the latter, and that it was situated, for the most part, in patches, so as to leave intervals between them almost entirely devoid of fat.

Report on Mr. Part's Case of Cancer of the Kidneys, &c.—The parts received for examination were a kidney, and a portion of the diaphragm, with adherent growths. The kidney was rather increased in size; its capsule was readily removed, and the exposed surface was smooth, but a peculiarity in the cortical substance was, at once, apparent, and on section became still more marked. A large portion of the cortex appeared healthy, but disseminated through it were numerous masses of an opaque white colour, many of which were irregular in shape, whilst others were rounded, and varied in size from that of a filbert downwards. The edges of these tumors were occasionally abrupt, but often shaded off more or less into the surrounding tissue, and especially into the bases of the cones. Their density, elasticity, and toughness were as nearly as possible equal to that of the healthy cortex; there was no vascularity in or around them, and they yielded no decidedly milky juice. The diseased appearances seemed due rather to some material infiltrating the tissues of the kidney than to the presence of distinct tumors displacing the normal structures.

Microscopical examination.—In the healthy-looking portions of the kidney the Malpighian bodies appeared healthy; the tubes seemed for the most part somewhat dilated, and their contents were exceedingly dark and opaque. They appeared generally crammed with epithelium; the cells of which were very granular and imperfect; and frequently the escaped contents of the tubes consisted of nuclei scattered through a kind of nebulous matter. In some cases the deposit in the cells was clearly oil. The intertubular tissue was healthy.

The diseased portions of the kidney appeared, at first sight, to consist of an irregular net-work of fibrous tissue, thickly

studded with small, round or oval nuclei, resembling, almost perfectly, those belonging to the walls of the capillaries of the Malpighian tufts. Throughout this were scattered in tolerable abundance healthy Malpighian bodies, and here and there tubes were visible, resembling, in all respects, those just described; a few tubes were filled with nuclei like those infiltrating the surrounding tissues, and some were empty. The ordinary appearances of the matrix were very imperfectly marked, and the tubes were decidedly less numerous than usual. It seemed probable that many of them had become atrophied, in consequence of external pressure, and that their remains may have aided in the formation of the fibrous network. In some of the tumors the nuclei were less perfect than in others, they were more granular, as though in process of disintegration, and the tissue was studded with granular matter and oil.

The lumps on the diaphragm varied in size from that of a hazel-nut to that of a tare. The larger ones were somewhat conical, the smaller more or less globular and pedunculated. They had a whitish colour, and yielded no juice. They consisted, microscopically, of fibrous tissue and fat, together with large numbers of nuclei, which were generally round or oval, slightly granular, and somewhat larger than those in the diseased portions of the kidney. In no part did the nuclei appear to be enclosed in cells.

From the general appearance of the tumors in the kidney and on the diaphragm, and from the fact of their consisting essentially of nuclei, which infiltrated the tissues, a suspicion naturally arises that they were malignant, and this impression becomes strengthened by the circumstance that the same disease existed in more than one organ. My opinion is, then, but I give it with some hesitation, that the disease in question is cancerous.

As bearing on this, I may refer to a case,* exhibited before the Society last year by Dr. Peacock and myself, in which cancer of the dura mater, and of the periosteum of the ribs and spine, consisting solely of nuclei, was associated with appearances in one of the kidneys, identical, both to the naked

* Vol. IV., page 7, of the "Transactions."

eye and to the microscope, with those in that now under consideration. I expressed, at the time, a doubtful opinion as to the nature of the disease in the kidney, but inclined to the belief of its being cancerous. I think that the two cases throw light on one another, and, as in both instances a peculiar form of kidney disease, having many of the characters of cancer, was associated with disease, probably malignant, in other organs, the view as to the kidney disease in both cases being also cancerous, becomes very much strengthened.

Dr. Bristowe, *4th of April*, 1854.

6.—*Rupture of the Mucous, Muscular and Peritoneal Coats of the Urinary Bladder, with Fractures of the Pelvis.*

A boy, æt. 16, was admitted into King's College Hospital on account of the following accident:—He was riding, and, in guiding his horse so as to avoid a cart, the animal suddenly reared and fell backwards upon him, rolling off to one side. The boy was taken up insensible, and shortly afterwards was conveyed to the Hospital.

When admitted, though very pale and in pain, he stood upright without assistance; there were symptoms of collapse, the body was cold, and sensation in the lower extremities was impaired.

The pain complained of was referred to the lower part of the belly above the pubes, where tenderness was experienced on pressure, and where there was apparently some effusion (of blood) among the muscles. The house surgeon drew off with a catheter half an ounce of dark-coloured urine. On examination this colour was found to be owing to an admixture of blood; the patient had not passed water for eight hours before the accident. There was no external wound nor bruise on the body. Examination showed the rectum and urethra to be uninjured. The pelvis was examined, though not so carefully as could have been wished on account of the pain and depression under which the lad was suffering; no fracture was detected.

Next day tympanitis appeared and increased till death. Symptoms of low peritonitis also appeared, with effusion about the lower part of the belly, detected on percussion; the pain

about the region of the bladder continued. The bowels remained confined in spite of injections; excessive sickness and vomiting set in; the pulse became very rapid; the breathing hurried, and, towards the last, entirely thoracic.

Very small quantities of urine were drawn off from time to time; an attempt was made to retain a catheter in the bladder, but it was removed on account of the pain which it produced. Except just after the boy's admission into the Hospital, when, as already mentioned, the urine was high-coloured from an admixture of blood, it never presented any peculiar appearance. Death occurred three days and a half (eighty-three hours) after the accident.

The body was examined thirty-six hours after death.

The *peritoneum* contained a pint or two, at the least, of straw-coloured fluid, which might have been partly urine, though it had no urinous smell—it was not, however, measured nor chemically examined.

The *intestines* were a good deal distended, and their touching convexities were very slightly adherent. There were general traces of low peritonitis, most marked in the iliac fossæ, where effused lymph agglutinated the folds of the bowels. There was some effusion of blood among the abdominal muscles, chiefly over the pubes in the recti.

The *right os pubis* was separated from the fibro-cartilage of the symphysis, and there was also a fracture of the *ischium* on the same side just above its tuberosity. The *left os pubis* was likewise broken near to the symphysis. There was a fracture of *each ilium* near the sacrum, extending into the adjacent sacro-iliac joints.

The peritoneum was uninjured over all the fractured bones. There was a small aperture found at the upper and posterior part of the urinary bladder, which involved its mucous, muscular, and peritoneal coats; to this aperture an adjacent portion of small intestine slightly adhered by lymph.

The rupture was not more than a quarter of an inch in length; its direction was nearly vertical, and its edges were rounded.

It appeared that the fractures must have been masked during

life by the bones being impacted, and by the surrounding effused blood.

The case and specimen show the rarer form of rupture of the urinary bladder in which *all the coats* are involved; they illustrate also the following points:—

1. The occurrence of rupture most readily when the bladder is full.

2. That the rupture does not necessarily take place through direct injury from a fractured portion of bone, though commonly occurring in conjunction with fracture of the pelvis.

3. That bloody urine is not an essential symptom of ruptured bladder, and that it may not recur after the first effusion.

4. That the bladder may soon resume its power of retaining a certain quantity of urine.

5. That the degree of peritonitis produced by the effused urine may be very slight, and that it is most marked locally, *i.e.*, in the immediate neighbourhood of the injury.

Mr. Partridge, 20*th of December*, 1853.

7.—*Medullary Cancer filling completely the Urinary Bladder.*

W. F., æt. 53, a shoemaker, was admitted into the London Hospital, 1st of November, 1853, under the care of Mr. Curling, for retention of urine. Anæmic and extremely emaciated; beneath the integuments of the trunk were from twenty to thirty indurated masses, varying in size from a horse-bean to a walnut.

He stated that for about a period of nine months he had had difficulty in voiding his urine, that for some time he had been obliged to have it drawn off, and that it contained a quantity of dirt-like matter.

There was difficulty in passing a catheter into the bladder. From examination per rectum, from the buff-coloured, flaky, and offensive matter discharged, and the existence of the cutaneous tumors, Mr. Curling at once pronounced the case to be one of malignant disease of the bladder.

The treatment consisted in the use of the catheter twice daily, and the administration of anodynes and tonics.

He gradually sank, apparently exhausted, by cancerous "cachexia," and died in a fortnight. Four days before death there was diffuse cellular inflammation of the scrotum and penis, which was supposed to arise from infiltration of urine, and required an incision "in perinæo."

Post-mortem examination twenty-four hours after death.—Body generally extremely emaciated; usual degree of rigor mortis; peritoneum healthy, except that portion which covered the pelvic viscera; the parietal layer above the symphysis pubis being adherent to the fundus of the bladder; the omentum, two inches of ilium near the ilio-cæcal valve, and the inner side of caput coli were also adherent to diseased bladder.

Mesenteric glands much enlarged, varying in size from a horse-bean to a small hen's egg, nodular, and their section presented the ripe pear-like appearance of medullary cancer.

Bladder distended, filling and rising out of the pelvic cavity. There was some difficulty in removing the viscus from its site, in consequence of its size and of its being firmly united to the pubic bones by medullary cancerous growth. On making a section along the posterior median line, and continuing it through the urethra, the cavity of the bladder was found to be occupied by a nodular growth about the size of two fists, arising by an extended base from the mucous membrane on the anterior surface of the bladder. The mucous membrane of the posterior part was of dark grey colour, studded with numerous white wart-like medullary growths; this portion contained some buff-coloured, flaky, fœtid pus.

A section of the fungous growth was of a white, pulpy, pear-like appearance, except in the centre, which was softened and broken down, containing buff-coloured offensive pus.

Prostate gland was healthy, except that there was a small cancerous deposit near its centre.

Urethra only examined in the upper two-thirds nearest the bladder; its membranous and bulbous portions were dilated, and contained matter similar to that in the bladder. Its mucous membrane seemed to have entirely disappeared; its surface was rendered very uneven by what appeared to be longitudinal rugæ of muscular fibres.

Left kidney only half its natural size, its pelvis being much dilated; both ureters were dilated so as to admit the forefinger.

On the inner surface of the *dura mater*, over the right orbital plate of the frontal bone, were four or five white wart-like excrescences about the size of a pea, which had all the appearance of medullary cancer.

The other organs of the body, except the skin, were healthy, and entirely free from cancerous deposit.

The cutaneous tumors were carefully examined, and were thought to present all the physical and microscopical characters of medullary cancer.

The features of this case deserving attention are the rapid development of the disease, the absence of any distinct history of *hæmaturia*, and the fact of the destructive process having commenced in the centre of the medullary growth. The mucous or sub-mucous tissue of the bladder was probably the primary seat of cancerous deposit.

Judging by my experience I believe it is rare in medullary cancer to find secondary deposits in the cutis, though I have seen them occur in males suffering from schirrous cancer of the breast and stomach.

Dr. Septimus Gibbon, *7th of February*, 1854.

8.—*Sacculated Bladder; Peritonitis, from Incomplete Formation of a Sacculus at the Fundus.*

The patient from whom this specimen was taken was a shop-man, æt. 60, who, besides having disease of the bladder, suffered severely from bronchitis, and lived only five days after his admission into the Hospital. All that could be learnt about his urinary disease was, that a month ago he had retention, from which he was relieved by the passing of a catheter; and since then he has had occasional stillicidium urinæ. On examining by the anus, the prostate appeared to be of great size, and to press down, more on the left than on the right side, on the rectum. A prostatic catheter was passed with ease, and a moderate quantity of urine, much discoloured with blood, drawn off. The instrument was introduced daily; and he occasionally

made water without assistance. He died apparently from the bronchial disease, with partial coma; and there were no symptoms to draw attention to the abdomen.

Post-mortem examination.—In the lungs there was extensive emphysema, and the bronchi were congested and loaded with mucus. Recently effused serum and lymph were found covering the intestines generally; but more abundantly near the fundus of the bladder. As viewed *in situ*, the bladder had an irregular, lobulated appearance. When laid open, the rugæ presented a deep and coarse reticular arrangement. Immediately behind the left lobe of the prostate, there was a circular opening, wide enough to receive the point of the little finger, communicating with a cavity of the size of half an orange. From the proximity of this sac to the prostate, and its encroaching on the rectum, it had been mistaken, in the examination by the anus, for the left lobe of the prostate greatly enlarged. About the centre of the posterior wall of the bladder was another sacculus, of the size of a split walnut, with an opening large enough to admit a goose-quill. At the fundus there was an œdematous sloughy condition of the sub-peritoneal cellular membrane; the peritoneum was also thickened, dark-coloured, and covered with flakes of lymph; and it was evident that the general peritonitis had originated from this part. In the interior of the bladder, no distinct opening of a sacculus could be detected at the fundus: but the interstices between the muscular bands were large, and the probe passed nearly through the bladder into the cellular membrane. The kidneys were slightly sacculated, and much congested; the pelves and ureters were dilated.

Remarks. — The point of greatest interest in this specimen, is the sloughing of the subperitoneal cellular membrane, which took place at the fundus of the bladder, and was the cause of the general peritonitis. From the ease with which the probe passed between the rugæ at that part, little doubt could be entertained that some urine had been forced, in the contractions of the bladder, between the muscular bands, and so got extravasated into the cellular membrane there. This circumstance is interesting, as bearing on the question of the formation of sacculi of the bladder. The common situation of these sacs is

in the posterior and inferior walls of the bladder, that is, where the peritoneal coat adheres closely to the detrusor muscle. In the usual course of the formation of a sacculus, the first stage consists in the protrusion through the muscular coat of a part of the mucous membrane situated at the bottom of one of the hollows of the reticular structure; this protrusion being caused by the strong compression to which the urine is subjected by the contraction of the thickened detrusor muscle, acting in opposition to a stricture of the urethra, enlarged prostate, &c. As this hernia, as it is called, of the mucous membrane, takes place at a part where the peritoneum is intimately united to the fibres of the muscular coat, that membrane, becoming thickened from the inflammation, resists more or less strongly the progress of the protrusion of the mucous coat, and by adhering to it, affords additional strength to the walls of the sacculus. But, at the fundus of the bladder, a thick bed of loose cellular membrane intervenes between the muscular wall and the peritoneum. Accordingly, when the mucous membrane protrudes between the muscular rugæ at that part, it is met by only the soft cellular membrane; and as that is not sufficiently strong to enable the newly-formed sac to resist the powerful force acting from within, it gives way, and allows the urine to infiltrate under the peritoneum.

Mr. Shaw, *7th of March*, 1854.

9.—*Fungous Tumor in the bladder of a Female.*

The patient from whom this specimen was taken was a servant, æt. 18, who first came under Mr. Shaw's care early in 1853, for dysuria. Having apparently recovered, she left the Hospital in five weeks. She returned in the beginning of January last, labouring under her former complaint. As the presence of a stone in the bladder was suspected, she was sounded, but no calculus was found. It was then inferred that the disease was fungous tumor of the bladder. Having some urgent business, she left the Hospital in six days, still suffering acutely. In a fortnight she returned with her illness greatly aggravated. The pain in micturition was excessive, and in a few days the calls

became so much increased in frequency, that it ended in constant stillicidium. The urine was more or less discoloured with blood, and loaded with tenacious mucus: it sometimes passed comparatively clear, and was followed by pure blood: often, after straining, nothing but blood passed. She complained of pain principally in the lower part of the back and over the pubes. For some days before her death, which occurred in eleven days from her admission, her sufferings were of the most excruciating kind; and although, in addition to other measures, full doses of opium, at short intervals, were given, nothing seemed to give effectual relief.

On the *post-mortem* examination, the bladder was found contracted to the size of a hen's egg. When removed, the orifice was seen dilated, and filled with a soft substance, which, on the viscus being opened, was discovered to be the most projecting part of a fungous tumor. The tumor was attached to the surface of the bladder, to the right of the opening of the right ureter, by a broad, flat and thick band, as a pedicle. Its chief mass was of the size of a chestnut, and of solid consistence, with its surface rugged, but covered by what appeared a continuation of the mucous coat of the bladder; the most projecting part was broken down into a shreddy, pulpy mass, with its fibres apparently teased out and elongated; it was this soft part which had been protruded by the contractions of the bladder through the orifice, so as to be external to the meatus urinarius. By microscopical examination the structure of the tumor was shown to consist of fibrous tissue. Both kidneys were much congested in their tubular part; the cortical being pale, and, in some places, fatty; flakes of lymph were deposited on the lining membrane of the pelves and calices. A fibrous tumor of the size of a walnut was embedded in the walls of the uterus.

Mr. Shaw, *7th of March*, 1854.

10.—*Malignant Disease of the Bladder.*

J. W., æt. 58, of pale aspect and emaciated frame, was admitted into the Westminster Hospital, under the care of Mr. Holt, suffering from disease of the bladder, the apparent result

of long continued stricture of the urethra. He stated that for eighteen years he had experienced great difficulty in micturition, and that latterly his urine merely dribbled away, retention occasionally ensuing from the urethra becoming blocked by a concretion of mucus and phosphate of lime. The urine was highly offensive, emitting a putrid odour, and containing large quantities of pus, mucus, and blood; it was passed with great difficulty and intense pain, which continued for a considerable time after micturition, the sensation not being confined to the extremity of the penis, but extending along the course of the urethra. He was treated at first by weak acid injections, and eventually by a solution of nitrate of silver, one grain to the ounce. He at first appeared to derive benefit from this treatment, the Pareira brava, and acid, being administered internally; but after four months' suffering, he died.

The *post-mortem* examination revealed an ulcerated tuberculous mucous lining, abraded at parts, and which, when placed under the microscope, gave undeniable proofs of the existence of a large number of cancer cells. The bladder had become adherent to the symphisis pubis, and was considerably hypertrophied, but not apparently diminished in size; the neck and prostatic portion of the urethra were in a state of ulceration.

Mr. Holt, *2nd of May*, 1854.

11.—*Urinary Calculus discharged through the Rectum.*

This calculus was about the size of a bean. It was examined by Dr. Bence Jones, who found that it consisted chiefly of phosphate of lime, with some oxalate; with a very small quantity of uric acid in the interior, but no trace of it externally.

The patient was a naval officer, who consulted Mr. Spencer Wells for what he called "obstinate piles," from which he said he had suffered for four months. Mr. Wells found no piles, but a large swelling in the rectum, which he at first supposed to be an enlarged prostate; but, as the urine passed freely, and a catheter met with no obstruction, he concluded that there must be a collection of fluid around the prostate. He accordingly made a puncture at the most projecting part. About

eight ounces of pus escaped. The patient returned to the country ten days afterwards, a very slight discharge still continuing. No urine had passed with the pus. Three days after returning to the country the patient was at the water-closet, and found the calculus exhibited to the Society in the paper he was using in the ordinary manner.

Mr. Wells first supposed that this calculus had formed in the prostate, but as its composition disproved this, he thought it probable that it had passed through the prostatic portion of the urethra, and that the opening then made had closed before he had evacuated the pus through the rectum; or, perhaps, the calculus had never been in the bladder, but had passed from the ureter downwards, behind the bladder.

Mr. Spencer Wells, *7th of February*, 1854.

12.—*Urinary Calculus of peculiar form.*

The urinary calculus which is the subject of this communication was taken from the bladder of a young man who had long been labouring under symptoms of stone in that organ.

There is nothing remarkable in the chemical composition of the calculus, but it derives the interest that attaches to it from its peculiar form and construction, and the relation which that form has to the morbid condition of the urinary organs that was coexistent with its development.

The stone consists of a central, large, oval mass, either of lithic acid, or lithate of ammonia, and from this start three stalactite-like projections of phosphatic concretions—ammonia-magnesian phosphate. The central mass is compact and hard, and of a brown colour. The three projections are crystalline and loose in texture: these were longer than they are at present, the looser crystals at their extremities having rubbed off.

The *bladder* from which this calculus was taken, was small, from prolonged contraction, thick-walled, and fleshy. The *ureters* were prodigiously dilated, and the *pelvis* of each kidney was distended into an enormous sac.

Upon slitting up the bladder, the peculiar form of the calculus was apparent; it was situated in the front part of that

organ, and the three projections exactly corresponded to the three orifices of the bladder — the urethra and two ureters. Upon removing the stone, which was attached with some firmness, it was found that it had sunk into a deep, excavated, cupped ulcer in the front of the *trigone vesicale*, just behind the urethra; this had kept it in one position fixedly.

The rest of the interior of the bladder presented the appearance usual where a stone has been present—the mucous membrane was thick and corrugated, and full of crypts; and large muscular bands stretched across its surface.

The ureters and the pelves of the kidneys were full of putrid alkaline urine, turbid with phosphatic deposit.

Now, with these premises, the rationale of this stone's formation appears pretty evident. It would seem that, at first, from acid urine, a lithic stone had been formed free in the bladder; that, from its continued irritation, ulceration of the mucous membrane had occurred, and into this ulcer the stone had fallen, and had so remained in one position; that, concurrent with this ulceration, as might be expected, an alkaline condition of the urine had arisen. The stone being fixed, the bladder contracted, and the urine alkaline, it is apparent how the three points corresponding to the orifices by which all the urine flows into and out of the bladder, might be encrusted with these phosphatic stalactites.

Mr. James Salter, 21*st of March*, 1854.

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13. — *Carcinomatous Deposit in the Prostate Gland within the Spinal Column, &c.*

J. A., æt. 60, came under my care about two years ago with frequent and difficult micturition, evidently arising from enlarged prostate gland. His symptoms were much relieved by medicine, and the frequent use of the prostatic catheter, and I lost sight of him. After this he attended frequently at the Marylebone Dispensary, requesting the resident officer to draw off his water for him in consequence of some hours' retention. The urine was generally alkaline, slightly ammoniacal, and, except at the times of retention, which were not infrequent, he suf-

fered little pain or inconvenience, except from attacks of diarrhœa, which were frequent and obstinate. His circumstances becoming very straitened, he was compelled to go into the Marylebone Infirmary on the 9th December, 1853, where he remained under the care of my friend, Mr. Filliter.

It there appeared that he had become paraplegic one month before this period, having had slighter symptoms of loss of power some time previously. He had now entire loss of motion and sensation as high as the hips, and very soon after sensation disappeared up to the armpits. He retained a partial power of voiding his urine, with incontinence during sleep. The fæces passed involuntarily.

There was no pain in the back, no history of any injury, nor were there any facial symptoms of cerebral lesion. At first he seemed to improve slightly, but in the beginning of February, 1854, the urine was passed with increased frequency, became bloody, and contained much phosphatic deposit, and he died greatly emaciated on the 23rd of that month.

Sectio Cadaveris.—The prostate gland was involved in a carcinomatous mass, forming altogether a tumor about the size of an orange. Some of the adjacent glands were also infiltrated.

The right kidney was atrophied and the pelvis dilated, the contents of the latter being pus, about three or four ounces in quantity. The cause of this atrophy was evidently the presence of an enlarged gland pressing upon the lower end of the ureter and entirely obstructing it. The left kidney was rather larger than natural and contained a little calcareous deposit. On the lining membrane of the pelvis also were two oval patches of the same matter. The mucous membrane of the bladder, which was much contracted, exhibited similar appearances.

On carefully removing the posterior arches of the spinal column a flattened patch of encephaloid growth was found adhering to that of the first dorsal vertebra, and smaller portions were seen lower down. Opposite the middle dorsal vertebræ the theca of the cord was coated for about two inches with a thick layer of lymph. The cord itself exhibited no marks of change, except, perhaps, some undue injection of its

substance. There was much deposit also in the bronchial glands, together with a large quantity of black pigment. The large intestine was the seat of chronic ulceration, with great thickening of its walls.

There was no cerebral lesion, so that the loss of sensation and motion was evidently caused by the carcinomatous deposit in the spinal canal.

Mr. Henry Thompson, *7th of March*, 1854.

Report on the preceding Specimen.—The gland, enlarged to about the size of a small orange, being nearly equally increased in all dimensions, presented the usual outline of the part. Its capsule was entire excepting on its rectal surface, where it adhered inseparably to the gut. The canal of the urethra was large and unobstructed, excepting very slightly by promi nence of the third lobe; its mucous membrane was sound and no where ulcerated. On the posterior surface were some spots of coal-black pigmentary matter. Beneath the mucous membrane of the neck of the bladder were five or six little masses, varying in size from a pea to a horsebean, and firmly fixed to the muscular coat, but quite unconnected with each other or with the prostate itself.

On making an incision deeply into the right lobe, its structure was found softened and of a pink colour from congestion; the fibres of the prostatic tissue were seen to be separated from each other by soft, almost creamy, matter, infiltrated amongst them. This juice, when mixed with water, readily formed an emulsion, and placed under the microscope showed cells of the character sketched (Plate IX. Fig. 7, *a*). The upper isthmus of the prostate consisted of ordinary fibrous-looking structure, and exuded no juice. Other parts of the prostate were not examined, in order to avoid spoiling the specimen.

A lymphatic gland situated on the posterior surface of the bladder where it had pressed on the right ureter, and enlarged to the size of a hazel nut, was next examined; cut across, it yielded an abundant creamy juice and had the appearance of being much congested. Its juice displayed, under the microscope, the characters shown at Plate IX. Fig. 7, *c*.

In the spinal canal attached to the lamina of one of the lumbar vertebræ and adherent also closely to the dura mater of the cord was a mass the size of a filbert, fine and tough to the touch, and enclosed in a dense fibrous envelope. This little tumor, when cut, presented the same appearances which had been seen in the lymphatic gland, excepting that its tissue was less succulent. By pressure, however, juice was easily obtained which mixed readily with water, and showed the appearances presented at Plate IX. Fig. 7, *b*, when placed under the microscope.

The microscopic elements contained in the juice obtained from these three sources were so similar that they may be conveniently described together.

1. Cells of very various shapes, and usually of large size, generally round or oval, often elongated or elliptical, sometimes caudate. These cells had nuclei of large size; in many cases two, and in one or two instances as many as three were observed. These nuclei again had large dark nucleoli. Many of the cells contained oil in globules of various sizes, and in some the oil appeared to have taken the place of all other contents.

2. Free nuclei with nucleoli, averaging about the size of a pus cell.

3. Fragments of broken cells and disintegrated tissue very plentiful.

4. Free oil for the most part in the condition of minute globules very abundant.

5. Granular matter.

(The examination was made with a quarter of an inch object glass.)

The cells obtained from the prostate itself were the largest in size, and the fatty degeneration was rather more advanced in the lymphatic gland than in the other parts.

Conclusions.—That the specimen is an example of the infiltration of soft cancerous deposit into the structure of a *previously enlarged* prostate; and an illustration of the appearance of the same disease in the proximal lymphatics of the part, in the periosteum of the vertebræ, and in the submucous tissue of the bladder. Mr. J. Hutchinson, 21*st of March*, 1854.

14.—*Large Abscess of the Prostate and Vesicula Seminalis. Chronic Inflammation of the Bladder.*

J. P., æt. 54. A man of intemperate habits since 20 years of age. For some years he has had pain about the pubes in making water, but nothing which he regarded as serious until six months ago. At this time he spent a Sunday at Greenwich, drinking, and rode to London in the evening on the outside of an omnibus, when the weather was extremely wet and cold.

Next day he felt very ill, and on Tuesday morning having passed no water since Sunday, sent for a medical man, who drew off a large quantity without difficulty, by means of a small catheter. He was unable to pass water without the instrument after this, and became an in-patient of St. Mary's Hospital. Some time after, he was discharged, still passing no urine but by an instrument which he had been there taught to use himself.

December 23rd, 1853, he was admitted to the Marylebone Infirmary, and came under my care.

He requires to pass water every hour, and suffers severe pains about the loins, the pubes, perineum, and the glans penis, if the desire be not gratified. Not being able to make any water by voluntary effort, he relieves himself by passing a gum catheter. The urine is slightly acid, deposits some mucus, a good deal of pus, and is slightly albuminous.

The irritability of the bladder was lessened by washing it out with warm water, and all his symptoms considerably improved after injections of nitrate of silver, from half to one grain to the ounce. It was observed that the urine flowed freely when the catheter had passed only six inches down the urethra. At the end of March and the beginning of April he exhibited febrile symptoms and then signs of pneumonia, and, during the last few days of his life, was more or less comatose. He died on the 11th of April.

Post-mortem fourteen hours afterwards.—On removing from the body the penis, bladder, ureter and kidneys entire, and laying the urethra open from above, it was found healthy as far as

to the prostatic portion. Here a large cavity presented itself, capable of containing ten or twelve drachms of fluid. It undermined the mucous membrane of the urethra, opening into the canal by an aperture, the size of a florin, situated on the upper part; thus the floor of the urethra alone remained, forming a kind of bridge through the cavity, which extended below, above, and beside it. This cavity is bounded by the capsule of the prostate gland; the gland substance proper having disappeared. Passing through the cavity is the right ejaculatory duct, found to be dissected out entire. It is dilated, admitting a No. 9 catheter until it leaves the prostate, where it opens into the sac of an abscess. The left duct has disappeared, but the opening by which it entered the urethra remains. On examining the base of the bladder, a sac is seen occupying the entire interval between the two vasa deferentia and vesiculæ seminales, but apparently not communicating with either. There is, nevertheless, a free communication between this cavity and the urethra by means of the right ejaculatory duct, for the catheter above-mentioned passed directly into it. This cavity is able to contain about six drachms of fluid, and may be either the sac of an abscess in the cellular tissue, or originating in the right vas deferens itself. The latter supposition seems to be more probable from the appearance of the parts.

The walls of the bladder are much thickened, and the mucous membrane is much injected, exhibiting reddish, brownish, and greenish tints, and bright crimson arborescent injection in patches. The ureters are a little above the natural size. The kidneys are above the natural size, and present the appearance of interstitial deposit, with much fat, under the microscope.

A large part of the left lung was found consolidated, and in some parts containing purulent fluid in its substance. Other organs for the most part healthy.

Mr. Henry Thompson, *2nd of May*, 1854.

15.—*Stricture of the Urethra. Extreme dilatation of the Bladder, Ureters, and Kidneys.*

J. D., æt. 57. A sawyer by occupation. Applied to one of my professional friends for relief, from what he described as a "difficulty in passing his water," and general ill health, on Saturday, Nov. 5th, 1853.

He stated that he had suffered from difficult micturition for many years, the commencement of which he dates from the occurrence of a severe "strain in the back," during work. But he never applied for treatment before, and does so now because the pain and difficulty have increased. He has not made water in a stream for several days past, and complains of great distension of the belly. An attempt to pass a catheter was made for some time, without violence, but unsuccessfully; fomentations were applied, and a purge administered. His general condition was very low. Tongue much coated. He had no desire for solid food.

On Sunday morning, the 6th of November, I was requested to see him, and, on making examination, found supra-pubic dulness to within a finger's breadth of the umbilicus; the perineum, scrotum, and penis, were extremely œdematous, so much so that it was difficult to reach the glans penis, through the prepuce, with the finger. I at once advised a deep and free incision in the median line, the first result of which was, the evacuation of a few drachms of pus. During the next hour urine trickled away through the wound, to the extent of twenty-five or thirty ounces, and the patient expressed himself as being greatly relieved. Nutritious diet was prescribed, and a warm bath, after the bleeding had quite ceased, in which as much more urine came away. Catheterism was then tried carefully, but the instrument could not be passed with a fair amount of application.

During the next two or three days the inflammatory swelling of the penis increased, and the tension was so great that it was necessary to make incisions to relieve it, the effect of which appeared to be beneficial. All this time the urine passed freely, and now also by the penis, in a small stream; so that when he

stood up, two streams freely passed. The bladder dulness varied between three fingers' and a hand's breadth, above the pubes. But the signs of weakness increased; the tongue became dry and brown; and while the flow of urine became rather more, than less free, it became evident on Saturday and Sunday, the 12th and 13th, that he was sinking. The wounds also looked sloughy. He died on Monday the 14th of November, having been unconscious for only two hours before death.

Autopsy, twenty-six hours after death.—On opening the abdomen the bladder was seen extending about four inches above the pubes, or a little less than half way between that bone and the umbilicus. The ureters, kidneys, bladder and penis were removed entire, and presented the following appearances:—

The penis, greatly swollen, exhibited two sloughing wounds, and a black gangrenous patch on one side. The perineal wound was in a similar condition. The bladder was greatly distended, but fluid did not pass, on pressure upon it, through the urethra. The right ureter was dilated, appeared almost like a small intestine, and much convoluted. Following it upwards by a somewhat tortuous course, a large sac appeared at the upper end—the dilated pelvis of the kidney. Both of these, as well as the gland itself, were distended with fluid. The left ureter and kidney presented similar appearances, but somewhat less marked. The right kidney measured in length six inches and a half, when emptied; the left five inches and a half. On carefully slitting up these, a quantity of turbid urine escaped. The extended pelvis (right) measured seven inches at its chief diameter; the corresponding ureter two inches and a half.

Next, the distended bladder was laid open, and a quantity of like urine was evacuated; in all about thirty ounces. On carefully slitting up the urethra, a stricture was found at the junction of the bulbous with the membranous portion. At this point, and for a distance of about half an inch backwards, the part was in a condition approaching to gangrenous, and an opening, admitting a No. 8 catheter, was found immediately behind the stricture, communicating with an abscess in the perineum, opened by the external wound there. The obstruction itself had evidently been in part destroyed by the ulcer-

ative or gangrenous process, a fact which would account for the increase in size of the stream of urine during the last two or three days of life. Behind the stricture, the prostate part was enlarged, and several of its natural openings were dilated.

The bladder was considerably hypertrophied, and somewhat fasciculated, as well as increased in capacity.

Mr. Henry Thompson, 15*th of November*, 1853.

16.—*Obliteration of the Urethra.*

A. B., æt. 22, was admitted to St. Mary's Hospital in the summer of 1853. He had suffered severely from a stricture of the urethra for several months, occasioned by a severe blow upon the perineum. Fistulous openings then existed in two or three places behind the scrotum, and through these the whole of the urine had passed for some time. Repeated attempts to carry an instrument through the stricture had been made, but without success.

These were repeated during his residence in the Hospital, and still unsuccessfully. On no occasion was urine observed to issue by the external meatus. His condition was exceedingly bad from the formation of abscesses and sinuses in the perineum. Ultimately, inflammation and suppuration having occurred around the base of the bladder, he died a few weeks after admission.

Autopsy.—On removing the bladder and urethra from the body and tracing the course of the latter, extreme narrowing of the canal was noted at about four inches distance from the external orifice, so that a very small probe only could be insinuated through it. Careful dissection being pursued, complete obliteration was clearly made out, involving about a quarter of an inch of the urethra, behind which the canal was a little dilated, and opened into three or four fistulous passages. Cavities containing more or less purulent fluid, extended from these around the sides of the bladder. The bladder itself was much contracted; the ureters were nearly unaltered; the kidneys appeared healthy.

In this, as in all histories of *Obliteration of the Urethra*, which

the writer has been able to obtain, the lesion has not been due to that chronic inflammation in and around the canal, which is the common cause of stricture, but to some act of violence, probably at first rupturing the urethral walls, and occasioning irregular adhesion, and consequent total obstruction to the course of urine through the natural passage.

It is worthy of remark that, although narrow stricture almost invariably gives rise to dilatation in some part of the urinary track behind it, that is, either in the bladder, ureters, or kidneys, total obstruction appears to exert very little like influence. The reason being doubtless that, in the latter case, free fistulous openings necessarily coexist, so that no great hydrostatic pressure is exerted upon the organs; whereas, in the former case, such pressure often exists for a very long period of time, before other outlets through the neighbouring tissues are provided.

Mr. Henry Thompson, *20th of December*, 1853.

17.—*Cases of Diseased Testes.*

A gentleman, æt. 31, while travelling some time ago in consequence of a marked consumptive diathesis, was attacked in Egypt with swelling and pain in his left testis. The indisposition lasted for three weeks, and the part seemed to recover itself. About seven months ago a similar invasion of disease came on, but instead of subsiding, it increased, the scrotum became highly inflamed and swollen, adhered to the front of the testis, and ultimately ulcerating, allowed the gland to protrude. When Mr. Walton saw the patient a few days ago, nearly the entire testis was without the scrotum, which was contracted and of a horny density. The entire surface of the exposed organ was irregular, and covered with a sloughy-looking, highly offensive material. The spermatic cord was enlarged and hardened, and the integuments over it seemed on the point of suppuration. As all treatment had failed to reduce the testis within the scrotum, and, as the patient's health was now suffering, Mr. Walton determined to operate. In a section of the gland, made from before backwards, no trace of the natural

structure could be recognized by the naked eye. There appeared to be a yellowish substance traversed by a dense white tissue. Altogether the appearance was not unlike that of cancer. Dr. Handfield Jones had made a minute examination, by which facts were revealed that induced Mr. Walton to bring the subject before the Society. His account was as follows :—

"The testis was enlarged, its surface lobulated, its tissue flabby and pale, but firm. At some parts of the section there were patches of a dirty yellowish tint, which seemed rather more prominent than the rest. These contained numerous wasted tubes, with more or less intervening fibroid formation. The whitish tissue consisted of much fibroid formation with fewer remnants of tubes. There were but few injected vessels to be seen. The new fibroid tissue was loaded with nuclei, round, or oval, or elongated."

Mr. Walton remarked that the specimen illustrated Dr. H. Jones's views respecting the deposit of fibroid matter in the substance of organs, and which, according to that observer, differed materially from the effects of chronic inflammation.

Mr. Haynes Walton, *7th of March*, 1854.

Report on the preceding Specimen.—The specimen was so much decomposed that very little could be made out respecting it, nor did repeated examinations enable me to ascertain with any certainty the nature of the disease. The testicle was enlarged, though but slightly, and a fungoid protrusion consisting, as it appeared, of almost the entire body of the testis had passed through the tunica albuginea and had become covered with granulations. I was especially desirous of ascertaining whether the tunica was ulcerated through, or whether it had been expanded around the protruding portion of the testicle as M. Deville asserts to be the case almost invariably. This point, however, I was unable satisfactorily to establish, but I succeeded in tracing the tunica albuginea up to the margin of the protrusion, where I could not follow it. No ulcerated aperture was discoverable; but no appearance of a structure similar to the fibrous tunic of the testicle could be found expanded

DESCRIPTION OF PLATE X.

Figures 1 to 4 illustrate Mr. Harvey Ludlow's report on Mr. Haynes Walton's case of Diseased Testis. Page 214.

Fig. 1. Tubuli seminiferi. Magnified about 25 diameters.

Figs. 2 to 4. Cells obtained from the substance deposited among the tubular structure. Fig. 2, magnified 350 diameters. Fig. 4, 300 diameters.

Fig. 3. Cells from the rete testis.

Figure 5 illustrates Mr. J. Hutchinson's report on Dr. Ramsbotham's case of Cancer of the Uterus, Vagina, Bladder and Rectum. Page 222.

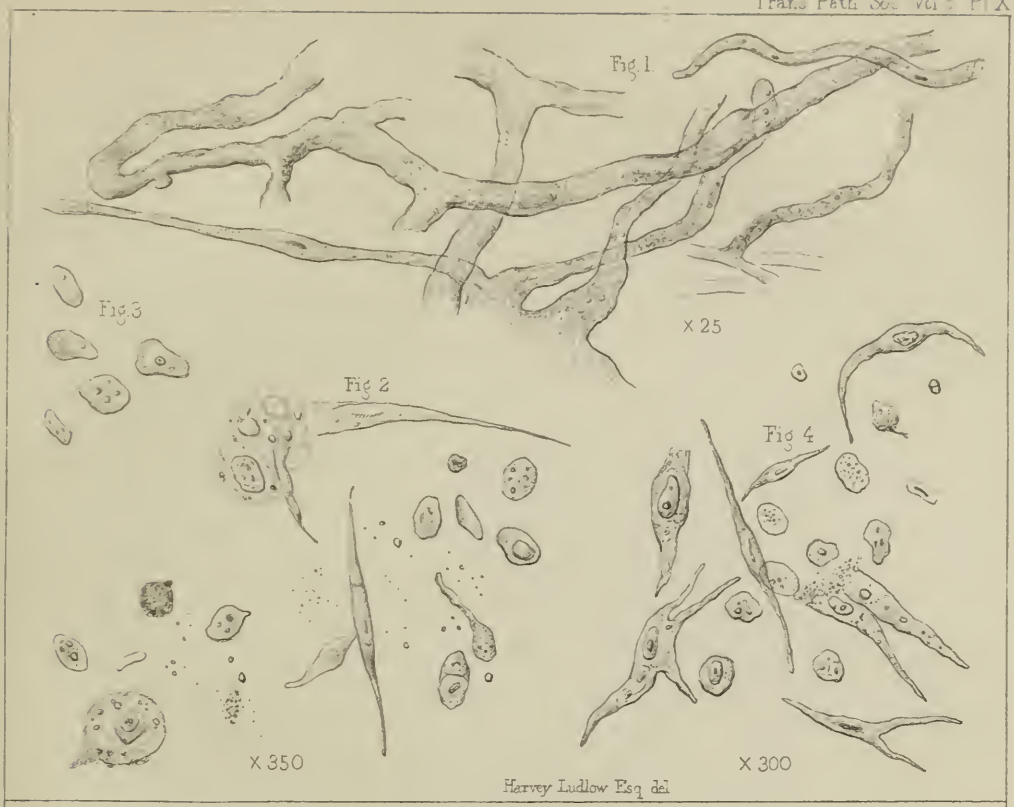
Figure 6 illustrates the microscopic appearances in Mr. J. Hutchinson's report on Dr. Ramsbotham's case of Medullary Carcinoma of the Os and Cervix Uteri. Page 224.

Figures 7 to 10 illustrate Dr. Lionel Beale's report on Dr. Gibb's case of Calculi (Phlebolites?) from the walls of the Vagina. Page 236.

Fig. 7. A few of the small calculi, of the natural size.

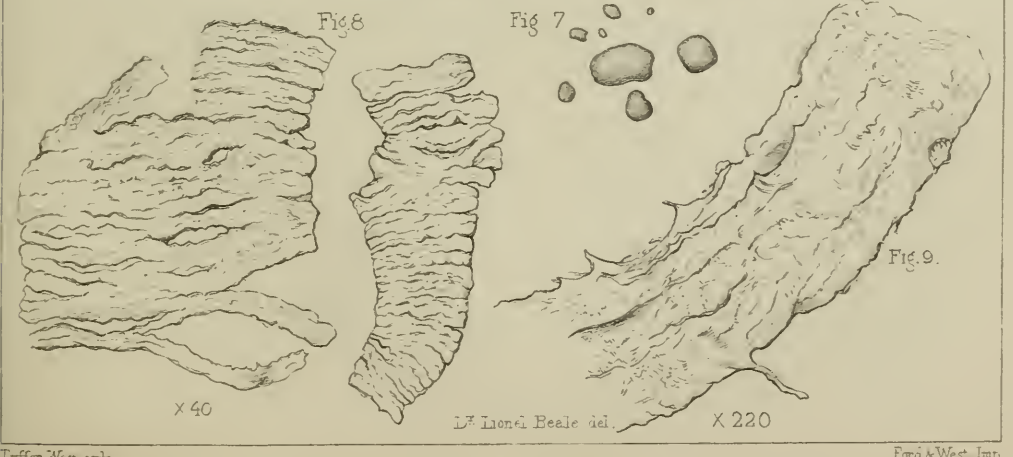
Fig. 8. Portion of matrix of one, after the action of nitric acid. Magnified 40 diameters.

Fig. 9. Fibre from lower part of fig. 8. Magnified 220 diameters.



Harvey Ludlow Esq. del.

J. Hutchinson Esq. del.



L.s Lionel Beale del.

around the protrusion, which, on the contrary, appeared to overlap the tunica albuginea.

Examined with a low power (twenty-five diameters?) the anterior part of the tumor seemed to be made up of tubuli seminiferi like those depicted in drawing, (Plate X. Fig. 1). Under a higher power, however (two hundred diameters), cells were discovered between the tubuli, (some possibly contained within them,) of different descriptions.

1st. There were several fusiform and caudate cells (Plate X. Fig. 2), some exhibiting a distinct nucleus and nucleolus with dim granular contents; others more elongated without nuclei, and apparently just passing into fibres. These dissolved in acetic acid, liberating the nuclei and granules.

2nd. Cells of a circular, ovoid, or irregular form (Figs. 2 and 3), varying from $\frac{1}{2000}$th to $\frac{1}{1500}$th and $\frac{1}{1000}$th of an inch in diameter, some few of which contained a small body resembling a nucleolus with a clear centre, surrounded by a few minute granules and some finely-molecular matter.

3rd. Cells of a larger size (Fig. 4), containing each one nucleus or two or three nucleoli, and holding a faintly shaded almost transparent substance.

I am unable to say whether these cells existed alike within and without the tubules, but it seems to me that the disease was constituted by an infiltration composed mostly of the cells which I have endeavoured to describe, and deposited chiefly in the body of the testis and slightly also between the tubes of the rete. Whether this deposit was of scrofulous origin or the result of a simple inflammation, remains to be established. The history and progress of the disease, and the constitution of the patient, are alone competent to supply information on this point. Mr. Harvey Ludlow, 21*st of March*, 1854.

Dr. Handfield Jones wishes, in connection with some remarks made by him on this specimen, to state the following reasons why he considers the change as something more than chronic inflammation, and more allied to that of growth or fibroid hypertrophy.

"1. The increase in size is very great, double that of the

healthy gland. 2. This increase seems, from the history, to have advanced up to the time of removal, or at least not to have undergone any diminution after it took place. 3. There is no vascular injection. 4. The affected tissue is tough and flabby. 5. The interstitial growth presented no characters of retrocession or degeneration. 6. There appears to have been no exciting cause, such as an injury, an attack of gonorrhœa, or secondary syphilis. 7. Treatment seems to have been ineffectual.

"Had there been inflammatory attack, which had ceased, and had the testis diminished in size, I should not be surprised at finding it pale, flabby, and tough; but in this instance it was all these without the apparent inflammation having ceased."

Report on a Specimen of Cystic Disease of the Testicle, which had been extirpated by Mr. Fergusson, at King's College Hospital, and presented by him to the Society.—The tumor was oblong, measuring four inches and a half in length, by two inches and a half in breadth. The tunica albuginea, somewhat thinned and elevated here and there by the projecting surfaces of cysts of various sizes, formed the immediate investment of the disease.

That portion of the vas deferens immediately continuous with the epididymis was impervious, and had been converted into a fibrous cord. No small cysts were visible in connection with the globus major or mediastinum testis, as sometimes happens when the vas deferens has become obliterated. The substance of the testicle was accumulated, and compressed at the upper and posterior part of the tumor, from which it seemed to be quite distinct. On cutting into it, some rather thick white fluid exuded, which, examined under a power of two hundred and fifty diameters, exhibited cells like those represented in Plate XI. Figs. 1 and 2, together with an abundance of coarse granular matter. One small cyst, capable of holding a pea, was wide open. With a low magnifying power tubuli seminiferi were brought into view, some of which, when more minutely inspected, appeared dilated, and in some places slightly saccular, though to a far less degree than was apparent in the specimen examined by Mr. Curling, and described

DESCRIPTION OF PLATE XI.

This plate illustrates Mr. Harvey Ludlow's report on a specimen of Cystic Disease of the Testis, presented by Mr. Fergusson. Page 216.

Fig. 1. Represents cells obtained from the white fluid that exuded from the upper and testicular portion of the tumor.

Fig. 2. The same, after the action of acetic acid.

Fig. 3. Cells from the lining membrane of the cyst in the testicular portion.

Fig. 4. Cells from the lining of the tubuli seminiferi.

Fig. 5. The same after the action of acetic acid.

Figs. 6 to 10, represent cells obtained from the lining membrane of the cysts, and also those by which the gelatinous material they enclosed was made up.

Fig. 11. Cells from the semi-solid white substance filling some of the cysts. All magnified 250 diameters.

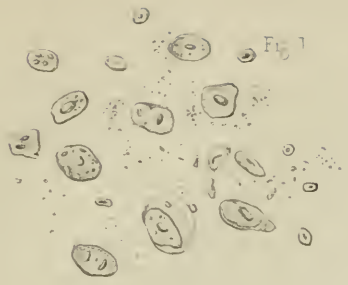


Fig 1

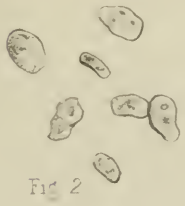


Fig 2

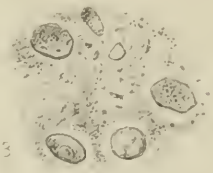


Fig 3

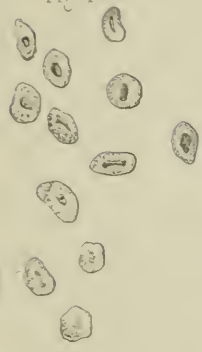


Fig 4


Fig 5


Fig 6


Fig 7


Fig 8


Fig 10


Fig 9


Fig 11

by him in the 36th vol. of the "Medico-Chirurgical Transactions." That portion, however, of the affected organ to which the foregoing remarks are applicable, was distinct from the main morbid mass by which the tumor was constituted; a few fragile and slender bands of false membrane forming the only connecting media between the two parts.

The tumor, which was clearly a fibro-cystic formation, had grown up and been developed apparently in the lower portion of the testicle, the tubular structure of which had, by the gradual extension of the disease, been pushed up, and expanded over its upper and posterior extremity, in the manner that has already been described. It presented, on section, innumerable cysts, various in size and shape, many of which were subdivided into small pouches. These were separated one from another by intersecting bands of fibrous tissue, which traversed the substance of the tumor in every direction, and were found to contain some fine elastic filaments. The lining membrane of one of the cysts consisted of a layer of areolar tissue, covered by a single stratum of spheroidal epithelium cells. (Plate XI. Fig. 3.) These were by no means uniform, either in size or shape, some being ovoid, others fusiform or caudate, while others were spherical; they seemed to be filled with dark granules, and with a few shining molecules. The two former species exhibited large, well-defined nuclei, with one or more nucleoli, but no such appearances were visible in the granule-cells, which obviously owed their peculiar character to the presence of fat particles, as they cleared on the addition of æther. With these cells, an abundance of granular matter, and free refractive molecules, were mingled. (Plate XI. Figs. 6 and 7.)

The contents of the cysts were various. In some a small white polypoid body had sprung from the lining membrane, and hung by a pedicle into the cavity of the cyst. These intra-cystic growths were found on examination to consist of firm fibrous tissue. Other cysts were filled with a clear gelatinous material, which was made up, for the most part, of large cells, circular or elongated in shape, and filled with dark granules mingled with a few refractile particles. (Plate XI. Fig. 8.) There was no appearance of a nucleus in any of these

cells. Other cells, however, were seen caudate, fusiform, or variously distorted in shape (Plate XI. Fig. 9.), nearly all of which showed the dim outlines of a nucleus, and contained granular matter which dissolved on the addition of æther. With these an abundant quantity of free granular matter and some crystals of cholesterine were mingled. (Plate XI. Fig. 10.) Lastly, some of the cysts contained a soft, half-solid whitish substance (Plate XI. Fig. 11.) which consisted of degenerating gland-cells mingled with a large quantity of free granular matter, products which, in all probability, had been furnished by a continual desquamation from the lining membrane of the cyst.

The obliteration of the vas deferens in the close vicinity of the epididymis forms a very interesting feature in this specimen; and it would be desirable, in all subsequent examinations of this disease, to ascertain whether a similar condition prevails, and what relation it bears to the cystic formation in the testicle.

Mr. Curling, in an article which has already been referred to, gives an account of a specimen of cystic disease of the testicle examined by him in an early stage, in which he distinctly observed the saccular dilatation of the tubuli seminiferi precursory to the formation of the cysts, and succeeded in tracing pretty clearly the subsequent stages of the transformation. Mr. Curling concludes from his observations that cystic disease of the testicle is the result of morbid changes in the ducts of the rete testis, this part of the gland being the sole seat of the affection. Now, although in the present instance it was not possible to ascertain the spot at which the affection originated, there are yet certain considerations opposed to the view that it commenced in the vessels of the rete testis, or indeed in the tubuli seminiferi at all.

In the first place the disease took the form of a tumor in the testicle, was enclosed in a capsule, and distinct from the true secreting substance of the testis, which was expanded over its upper part.

Secondly.—In this tumor the cysts were apparently quite separate formations, and in no instance was it possible to trace them into prolongations resembling the remnants of a tubule; nor could any vestiges of tubular structure be dis-

covered in the proper substance of the disease by careful microscopic inspection.

Mr. Harvey Ludlow, *4th of April*, 1854.

18.—*Atrophied Testis taken from a subject in the King's College Dissecting Rooms.*

History unknown. The left testicle had completely disappeared, or had never been developed. The vas deferens was of normal size, and terminated at the bottom of the scrotum in an impervious fibrous cord. On the same side was an adherent and irreducible omental hernia. The spermatic artery and veins were present, and normally arranged, but smaller than usual. On the other side, the testicle was still present, but much diminished in size and plumpness. There was an empty hernial sac on this side also. The man had, most probably, been in the habit of wearing a double truss. He was of small stature, with a feeble beard, no whiskers, and light complexion. Mr. John Wood, *18th of April*, 1854.

19.—*Case of Rupture of Uterus from obstruction to labour, by an Ovarian Cyst.*

In this case the patient was one of six sisters who had all died of dropsy, about the same age (32 years), and one of them in labour; the woman herself fully expected to die in the course of the year. She had had two children, and had worked very hard during her pregnancy. She had irregular labour pains about thirty-six hours before the membranes broke, when the pains became stronger, but without effect, the head remaining above the brim of the pelvis, and the os uteri remaining undilated to more than the size of half-a-crown, till the rupture took place.

The os was thick, with an irregular surface and considerable hardness at the commissures of the lips, and there was a swell- of the fœtal scalp from the continued pressure, though it could but just be reached by the finger.

The patient having taken an opiate, &c. three hours after the

rupture of the membranes, fell asleep, and on awaking with a pain, exclaimed, that she should die, as she had never suffered such a pain before; at the same time her face swelled suddenly, and again subsided, she became pale and faint, lost her sight, a rigor came on; she grew very restless, and would not lie down. When I arrived I found her in this condition, and that the os uteri had given way at its right commissure, but I could not trace the upward extent of the rupture. Finding her sinking rapidly, I delivered her, with great difficulty, by the forceps, of a dead child, she herself dying during the operation.

Post-mortem in one hundred-and-four hours.—Belly distended with intestinal flatus; uterus one-third its full size; no blood in the peritoneal cavity, but a large quantity was effused beneath the peritoneum, on the right side of the pelvis and abdomen, as far as the diaphragm. A small cyst containing about one ounce of serum was attached to the left ovary, in which was a corpus luteum; and another cyst that would hold a pint was attached to the right broad ligament filling the cavity of the pelvis. On this side there was scarcely a trace of the ovary left. The os uteri was thinned out near the laceration, which was about four inches in extent, upwards and outwards, towards the right side, reaching to where the placenta was attached. This was lower than usual, and when it met the rupture it was detached for about three inches along its edge, and about one inch and a half deep, at which part both it and the tissue of the uterus were infiltrated with blood, which extended itself laterally from this spot. The tissue of the uterus along the course of the rupture was healthy, and exhibited no signs of degeneration under the microscope. The umbilical cord was only a foot long.

The interest of this case lies in the apparently hereditary nature of the malady which caused the obstruction and consequent laceration; which latter seems to have occurred from above downwards, as there was never any distending force exerted upon the os, the head being too high in the pelvis to put it on the stretch by direct pressure.

Dr. Ogier Ward, 1*st of November*, 1853.

20.—*Cancer of the Uterus, Vagina, Bladder, and Rectum.*

Mrs. A., æt. 50, the mother of a family, the youngest child being 11 years old, was admitted into the London Hospital, under the care of Dr. Ramsbotham, in consequence of a disease of the genital organs. It had existed about four years; she had suffered much pain, with great irritation at the neck of the bladder; had been subject occasionally to profuse hæmorrhage, was much emaciated, and possessed in an eminent degree the cast of countenance indicative of malignant uterine disease. On examination per vaginam, both the lips of the uterine mouth were found to have been entirely destroyed by cancerous ulceration. The vagina was ulcerated at its upper part; and at its lower so contracted, to about an inch from the os externum, by nodules of cancerous deposit, that the finger was passed up to the os uteri with some difficulty. Behind the pubes, between the vagina and neck of the bladder, there was a firm round tumor, fully the size of half a walnut divested of its outer husk, smooth on its posterior surface, and exquisitely sensitive. Notwithstanding the pressure that was constantly exerted on the neck of the bladder, the introduction of the catheter had never been required.

The horizontal position, quietude, and opium, appeared to produce a very soothing effect upon the system, and for three days the patient seemed better; but on the fourth morning after her admission, having got out of bed for the purpose of passing water, she fainted, and, although assistance was immediately rendered her, she died in less than half an hour. There was not the least hæmorrhage from the uterus while she remained in the Hospital; the only discharge being a fœtid sanies, and that not in a large quantity.

Dr. Ramsbotham considered that the disease had commenced in the glandular structure of the os and cervix uteri, and had spread downwards and laterally, as, in his experience, was usually the case in this peculiar species of carcinoma, the body and fundus of the uterus being seldom perceptibly altered in structure, though the bladder, vagina, and rectum be extensively disorganized.

Besides the organs noticed in the report, very many of the mesenteric glands were affected with cancerous disease.

Dr. Ramsbotham, *4th of April*, 1854.

Report on the preceding Specimen.—The parts consisted of the bladder, vagina, uterus, and anterior part of rectum.

The interior of the vagina, from about an inch and a half from the vulva, was one ulcerated surface covered with irregular nodulations of cancerous growth and with flakes of superficial slough. The lips of the uterus were destroyed by the same kind of ulceration. On making a section from before backwards through the whole of the four viscera, it was found that a belt of malignant deposit surrounded the vagina in every part, and united it inseparably with the bladder and rectum. The deposit was much thicker between the vagina and bladder; it had quite destroyed the proper tunics of the latter, and projected into its posterior aspect as a rounded mass covered only by a very thin mucous layer. On looking into the bladder from before, this mass was distinctly seen, being elevated about the fourth of an inch above the rest of the lining membrane, and presenting a pink congested surface. There was no actual ulceration, but by scraping with the knife the cancerous mass was exposed on the slightest touch. The deposit between the rectum and vagina was not more than a quarter of an inch in thickness, and appeared to be ulcerated on both its surfaces in many parts. Passing from below upwards the thickness of the cancerous belt became greater, till about midway between the vulva and uterus, from which point it again gradually thinned, and terminated altogether about a quarter of an inch above the os uteri. The body of the uterus itself was perfectly healthy, and the boundary of the cancerous growth where it had encroached on its cervix was defined and very easily seen. Wherever cut the deposit showed the same characters, it was firmish, of a cream-white colour, freely streaked with vessels in patches, congested, and in some parts ecchymosed. It was very succulent, and yielded an opaque white juice, which readily formed an emulsion when mixed with water. The specimen from which the drawing was made was taken from between the bladder

and vagina, but the juice of other parts was examined, and displayed similar microscopic characters (Plate X. Fig. 5). They are those of medullary cancer in its most ordinary form, consisting of,—

1. Large cells of very various shapes, from round or oval to the most irregular forms, containing from one to two large oval nuclei, the latter containing mostly a single black nucleolus but being sometimes destitute of it.

2. Aggregations of granular matter into a well-defined ovoid form around a nucleus much resembling the cells first mentioned, excepting in not having any visible cell wall.

3. Cells of large size and irregular shape containing multitudes of oil globules but no nuclei.

4. Free nuclei with their contained nucleoli.

5. Free oil globules.

6. Granular matter, blood-cells, and molecules of pigment.

The conclusion would therefore appear to be that the specimen is one of infiltration of soft cancerous material into the submucous tissue of the vagina, and that the uterus had become involved only secondarily from the growth of the tumor upwards. Mr. J. Hutchinson, 18*th of April*, 1854.

21.—*Medullary Carcinoma of the Os and Cervix Uteri.*

Mrs. N., æt. 40, married many years, but never pregnant, was admitted into the London Hospital, under Dr. Ramsbotham's care, in consequence of uterine disease. Examination, per vaginam, detected a soft, irregular, fungous growth, springing from the whole circumference of the os uteri, and a round tumor, rather uneven on its surface, and painful on pressure, the size of a large orange, situated between the upper part of the vagina and the rectum. Although at different parts around and outside the vagina numerous tumors, from the size of a pea to that of a large nut, could be distinctly felt, the mucous membrane of that organ appeared perfectly healthy and natural.

The patient first complained of uterine irritation, between three and four years ago, when symptoms of malignant degeneration began to manifest themselves. On her admission she was

much attenuated; her vital and animal powers were greatly broken; there was considerable irritability of the bladder, with a constant discharge from the vagina of a fœtid, sanious character, and occasional attacks of hæmorrhage. Her countenance, also, indicated the presence of malignant uterine disease.

After remaining in the Hospital five or six weeks, during which time, although her sufferings were diminished, repeated bleedings occurred, and she was evidently getting worse daily, she gradually sank exhausted; the immediate cause of dissolution being a somewhat more profuse loss of blood than ordinary.

Besides the morbid appearances noted in the annexed report, very many of the lumbar and sacral glands, as well as those in the mesentery, were largely affected with cancerous deposit.

The similarity between the symptoms, and the morbid changes displayed in this and the preceding case, (page 221) is very striking; the chief difference between them being in the state of the vaginal membrane. In the first it was extremely ulcerated; in this it appeared perfectly healthy, though beneath its surface there were situated a number of carcinomatous tumors of various size, which would, probably, in a short time, have ulcerated into the vagina, involving all the three coats in the disease, as in the former instance.

Dr. Ramsbotham, 16*th of May*, 1854.

Report on the preceding Specimen.—The uterus and vagina are the seats of numerous large masses of cancerous deposit quite distinct from each other. The largest, which is the size of a closed fist, is found between the rectum and uterus. It has involved the neck of the uterus, which is destroyed by ulceration, but the margin of the tumor is well defined, and, though closely adherent to the uterus, the body of that organ above it, is perfectly healthy. The tumor, in a ragged sloughy condition, projects into the upper extremity of the vagina, and around its edges there is a sulcus, into which the finger may be passed, to the depth of half an inch, the mucous lining of the vagina being smooth and healthy. Anteriorly, and on the left side, this sulcus does not exist, the growth adhering to the vagina, and the tissues of the latter being destroyed by cancerous ulceration,

to within two inches of the vulva. The tumor appears (it was not cut across) to consist of several loosely connected masses; where it projects upwards it separates the rectum and uterus, and is covered by the recto-vesico-vaginal fold of peritoneum. In the submucous tissues of the neighbouring parts numerous distinct masses of moderately firm deposit may be felt. One of these, about the size of two filberts laid side by side, projects into the posterior part of the bladder, and closely adheres to its mucous lining, presenting at one spot an appearance of commencing ulceration. To the left of this mass, the most descending lobe of the larger one may be easily felt through the tunics of the bladder, into which viscus it projects slightly. Beneath the mucous membrane of the bladder, to the left, and at a considerable distance from the others, is a little moveable mass of deposit, about the size of a pea. In the submucous tissue of the posterior wall of the vagina, low down, and within an inch of the vulva, is a mass, the size of a small flattened walnut, which adheres slightly to the mucous membrane, the latter, however, not being in the least ulcerated. To the left of this is another, a little higher up, of similar character, but not quite so large. Between the rectum and vagina masses of deposit may be felt as low as within an inch of the anal orifice. The mucous membrane of the bowel is everywhere sound, but, opposite to the uterus there is a deposit, about the size of a filbert, which adheres closely to it, and would, probably, have soon involved it in ulceration.

To the finger, these masses, whatever their size, feel soft and yielding, but nowise diffluent (much like a roll of moist wash-leather). They have, generally, well circumscribed borders. When cut across they show an opaque, whitish-grey surface, which exudes plentifully a thick creamy juice. Their tissue may readily be reduced to pulp between the fingers. The juice forms easily an emulsion with water, and, when placed beneath the microscope, the large irregular cells characteristic of cancer are abundantly found. The drawing (Plate X. Fig. 6.) shows these cells variously caudate, or of an irregularly oval shape, having from one to three nuclei, the latter generally possessing large blotched-looking nucleoli. Many of the cells

contain fatty deposit in granules, for the most part of small size. Numerous free nuclei float about the field, and also some oil-globules, apparently resulting from the disintegration of cells. The juice obtained from many different parts was examined, and everywhere the like characters were found.

Conclusion.—That the disease consists of the deposit of numerous masses of medullary cancer, perfectly distinct from each other in the submucous tissue of the vagina, rectum, and bladder. Mr. Jonathan Hutchinson, 16*th of May*, 1854.

22.—*Ovarian Tumor. Great Elongation of the Cervix Uteri.*

J. D., a single woman, æt. 24, labouring under ovarian dropsy, was for several months in St. Thomas's Hospital, under Mr. Solly's care. During this time she was occasionally tapped; the last operation, by which a considerable quantity of fluid was removed, was performed a day or two before death.

Autopsy.—The body was extremely emaciated; the abdomen was very much enlarged and the lower aperture of the thorax widened, yet the parietes of the former were thrown into loose folds, a condition clearly due to a certain degree of collapse after previous and extreme distension. There was a small recent incision just below the umbilicus, where the patient had been tapped. A tumor as large as a hen's egg, and apparently formed by the posterior wall of the vagina, projected between the labia; its surface had become cuticular, and a little concrete gummy secretion adhered to its most prominent part.

On opening the abdomen a few pints of turbid yellow fluid escaped, and a large, rounded, somewhat lobulated tumor, about fifteen inches long, twelve wide, and nine thick, was seen occupying the greater part of the cavity and displacing the intestines upwards. It was easily moved from its position, having no attachment whatever to any part of the abdominal parietes or contents. It originated in the right ovary, and the corresponding Fallopian tube was somewhat elongated.

The peritoneum in every part, but chiefly in its parietal layer, and in the portion covering the ovarian tumor, and in that belonging to the liver and the spleen, was greatly indurated

and thickened from chronic inflammatory changes. The serous coat of the small intestines was additionally much congested.

The outer surface of the tumor presented numerous round or oval depressions, from about half a line to an inch in diameter, in which the wall was more or less thinned at the expense of the external layer, a part of which frequently appeared to have been punched out. Where these deficiences in the outer membrane were very numerous, the remains of that membrane formed an irregular network. These attenuated portions were frequently congested, and occasionally protruded in the form of a hernia. In several places there were actual perforations by which the interior of the ovarian tumor communicated with the abdominal cavity; these were round or oval, and varied from a line to half an inch in diameter; their edges were well defined and bevelled off at the expense of the outer part; and from nearly all of them a quantity of glairy, tenacious, or even jelly-like material protruded, and formed a more or less perfect plug.

On cutting into the tumor, it was found to consist of a series of cavities from the size of an adult's head to that of a pea. The fluid contained in them presented great variety; in a few it was thin and serous, in the majority transparent but viscid and mucus-like; in others again it was opaque and white, less tenacious, but more solid; occasionally it was opaque and buff-coloured, and in a few, slight extravasations of blood had occurred; in many of the larger ones the opaque material was found floating in the transparent fluid as though it was a sediment from it.

The walls of the cysts varied from perhaps a line in thickness downwards; some were exceedingly thin and transparent, and a few were studded with earthy matter. They were, for the most part, very vascular, and those of the larger ones were marked by numerous distended and tortuous veins. The convex surface of most of the cysts presented circular thinnings precisely like those before observed on the walls of the original tumor. The inner surface of the larger cavities was rendered more or less irregular, partly by the projection of the smaller cysts and partly by prominent folds of varying depth and extent, which

had a tendency to assume a curvilinear direction, and either lost themselves on the smooth walls of the cyst containing them, or on the surface of the smaller cysts projecting into it. These evidently were the remains of cysts which had formed permanent and continually enlarging communications with others in their neighbourhood. The hernia-like protrusions on the surface of the tumor were ascertained to be really small cysts, originating in its walls in the situation of the thinnings. The walls of the various cysts appeared to be formed of fibrous tissue; and though not allowing, so far as I could determine, of being anatomically divided into three layers, seemed physiologically so divisible; thus, they had a smooth external and a smooth internal surface, each of which might be called a serous membrane, and an intermediate formation of fibrous tissue constituting the proper wall.

It may be remarked that the trocar did not appear to have perforated the ovarian tumor, so that the fluid that escaped at the operation must have come from the abdominal cavity.

The left ovary was much fissured, but otherwise healthy. The body of the uterus occupied its natural position, but was slightly tilted by the ovarian growth. The finger could be inserted from without into the vagina, but no os uteri could be detected. On passing it down behind the uterus it readily entered the cavity of the vaginal tumor, which, consequently, had the character of an empty hernial sac. On removing these parts their actual condition was easily ascertained; the tumor was formed of the entire posterior wall and about the upper third of the anterior wall of the vagina, so that what had appeared to be the vagina, and had received the finger, was simply a cæcal pouch formed by the folding on itself of the remaining part of the anterior wall. The os uteri, much reduced in size, was situated in the centre of the convexity of the tumor, where it had been completely concealed by the solid gummy secretion that had exuded from it. The cervix was about three inches and a half long, and formed a cylindrical band about half an inch broad and one-third of an inch thick, extending between the os and the uterus, which was somewhat atrophied,

but otherwise healthy, and, as before observed, occupied its normal position.

Most of the abdominal viscera were displaced upwards. The liver was somewhat altered in shape, and slightly fatty, but all the other organs were healthy.

The lungs were small, and a great part of their lower lobes were solid from collapse. The pleuræ presented old adhesions. The heart was healthy.

The case was brought under the notice of the Society, chiefly to show the great and unusual elongation in the cervix uteri. The reason of this peculiarity is tolerably clear. The woman had been suffering for a long time past from enormous distension of the abdomen, part of which was due to ascites. The presence of the ovarian tumor, and its adaptation in form to the abdominal walls, probably diverted the dilating force of the peritoneal effusion into an unusual direction. Thus the recto-vaginal pouch became distended, and gradually protruded the posterior wall of the vagina before it. The protrusion of this exerted a certain amount of traction on the os uteri, and through the latter on the anterior walls of the vagina, and by the long continuance, rather than by the actual amount of force, ultimately caused the excessive elongation of the cervix before noticed.

It might, *a priori*, have been supposed that traction exerted in this way would have produced prolapse of the uterus; that the round ligaments, Fallopian tubes, &c., would have yielded more readily than the cervix, and, in some cases, it no doubt may be so. In this instance the uterus was probably retained in its normal position simply by its ordinary attachments, which appeared to be in a perfectly healthy condition, and, in their collective strength, wholly to surpass that of the cervix uteri. I do not think that the ovarian tumor materially aided in producing this result, for the amount of tilting which it caused was but slight.

There are one or two other points worthy of attention. 1st. Though the association of ovarian dropsy and peritonitis is common enough, in this case it seems probable that a good deal of the latter affection, and particularly the ascites, was due to

the perforations that existed in the ovarian tumor, and the consequent escape of fluid into the abdominal cavity. This, probably, is not of infrequent occurrence; and, in my own experience, I have met with several, and even more marked, cases of the same kind. These perforations seem to be strictly analagous to those that take place between the cysts themselves, and of which the first stage is that yielding of the convex surface, evidenced by the formation of circular depressions which have been described in the above case as occurring both in the walls of the cysts and in that of the ovarian tumor itself. 2nd. The entire freedom of the tumor from adhesions, notwithstanding its great size, makes one almost regret that it was not removed during life by operation.

Dr. Bristowe, 15*th of November*, 1853.

23.—*Case of Malignant (?) Ovarian Tumor filling up the brim of the Pelvis, and a considerable portion of the Iliac Fossa, with a Cyst containing Pus. Great distension of the upper portion of the Right Ureter, and enlargement of the Pelvis of the Kidney.*

I. S. T., a married woman, æt. 38, first consulted Mr. Part, in March, 1853, for severe pain in the right hip, extending down the thigh, which she attributed to rheumatism.

She was an intelligent looking woman, had led a perfectly regular life, and had always had plenty of wholesome food. Her former avocations were sedentary, but for some years she had been occupied in her domestic duties. She had had three children, and always had easy labours. She dated her illness from sitting on a low garden wall, about sixteen months since, when she was seized with shivering and headache. A day or two afterwards the menses appeared, and at the same time, she felt an unusual pain in the hip, which had continued, with slight intermissions, ever since. The catamenia appeared at the regular period once after this time. They then came on every six weeks, and after a few periods, ceased altogether, and had not since appeared.

Her countenance was anxious, and she was somewhat ema-

ciated. She complained of intense pain in the right hip, behind the great trochanter, of a digging, and sometimes burning character. It was always more severe at night, often obliging her to jump out of bed. It was also worse about the menstrual period, when she was usually very prostrate and low, after which it subsided a little, and her health improved.

She had no appetite; tongue was furred; bowels constipated. Respiration healthy; pulse 70. Heart's action normal; abdomen flat and doughy, no tenderness on pressure. Urine pale, and passed in considerable quantities; no deposit. Examination per vaginam did not reveal any uterine disease, and that per rectum did not detect any ovarian enlargement, but there was slight tenderness on pressure. Pressure on the hip, and in the course of the sciatic nerve, did not increase her pain.

Conium with colocynth was given at night, and iodide of potassium during the day; these means somewhat improved her health, but did not relieve her pain. Morphia was then given, but it very much disagreed with her; it was therefore discontinued; and after a month's trial, she discontinued taking medicine, and went on a visit to a friend.

Nothing more was heard of the case until the latter end of October, when Mr. Part was again called in.

She was now reduced much lower than on the former occasion; the skin was drawn tightly over the face, countenance was anxious and expressive of pain.

The whole abdomen was much enlarged, and there was a hard swelling above the pubes; there was also fluctuation generally over the abdomen: the swelling was painful to the touch.

She had passed very little water until a day or two since, when she suddenly began to pass it freely, and the abdominal swelling considerably diminished.

Bowels constipated, not acting without medicine; the tongue dry and furred; had no appetite; great thirst. About a week previously one of the axillary glands of the right side began to inflame; it suppurated, and had now assumed a phagedenic appearance.

Examination per vaginam.—Os uteri soft, tumid and tender to the touch; and the fundus heavy.

Examination per rectum.—Discovered a hard elastic tumor attached to the right pelvis over the sciatic notch, almost immoveable, which could be traced with the finger to the brim of the pelvis. The patient died on the 7th of November.

Post-mortem twelve hours after. — The body was much emaciated. Rigor mortis complete; abdomen much swelled; fluctuation evident over the whole upper portion of the cavity. The lower limbs were slightly œdematous, and there was an unhealthy looking ulcer, an inch and a half in diameter, under the right arm.

On cutting through the integuments of the abdomen, which were greatly attenuated, a quantity of serum was found in the peritoneal cavity, amounting to about two quarts. There were no peritoneal adhesions connecting the different portions of intestine.

On removing the bowels from the lower part of the abdomen, a large tumor appeared, filling up the brim of the pelvis, and but slightly moveable. On examination, it was found to contain a fluid, and, lying on the surface, were several small cysts filled with a transparent fluid, varying in size from a small marble to that of a walnut. The solid part of the tumor was hard and unyielding.

While endeavouring carefully to separate it from its attachments the cyst burst, and a small quantity of fœtid pus escaped. The remaining contents of the cyst were removed, and measured a pint and a half.

At this time attention was drawn to a tube traversing the right side of the spinal column; this proved to be the ureter, distended to the size of a finger, and the pelvis of the kidney also very much distended; both were quite full of urine. The ureter, on traversing the pelvis, was involved in the mass of disease, and obliterated. The right iliac vein and the anterior iliac artery were in the same condition. The stomach and intestines were in a perfectly healthy state, except at the rectum, the mucous membrane of which was

highly injected. The liver was healthy, and there was no disease of the pancreas.

The tumor, which had a lobulated appearance, filled up the whole brim of the pelvis; it was attached by the peritoneum to the caput coli on the right, and to the sigmoid flexure on the left. It was adherent to the right side of the pelvic cavity over the sciatic notch. The ganglia of the sympathetic nerve were much enlarged and vascular above the tumor; and lower down were also involved in the mass.

Mr. Cousins for Mr. Part, *15th of November*, 1853.

Report on the preceding Specimen.—The specimen submitted to me for examination consisted of the uterus and a tumor attached to its right side. The latter, about as large as an ostrich's egg, was sessile, and indeed seemed to encroach on the body and neck of the womb. It consisted of a series of cavities, the largest of which, forming the bulk of the tumor, could easily contain the fist; the smaller ones varied between the size of a walnut and that of a pea. The walls of the largest one were very thick and opaque, but tough, and apparently formed of fibrous tissue; the inner surface was rugous and reticulated, and presented numerous circular depressions of greater or less depth, clearly due to cysts, which, arising in its walls, had opened into it and formed permanent communications with it. The smaller cysts possessed characters in accordance with this. In dissecting the preparation one naturally looked for both the Fallopian tube and the ovary, but neither could be found. It appeared utterly impossible that the tube could have been removed by accident, and I believe it had not; yet every attempt to trace it, whether by dissection or by passing a delicate probe along it from its uterine orifice, was vain. From these circumstances I am induced to believe that the tumor under consideration contained both an ovarian and a tubarian element, though what share each took in its formation it is hard to determine. In reference to this point I may mention that there are two or three preparations in the Museum at St. Thomas's Hospital, in which a Fallopian tube, after a longer or shorter course, opens freely into a cyst of considerable size,

which probably is essentially ovarian; and, curiously enough, in each of them the tumor encroaches on the uterus as in the present specimen. We have only to suppose the length of the Fallopian tube, prior to its taking part in the formation of the cyst, to be reduced to a minimum, to make this case resemble those in all important points.

It may be gathered from the above account, that in my opinion the tumor is not malignant, nor in any way connected with malignant growths. It possesses the characters of ordinary compound ovarian cysts, to which, however, two or three peculiarities are superadded. The first is the great thickening of its walls and the purulent nature of its contents, which are clearly due to inflammatory change; the second is the fact of its close attachment to the uterus, which, though perhaps not the usual, is certainly not a very infrequent occurrence, and may be due, either to the direction that the growth of the cyst originally took, or to the same cause that attached the intestine to its surface, namely, inflammation; the third is the peculiarity on which I have already dwelt at length, the connection of the tube with the cystic disease.

In order that the report might be as complete as possible, a microscopic examination of the tissues was instituted. The walls of the cavities consisted of a dense fibrous tissue, which on adding acetic acid swelled up, was rendered transparent, and displayed a large number of oval nuclei, and elongated collections of oil-granules, which were, probably, the former in a state of disintegration. In some parts were clusters of oil-globules, so large and so closely packed as to have considerable resemblance to fat tissue. The milky fluid that was originally contained in the cyst I was unable to examine, but, on scraping the walls, a considerable number of cells were obtained. Many of these had the ordinary characters of pus; and others, though not distinctly pus, were bodies such as are usually observed in inflammatory products: but besides these were numerous nucleated cell-like bodies, of a fusiform or irregular shape, which appeared to be fragments torn away from the fibrous tissue of the walls, and with them a considerable number of pellucid polyhedral cells containing a few central granules, which clearly were not

of the same nature as the others, but were, I believe, indications of an imperfect epithelial lining. The microscopic characters, therefore, are in favour of the view which is expressed above.

I may add to the above account, that the tumor had no character in common with that form of ovarian disease, called by Rokitansky, alveolar dropsy, and which, by him, by Cruveilhier, and others, is looked on as a form of colloid cancer, and therefore malignant; and I mention this, simply for the satisfaction of those pathologists who still believe in the malignant nature of that affection.

Lastly, there are two minor points to which I shall allude. 1st. The portions of large intestine attached to the diseased structures were examined, but beyond very firm adhesion, nothing abnormal was detected. 2nd. On examining the *post-mortem* records of St. Thomas's Hospital, I find that, perhaps in the majority of cases of ovarian dropsy, one or both of the kidneys is the subject of hydro-nephrosis.

Dr. Bristowe, *6th of December*, 1853.

24.—*Small Calculi (Phlebolites ?) taken from between the Coats of the Vagina in a coloured woman.*

In the summer of 1845, a married coloured woman, æt. 45, who had borne children, was admitted into the General Hospital at Montreal, suffering from scrofulous disease of the mesenteric glands. There was a good deal of obscurity in the general symptoms, which were at times those of chronic peritonitis, accompanied with great debility and general wasting, from which she died on the 25th of September following.

On *post-mortem* examination almost the whole of the small and large intestines, the mesentery, omentum, uterus and bladder, were found to be one agglutinated mass of disease. The peritoneum was thickened and rough, as if from chronic inflammation. Tuberculous deposition had taken place in the omentum and between the layers of the mesentery; the small intestines were very much congested, covered the peritoneal surface with deposits of lymph on some parts, and of tuberculous matter on others. The fundus of the uterus was enlarged

to the size of a small fœtal head, and was a disorganized mass of tuberculous matter, adherent posteriorly, communicating with the rectum, and engaging that viscus in the disease. The ovaries and Fallopian tubes could not be distinguished. The posterior surface of the bladder was adherent to the anterior wall of the uterus. The os uteri was small, but presented nothing remarkable; the coats of the vagina were very much thickened, and on cutting into them, the knife grated upon some hard substances. This led to a careful dissection, when thirty-one small white calculi, in size from a pin's head to a small pea (Plate X. Fig. 7), were removed from between the external and the middle coats of the vagina; they were not confined to any particular spot, but were chiefly scattered over the anterior surface of the coats, and were enveloped in cellular tissue. They seem to be of the consistence of bone, but their chemical nature has not been determined.

No calculi have, I believe, been heretofore found in such a situation; and as the case is one of rarity, I have thought it sufficiently interesting to bring before the Pathological Society.

Dr. Sibson, for Dr. G. D. Gibbs, 16*th of May*, 1854.

Report on the preceding Specimen.—One of the smaller of the round bodies was ground down upon either side, in order to make a thin section. Upon subjecting this section to examination with a quarter inch glass, it was seen to consist of a clear transparent material, exhibiting an indistinct arrangement of concentric lamellæ arranged round the central portion of the body. Scattered through this matrix were a number of irregularly stellate dark spots. These were more abundant in some localities than in others, but everywhere were characterized by the same general characters, irregularity of form and size, highly refractive nature, and hard, dense structure, as was determined by endeavouring to crush them between glasses.

Acetic acid did not act upon the sections in the cold, but upon applying a gentle heat slight action ensued, and was accompanied with the development of a few bubbles of gas.

Nitric acid acted energetically, with brisk effervescence, leaving behind organic matter coloured yellow by the action of the acid. Upon subjecting this matrix to microscopical examination, it was seen to consist of fibrous laminæ arranged parallel to each other, and forming a somewhat loose and irregularly fibrous mesh-work (Plate X. Fig. 8), much disposed to break in the transverse direction. In Fig. 9, the appearance of one of the fibres represented in the lower part of Fig. 8, is shown under a power of 220 diameters.

Upon the addition of excess of ammonia to the nitric acid solution, a precipitate occurred which, upon examination, was found to consist of amorphous phosphate of lime, with numerous well formed crystals of the triple or ammoniaco-magnesian phosphate. Oxalate of ammonia gave an abundant precipitate of oxalate of lime in an acetic acid solution of the salts,—insoluble.

Hence the mass subjected to examination consisted of an organic matrix, in which were deposited inorganic salts, consisting of carbonate and phosphate of lime, with phosphate of magnesia. The organic material protected the inorganic matter from the action of acetic acid; while the strong nitric acid readily permeated the animal matter, and dissolved the salts, as above mentioned.

It will be seen from this examination that the bodies agree in general character with phlebolites. That they were found in cellular tissue cannot, I think, be urged as an argument against their being looked upon as of this nature, for "large phlebolites often lie in saccular pouches on the side of the vein. . . . . When the lining and the circular fibrous coats of the capsule are gradually destroyed, the phlebolite finally lies in a capsule of cellular tissue; and this appearance may have given rise to the opinion that the phlebolite is originally developed in the *cellular tissue outside the vein.*" "Rokitansky's Pathological Anatomy;" Transl. Sydenham Society, vol. 4, page 356.

Dr. Lionel Beale, 16*th of May*, 1854.

VI.—DISEASES OF THE OSSEOUS SYSTEM.

1.—*Fracture of the Skull, with detachment of the Dura Mater, and Effusion of Blood on it on opposite sides.*

An Irishman, æt. 40, was admitted into the London Hospital, under the care of Mr. Luke, on the 28th of April, 1854, having an hour before fallen from a ladder, about two stories high, into a mortar-mixing trough. When admitted his manner was confused, although, when pressed to speak, he gave his name, occupation, and address. He appeared to be suffering under commencing symptoms of compression, and this was Mr. Luke's opinion. Three hours after admission, in the absence of Mr. Luke and Mr. Critchett, I was requested to see him, and found the usual compression remarkably defined; absence of all animation in the countenance, rapid and gasping respiration, gurgling in the throat, frothing at the mouth, both pupils fixed and dilated (the left more so than the right), were the most prominent signs. This state of things had rapidly come on. On making a careful examination of the cranium no external abrasion even could be detected on the integument, but over the prominent part of the right parietal bone, its surface appeared more raised than elsewhere and it pitted on pressure. I immediately made a large crucial incision, reflected the flaps, and exposed a fracture running upwards from the temporal bone in a line with the upward division of the incision. Blood oozed distinctly from beneath the fracture. The crown of a trephine was applied, and part of the fracture was included in its middle. On the removal of the bone a coagulum of blood concealed the dura mater from view; this was removed and a probe introduced beneath the cranium, and more coagulated blood taken away from the surface of the membrane. The opening made by the trephine was enlarged, by removing two triangular pieces of bone by Hey's saw. The flattened end of the probe was again introduced, but wherever it passed it met with no resistance, in consequence of the great detachment of the dura mater from the bone. On the completion of the operation,

blood oozed freely out from the wound. The patient was relieved by what had been done, the respiration being easier and less frequent, but with this exception, there was no change in the symptoms. The wound was left exposed. The symptoms in the evening had gained their original intensity. Mr. Critchett enlarged the wound I had made in the bone, more coagulated blood was taken away, but the symptoms were unrelieved. The wounded man died fourteen hours and a half after admission.

On a *post-mortem* made the following day, the integuments over the prominent part of the left parietal bone, though not raised above the level of the remainder, had a little blood infiltrated into them. The fracture was not in any way starred, but it described an interrupted curve, which might be said to commence on the right side, at the angle of junction of the squamous with the petrous part of the temporal bone, and to be directed upwards and backwards through the former to the upper and back part of the parietal bone, to within an inch and a half of the saggital suture. Here it was interrupted by unbroken bone as far as to within half an inch on the left of the suture, and was then continued downwards and forwards, involving the corresponding parts of the left parietal and squamous plates, and from the latter position into the outer part of the apex of the petrous portion. The dura mater, under either parietal bone, was detached to exactly the same extent, which represented an area about equal to the palm of the hand; on the right side, but a few scattered portions of blood separated the membrane from the bones, but on the left, where no operation, unfortunately, had been performed, a large coagulum had collected, depressing the dura mater to a considerable extent, amounting, in the centre of the detached part, to an inch below its usual level. On washing away the blood, a rent was distinctly observed in two of the principal branches of the middle meningeal artery.

The case was particularly interesting, in consequence of the corresponding detachment of dura mater on either side, as regards extent and position, and the interruption of the fracture, near its middle. The injury of the right side of the

cranium (there having been evidence here of local injury in the puffy condition of the scalp, &c.,) might be regarded as arising from direct, that on the left from indirect violence, or the *contre coup*.

Mr. Nathaniel Ward, *2nd of May*, 1854.

2.—*Primary ulceration of the Intervertebral Fibro-cartilage between the fourth and fifth lumbar vertebræ, with lumbar abscess, but without destructive disease of the bones.*

This specimen was removed from the body of W. H., æt. 43, a sailor, admitted into St. Thomas's Hospital, July 5th, 1853, under the care of Mr. Mackmurdo. Some months previously he had received a blow on the spine, in the lumbar region, and to this circumstance he traced his present illness. Nothing unusual occurred in the clinical history of this case while the patient was in the Hospital. Abscess pointed and opened in the left lumbar region, and a discharge, at times profuse, continued up to his death, which took place from gradual exhaustion, on the 10th of November, 1853.

Post-mortem examination. — Average conformation. Body emaciated, but not to an extreme degree. Both legs œdematous. In the left lumbar region was an old fistulous opening leading towards the spine.

Chest.—Both lungs exhibited a large amount of old tuberculous deposit in their apices and upper portions which were deeply puckered and contracted. There was also a small quantity of recent tuberculous deposit scattered through both lungs. Heart healthy.

Abdomen. The liver was slightly enlarged, and presented a tendency to a firm waxy condition. Both kidneys presented, on section, a pale, mottled appearance, and their surfaces were granular; but these organs were not in a very advanced stage of disease. The spleen presented a well marked waxy appearance; the Malpighian bodies were enlarged, and resembled in appearance small grey translucent miliary tubercles. Stomach and intestines healthy.

The intervertebral fibro-cartilage between the fourth and

fifth lumbar vertebræ had entirely disappeared, leaving a chasm corresponding in shape and size exactly to the removed intervertebral substance. The exposed surfaces of the adjacent vertebræ were not carious. A vertical section through the vertebral column showed that the cancellous tissue of the bodies of the fourth and fifth vertebræ had, to some extent, undergone a process of induration; these bones were paler than the other vertebræ, and more compact. In front of the fourth and fifth lumbar vertebræ the external common ligament and fibro-cellular structures were raised and thickened, so as to form, together with the adjacent surfaces of the above named vertebræ, the sac of an old abscess, from which pus extended on the left side upwards and downwards in the course of the psoas muscle. The external fistulous opening communicated with this cavity. Mr. W. Adams, *6th of December*, 1853.

3.—*Ulceration of the Intervertebral Fibro-Cartilage, between the tenth and eleventh Dorsal, and the third and fourth Lumbar Vertebræ, with Psoas Abscess, but without Destructive Disease of the Bones.*

The parts were removed from the body of J. C., æt. 41, a labourer, admitted into St. Thomas's Hospital, on the 9th of August, 1853, under Dr. Bennett. He died on the 26th of November, 1853.

Post-mortem examination by Dr. Bristowe.—Body emaciated. Lower extremities œdematous. A little below the anterior superior spinous process of the right ileum was an ulcerated opening, whence oozed pus in considerable abundance.

Chest.—Heart and lungs generally healthy.

Abdomen.—The peritoneal cavity contained several pints of serum. Liver of large size, and somewhat granular and lobulated on the surface; it was pale, soft, and excessively fatty throughout. Spleen large, its capsule somewhat opaque; its substance firm, pale, and somewhat translucent. Kidneys rather small, pale, and slightly fissured on the surface. Small intestines healthy.

A fluctuating tumor, about as large as a hen's egg, was

observed in the lower part of the right side of the chest, close to the spine, projecting into the pleura. The cellular tissue and fat around the front of the spinal column, from the second or third dorsal to the last lumbar vertebra, were very much indurated and increased in thickness. On cutting through, and partially removing this, the bodies of the vertebræ, from the sixth dorsal to the last lumbar inclusive, were seen to be more or less denuded and bathed in pus, which occupied a long branching cavity between the bones and the indurated tissues. The bodies of the seventh to the eleventh dorsal vertebræ were altogether exposed, as far back as the origins of the transverse processes, and, in two or three of them the costo-vertebral articulations were laid open, and their ligaments and cartilages destroyed. In the vertebræ below these the exposure was less extensive, some being denuded anteriorly only, others laterally.

The surfaces of the exposed bones, though quite bare, were not at all destroyed, and, indeed, were somewhat indurated. In several parts, however, the intervertebral substance appeared somewhat eroded, and this was especially the case between the eighth and ninth vertebræ, where it was irregularly destroyed, to the depth of half an inch; it was opposite this part, that the fluctuating tumor, which projected into the pleura, and was merely a sort of diverticulum of the larger abscess, was situated. The anterior common ligament was, of course, in a great measure destroyed, but, where part of it still adhered, as was the case chiefly in the lumbar region, patches of new and firm bone were occasionally found deposited on the surfaces of the vertebræ; this was especially seen on the right side of the first lumbar, where the new bone bounded an oblique groove, in which ran a sinus that was continued along the right psoas muscle to the opening in the groin; this sinus was very narrow, bounded by indurated tissues, and gave passage to the pus from the front of the vertebral column.

On making a longitudinal section of the vertebræ, they were found, for the most part, healthy, but opaque and indurated, to the depth of two or three lines anteriorly, where they abutted on the abscess, and also in those parts which bounded diseased

intervertebral substance. The posterior half of the intervertebral cartilage, between the tenth and eleventh vertebræ, was destroyed, and the central portion of that between the third and fourth lumbar. No pus was found in the spinal canal, and nothing that could have pressed on, or otherwise injured, the spinal cord, which was healthy.

Mr. William Adams considered this and the preceding specimen to be good examples of a form of disease frequent in occurrence, but not sufficiently recognized as existing independently of destructive disease of the bones. Under the general term of "caries of the spine," described also as "Pott's disease," Mr. Adams believed two very distinct forms of disease were erroneously included, *viz.*, ulceration of the intervertebral substance, and necrosis of the bodies of the vertebræ. He also considered true caries of the spine, as a primary disease, to be of rare occurrence, and stated, that in the numerous *post-mortem* examinations of these cases he had made, he had never seen a well-marked example of it, the nearest approach being in those cases in which thick, curdy, scrofulous pus was deposited beneath the anterior common ligament; here the bodies of the vertebræ were generally roughened, and sometimes partially destroyed by caries, but in these instances the caries appeared to be a secondary affection. Opportunities of examining destructive disease of the spine in an early stage, by which alone the nature of the primary affection can be ascertained, were rare; hence the pathological error above adverted to. From the examination of several cases of spinal disease, in the early stages, made by Mr. Adams, at St. Thomas's Hospital, during the last eleven years, and also from an examination of the preparations in the museums of London, he believed that in the majority of instances of destructive disease of the spine, the affection commences in ulceration of one or more of the intervertebral fibro-cartilages, and generally in the central and more truly cartilaginous portions of the discs.

The disease, from first to last, is sometimes limited to the intervertebral substance, as in the first specimen exhibited; in

these cases, the abundant secretion of pus, which exhausts the patient, is principally derived from the thickened and vascular walls of the old fistulous canal, frequently of considerable length, between the external opening and the seat of disease. In this form, however, the disease more frequently extends to the bodies of the vertebræ, especially in young persons; the bones being then destroyed by the two processes caries and necrosis, proceeding simultaneously.

In other instances, destructive disease of the spine commences in the bodies of the vertebræ, but it was Mr. Adams's opinion that primarily and essentially the disease then assumed the characters of necrosis rather than caries, a portion of the cancellous tissue of the body or bodies of the vertebræ affected being separated as a sequestrum in the early stages of the affection. The several stages of this form of disease were beautifully illustrated in a specimen of "Scrofulous Necrosis of the Bodies of the Three Upper Lumbar Vertebræ," exhibited to this Society by Mr. Adams, on the 19th November, 1850, and described in Vol. 3, page 150, of the "Transactions."

As this form of disease advances, caries also occurs and assists in the general destruction; the two processes, as in the first class, accompanied also by ulceration of the intervertebral substances, proceeding together; the large chasms usually seen at death are the result of all these morbid processes combined.

In both the specimens exhibited, the cancellous tissue in the neighbourhood of the diseased intervertebral substance had undergone a process of induration, and was paler, more compact and dense, than in other parts of the bones; this was evidently the result of chronic inflammation in the bone, under conditions opposed to the invasion of caries. In the second specimen, a considerable quantity of new bone had been thrown out in several places, in the form of bridges, across the intervertebral cartilages, and in others in the form of perforated or irregular cribriform plate-like processes from the sides of the bodies of the vertebræ, particularly situated at the edges of the great abscess in front of the spine, where the fibrous structures were connected with the bodies of the vertebræ.

This view of the pathology of these affections brings the destructive diseases of the spine into a closer relation to the ordinary diseases of joints, and the joint-ends of bones, than has generally been acceded to them.

Mr. William Adams, *6th of December*, 1853.

4.—*Primary ulceration of the fibro-cartilage of the Symphysis Pubis, and large Abscess in the sheath of the Rectus Muscle communicating with the joint.*

E. S., æt. 31, was admitted into St. Thomas's Hospital, under the care of Mr. Mackmurdo, on the 22nd of December, 1853, on account of a swelling a little below Poupart's ligament, on the upper and inner aspect of the left thigh, supposed to be a psoas abscess in connection with spinal disease. The spine was examined several times during her illness, but no pain or tenderness could be elicited by pressure or percussion along the course of the vertebræ. She complained of pain over the left side of the abdomen, and in the groin of the same side. She was pale, emaciated, and of cachectic appearance. She had been ill for three months, but continued to work at her needle, and had not complained much until the last three weeks. Ten days after admission the swelling or abscess above alluded to, burst, and a large quantity of pus continued to be discharged; hectic symptoms set in, and she died on the 30th of January, 1854.

Post-mortem examination. — The usual abdominal incision through the linea alba opened an enormous abscess, containing not less than three or four quarts of pus, which was found to be contained in the sheath of the left rectus muscle, but was at first thought to be in the abdominal cavity, the left half of which it principally occupied. The sheath of the rectus was equally distended in its entire length; two or three folds of the small intestine were adherent to its posterior surface, but beyond this there were no evidences of peritonitis having existed.

This large abscess communicated by a long sinuous channel

with the articulation of the symphysis pubis, the fibro-cartilage of which had been completely removed by ulceration. The exposed articular surfaces of the pubic bones were superficially carious; as also was the anterior surface of the left pubic bone at its angle. The right os pubis was healthy, except at its exposed articular surface. The bone disease, therefore, was very inconsiderable. The diseased articulation of the symphysis pubis also communicated directly with the abscess above adverted to, at the upper and inner aspect of the thigh, a little below Poupart's ligament; in this region pus had burrowed in several directions amongst the adductor muscles, &c., connected with the left pubic bone.

The femoral and iliac veins of the left side were filled with adherent clots, decolorized in patches, but not softened.

Both lungs were congested in their posterior and lower portions, and studded with purulent deposits, generally in an early stage. There were no other organic changes of importance in the thoracic or abdominal viscera.

Mr. Adams considered this case to be allied to those examples of spinal disease commencing in ulceration of the intervertebral substance, which he had exhibited to the Society a few meetings previously (page 241), and to be essentially a joint disease. This view seemed to be borne out by the complete disintegration and removal of the articular fibro-cartilage; whilst the disease of the bones, (superficial caries) was not greater than was generally met with after destruction of the cartilages in other joints. The abscess in the sheath of the rectus, and the external abscess, appeared to be equally the result of the burrowing of matter from the joint. As a rare form of disease the case was interesting in connection with the diagnosis of psoas abscess. She was said not to have borne children.

Mr. William Adams, *7th of February*, 1854.

Report on the preceding Case.—It seems impossible to determine from the preparation whether the pus had its origin in disease of the fibro-cartilage of the symphysis, in caries of the adjacent pubic bone, or in the sheath of the rectus.

The bone was affected so superficially that it did not seem probable the disease commenced there.

Mr. PARTRIDGE, 21*st of February*, 1854.

5.—Malignant growth from the Dorsum of the Ileum.

This growth weighed ten ounces. Mr. Quekett examined it microscopically, and reported that it consisted almost entirely of cells, without connecting tissue, contained in an envelope of dense fibrous tissue. The portion of the dorsum of the ileum from which the tumor had grown, had been completely destroyed, leaving a circular perforation three inches in diameter.

The patient was a man, otherwise apparently healthy, æt. 24, who first applied to Mr. Spencer Wells in May, complaining of pain and swelling on the left hip, which he said he had felt more or less since the previous October, and had been aggravated by a blow received in April. The swelling was scarcely to be detected, and, with the pain, disappeared under the use of fomentations. On the 27th of June, Mr. Wells saw the patient again, in consultation with several other medical men. There was then a tumour over the dorsum of the ileum, about the size of an orange. The skin over it was perfectly healthy and moveable, but the tumor itself was so firmly attached at the base, that it was clearly either attached to, or closely bound down upon, the bone. The pain at night had been very great, and the general health was much affected. A puncture was made to determine if there were a deep-seated collection of pus, in connection with the diseased bone. Some blood and serum alone escaped, and it was concluded that the tumor was malignant, and that any delay in its removal would diminish the probability of a successful result. The patient at first objected, and Mr. Wells did not operate until the 22nd of July. The tumor was firmly attached to the bone, and portions of the bone came away with it. So much blood oozed from the exposed diseased bone, that it was necessary to apply pressure to check the bleeding, and to defer the attempt to remove all the diseased bone. On a subsequent examination, it was found that so much of the ileum was diseased, that it was thought better simply to keep

the wound as clean as possible, and to support the patient by beef-tea, eggs, wine, &c. Profuse fœtid discharge came on with typhoid fever, and the patient died on the 23rd of August.

Mr. Spencer Wells, *6th of December*, 1853.

6.—*Dislocation of the Femur on to the border of the Obturator Foramen.*

The patient from whom the specimen was taken was a very muscular and well made man, æt. 38; he was admitted under Mr. Curling, in the London Hospital, having received some severe injuries to the chest and abdomen, together with a dislocation of the femur, characterized by the symptoms diagnostic of what is termed dislocation into the thyroid foramen. He had, about an hour before admission, been knocked down by a piece of timber, which was stated to have fallen obliquely across the back and right lower extremity. The patient being in a state of great collapse at the time of admission, it was deemed prudent to defer attempts at reduction until he had somewhat rallied. On visiting him about seven hours after the accident, Mr. Ward and Mr. Wordsworth observed no evidence of the femur having been displaced, with the exception of a much greater capability of movement in the right than in the left limb. The dislocation had, in fact, been reduced when the patient was placed in bed by the nurses.

The patient lived three days. On the *post-mortem* examination, the limb was carefully dissected by Mr. Ward, who found that the right thigh presented slight marks of contusion at the outer and back part; blood was extravasated between the glutæi and hamstring muscles, and in the cellular tissue surrounding the great sciatic nerve. The upper part of the adductor magnus and the lower border of the obturator externus had blood extravasated between the fasciculi, but a few of the fibres only of the former were lacerated. There was a large rent at the inner part of the capsular ligament, the extent of which was from the ileo-pectineal eminence to the opposite point of the upper border of the obturator externus. The articular head of the femur occupied its natural position, but

might without difficulty be turned out of the acetabulum, through the irregular opening in the capsule, on to the outer border of the thyroid foramen. When occupying this position it pushed the body of the obturator externus somewhat downwards and inwards, rendering it tense and bulging. The ligamentum-teres, torn away quite close from its femoral attachment, was lying loosely in the acetabulum, having blood extravasated deeply seated to its synovial reflection. There was no blood in the articular cavity. The psoas and iliacus tendons were uninjured.

Mr. Nathaniel Ward, *1st of November*, 1853.

7.—*Two cases of Simultaneous Rupture of the Ligaments of both Patellæ.*

Mr. Shaw exhibited a cast of both knees of a gentleman of middle age and height, and of light active figure, who, last Christmas, had torn the ligaments of both patellæ from the tubercles of the tibia at the same time. The accident occurred when he was coming down two low steps in a hall, from the heel of his thick shoes catching on the edge of one of them; and he was sensible that the tear took place before he came to the ground, or, as he said, "in the air." Both legs were doubled up under him; and it was only by taking them with the hands that he could straighten them. For a fortnight he kept the sofa, with the legs extended, but without bandages or splints. He was then instructed to sit on a high chair and swing both legs, and to spend part of the day sitting with his knees bent, and pressing down the patellæ with the palms of his hands. In a month he began to walk with caution.

The following were the appearances of the knees ten weeks after the accident, when first seen by Mr. Shaw :—

It may be premised that the same description answers for both joints, only the right was slightly worse than the left. The first peculiarity observed as the patient sat with the knees bent, was an unnatural prominence of the patellæ, caused by that bone riding on the upper surface of the lower head of the femur. In the normal condition of the knee when bent, the

patella is drawn down to the front; its apex pointing to the ground, and its long axis in the same line with that of the tibia: but in the patient it was not so drawn down; its apex pointed forward, and its long axis was in the line of that of the femur. On examining next by the touch, there was found, immediately below the apex of the patella, a circumscribed, irregularly globular, firm mass, the size of half a large walnut; and beneath that, as far as to the tubercle of the tibia, was a depression into which the points of the fingers could be deeply inserted. The shape of the tubercle of the tibia was distinctly defined, and no trace of the remains of the ligament attached to it could be felt; whence it was concluded that the ligament of the patella had been wholly torn from it; and that the firm mass attached above to the patella was the ligament contracted and altered in figure by fibrinous deposit. To ascertain the extent of retraction of the patellæ, Mr. Shaw compared the measurements in the patient's knee with corresponding ones in his own. In the extended position of the joint the distance between the apex of the patella and the tubercle of the tibia was, in the patient, two inches and a half; in himself one inch and a half: excess in the patient's knee, one inch. In the bent position of the joint the distance between the two points was, in the patient, three inches and a half; in himself, two inches: excess in the patient's knee, one inch and a half. When the patient sat, and exerted the extensor muscles to lift a weight, say a foot-stool, with the point of his foot from the ground, the action caused the patellæ to be jerked about an inch upwards on the thigh, above the proper articular surface, and with a sudden pain which obliged him quickly to replace the bone by pushing it downwards. At these times the lower head of each femur was so much bared by the slipping up of the patellæ, that, for the moment, the form of the condyles and trochlea in front and above, was visible through the skin and capsule. For five inches above the knee there was considerable wasting of the fibres of the quadriceps extensor muscle.

Notwithstanding the serious nature of the injury to both knees, the patient was not so lame as might justly be expected. Being a Member of Parliament, and in a high position at the

bar, he has pursued his active duties for some time without accident. In standing, he has a sense of inclining to fall backwards; yet one night lately he was able to address the House for an hour and a quarter, without fatigue. In rising from his seat he usually begins by extending his legs, then he gives his body an upward jerk with his arms, and so lifts himself on his feet. On level ground he can walk a distance of two miles: he fears crossing a street, or being jostled in a crowd, as he cannot easily increase his pace or recover his balance. On going up stairs he is obliged to straddle; and having thus extended one leg, he swings it up one step, and then repeats the same act with the other. In descending, he prefers going backwards; but if he cannot do that, he manages to straighten the legs, and puts one down cautiously after the other. To get out of a railway-carriage, he seats himself on the floor at the edge of the door, and letting his legs fall straight, slips down, and poises his body upon them as his feet reach the platform.

Mr. Shaw related a second case, recently under his observation, of simultaneous rupture of the ligaments of both patellæ; but where the laceration, instead of being from the tubercles of the tibia, was from the apices of the patellæ, or a little below these points. It occcurred in the person of a medical friend, æt. 45, five feet ten inches in height, fourteen stone in weight, but powerful and of active habits, residing in Ayr. The accident took place in January, 1853, from the heels of his boots catching on the edge of a low step on the outside of a door, when leaving a patient's house. In falling, he heard no snap, but felt a sharp, sudden pain; and when on the ground, found his legs doubled under him. To extend them, he had to drag his feet from below him with his hands. Being unable to rise, and alone, he gave the alarm by beating the door with his fists; and on its being opened, he moved himself backwards into the hall by using his arms like crutches, and dragging his legs extended after him. In the left knee the patella was drawn up two inches above its proper level: in the right, the retraction was not so great. The treatment was that usually adopted for fracture of the patella. He found advantage from applying above the bone a thick compress of Indian-rubber, of a crescentic

and wedge shape, connected by straps to a laced stocking on the lower part of the leg; from the surface of the Indian-rubber clinging to the skin better than other substances, it could be secured in its place without tight bandaging. In two months he was able to walk, with the assistance of sticks, on level ground; and was not long in resuming his professional occupations. Mr. Shaw first saw him in December, eleven months after the accident. Here, as in the former case, the description of one joint will serve for that of both. When the knee was bent, so that the leg was at right angles to the thigh, the patella projected considerably, so as to cause a visible alteration in the natural contour of the joint: again, instead of the long axis of the patella being directed perpendicularly downwards, the position which it ought to occupy in that condition of the joint, its direction was oblique, or that which belongs to it when the joint is bent only to an angle of forty-five. The shape of the apex of the patella was clearly defined; continuous with it, in a uniform line, and without perceptible depression or elevation, the ligament of the patella could be distinctly traced, of its usual thickness and strength, to the tubercle of the tibia. The patient stated that for several months after the accident, a circumscribed firm nodosity, like a callus in fracture, existed about half an inch below the apex of the patella; but the traces of that had disappeared. In the extended condition of the joint, the distance between the apex of the patella and the tubercle of the tibia measured two inches and a half; which, on comparison with Mr. Shaw's knee, gave an excess of an inch to the patient's; and in the extreme bent condition, the distance measured three inches, which, by a similar comparison, gave an excess also of an inch. For five inches above the knee, there was distinct atrophy of the quadriceps extensor muscle. On level ground he walked securely, taking short steps. He was sensible of weakness and danger on going down a declivity; and in descending stairs he had to hold one of the rails with both hands, stepping down sideways. He has met with only one fall, which occurred when he was getting over a puddle: he felt himself losing his balance, and instead of making an effort to recover it, he allowed himself to come to the ground. He has

abstained from using knee-caps or bandages, being afraid that their pressure would cause greater wasting, and consequent weakness, of the extensor muscles.*

Remarks.—The only case which Mr. Shaw has witnessed bearing a resemblance to the first related, was that of a lad, æt. 17, who, having a stiff bent knee, with spurious anchylosis, fell, and tore the ligament of the patella from the tibia: but on close examination, Mr. De Morgan, under whose care the patient was, found that the tubercle had been separated along with the ligament from the tibia. In this case it was concluded that the tubercle, which is an epiphysis, had not been firmly united to the tibia; and that it was owing to that, and the immobility of the patella, that from the violence directed on the front of the joint, diastosis of this tubercle took place. Union occurred as in common fracture.

It is to be regretted that, in the first case, the treatment was not such as to have afforded an opportunity of the ends of the ligaments becoming united to the tubercles of the tibia. Besides the absence, at first, of proper measures to keep the legs securely fixed in the extended position, passive motion was adopted much too early; and to add to the evils, the patient wore a loose elastic knee-cap, the edges of which, from its being too short, indented into the hollow space between the remains of the ligament above, and the tubercle of the tibia below, so as effectually to separate the surfaces which ought to have been in contact.

To explain how the patient, notwithstanding he was deprived

* On a visit to Scotland in July of the present year, eighteen months after the accident, Mr. Shaw saw this patient again. There was no increased elongation of the ligaments of the patellæ; and a manifest improvement had taken place in regard to the strength of the quadriceps muscles. Although still lame, and obliged to be cautious, he felt himself greatly more secure on his limbs. He attributed the improvement principally to the frequent exercise which he had been able to take, in the intervals of professional occupation, at the national game of golf, played on a ground where falls would not be dangerous, and walking required unwonted effort; namely, on low hills, or domes of blown sand, which lie along the coast in the neighbourhood of his town.

of the use in both legs of such an important part as the common insertion of the quadriceps extensor muscle into the tibia, retained so much power of extending the limbs, it requires to be remembered that, owing to the general attachment of the patella to the front part of the capsular ligament of the knee-joint, all those parts of the capsule which pass down from that bone to the head of the tibia, may become substitutes for the ligamentum patellæ, and, in a more or less perfect manner, perform its offices. In this respect, the case is very different between rupture of the ligament of the patella and that of the tendo Achillis. Mr. Shaw, 16*th of May*, 1854.

8.—*Two specimens of Disease of the Elbow-joint removed by resution.*

In each specimen the articular cartilages from the humerus, radius, and ulna, have disappeared, and the osseous surfaces are in a state of ulceration. The fibrous tissues attached to the bones have disappeared at some parts, and become thickened and ruptured at others; and at various points small bits of synovial membrane may be detected in a state of pulpy or gelatinous degeneration.

Mr. Fergusson, 7*th of March*, 1854.

9.—*Specimen of Diseased Joints removed by Operation. Diseased Head of Femur.*

The cartilage has disappeared, and the surface of the head of the bone is in a state of ulceration.

Diseased elbow-joint. The articular cartilages have disappeared, and the ends of the bones were in a state similar to that seen in other specimens.

Mr. Fergusson, 2*nd of May*, 1854.

10.—*Fibro-cystic Tumor of the Femur, for which amputation at the Hip-joint was performed.*

The patient, a delicate woman, æt. 26, married, and the mother of three children, was admitted into the London Hos-

pital on the 10th of March, 1854, with a large tumor of the right lower extremity. It occupied the anterior, inner, and back part of the thigh and upper part of the leg; in the latter direction extending three inches below the head of the tibia inwards and backwards; in the former extending upwards, somewhat higher than the middle, and backwards into the popliteal space. It measured round its most prominent part, twenty-four inches. Several large veins ramified over its surface, particularly internally and in front. The skin was not adherent to it; it felt hard, dense, and but slightly yielded on pressure. The surface was smooth, but here and there were several somewhat convex elevations, indicating the situation of various sized cysts, which fluctuated distinctly. The body of the swelling could be moved forwards and backwards, but its deepest-seated portion was intimately connected with the shaft of the bone. The patella was slightly displaced outwards, in consequence of the encroachment of the tumor on it laterally; and with the exception of great limitation in the movements of the articulation, the knee-joint gave no evidence of anything abnormal. The shaft of the femur above the tumor felt somewhat thicker than natural, and about an inch and a-half below the lesser trochanter, a small elevation, like an exostosis, was detected. The glands in the groin were not enlarged, nor was there any symptom which could be construed as expressive of latent organic disease.

The patient had been, three years ago, under the care of Mr. Ward, and at this time the inner condyle of the femur was only affected, and gave the idea of being in a state of chronic strumous enlargement. The disease was held in check for several months by the treatment adopted, which consisted in the use of mechanical support to the limb, with the application of camphorated mercurial ointment, &c. At the end of about a year, the enlargement of the condyle became greater, and put on the form of an osteo-sarcomatous growth, being exceedingly hard, but painless on pressure. The patient was lost sight of for some period after this, and on her coming to the Hospital, on the 10th of March, the tumor had assumed the dimensions above described; and she stated that it had grown very rapidly

for the last three or four months, and that severe pain had supervened, coming on principally at night, and depriving her of her rest. She had had no pain worth alluding to before, nor since the commencement of the disease, which she dated back to two years before her first application for relief to Mr. Ward. The amputation at the hip-joint was performed by Mr. Adams, on the eighth day after her admission. Immediately before the completion of the operation, the thigh-bone gave way about the lower third.

On reflecting the attenuated and stretched fibres of the vasti, hamstring, and gastrocnemii muscles, the tumor presented an irregular oval outline, the large extremity being below, having a length of fourteen inches. It was composed of more or less spheroidal masses aggregated together. That part of it in front of the lower and anterior part of the femur presented a dense bony shell, evidently composed of the expanded laminæ of the bone; a dense fibrous capsule formed an incomplete investment to the tumor, and which could be easily traced as continuous in the periosteum of the bone not implicated in the disease, being lost, however, on its most convex portions, which were separated from the skin merely by condensed areolar tissue. On section, the tumor presented a beautiful glistening appearance, being permeated in every direction by more or less compact fasciculi of fibrous tissue irregularly radiating from its base to its centre, and, in their course, to its circumference, breaking up into curved bundles, blending or interlacing with each other in such a manner as to give a remarkable areolar appearance; the spaces being occupied by a tissue somewhat darker, less fibrous to the eye, but equally dense. Cysts, from the size of a pin's head to one larger than an orange, mixed up with small isolated extravasations of blood, without any defined boundary-wall, permeated the tumor, and were distended with bloody serum. The largest cysts were at those points at which the tumor seemed to have been growing most rapidly, *viz.*, at the upper and lower extremities, as also behind and in front, immediately outside the patella in the last direction. The large cyst at the lower end of the tumor was filled with bloody serum, and was lined with lymph, the more superficial layers of which were shreddy

DESCRIPTION OF PLATE XII.

The figures illustrate Dr. Andrew Clark's description of the Microscopic appearances of Messrs. Adam's and Ward's case of Tumor of the Thigh. Page 257.

Fig. 1. Bloody fluid from the large cyst.

a. Free blood discs variously altered.

b. Blood discs embedded in a homogeneous matrix.

c. Granular fat cells ("Exudation corpuscle." Compound inflammation globule).

d. White corpuscules in various stages of development.

e. Developed cells in a state of retrogade metamorphosis.

Fig. 2. Soft yellow columns forming the walls of the cysts.

a. Fibroid tissue formed from the direct solidification of the fibrine of the blood, and enclosing white corpuscules, granules, and molecules.

Fig. 3. from the wall of a cyst; the soft yellow columns having been removed.

Fig. 4. From the wall of a cyst beneath the portion above delineated.

Fig. 5. From the same, where it appears to merge into the general substance of the tumor.

Fig. 6. Section of the firm fibrous part of the tumor.

Fig. 7. Juice squeezed from the softer white portions of the tumor.

Fig. 8. Section of the softer white portions of the tumor, enclosed within the areolæ.

Fig. 1

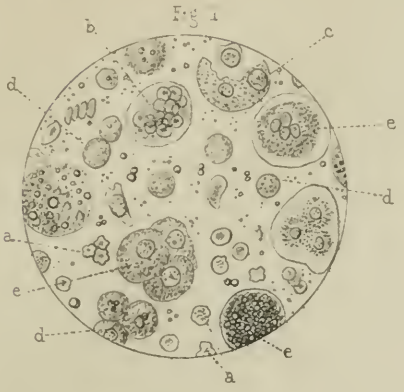


Fig. 2

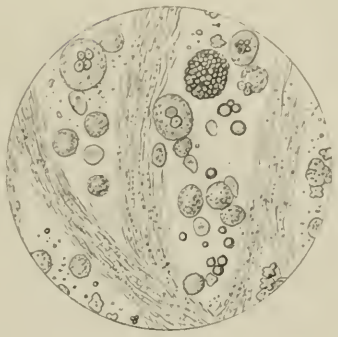


Fig. 3

Fig. 4.

Fig 5.

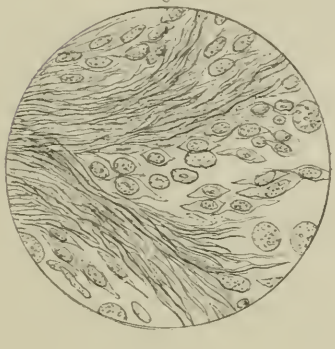


Fig 6.

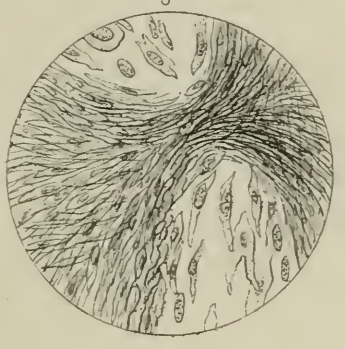


Fig. 7

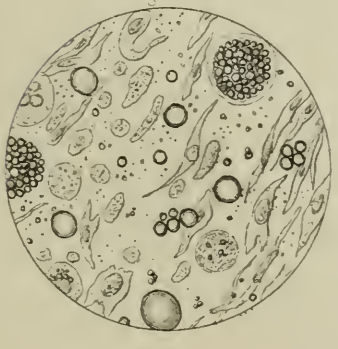


Fig. 8.

and enclosed blood, the deeper, however, more and more firm till they ultimately blended with the genuine substance of the tumor. That part of the tumor in relation with the femur involved the lower third, and here the fibrous tissue was much condensed, and interspersed with masses of bone, having the appearance of the cancellous texture, which had in fact been the original seat of the disease. The shaft of the bone, above that part involved in the disease, was broken off, but presented, neither at, nor above the seat of fracture, any increase in volume. The cartilage of the condyles of the femur was irregular on the surface, in consequence of partial absorption from the pressure of the tumor from above; and although a portion, equal to a threepenny-piece in size, had disappeared from that belonging to the inner condyle, the synovial membrane was intact. The cartilage of the outer condyle protruded into the joint, in the form of an investment to an irregularly nodulated mass about the size of a marble, which was found on section to be a projection of the tumor from above.

The marked elevation, like an exostosis, in the neighbourhood of the lesser trochanter, proved to be a thick, irregular ridge of bone, about an inch in length, and the third of an inch in height, which had been deposited in the neighbourhood of the large muscular insertion in this part of the bone. When cut into, it was found to consist of a loose, cancellous tissue, without any admixture of morbid structure resembling that of the tumor. Dr. Andrew Clark has examined the specimen microscopically, and given the following description.

Mr. Nathaniel Ward, for Mr. John Adams, 21*st of March*, 1854.

Dr. Clark's description of the Microscopic Characters of the Tumor.—A very accurate description of the general characteristics of the tumor having been already recorded by Mr. Ward, I shall here confine myself to a summary of the details of its microscopic examination.

That the histological relations of the tumor should be as fully developed as possible, I submitted to careful and repeated examination—

1. The cysts, with their contents.

2. Juice squeezed from fresh sections of the tumor.

3. Thin slices of the tumor made with a Valentin's knife, in various directions and at different parts; and

4. The textures immediately adjacent to the tumor.

Of the Cysts.—These were of all sizes, of at least three different kinds, and each in various stages of development and closure. The first was the smallest, and consisted of mere extravasations of blood, limited by an imperfectly developed fibrillated tissue. The second was the largest. The cavity of each cyst of this kind was filled with blood and serum; its walls were reticulated, or rather columnated, like the interior of the cardiac ventricles; and the rolls or columns of fibrillated tissue, which were soft and diffluent on the surface, were found to be gradually firmer as they were traced outwards, until at last they appeared to become blended with the general udder-like substance of the tumor. The third kind consisted of cysts which appeared to be in various stages of closure. Each was filled with more or less bloody serum, and its walls were uniformly smooth, glistening, and distinctly membranous.

Of the first kind of Cysts.—These were without distinct capsular investments, and consisted merely of red blood imbedded in coagulated fibrine.

The blood submitted to the microscope exhibited blood discs variously altered, free, and in masses (Plate XII. Fig. 1). Those free in the field of vision exceeded their usual diameter; many were puckered at the edges; some were elongated, and most had lost their elasticity, retaining the forms determined by accidental compression. Some of the masses, consisting of from ten to twenty blood-discs, exhibited a peculiarity worthy of special notice. The blood-discs were shrivelled, crenated, and bound together in a more or less spherical form, by a tenacious structureless matrix, which, projecting a little way beyond the circumference of the mass, had, at first sight, all the appearance of a cell-wall. By the prolonged action of dilute acetic acid, however, the blood-discs became swollen, lost the appearance of crenation, separated from each other, and ultimately disappeared. During the progress of these changes, it was clearly observed

that the appearance of a cell-wall investing the blood-discs, arose entirely from the presence of a transparent, structureless, tenacious substance, glueing them together, and projecting beyond the circumference of the cell-like mass formed by them. Associated with the blood-discs, colourless corpuscules were found in unusually large numbers, and considerably altered in appearance. Many of them were nearly twice their usual diameter, exhibited nuclei without the use of re-agents, and were studded with highly refractive granules. These changes were found to be much more numerous and important in the larger cysts, and will be again referred to under that head.

The fibrine in these cysts was buff-coloured, diffluent, and bloody (Plate XII. Fig. 2). Submitted to the microscope, it was found to present the appearance of a fibrillated mass, enclosing in its meshes blood-discs and colourless corpuscules, and thickly studded with elementary molecules and granules. The imperfectly-developed fibres appeared to have been formed by direct solidification, and by the union of molecules and granules, end to end, in linear series. The fibres, moreover, were incapable of individual separation, and were collectively imbedded in a gelatinous-looking, transparent, structureless matrix.

Of the second kind of Cysts.—The cysts of this kind were filled with bloody serum. This, when submitted to the microscope, exhibited blood-discs variously altered, as already described, fat and oil in various forms of combination, and white corpuscules in advancing stages of structural metamorphosis, as follows:—

a. A few white corpuscules of normal size, configuration, and mode of response to re-agents.

b. Others larger, and containing a few refractive granules in their interior: some larger without the refractive granules.

c. A third kind was more or less spherical, about three times the normal diameter of the corpuscule, and wholly filled with highly refractive fat granules. This differed in no respect from the ordinary granular fat cell, compound inflammation-globule of Glugé, or exudation-corpuscule of Bennett.

d. In a fourth and different aspect of development, these corpuscules were about the same size as the former; also spheri-

cal, studded with fine molecules and granules, and exhibiting from one to six ovoidal or rounded eccentric nuclei. In some of these cells, the cell-wall was separated for some distance, wholly or partially, from the granular contents, which again presented crenations corresponding in number to the number of the nuclei present. In the largest of these cells the nuclei were rounded, and nearly equal in size to the normal colourless corpuscule.

e. In the fifth stage these cells were seen to have burst, their nuclei had escaped, and were observed in various parts of the field, having attached to them fragments of the disintegrated parent cell, and looking like developmental fibres, which they were not.

In addition to the blood discs and varieties of corpuscules just described, the sero-sanguinolent contents of this kind of cyst exhibited also oil and fat. The oil was in the form of drops, of various sizes, and its origin was not apparent. Fat occurred in the form of granules, and was derived partly from the breaking up of the fully developed granular cells, and partly from the molecular disintegration of the larger nucleated cells; fat being so loosened from its organic combinations, and appearing free in the field.

That part of the wall of each cyst which projected from the surface of the tumor was of a deep purple colour, and consisted of two layers of membrane, enclosing numerous enlarged and tortuous veins. The outer layer of membrane consisted simply of condensed areolar tissue. Between this and the inner membrane, there was found, in the majority of cysts of this kind, a layer of extravasated blood, of uniform thickness throughout. The inner membrane was velvety on its free surface, and of a deep greyish-red colour, from the presence of pigment and patches of extravasated blood. It consisted of simple fibrillated tissue enclosing colourless corpuscules and blood discs, and was coated at intervals with a layer of granular fat cells (Plate XII. Fig. 3). That part of each cyst in contact with the substance of the tumor exhibited a membranous appearance only in the small interspaces of the solidifying fibrous columns. These columns have been already described. On the free surface they

were soft, almost diffluent, and infiltrated with red blood. In structure they resembled the simple fibrillated tissue already described as found in the first kind of cyst; and, like it, enclosed colourless corpuscules, which displayed indications of advancing development. The same tissue, examined at a greater depth from the surface, was found to have become more distinctly fibrous, to present waved bundles at intervals, like those of ordinary inelastic fibrous tissue, to exhibit fewer molecules and granules, and to have enclosed in its meshes a few spherical cells, many elongated cells, and a few short nucleated fibres (Plate XII. Fig. 4). Still further from the free surface, and in immediate proximity to the substance of the tumor, with which they appeared to blend, these fibrous cells or columns had become quite firm, and still more distinctly fibrous and waved (Plate XII. Fig. 5). The interspaces were occupied with short coherent nuclear fibres, free nuclei, oval and elongated free nuclei, and a few nucleated and non-nucleated cells, the latter being undistinguishable from the white corpuscules. From this point these appearances became gradually blended into those characteristic of the tumor (Plate XII. Fig. 6).

The third kind consisted of cysts, varying from the size of a bean to that of a walnut. They all contained a pale brownish-coloured serum, and were lined by smooth glistening membranes. The serum consisted of a fluid, holding in suspension blood discs and colourless corpuscules in various stages of cellular development. The lining membrane of these cysts was pale, firm, non-vascular, and lined with a single layer of large flattened nucleated cells, the majority of which were studded with fat granules. This was particularly the case in the smallest cysts, the walls of which were very thick and hard. The latter were also very irregular in form, and resembled minute fissures with smooth walls.

Of the juice squeezed from fresh sections of the Tumor.—The substance of the tumor generally was firm, dense, udder-like, and yielded but little fluid on compression. Other parts, however, were softer, whiter, opalescent, and yielded more fluid. The first kind of juice exhibited under the microscope molecules and granules, oil granules and oil globules, a few small spherical

corpuscules and free nuclei, nuclear fibres isolated and in patches, and a number of blood discs. In the juice yielded by the whiter, softer, and less fibrous parts of the tumor, there were found the same elements, but in different relative proportions. The fat and oil were much more abundant; so also were the free nuclei and spherical corpuscules which were in advancing stages of development; and there were present also numerous granular fat cells (Plate XII. Fig. 7).

Of the general substance of the Tumor.—Minute inspection of the surface of a fresh cut section of the tumor showed that it consisted of coarse, firm areolæ, the interspaces of which were occupied by a matter paler in colour, and of less consistence. In particular parts the distinction between the areolæ and the contents was very marked. The areolæ appeared to consist of rolls of firm, fibrous tissue, whilst their contents were non-coherent, whitish-coloured, and opalescent.

Sections of the firmer yellow-coloured portions of the tumor were found to be made up of coarse areolæ of simple, waved, fibrous tissue, associated with fewer areolæ of nucleated fibres which, with irregularly caudate flattened cells, and a few free nuclei, filled the interspaces. The vessels were numerous, and disposed chiefly along the layers of simple fibrous areolæ.

Sections of the whiter portions of the tumor exhibited a somewhat similar structure. They were, however, much more vascular, contained a great abundance of fat, numerous free nuclei, caudate cells, and spherical nucleated corpuscules (Plate XII. Fig. 6).

It was impossible, on examining sections of the tumor, to avoid the conclusion that the areolæ and their contents represented closed cysts; that the former were produced by direct solidification of the fibrine, and the latter by metamorphosis of the white corpuscles.

The histological characters of this tumor appear to possess a peculiar significance, in relation to its origin and growth, to the origin and growth of analogous pathological products, and to the question of the transition of tumors which grow by simple development to those which grow chiefly by endogenous reproduction at the expense of adjacent tissues. But the consider-

ation of these relations would lead us to the enunciation of hypotheses which we could not expect to be received on such limited data, and it is better, for the present, that the association of facts here recorded should be left to the interpretation of collective experience and knowledge.

Report on the preceding Specimen.—The diseased mass connected with the lower part of the femur, for which Mr. Adams had performed amputation at the hip-joint, was chiefly made up of a dense, whitish tissue, interspersed with numerous cysts. In some parts the cut surface of this tissue presented several well-defined, lobulated masses, with all the characters of the compact, hard and glistening fibrous tumors, so commonly found in the walls of the uterus; in other parts, the fibres, strongly-marked and coarse-looking, were disposed in loose bundles; and in other parts again, there were no evident traces of fibres, but the structure was firm, compact, and opaque. The cysts were numerous, and principally occupied the looser parts of the tumor; some were not larger than a pin's head, but others were of the size of a large orange. In some parts, these cysts were well defined; in others, they were but roughly bounded; and their cavities were intersected by numerous bundles of fibres; they contained a thickish sero-sanguineous fluid, mixed with shreds of coloured fibrine. The firm, hard parts of the structure were near the bone, and the softer parts in the popliteal region, extending down into the leg, and far up at the back part of the thigh: it was in this part of the tumor, at its upper and lower boundaries, that the largest cysts were found. The disease had begun in the cancellous tissue of the condyloid portion of the femur, traces of which might still be found, in the shape of a thin shell of bone, over various points of the tumor; at the back part, however, it had burst through the bone, and it was here that the growth had evidently been making rapid progress of late. The shaft of the bone terminated abruptly a few inches above the knee-joint; beyond this point, the osseous tissue, save a little increased vascularity, presented no morbid appearances externally; and, as far as I could ascertain, its cancellous tissue was not diseased.

The bony growth, in the neighbourhood of the great trochanter, was a broadish, irregular ridge of newly-deposited bone, about an inch in length, and the third of an inch in depth. When cut into, it was found to consist of a loose, cancellous tissue, without any admixture of morbid structure like that of the tumor. In its whole appearance, it strongly resembled some irregular ridges of bone, which I have not unfrequently observed in the neighbourhood of the bony attachment of large and powerful muscles.

To the naked eye, the mass of this tumor presented all the characters of a large, rapidly-growing fibro-cystic tumor. None of its tissue yielded anything like cancerous juice upon pressure; immersed in water, the softer parts, readily absorbing the fluid, became quite succulent, but all that could be then obtained on pressure was the water which had been taken up.

In his report of the microscopical examination, Dr. Ogle states that, "the tissue was found to have a decidedly fibrillate character, owing to the existence of great numbers of elongated cells containing nuclei, and passing into fibrils. These cells were chiefly of a fusiform shape, fibres proceeding from either extremity; but several cells were visible, which at one extremity were rounded, and only had the fibre proceeding from the other extremity. The contained nuclei were single, and easily rendered conspicuous, as may be imagined, by the addition of acetic acid, which rendered the walls of the cells more or less transparent. Besides these cells, there were also several isolated nuclear bodies found in parts; but they were scanty compared with the numbers of nucleated cells, and also some amorphous granular matter, but this was likewise scanty, and existed chiefly among the lighter-coloured, tougher parts.

"From the microscopical examination, it will be seen," says Dr. Ogle, "that this tumor presented appearances, such as are common in growing fibrous tumors. Whether such appearances," he further states, "may not be common to tumors essentially of a different character, is a subject of paramount interest, but not involved in the simple description of the disease at present under consideration."

In its principal elements, this tumor strongly resembled two enormous fibro-cystic tumors of the uterus which have fallen under my notice. One, weighing fifty-four pounds, was intersected with numerous small, irregularly-bounded cysts; the other, filling the cavity of the abdomen, was thickly studded with numerous well-defined cysts, one of which had grown to such a size as to lead to the supposition that the disease was ovarian. The patient was tapped by Mr. Cæsar Hawkins, and fifteen pints of fluid were drawn off.

The development of a well-marked fibro-cystic tumor in the cancellous tissue of bone is a point of great importance in surgical pathology; and yet it is one which has been but little dwelt upon by authors, most probably in consequence of these tumors having, for the most part, been mistaken for cystic growths of an encephaloid or fungoid nature, to which they, at first sight, in many instances, certainly bear a very strong resemblance.

As far back as the year 1829, Sir B. Brodie, in describing the appearance of a large tumor connected with the lower end of the femur, states that its structure bore a nearer resemblance to that of fungus hæmatodes than of any other morbid growth; but, even at this time, Sir B. Brodie doubted the true fungoid nature of this tumor, and subsequent observations have led him to the conclusion that the disease was certainly not fungus hæmatodes. In an extremely beautiful drawing (which Sir B. Brodie kindly allowed me to lay before the Society), it will be seen that the diseased mass is made up of a firm tissue, variegated in its colour, and thickly studded with well-marked cells, some of which contained a solid matter, of no very distinct organization. The tumor occupied the condyloid portion of the femur, the shaft of which terminated abruptly about five inches above the knee-joint, beyond which point the bone presented a perfectly healthy appearance. The patient did well after amputation of the thigh, and there was no recurrence of the disease some years after the operation.

In another case, which fell under my notice in the wards of St. George's Hospital, in 1835, and where Sir B. Brodie ampu-

tated the thigh for a large tumor, also connected with the condyloid portion of the femur, the growth was made up of a dense, compact, whitish tissue, intersected with numerous cysts of various sizes. Here, too, the shaft of the bone terminated abruptly at the limits of the tumor, beyond which the osseous tissue appeared to be quite healthy. These appearances are admirably illustrated in another drawing, which Sir B. Brodie has also allowed me to place before the Society. The patient soon recovered after the operation, and was known to be in excellent health several years afterwards.

In the year 1844, I was asked by Mr. H. C. Johnson to see, with him, a gentleman, æt. 28, who for some four years had been suffering from a disease of the thigh-bone. The condyloid portion was occupied by a large, globular tumor, for the most part soft and elastic. There was no history of any accident, and there was little or no pain, but, as the patient's health was beginning to suffer from long confinement, and as all means of treatment had failed, amputation of the thigh was determined upon. The section of the tumor showed a dense, fibrous-looking tissue, thickly studded with numerous cysts, containing, for the most part, a sero-sanguineous fluid. The disease had begun in the cancellous tissue of the bone, the shaft of which terminated abruptly a few inches above the knee-joint; beyond this point, the osseous tissue presented a perfectly healthy appearance. The patient recovered rapidly, and is, at this time, ten years after the operation, in most excellent health.

Fibro-cystic tumors, in whatever part, or in whatever tissue developed, present, it must be borne in mind, in their different elements, a very great variety of appearances. In some the fibrous element is more or less well defined, and in others, it is so little marked that no evident fibres can be traced by the naked eye. In some, the structure is of a whitish hue, and in others it is more or less coloured according to its degree of vascularity. The cysts, too, may also vary very much in their appearance; in some of these growths, the fibrous tissue is thickly beset with small, well-defined cavities; and so numerous are these cysts in some cases, that the tumor appears, in parts, to consist of a congeries of thin, membranous cells; in other

instances, the cavities are less numerous but very large, and irregularly bounded. The contents of the cysts may also vary very much; thin, and of various colours in some, in others it is thick and inspissated, and in others again it may be solid.

The three preceding cases, which I believe to be fibro-cystic tumors of bone, are of great value, serving, as I think they do, to illustrate some of the varieties of the valuable specimen which Mr. Ward has presented to the Society. All four cases certainly bear a very strong resemblance to each other. In all, the disease had begun in the condyloid portion of the femur; in all, it had existed for several years; in all, the morbid structure was made up of a dense, more or less fibrous-looking tissue, intersected with numerous cysts; in all, the shaft of the femur terminated abruptly at the upper boundaries of the tumor; in all, the osseous tissue presented a healthy appearance immediately above this point; and lastly, in the three cases of patients who lived after the removal of the limb, there was no recurrence of the disease several years after the operation.

In the three cases which I have mentioned, it will have been observed that amputation was performed through the bone in which the tumor was seated, immediately above it, and yet there was no return of the disease. In Mr. Adams's case, amputation at the hip-joint was resorted to, in consequence, it appears, of the small osseous growth in the neighbourhood of the trochanter, which it was thought might be of the same nature as the disease in the lower part of the femur.

I purposely avoid, however, entering upon the difficult question, as to whether amputation should be performed through, or above the bone, which is the seat of a tumor of a doubtful nature, as I presume that the Society did not intend to have such a question discussed in a report of this kind.

Mr. Prescott Hewett, 18*th of April*, 1854.

VII.—DISEASES, ETC., OF THE EAR.

1.—*Disease of the Ear extending to the Brain.*

Captain S., æt. 45, at his death, was first seen by me in 1846 or 1847, in consequence of a polypoid growth occupying the left auditory meatus, and which, I had no doubt, proceeded from a diseased cavity in the tympanum.

The history was imperfect:—That he had been deaf in the left ear from boyhood, preceded by severe and sudden pain, and accompanied by discharge. He was improved by ordinary treatment.

In June, 1851, Captain S. again applied to me, now having two large polypi in the left meatus. He suffered from otorrhœa, deafness, and symptoms of irritation of the brain. His complexion was sallow, expression anxious and depressed; he was altogether much out of health. Upon removing the smaller anterior growth by the forceps, the operation was peculiarized by unusual hæmorrhage. The polypi being removed by escharotics, astringents, &c., he considerably improved both in general and local health, and left London.

In December, 1852, this gentleman was under the care of Mr. Allen, of St. John's Wood, his usual medical attendant in London, for disease of the urinary organs, disordered stomach and bowels, and the then furunculoid epidemic. He also suffered severely from neuralgic pains of the left side of the head and face, darting through the ear and head, and much aggravated at night, preventing sleep. The bowels were generally costive.

In January, 1853, I saw the patient again. The polypus had partially regrown; the head symptoms and neuralgia were rather on the increase, with occasional staggering; the digestive functions were impaired; intellect unimpaired, indeed he was a clever and well-informed man. Several cervical glands were considerably enlarged. The treatment was soothing rather than energetic, having reference to the great probability of the extension of the disease from the ear to the brain. During the treatment he occasionally complained of giddiness, and tem-

porary dimness of sight. I recommended him to return to his brother, a surgeon, residing in Durham, near the coast.

In November last, the patient's brother wrote me thus:—

"He has been in the North for some months, by your recommendation, taking advantage of the sea-side and country, and using pony-carriage exercise, whenever the weather permitted, but with all these advantages we cannot help seeing him very much changed for the worse. In walking he staggers like one much intoxicated, and his eye-sight is very much impaired. He also suffers much inconvenience from the swelling in his throat, almost choking him, at times, when he is eating. He is very lethargic, sleeping most of the day."

The writer then mentions the treatment pursued, with partial relief, and suggests his fear of the probability of organic disease of the brain.

On the 14th of December, 1853, he says:—

"Since I last wrote to you, my poor brother has been getting gradually worse. He is, at times, quite blind, and cannot move one step without much assistance, and for the last few days has suffered from pain in his head, with frequent flushings in the face, for which I have ordered leeches. His bowels are extremely obstinate, requiring very strong purgatives."

On the 25th of December, he writes:—

"I have followed up the remedies you suggested, and have at length got his system slightly under the effects of mercury, he having taken two grains of calomel, and three of blue pill every night, for the last fortnight, and the sarsaparilla and iodide of potass, twice a day, and used the counter irritation to the nape of the neck, and enemata; still his eye-sight has entirely left him, and he is now blind. On last Wednesday and Thursday he was much depressed by violent sickness, which subsided on the Friday, after getting the bowels well relieved, and he has been more composed since."

He died on the 30th; and here it might be observed that "all the senses excepting vision were perfect to the last, and the hearing more acute than in an ordinary person."

Post-mortem examination. — *The Head.* — "Externally, well developed. On removing the calvarium, the brain appeared

large; the vessels of the dura mater on the left hemisphere considerably distended with venous blood, and a slight extravasation near the longitudinal sinus. Close to this point were three distended tuberculous or medullary deposits, appearing like abscesses; the dura mater was almost ulcerated through, and there was considerable absorption of the cranium in consequence. There was no pus. The anterior lobes of the brain were softened, and about an ounce and a half of serous fluid collected on the orbital plates and base of the skull. The left lateral ventricle contained also a considerable quantity of fluid. The right hemisphere was healthy. The brain being entirely removed, a large fungoid tumor was seen on the left side of the cerebellum, proceeding from the internal ear, about the size of a hen's egg, forcing its way through the tentorium, and attached by fibrinous bands to the cerebellum, showing that extensive chronic disease had existed for some time. The cerebellum, generally, was much congested and softened in its structure."

This specimen, when further examined by Mr. Pilcher, showed that,—

The meatus contained two polypi, one lying upon the other and indenting it. They were united at the inner extremity, being expanded together and attached to the whole surface, or nearly so, of the mucous lining of the posterior wall of the tympanum: no trace of the membrana tympani, nor of the ossicles was detected. The auditory canal was perfectly healthy throughout its extent; not even deprived of its cuticle.

The inferior and posterior walls of the tympanum were ulcerated, and readily admitted a probe through the bone. Between the diseased bone and dura mater was a morbid growth, soft, easily broken down, of a reddish-yellow colour, about the size of half a walnut, both upon the under surface and the posterior. This mass did not communicate either with the interior of the tympanum or of the dura mater; and was evidently a product from the diseased bone. The dura mater appeared but little diseased, though somewhat thickened and opaque.

The large tumor resting upon the upper and anterior part of the cerebellum and under the tentorium, was divided into two

lobes—that is, what of it was removed from the body and transmitted to me—the posterior being the larger. Portions of the anterior mass had pushed their way through the upper surface of the dura mater, apparently without ulcerating it; and likewise into the lateral sinus; thus completely obliterating that vessel. The tumor presented a very limited attachment to the dura mater; and that only to the part immediately behind the petrous portion of the temporal bone.

A section of the mastoid process showed the cells to be generally healthy, but the probe very readily passed into and through the diseased bone from the cell opening into the tympanum.

The tumor was in too putrescent a condition to exhibit satisfactorily any microscopic appearances; but, as far as could be ascertained, it did not present a malignant structure.

Remarks.—Among the interesting deductions that may be drawn from this case, I may allude to the circumstance that it confirms what appears to be a general law in the progress of disease from the tympanum to the brain, subject, however, to many exceptions, namely:—that inflammation, either acute or chronic, more frequently the latter, extends inwards from each structure, and in each excites its own result; thus that suppuration and ulceration do not ordinarily proceed from the ear to the brain as such, but that the inflammation in each structure presents upon examination its peculiar consequence; for instance, I have frequently found the mucous membrane and the periosteum of the tympanic cavity both ulcerated and suppurating; the osseous walls inflamed to various degrees, but neither ulcerated nor necrosed; the dura mater in various conditions of inflammation and its consequences; the neighbouring portions of the brain inflamed, and containing an abscess quite surrounded by brain matter and forming no communication with the dura mater, much less with the tympanum, the seat of the commencement of the original disease. In the present instance, the disease, commencing in the cavity of the tympanum, extended to the bone, which ulcerated, and likewise produced its own growth upon its inner surface. Proceeding

onwards, the dura mater became hypertrophied, perhaps inflamed, but not ulcerated, neither did it suppurate, but it gave rise to the peculiar growth from its surface, which, by the irritation it produced and the mechanical pressure it exerted, occasioned the subsequent disease of the brain, and death. I am fully aware that the consequences of disease, as ulceration, suppuration, growths, malignant or mild, do extend from the tympanum through structure after structure, and implicate the brain; but I believe that mode of progress is the exception.

It is interesting also to notice how entirely free from disease the external auditory canal remained, not even being denuded of its cuticle, though, for several years, in the close vicinity of, and continuous with, diseased structures, and being pressed upon by fungoid vegetations.

Mr. Pilcher, 17*th of January*, 1854.

2.—*Anchylosis of the Stapes. Expansion of the Base.*

A man, æt. 78, was seen by me two years previously to his death, on account of his deafness. The history that he gave me was, that without any assignable cause, dulness of hearing gradually came on twenty years ago, and that it has gradually increased up to the present time. He now requires speaking to in a loud voice within a yard of the head. He complains of a rumbling noise in the head and ears. Upon examination, the watch was not heard, but the crack of the nail was distinctly perceived on the left side, but only faintly on the right. There was no deviation from the healthy appearance of the membrana tympani, excepting that each was more concave than natural. The Eustachian tubes were pervious, and air passed into the tympanic cavity each time the act of swallowing was performed, while the nares were held closed. From the history of the case, from the absence of all symptoms denoting it to be one of derangement of the nervous apparatus of the ear, *viz.*: he was not worse when tired, excited, or startled, or when he was weak, from the fact that the meatus, membrana tympani, and Eustachian tube, were healthy; the conclusion arrived at was, that

there was complete anchylosis of the stapes to the fenestra ovalis, and no treatment was pursued.

Upon making an inspection of the ears after death, the base of each stapes was found to be of a calcareous whiteness, very much expanded, and completely fixed in the fenestra ovalis.

Mr. Toynbee, 21*st of March*, 1854.

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3. — *Disease of the Ear affecting the Lateral Sinus and Cerebellum.*

The preparation was removed from a patient, who died in St. Mary's Hospital. Her age was 16, and she had complained of uneasiness in, and a discharge from, the left ear, during six months previously to her admission. Upon examination, there was observed a considerable tumefaction of the meatus at its posterior part, which was red, and there were two small round polypi on the membrana tympani. She was ordered gentle counter-irritation, and a weak astringent lotion was directed to be applied over and around the ear. She used this for a month, but the symptoms were aggravated rather than abated, and about the end of that time she complained of violent pain in the head, which went on increasing, and she died in three days after the appearance of the acute symptoms.

Upon a *post-mortem* inspection, on the left lobe of the cerebellum, at the posterior part of the petrous bone, was a dark-bluish patch, of the size of half a crown. The grey matter was very blue, to the extent of one eighth of an inch below the surface. There was a slight softening of the cerebellum beneath the discoloured spot. The dura mater forming the posterior wall of the lateral sinus, where it is situated in the temporal bone was of a dark colour, and soft; the sinus itself contained, at its upper part, a firm coagulum of dark-coloured fibrine, at its lower part it was filled by dark-coloured pus. The anterior wall of the sinus was attached to the sulcus lateralis much less firmly than natural. The tympanic cavity contained a considerable quantity of scrofulous matter, which, by its pressure on the posterior wall of the meatus, had produced a carious orifice in the bone.

The membrana tympani was thick and soft, and, on its outer surface were two dark-coloured polypi.

Mr. Toynbee, *4th of April*, 1854.

VIII.—MISCELLANEOUS SPECIMENS, ENTOZOA, TUMORS, ETC.

1.—*On the Trichina Spiralis.*

Our object, in the following paper, is to give a brief, but connected account, of a series of observations which we have made on the anatomy, degeneration, and development of the *Trichina Spiralis.*

The anatomy has already been described minutely, and, in many respects, accurately, by Professor Luschka. We believe, however, that but little attention has been hitherto paid to the subjects discussed in the later part of our communication, and, though we have investigated them somewhat laboriously, we feel that a great deal remains to be done before the whole truth can be looked on as established, or even before our own views can be unhesitatingly admitted.

The patient in whom the parasite was discovered was a man, æt. 56, who died in St. Thomas's Hospital, of associated pulmonary and cardiac affection. His leg had been amputated by Mr. Solly, about five or six years before death, and since that time he had been constantly about the Hospital. There is no record of any unusual appearance in the muscles of the amputated limb, and at no subsequent period had there been reason to suspect the existence of any imperfection in the muscular system. The diseased condition, which consisted in the presence of large numbers of small, white, oval, or fusiform bodies, which were distinctly visible to the eye, and the direction of which corresponded to that of the muscular fibres, was observed, though unequally marked, in all the striped muscles that were examined, with the exception of the heart, and nothing similar to it was recognized in any other tissue of the body.

On microscopic examination, it was ascertained that, in the

DESCRIPTION OF PLATE XIII.

The figures illustrate Dr. Bristowe's (and Mr. Rainey's) Observations on the Anatomy of the Trichina Spiralis. Page 274.

Fig. 1. Trichina spiralis. *a a a.* integument; *b b b.* muscular layer; *c.* mouth; *d.* anus; *e.* œsophagous; *f f.* alimentary canal; *g.* funnel shaped portion, with pyriform bodies at its base; *h.* tube connected with reproductive process; *i.* yellow deposit in it; *j j.* space between muscular layer and parts internal to it. It terminates above in minute points.

Fig. 2. The same less magnified, intended to show better the relative size and situation of parts. The letters indicate the same structures as in the preceding.

Fig. 3. The same with its surface in focus, to show one of the longitudinal muscular bands.

Fig. 4. Fragment of the anterior part of the worm, with the alimentary canal protruding, and apparently exhibiting a central tube.

Fig. 5. Fragment of posterior part of worm. The generative tube, *h*, protrudes, and its cellular structure is exhibited. A portion of the alimentary canal is likewise exposed. At this part it is contracted, and consists apparently of a structureless membrane studded with refractive globules.

Fig. 6. Generative tube acted on by acetic acid. The cells are heaped together, and the basement membrane is seen.

Fig. 7. Integuments of the lower part of the worm from which the entire contents have been separated by endosmose. The crenate appearance lost, and the prolongation into the anus is visible.

Fig. 8. Appearance frequently presented by fat formed either free among the muscles, or connected with Trichina cysts.

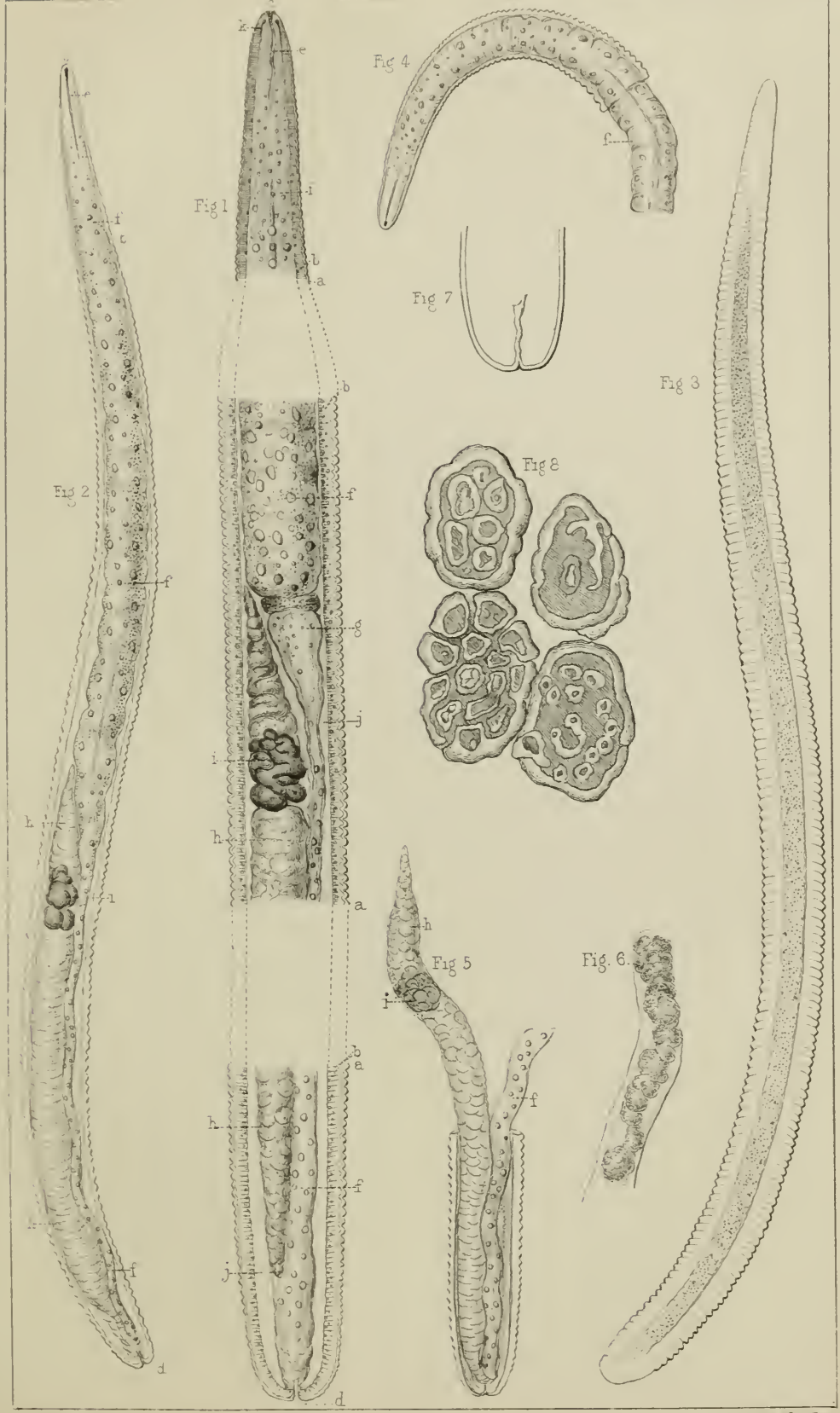


Fig 1
Fig 2
Fig 3
Fig 4
Fig 5
Fig. 6.
Fig 7
Fig 8

situation of nearly every one of these white spots, there was, more or less enveloped in fat, a small ovoid cyst, which frequently contained a well-formed worm, coiled upon itself, but which even more frequently presented an imperfect animal, or no animal whatever, being either apparently empty, or filled with fat, or encroached on by earthy deposit.

Now, quite irrespective of the suggestions which these different appearances give rise to, it might reasonably be inferred that where so large a number of beings, limited as to their term of life, are disseminated throughout the human frame, they would be present in various stages of development; that some would be in course of formation, others would be matured, others, again, in process of decay; and that examinations conducted with even ordinary care, could scarcely fail to recognise many, at least, of the different epochs in their existence. This we have endeavoured to effect, and in order that the account of our investigations may be as complete as possible, we shall arrange our description of the animal under three heads, which we propose to discuss as follows, in the order of convenience, rather than that of nature.

1. The anatomy of the adult worm and of the structures developed in connection with it.
2. The changes which accompany, and indicate its decay.
3. The mode in which it is developed.

1. *Anatomy of the adult worm and of the structures developed in connection with it.*—In all stages of development, and in nearly all cases, the Trichina-cyst is situated in the centre of a fusiform collection of fat, the long axis of which is coincident with that of the cyst (Plate XIV. Fig. 1); or, in other words, connected with each pole of the cyst there is a cone of fat, the base of which is moulded on the cyst, while its apex points in the opposite direction. The magnitude of the cones, and consequently the amount of fat in them, varies considerably; sometimes they are three or four times as long as the cyst to which they are appended, sometimes they comprise merely three or four fat cells, usually, however, their size is intermediate between these extremes, and occasionally a cyst is buried in a

mass of adipose tissue. Still the amount of fat present in any instance appears to bear no relation whatever to the age of the cyst. It is a somewhat remarkable circumstance that the muscles in this case present numerous collections of fat, which are clearly unnatural, and yet apparently unconnected with the presence of any of the Trichinæ, and that these collections, though varying within certain limits, in shape and amount, are usually fusiform, and similar in other respects to those developed in connection with cysts.

The tissue above described is absolutely fat; that is to say, it consists of cells equalling in size those of normal fat, rendered polyhedral by mutual pressure, and filled by a transparent fluid, which is soluble in ether, and which escapes in the form of oil-globules when the cell-walls are ruptured; yet for all this, it presents, in many instances, certain peculiarities which appear to distinguish it from the fat in other parts of the body. In the first place, the interior of the cells is often studded with minute acicular crystals, composed, apparently, of stearine, and, in the second, many of the fat cells manifest a tendency to division and vacuolation (Plate XIII. Fig. 8). In the few cases where the latter process only has taken place, the cells are tuberculated on the surface, and consist of a thick refractive crust circumscribing a central cavity; but in most instances both processes have concurred, under which circumstances the cells are divided into a number of irregular masses of various sizes, each of which is excavated more or less perfectly in the way above described, the margin of the original cell being, however, generally still indicated by a thick, but somewhat uneven refractive frame.

The latter peculiarity is the most important one, but it is by no means constant, and its presence or absence is determined by no evident rule. The best specimen we met with was, certainly, in the neighbourhood of a cyst in process of formation; still it was so often observed connected with perfect cysts, or even with such as were in a state of decay, and on the other hand it was so often absent in the case of developing cysts, that, though it clearly indicates a peculiar property in the fat, it obviously is in itself an unimportant and accidental modification, and in no way

connected with the development, or any other condition of the parasite. It may be added, that almost invariably, in each collection of fat, the character of the component cells is uniform, and also that the fat contained within any cyst always presents the same appearance as that external to it.

The muscular fibres are displaced by the presence of the cysts and their polar fat, and appear connected to these structures by the same means and in the same degree that they are connected to one another, but no further. We are unable to recognize any adventitious formation, or any condensation of tissue analogous to the Hydatid cyst, or to which the term cyst can be applied, independently of that which essentially belongs to the parasite itself. The muscular fibres in the immediate vicinity of the cysts are almost always studded, apparently on the surface, with minute molecules of oleo-albuminous material, but in every other respect they present a healthy appearance. This deposit, which was too frequently met with to allow of its being looked upon as an accidental appearance, resembles the material found in the interior of the perfect Trichina-cysts. Its absence was most frequently, if not solely, observed in the neighbourhood of cysts in process of formation.

Structure of the Cyst.—The shape of the cyst (See Plates XIV. and XV., and especially Plate XIV. Fig. 1) is generally ovoid, measuring about $\frac{1}{70}$th of an inch in the long diameter, and about $\frac{1}{100}$th of an inch in the short; occasionally it is pyriform, sometimes globular, but very frequently the extremities are more or less elongated or otherwise altered in form. In some cases, the poles are prolonged and attenuated, so that the cyst is rendered fusiform; in some they present nipple-like projections of various sizes, in others they form irregular protuberances, and more than once a cylindrical process was observed about equal in length to the cyst from which it sprung. These modifications of form sometimes exist at one or other extremity only of a cyst, but more usually they occur in both situations at the same time, and, as before hinted at, are frequently altogether wanting. The cavity of the cyst is more uniform in shape, being ovoid, pyriform, or globular, according to the general form of the exterior, but it never extends into the polar enlargements, or

takes any part in their formation. The walls are of considerable thickness, and vary between $\frac{1}{700}$th and $\frac{1}{1500}$th of an inch at the sides. They are usually a little thicker at the ends than elsewhere, even if the shape of the cyst is regularly ovoid; but when enlargements occur at these points, the thickness of the walls becomes increased in proportion to them. The parietes consist essentially of a transparent, refractive, laminated material, which is often rendered opaque by a deposit of minute granules. This deposit is generally more copious on the outer than on the inner surface, and diminishes through the thickness of the wall from one to the other, but occasionally it is most abundant on the inner aspect, and becomes less so towards the outer. In nearly every instance it is most dense at the poles, and especially so if they present conical or other enlargements, under which circumstances these often appear perfectly opaque and black to transmitted light. In many cases the granular formation is altogether absent, but, in the majority of instances, a greater or less amount is present, and oftentimes it is so abundant, as almost, or even entirely to conceal the cyst-contents. Its absence or presence, or its amount, when present, seems quite a matter of accident, and is perfectly unconnected with the age of the Trichinæ; it is quite as abundant in some of the forming and adult cysts as it is in the degenerating ones, and both the degenerating and fully-formed cysts are often totally free from it. It is rapidly dissolved in hydrochloric acid without any appearance of effervescence, and probably, therefore, consists of phosphate of lime.

In cysts which have been rendered transparent by the action of acid, or still better in those which are naturally clear, the structure of the walls is easily recognized. They are distinctly laminated, but the concentric lines indicating this arrangement are not nearly so sharp and well-marked as those characterizing the Hydatid membrane. Now and then, but comparatively rarely, one of these lines can be distinctly traced all round, and the Trichina cyst then seems to be divided into two more or less distinct capsules; this appearance, however, is clearly an accidental one, and cannot be considered to indicate an organic distinction, for it is certainly absent in the great majority, and

even when present, the parts external, and those internal to it, present precisely similar anatomical characters. Generally, the laminæ are partially separated, here and there, from one another, the resulting spaces being either empty, or filled with granular matter, or containing a few small nuclei, like those afterwards to be described. Such spaces, though not altogether wanting in the sides, are most abundant at the ends, and on their presence, the slight increase of thickness at these points is generally dependant. Further, in all those cases in which enlargements, whatever their form, occur at the poles, they are due to a similar but much more extensive separation. In some of them the enlargements are simply dependant on a series of separations, placed directly one over the other, but in most of them they are wholly or in great measure produced by a single large interval, which contains either one or more fat cells, or a refractive earthy concretion, soluble with effervescence in hydrochloric acid, or a few nuclei enveloped in granular matter. Although, from the account we shall give further on, there is good reason to suppose that the earthy deposit is a later appearance than the fat, and an indication of decay, still, it must be confessed, that it is sometimes present in the poles of cysts which contain perfect animals, or animals in an embryonic condition; while, on the other hand, fat still persists in the extremities of some of those that are in progress of decay.

Fragments of the laminæ entering into the formation of the cyst-walls are often accidentally detached, and their structure becomes apparent (Plate XIV. Fig. 2). At first sight they appear to consist of uniform and parallel fibres, but they are really rather to be looked on as portions of a membrane which is marked by parallel lines or depressions, arranged at equal intervals; for they retain, under all circumstances, their membranous character, and never become resolved into simpler anatomical elements. The structure is certainly different from anything we have ever seen in any kind of false membrane, and cannot be confounded with any such formation.

Contents of the Cyst. — The worm is not present in every cyst; and even when present is often in a state of decay, or in process of formation. We have never, under any circumstances, seen more

than one in a cyst; and, indeed, from the manner in which the occurrence of two or three in such situations is generally alluded to, we suspect that it has been hastily admitted, and that it is probably an error. In its normal condition the worm generally forms a spiral of two, three, or even four turns, the axis of which corresponds either to the long or to the short diameter of the cavity in which it lies. (Plate XIV. Fig. 1.) The curvature seems always to take place in one direction, so that, except some alteration in this respect has been produced by violence, the different parts always hold the same relative position to the eye of the observer. The material which fills up the space around the worm is often somewhat opaque, and consists of refractive molecules and globules of various sizes suspended in an apparently viscid fluid; at all events the material, after its escape from the cyst, retains, for a time, the form impressed on it at the time of its exit. (Plate XIV. Fig. 3.) We have never detected in it anything that could be called a nucleus or a cell.

The worm (Plate XIII. Fig. 2), measures about $\frac{1}{35}$th of an inch in length, and $\frac{1}{720}$th of an inch in thickness; it tapers gradually towards the anterior extremity, which is somewhat sharp; and again, but in a less degree, towards the posterior, which is obtuse and rounded. So far as we have been able to ascertain, it presents a distinct integument, lined throughout by a muscular layer; an oral and an anal orifice, and an alimentary canal passing directly from one to the other; in addition to which, there is in its posterior third another tube, which is probably connected with the reproductive function.

A. The integument (Plate XIII. Figs. 1 and 2) is distinctly visible at every part of the surface; it is transparent and homogeneous, and its thickness, which is about $\frac{1}{16000}$th of an inch, but which diminishes towards the extremities, is indicated at the apparent margins of the animal by two sharp, parallel, finely-crenated lines, which correspond respectively to its inner and to its outer surface. The crenations are the lateral manifestations of alternate annular constrictions and elevations which exist throughout the entire length of the worm, but which are less distinct and altogether smaller at the ends than in the intermediate parts. When the body is distended from endos-

mose (Plate XIII. Fig. 7), the annular markings disappear, and the lines indicating the thickness of the skin become straight and parallel, so that the crenated appearance is not dependant on varying degrees of thickness in the integument. On one occasion when thus distended, all the soft parts in the neighbourhood of the anus were separated in mass from the integumentary covering, and it was clearly seen that the latter was prolonged inwards for a short distance, as a lining to the lower part of the excretory apparatus (Plate XIII. Fig. 7).

B. Immediately within the integument is a layer of variable thickness (Plate XIII. Figs. 1 and 2), generally three or four times that of the former, which consists of a soft, transparent, faintly-yellowish material, the outer part of which is structureless, while the inner is studded with minute refractive granules. Its external surface is pretty firmly adherent to the inner surface of the skin, but its internal aspect, which is somewhat irregular and soft in outline, seems unattached to the structures with which it is in contact. This layer lines every part of the integument, but exists in diminished quantity in the neighbourhood of the head and tail. In the latter situation it is reflected on to the internal prolongation of the skin, but soon becomes undistinguishable; at the opposite extremity, where it loses all traces of granularity, it appears to become continuous with the parietes of the œsophagus. The existence of this layer is tolerably manifest in most of the animals even in their entire state; it becomes clearly evident when, from accidental contraction of the structures internal to it, a vacant interval is formed between them; and when the contents of the worm protrude either in the form of a hernia or from a divided end, its torn extremities are always distinctly visible. Besides this expansion, which seems completely to invest the animal, there are two bands (Plate XIII. Fig. 3.) passing from the neighbourhood of the head to that of the tail, one situated on its upper, one on its under surface. They measure about one-third the breadth of the body; their margins are indicated by distinct parallel lines, and their substance by a minutely granular appearance, much like that observed in the inner-half of the layer before de-

scribed. These bands might easily be mistaken for a central cylindrical canal, but by careful adjustment of the focus it may be easily ascertained that such is not the fact; for they are invisible when the axis of the worm is in focus, but become evident when either its upper or under surface is brought into view. The uniformly-diffused layer and the longitudinal bands seem identical in structure, and are both partially dissolved and expanded by acetic acid. There can be little doubt, we think, both from their character and from the position they occupy, that they are to be looked on as a muscular development.

c. The oral aperture (Plate XIII. Figs. 1 and 2, *c.*) occupies the extreme anterior point of the worm, is generally well-marked, and may appear either as a conical depression, a minute papilla, or a circular, or ovoid spot. The anal orifice (Plate XIII. Figs. 1 and 2, *d.*), situated in the centre of the opposite extremity, is equally distinct, and is generally indicated by a slight depression.

The intestine (Plate XIII. Figs. 1 and 2, *fff.*), in the anterior two-thirds of its course, presents a tolerably uniform character, and in its normal state completely fills the cavity of the worm, although it seems to be unconnected with the muscular layer, and often becomes separated to a greater or less extent from it. The commencement of its canal, or the cavity of the œsophagus, may be easily recognised in the transparent anterior extremity of the animal, by the inner surface of its walls, which appears as two parallel, straight or sinuous lines, separated by a slight interval. These can be traced directly from the oral orifice, but after a short course they become indistinct, being concealed by the gradually accumulating granular matter around them. External to this, and about half way between it and the margins of the animal, two other lines may be recognised, one on either side, each of which begins in a minute transparent point (Plate XIII. Fig. 1, *k.*) immediately below the mouth. By tracing the lines backwards it becomes apparent that they represent the anterior portion of that interval which exists between the muscular coat and the intestinal wall, which structures become continuous above the bright spots just mentioned. In the remainder of its course the anterior division of the intestine gradually increases

in size until it attains its full diameter; and its structure, in some respects, is rendered more distinct. Its character may be sometimes discernible while it is still *in situ*, but it is best recognised when a portion projects from a broken end (Plate XIII. Fig. 4). It is distinctly sacculated, transparent, and contains a considerable number of round, or irregularly-shaped refractive, slightly yellowish bodies, of large comparative size, which are clearly within it, but appear to be situated in its periphery. The axis of the sacculated intestine seems to be occupied by a cylindrical canal, which is always more or less indistinct, and which is probably the true intestinal cavity continued directly from that of the œsophagus, while the tissue around it, that is, between it and the surface of the intestine, is most probably the direct continuation of that which forms the walls of the œsophagus. But whether it is to be looked on merely as the intestinal wall, or whether it is developed for the purpose of ministering to any special function, or whether it is the true parenchyma of the animal, may be a matter of doubt. The tissue swells up under the influence of acetic acid, but it is not solid, for, on pressure, the globules which it contains may often be made to move from one part to another, or to escape through an accidental wound.

At the commencement of the posterior third of the worm the intestine becomes abruptly funnel-shaped, and in the rest of its course forms a slender, slightly-meandering canal (Plate XIII. Figs. 1, 2, and 5), which occupies the concavity of the worm, and becomes a little expanded just above the anal aperture, with which it appears to communicate by a short contracted tube. We have never been fortunate enough to obtain the funnel-like portion (Plate XIII. Fig. 1, *g.*) in a free state, yet we have seen it so distinctly in several instances while *in situ*, that we entertain no doubt of its existence; and of the presence, moreover, at its junction with the sacculated portion of the intestine, of two small, lateral, pyriform, yellowish offshoots. We suspect that the funnel-like appearance is due to the gradual diminution of the tissue around the proper intestinal canal, and that the continuation of the latter alone forms the remainder of the intestine. This possesses, we believe, membranous

walls, which are invariably characterised by being studded with numerous globular refractive bodies of uniform size; but we do not recognise in it either nuclei or an epithelium. We believe that it forms a direct communication with the anus, and that we have several times seen that communication, but it is so obscured by the presence of the second canal, and of other tissues, that it may be, perhaps, unsafe to speak positively on the point.

D. Besides the intestinal canal, there extends through the posterior third of the animal, and occupying its convexity, another tube, which is of large size, and often fully half as thick as the body of the animal (Plate XIII. Figs. 1, 2, and 5). It terminates above in a blind conical extremity, the apex of which corresponds in situation to the base of the funnel-shaped portion of the intestine. Its lower extremity is not so distinct; sometimes it has appeared to end in a narrow cæcum, a little anterior to the termination of the intestine; but at other times we have seen it continued directly to the anus, so that there can be little doubt of its communication with that orifice. This tube differs remarkably in structure from every other part in the animal, and presents no trace of the granules and globules so abundant elsewhere. When seen in its normal position, it presents a delicately mottled appearance; when free, and we have sometimes had it with its conical extremity projecting (Plate XIII. Fig 5.), it may be seen distinctly that this mottled appearance is due to the fact of its cavity being occupied by polygonal, non-nucleated cells, of various sizes, which sometimes seem arranged so as to circumscribe a central canal, but which generally appear to fill the entire tube. By the employment of acetic acid we have more than once seen a delicate basement membrane lifted from the mass of cells, so that there can be little doubt that the tube is to be looked on as a true canal lined by a proper epithelium (Plate XIII. Fig. 6). At the upper part of this tube, and at the base of its conical extremity, the yellow mass (Plate XIII. Fig. 1, *i*,) observed by Dr. Farre, is often, though not always seen: it appears to us to be due to a deposit of yellow, oily matter, probably in the interior of the cells. It occupies the entire thickness of the tube, but a variable

portion of its length; when it escapes, it runs into yellow oil-like globules of different sizes.

The above description of the cyst and worm resembles in most particulars that given by Professor Luschka in his valuable paper published in the third volume of Siebold and Kölliker's "Zeitschrift für Wissenschaftliche Zoologie;" still, it differs from it in many points, and to the most important of these we will now draw attention.

1st. This gentleman considers the Trichina-cyst to be double, the outer part belonging to the human being, the inner to the worm; and he describes a special arrangement of vessels developed in connection with the outer membrane. The existence of blood-vessels around and upon the cysts we do not doubt, but we question the importance which he attaches to their presence, believing them to be merely the proper vessels of the muscle displaced by the cyst, and spread out on its surface; and at the same time, for the reasons before given, we have no hesitation in affirming that the cyst is essentially one, and the property of the parasite itself.

2nd. In describing the anatomy of the worm, he states that the parietes of the posterior third of the alimentary canal are formed of hexagonal cells. This appearance we have not recognised; but with regard to the second tube occupying this portion of the animal, we have observed, beyond a doubt, that it possesses an epithelical lining, a fact which he does not appear to have remarked.

3rd. He states that both the intestine and the tube connected with the generative process end by free extremities in the posterior part of the worm, and that the anal end of the animal presents three flaps. Now we are confident all this is erroneous; the flaps have no existence, the posterior extremity being rounded, as in our drawings, or, at most, slightly indented; and the canals, instead of ending freely, are prolonged directly to the anus itself, or are attached to it through the medium of other structures.

4th. He imagines that the tube in the posterior third of the worm is a testicle, and that the sacculi or some other parts in connection with the intestine form an ovary. This view may

or may not be correct, but certainly we do not think he has brought forward sufficient evidence in support of it. In fact, in our opinion, one of the chief reasons he advances for considering the latter an ovary, namely, that it presents bodies like those occupying the cavity of the cyst, appears opposed to his opinion rather than in favour of it; for, in the first place, in neither situation have the bodies any character that would warrant one in believing them to be eggs; and in the second, it seems very unlikely that the eggs should be so frequently and so numerously deposited in situations so inappropriate for their development.

5th. He describes the Trichina as being remarkably tenacious of life, and his description of its movements is so minute and careful that we can scarcely fail to be convinced of the correctness of his conclusions; most of the specimens we have more recently examined have been preserved in glycerine, and often, even up to the time of writing this paper, six or eight weeks after the *post-mortem* examination at which they were discovered, we have distinctly seen them, when removed from their cysts, perform motions that it was difficult to believe were not the manifestations of life. On the whole, however, the conclusion at which we have arrived is, that they probably depended on the absorption of fluid from endosmose into the body of the worm.

Finally. There are other minute differences between us, both in the description of the cyst and in that of the worm, but it seems unnecessary to dwell upon them, for, to the majority of readers, they would probably be uninteresting, while those who take a deeper interest in the subject will scarcely fail to refer to Professor Luschka's own description.

2. *Degeneration of the Trichina.*—The contents of many of the cysts differ materially from the contents of those we have hitherto described, and the appearances are such as can only be the result of their death and degeneration. It is worthy of remark, however, that the walls of such cysts seem almost invariably to present as complete and healthy a structure as those which contain the most perfectly formed animals.

DESCRIPTION OF PLATE XIV.

The figures illustrate Dr. Bristowe's (and Mr. Rainey's) Observations on the Degeneration of the Trichina Spiralis. Page 274.

Fig. 1. Trichina cyst. *a.* polar fat; *b b.* laminated walls; *c.* granular matter inside; *d.* worm.

Fig. 2. Fragment of one of the laminæ, showing its fibrous appearance.

Fig. 3. Material filling the space between the worm and the cyst wall.

Figures 4 to 7 illustrate the process of decay.

Fig. 4. The worm only is here affected. In some parts it is collapsed; in others its interior is studded with opaque masses of earthy granules; and towards its anterior extremity the earthy deposit forms a tuberculated refractive mass.

Fig. 5. The worm only is affected; but, in addition to being infiltrated with earthy matter, it is broken into a number of fragments.

Fig. 6. In addition to degeneration of the worm, the cavity of the cyst is occupied by numerous refractive globules of carbonate of lime.

Fig. 7. The earthy deposit here forms an irregularly ovoid concretion, which fills the cyst; and on one side of which remnants of the Trichina may be seen.

Fig 4

Fig 1

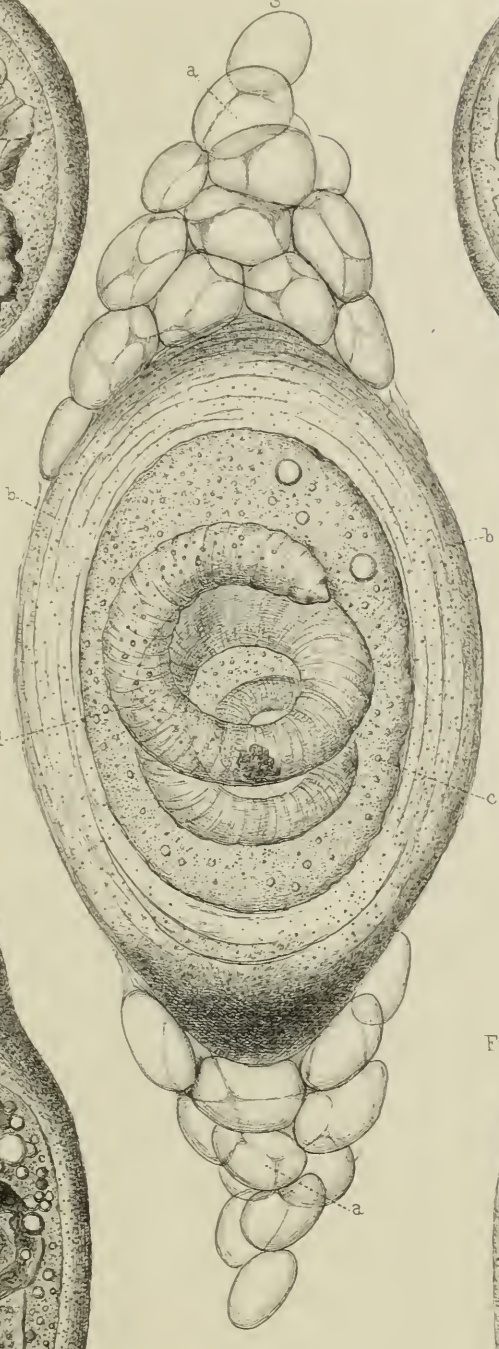


Fig 5.

Fig 2

Fig 3.

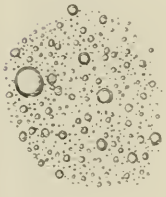


Fig. 6

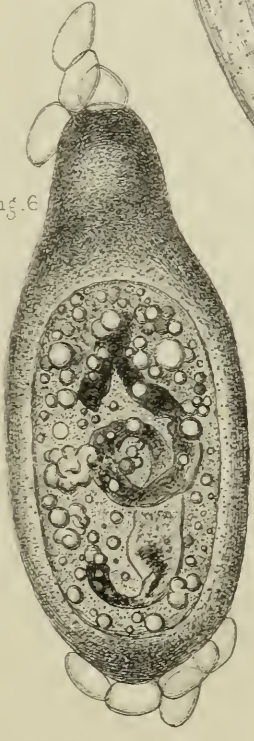
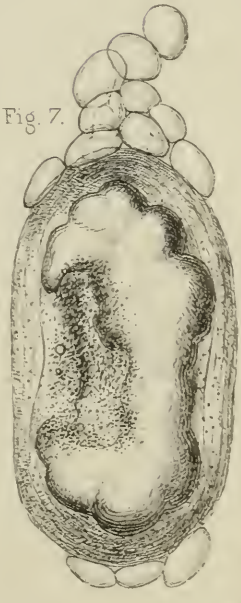


Fig. 7.



The abnormal appearances alluded to are due to the deposit of earthy matter, at one time confined to the worm itself, at another time, perhaps, to the space around it, but mostly occurring in both situations at the same time, though not always in a proportionate degree.

In those cases where the worm only is affected, it appears, in the first instance, to become irregularly collapsed and flattened, all distinct evidence of internal organisation disappears, and even its annular markings are often altogether obliterated. Its interior becomes studded with opaque irregular masses of granular matter, which are sometimes pretty uniformly diffused through it, but are generally aggregated in certain spots, the intervals between which remain tolerably transparent. In a later stage the opaque deposit is less abundant, and the substance of the worm is infiltrated, more or less, by a refractive, slightly tuberculated material; but as both forms are soluble in hydrochloric acid with effervescence, it seems probable that the different appearance of the deposit in the latter case is due to the coalescence of the juxtaposed and originally distinct earthy granules constituting the opaque masses (Plate XIV. Fig. 4). Even in the earlier stages there is a tendency in the degenerate worm to become broken transversely, but this brittleness is much more marked in the later periods; and frequently cysts can be seen filled with small oblong fragments, partly refractive, partly opaque, which are clearly the remains of their calcified occupants, and which frequently so far retain their relative position as to indicate the course of the original convolutions (Plate XIV. Fig. 5). Associated most frequently with this degeneration of the animal, is observed a deposit in the cavity of the cysts around it, which varies in amount, and is sometimes so abundant as totally to conceal the remains of the worm. This deposit may be described as existing under three forms, which, however, merely represent successive stages in its formation, and not essential differences. In the first and earliest condition, it consists of bright refractive, slightly yellowish, globules, varying from about the $\frac{1}{1000}$th of an inch in diameter downwards, and looking so exactly like oil, that they can only be distinguished from it by the action of re-agents. Often merely a few

of these are apparent, but sometimes the cyst is so completely filled by them, that the worm, if present, is quite invisible (Plate XIV. Fig. 6). In the second condition the deposit partly exists under the form of distinct globules, but partly, also, consists of tuberculated masses of various, and often considerable size, which appear to originate in the coalescence of the former. In the third and last form, the cyst is filled by an ovoid semitransparent concretion, which generally has a faintly yellowish hue, but sometimes an inky tint, and, in the centre, or at the side of which, the collapsed and opaque remains of the worm are more or less distinctly seen (Plate XIV. Fig. 7). Concretions of this kind readily crack under pressure, and some even appear to have become fractured independently of *post-mortem* violence. All the varieties of deposit above described, whether occurring within the body of the animal, or external to it, dissolve readily with copious effervescence in hydrochloric acid, so that they evidently consist, in part, at least, of carbonate of lime. In every case, without exception, it seems to differ in chemical composition from the granular material deposited in the walls of the cysts, for, as has already been stated, no effervescence accompanies the solution of the latter in acids. Indeed it is curious to watch the action of this re-agent under the microscope. Its passage through the cyst wall is indicated by the gradual disappearance from without inwards of the granules there deposited, without any accompanying evolution of gas, but no sooner has it permeated the walls, and reached the contents, than violent effervescence ensues, which ceases only when all the earthy material occupying the cavity of the cyst is dissolved. After the earthy matter has been removed by this means, the indistinct remains of the worm are nearly always visible, and generally a greater or less amount of albuminous material and oil is left, which have either formed the organic basis of the earthy matter, or are the remnants of the material which originally occupied the cavity of the cyst.

From the above description it follows, that the death of the Trichina is characterized by the appearance of earthy matter, both in the substance of the animal and in the space around it; that in the former it is deposited in the shape of amorphous

granules or minute spherules, which ultimately coalesce to form a transparent homogeneous mass; that in the latter it appears in the form of globules of various sizes, which simulate oil in a remarkable manner, and which, after a time, run together, and finally produce a solid cast of the Trichina-cyst, which probably remains in the situation in which it was formed as a permanent, innocuous, foreign body. The very nature of the process seems to indicate that it is one of decay, and that it actually is so is abundantly confirmed by the fact, that it is essentially identical with the process of degeneration as it occurs in an analogous parasite, the common hydatid.

Development of the Trichina.—The subject of the development of the Trichina, which it may be thought should have formed the first, or, at all events, an earlier part of this paper, we have reserved till now, partly because it has been less completely investigated, and partly because our views with reference to it could only be thoroughly explained after the structure of the animal and its mode of death had been duly appreciated.

Before giving our explanation of the facts observed in relation to this part of our inquiry, we will briefly state the facts themselves, taking no further liberty with them than that of arranging them in what appears, to us, to be their chronological order.

1. In an earlier part of this communication, we have mentioned that not only is nearly every cyst situated in the centre of a certain amount of fat, but that, besides this, the affected muscles are studded with deposits of adipose tissue, which clearly are an abnormal development, associated in some mysterious way with the presence of the parasite, and yet, apparently, not directly connected with any Trichina-cyst. Some of these collections consist merely of three or four fat vesicles, variously arranged; others, of a very large number, irregularly clustered; whilst the majority form fusiform masses, equalling in size and shape some of those in which are situated perfect cysts.

2. At the centre of many masses of fat, in other respects resembling those last mentioned, an ovoid portion, exactly

similar in size and shape to a perfect Trichina-cyst, is marked off, more or less distinctly, from that around it. Sometimes the separation seems to be merely due to a slight difference in the arrangement of the fat cells; those forming the periphery of the ovoid mass being somewhat flattened on the surface, or in some way or other more definitely arranged than those in their immediate neighbourhood. Sometimes a similar portion is partially surrounded by a transparent homogenous membrane, of varying thickness, sometimes by a deposit of granules, identical in appearance and composition with those occurring in the walls of more perfect cysts. (Plate XV. Fig. 1). The presence of the latter is probably to be looked on as accidental, but it is, to a certain extent, of value, inasmuch as by its opacity it serves to point out the existence of a wall in situations where no membranous formation is visible. These indications of a cyst-wall are generally somewhat unequally distributed, being sometimes more marked at one end than at another, and sometimes more visible at the sides than at either extremity. In every case the fat within them is precisely similar to that without.

3. In other cases may be detected cysts with the sides perfect, of normal thickness, laminated, with or without granular deposit, but with one or both of their apices deficient, so that the fat which invariably fills them is directly continuous through the deficiencies with that external to them. (Plate XV. Fig. 2.)

4. Perfect cysts, occupied by fat, which accurately resembles that on the outside, and yet is perfectly separated from it, are present in tolerable abundance. In many of these, globular or lenticular granular nuclei (Plate XV. Fig. 9.), about the $\frac{1}{4000}$th of an inch in diameter, are seated between the interior fat and the cyst-wall, and are generally clustered in the small angular intervals formed by the divergence of contiguous fat cells. (Plate XV. Fig. 3.)

5. Others are to be met with which contain large numbers of nuclei, but few or even no fat vesicles. (Plate XV. Fig. 4.)

And lastly, Many cysts may be observed which present imperfect worms, that is, worms in which both internal and external organization are more or less indistinct, yet in which

DESCRIPTION OF PLATE XV.

The figures illustrate Dr. Bristowe's (and Mr. Rainey's) Observations on the Development of the Trichina Spiralis. Page 274.

Fig. 1. represents a fusiform collection of fat, in which an ovoid central portion is becoming separated from the rest by an indistinct membrane, which, in this instance, is almost solely indicated by the accompanying granular deposit.

Fig. 2. The sides of the cysts are here tolerably perfect, but the ends are incomplete, so that the part within still communicates with that without.

Fig. 3. The cyst is complete. Its cavity is filled with fat, and between the contained fat and the cyst wall several nuclei may be detected.

Fig. 4. A cyst containing the fat cells and large numbers of nuclei. Its inner surface is somewhat irregular, an appearance occasionally present in the young cyst.

Fig. 5. A cyst containing fat and nuclei; but in addition to these there is an imperfect worm.

Fig. 6. Cyst presenting an imperfect worm. The latter exhibits no indication of organisation, but consists, apparently in great part, of masses of oily substance, in which there is a tendency to the same process as that represented in the fat found in certain other parts. (Plate XIII. Fig. 8).

a a. Concentric bodies or cells.

Fig. 7. Cyst containing an imperfect worm and large numbers of nuclei. The worm is somewhat irregular in outline, and appears to be made up of an oily-looking material. Around it, occupying the cavity of the cyst, are a number of membranes or fibres, which, most probably, are remnants of the walls of fat cells.

Fig. 8. Concentric bodies or cells magnified 670 diameters.

Fig. 9. Nuclei magnified to the same degree.

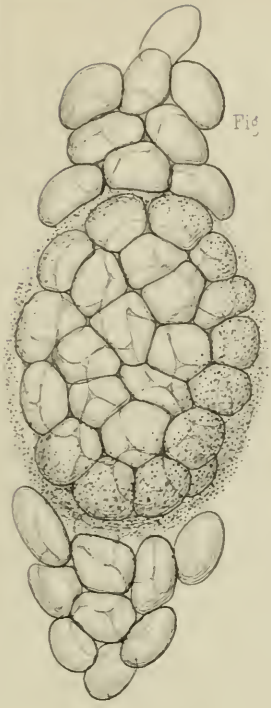


Fig. 1

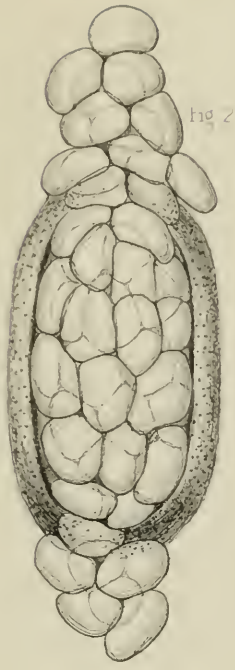


Fig. 2

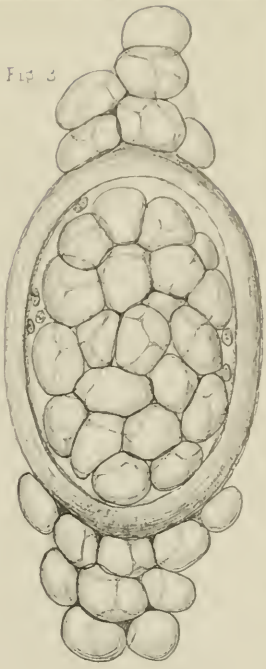


Fig. 3

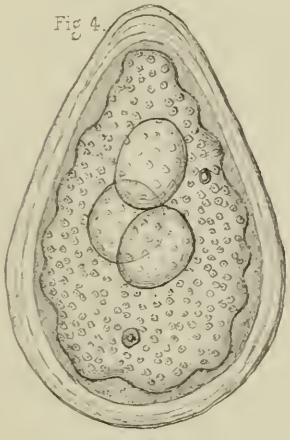


Fig. 4.

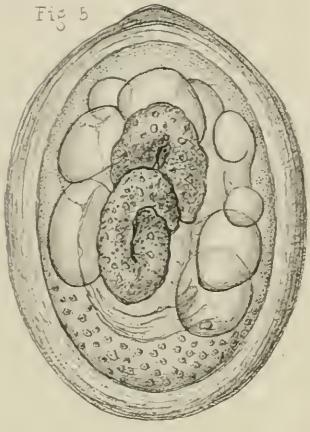


Fig. 5

Fig. 8.

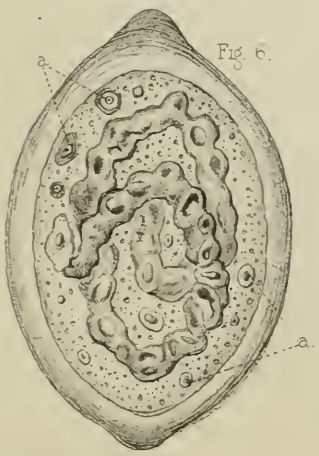


Fig. 6.

a

a

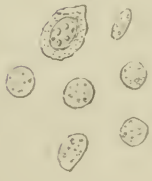


Fig. 9.

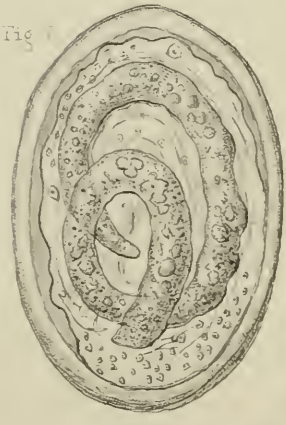


Fig. 7

there is no deposit whatever of earthy matter. Such animals are sometimes recognised in cysts, which are still, more or less, filled with fat, the fat cells appearing larger than usual, and apparently, in some cases, coalescing (Plate XV. Fig. 5); sometimes they are observed in cavities, which are crossed in different directions by membranous bands or fibres, the remnants, probably, of collapsed and empty fat cells (Plate XV. Fig. 7); and frequently they are met with in cysts, in which neither fat nor fibres are apparent. (Plate XV. Fig. 6.) The space around the animal, whether it contains fat or fibres, or neither of them, is generally studded with nuclei, such as are described above. Their number, however, varies considerably, and an absence of them occurs, we believe, only in those cases in which the animal approximates to its perfect condition. Besides nuclei, there exist, frequently in the same situation, peculiar cells (Plate XV. Fig. 8), or rather bodies, varying from about the $\frac{1}{600}$th of an inch downwards. They are round, or slightly sinuous in outline, and in their most characteristic form consist of concentric rings of refractive material, separated from one another by distinct intervals. The smaller ones are often composed of one such ring only, surrounding a central cavity, but the larger ones present frequently as many as six or seven of them. In what is apparently their earliest condition, these bodies exist as oily-looking spheres, in which, judging from the difference of refractive power in different parts, there is clearly a tendency to a process of vacuolation. These formations, though frequently associated with the nuclei, are not in proportionate numbers to them, and in some instances are present when the nuclei are altogether wanting. What their exact nature is, it is not easy to determine, but their characters, though much more symmetrical, so strongly remind us of those which we have described and figured as occurring occasionally in the fat, that we are inclined to believe that these bodies are to be looked on as peculiar modifications of fat rather than as cells.

The imperfect animals present certain differences among themselves, but the varieties of character are neither so numerous nor so well marked as to require a lengthy description. In some cases they seem to consist of little else than an aggre-

gation, more or less dense, of small oily particles; in other cases they are irregular and tuberculated, and formed of oily matter arranged in masses of various sizes in which that tendency to become hollowed out and divided before alluded to is distinctly manifest (Plate XV. Fig. 6); and in other instances again, the worm has assumed a more definite shape, its parietes, though still imperfect, are visible, and its substance, though not distinctly organized, presents a more uniform condition than that of the former, and altogether a more characteristic appearance (Plate XV. Fig. 7).

It is at once obvious, that since none of the appearances above-described belong to the perfect condition of the parasite, they must be associated either with its development or with its decay.

Assuming that they are due to the latter process, the sequence of events would be, first, the conversion of the animal into oily matter, and the simultaneous production of cells or nuclei; second, the gradual disappearance of these, accompanied by the development of fat in the interior of the cyst; and, lastly, the absorption of the walls of the cyst, and the coalescence of its fat with that external to it. Now it seems to us that no very strong arguments can be adduced in favour of this view, while several obvious objections to it at once suggest themselves. In the first place the appearance of nuclei in large numbers can scarcely be looked on as an evidence of death, and, indeed, they are totally absent from those cysts that are in a state of earthy degeneration, and are never present, even in the perfect ones, except occasionally, and then indistinctly in the substance of their walls. In the second place, the conversion into cells, even though they be fat cells, is not a recognised method of decay; the deposit of oil-globules in tissues, as an evidence of their degeneration, is frequent enough, it is true, but that is altogether a different thing from the formation of actual adipose tissue; we never found a liver, a kidney, a brain, a muscle, or even a thymus, changed into fat, though the tissues of some of them may be displaced by it, and may ultimately become atrophied; still less are we likely to find any parasitic being thus converted; and, most certainly, such a

phenomenon never takes place in the Hydatid. Lastly, we have already described one kind of degeneration totally different from this, resembling the process as it occurs in other parasites, and consisting in a deposit of earthy matter in the interior of the cysts; the occurrence of this seems to render the existence of any other form of degeneration unnecessary, and therefore, to a certain extent, improbable; and the more so, as the calcified remains are so abundantly met with as to constitute, in themselves, an apparently fair proportion of defunct animals to the number of the living.

But all that has been here adduced against the idea of the appearances we have described being evidences of decay, namely, the fact of the formation of nuclei, the development of cells, and the actual existence of another recognised form of degeneration, are reasons in favour of the opposite view, and in corroboration, it may be added, that in a case in which so vast a number of beings were present, and in which, according to all human probability, they existed in every stage of development, it would be a remarkable fact, if, after some hundreds of observations, many of which were instituted with special reference to this object, no trace should have been discovered of any earlier condition of the animal than its adult state. Yet, if the appearances we have enumerated do not belong to the development of the worm, such is the position in which we shall stand; we shall have examined some hundreds of cysts, we shall have looked earnestly and anxiously for anything that could throw light on their formation, and yet we shall have totally failed in discovering any, the remotest trace of a process which, unquestionably, must have been going on in nearly every part of the muscular system.

The view we have adopted may now be briefly stated. A certain amount of material, apparently fat, is formed between the muscular fibres; a portion of it, equal in size to a Trichina-cyst becomes separated from the rest, at first indistinctly, and ultimately by the formation round it of a perfect cyst wall; the adipose tissue thus circumscribed, retains, for a time, its original character, then gradually vanishes, and nuclei make their appearance; finally, traces of a worm become visible,

which, in proportion to the disappearance of the fat and nuclei become more and more distinct, till at length they result in a perfect Trichina. We believe that in the course of this process the fat cells have a tendency to coalesce and enlarge, and that the nuclei, though their exact function is not easy to determine, play an important part in those intermediate changes which occur between the appearance of the animal and the disappearance of the fat; but what the signification of the concentric bodies may be, is not very clear; we are inclined to suspect, however, that they are not so much agents in the work of development, as they are peculiar, though accidental, phenomena, making their appearance in the course of that process.

Now, the formation of a worm from the contents of a cyst, by the successive stages we have here indicated, is sufficiently in accordance with the ordinary mode of development in the egg, to render it a not improbable occurrence. The chief difficulty, and seeming anomaly, lies in the original formation of the cyst itself, and to the examination of this subject we now proceed.

A very little consideration of the matter will show that the cyst must have been produced in one of these ways. It must either have been a result of equivocal generation, or it must have been deposited bodily, as an ovum, or it must have been developed *from* an ovum. These alternatives we will discuss separately,—

1st. If we allow the possibility of the occurrence of equivocal generation, there is little difficulty in adapting it to the present case; indeed the facility with which every phenomenon may be explained is remarkably seductive; still, as all evidence goes to disprove the existence in any shape whatever of this mode of development, and as the facts in this case are not so wholly inexplicable on other principles as to render it necessary to have recourse to it, we cannot, consistently with the principles of philosophy, admit its operation in the present instance.

2nd. The characters of the cyst, and the nature of the process that clearly goes on in it, at once suggest a close analogy between it and an egg: yet, it cannot strictly be regarded in

that light, except on the supposition that it is deposited as such by a parent worm of proportionate size. This idea may not seem altogether unreasonable, indeed it may seem very probable that if the Trichina is an embryonic animal, it should, in some cases, escape from its prison, and become developed in the usual manner into a worm of such dimensions as to be capable of depositing ova as large as a Trichina-cyst. Still, reasonable and probable as all this may appear, it is inconsistent with facts; such a worm has never been met with, though its size would have rendered it tolerably conspicuous; and moreover the appearances we have described are not in accordance with it, for it fails to account for the presence of fat in abnormal situations, it fails to explain the appearances which we suppose to represent the earliest condition of the cyst; and further, as in this case, the deposit of fat around a cyst would be a secondary phenomenon, it ought to be absent from the youngest ones, and to increase in amount according to their age, whereas if we were to venture to state any rule with respect to its presence, it would be that, it is generally most abundant around the youngest cysts; and lastly, the shape of the cysts is very various, and certainly some of them are very un-egg-like in appearance. If, then, we reject this view, as well as the previous one, which it seems obvious we must do, we are reduced to the necessity of adopting the third alternative which is, that the Trichina-cyst is developed *from* a germ deposited by a pre-existing animal.

It is self-evident if the previous theories have been satisfactorily disproved, that as the Trichina-cysts are themselves stationary, and yet are found in every part of the muscular system, their germs must have been diffused by animals which possessed and used the power of locomotion. Now, though this may have been effected to a certain extent by that being, whatever its nature, which was their original progenitrix, it is indubitable that the chief diffusion must have been brought about by the deposit of ova by Trichinæ themselves, which had escaped from the cysts in which they were contained. The existence of empty cysts is favourable to this view, and the non-discovery of free worms in the muscular tissue is not against it,

for, from their small size, and from the probable rarity of their escape, they might easily elude detection, and even if found might be supposed to have been squeezed accidentally from neighbouring ruptured cysts.

But what are the changes that go on in an ovum thus laid down? It is clear that it cannot form an embryo in the usual way. It is clear also that the ovum does not grow bodily until it attains the bulk of a perfect Trichina-cyst, because we have seen no indications whatever of those graduations of size which would, under such circumstances, necessarily exist between the original minute ovum and the perfect Trichina-cyst; on the contrary, all cysts, whatever their degree of perfection, are, as nearly as possible, of uniform dimensions. Hence it follows, that the germ must have undergone some peculiar mode of development, in virtue of which it must have produced that accumulation of fat which seems invariably to precede the formation of a Trichina-cyst, either by itself becoming converted into cells, which, by assimilating fat from the surrounding tissues, ultimately assume the visible character, though not the function of true human fat, or, what is perhaps the same thing, their presence must have provoked a deposit of fat, on which they impressed peculiar and characteristic properties.

We are fully sensible of the difficulties that beset this explanation; it seems strange, if not incredible, that a germ should become developed into tissue resembling human fat, and that a portion of this tissue should become separated from the remainder by a cyst wall; that a body resembling an ovum, in all things except its manner of development, should be thus produced, and that changes in its contents resembling those in an ovum should occur, and result in the formation of a perfect worm. Still, however contrary to analogy it may appear, we cannot but believe that the facts we have collected indicate that this really is the mode in which the parasite is developed.

The analogy that exists between the Trichina and Echinococcus, suggests a few remarks before finally quitting the subject. They resemble one another in the fact of being parasitic

animals enclosed in laminated cysts, and both from the structures of the cyst, from their position with respect to the animals, and from the existence of the former being in each case the constant, the existence of the latter the variable phenomenon, there is great reason to suppose that the Hydatid bears the same relation to the Echinococcus that the Trichina-cyst does to the Trichina, and therefore, that the former is neither to be looked on as a modified animal, nor yet as a true egg, but that it is to be regarded as a cyst developed from a germ, and capable of producing animals — a body, indeed, analogous to an ovum, though not homologous with one.

The mode in which degeneration occurs, we have shown to be identical in both; but there are marked differences in the manner of development and growth. Trichina-cysts are always of the same size; contain, according to our observations, but one animal; and never appear to develope cysts or animals in the thickness of their walls. Hydatids, on the other hand, vary greatly in dimensions, and possess active powers of growth; we have seen cysts, characterised by their laminated walls, less even than an Echinococcus; they frequently contain a large number of Echinococci which are developed in connection with the parietes; and in the thickness of the latter, other Hydatids often arise. The chief distinctions appear to be that the Hydatid has a power of growth and a degree of fecundity altogether superior to those possessed by the Trichina-cyst, in virtue of which the local development of the parasite is carried on with extraordinary rapidity; whereas, in the case of the Trichina, the chief, if not the entire, reproductive power, lies in the animal itself, which, possibly, may possess the power of moving from spot to spot, and thus of diffusing its germs throughout the body. Or, it is not impossible, that its germs may, in some mysterious manner, be received into the circulation, and afterwards be deposited in a way, equally unknown, between the muscular fibres.

Finally, the now ascertained fact, that the Hydatid is merely a modification of the Tænia in which development has become interfered with by external circumstances seems strongly to in-

dicate that the Trichina also may be the representative of some other parasitic worm, probably of one of the well-known cœlelminths of the alimentary canal. This is a suggestion for which we claim no credit, it has already been made by others, and is, in the present state of our knowledge, so natural a one that there can be little doubt that it will prove to be substantially correct.

Dr. Bristowe and Mr. Rainey, 16*th of May*, 1854.

2.—*Specimens of Hydatids from the Subperitoneal Cellular Tissue.*

The specimens (obtained in the dissecting-room at St. Thomas's Hospital, from a subject formerly a patient under the care of Mr. Solly) consist of a number of tumors developed in the subperitoneal cellular tissue. We have five larger tumors, and connected with two of these are other smaller ones, forming nodules of a solid structure, and presenting, on section, a peculiar appearance.

The largest formed a tense, oblong, fluctuating tumor in the right hypochondriac and lumbar regions, extending inwards to the vertebral column, superiorly adherent to the inferior surface of the liver and gall-bladder, posteriorly it will be seen to be intimately connected with the kidney, so much so as at first sight to have led to the idea of its being in the substance of the latter organ (this is spread out and flattened over the tumor), and it was anteriorly united to the posterior border of the ascending colon. From the tumor, on incision, hundreds of hydatids escaped, their shape mostly globular, of various sizes (from a pin's head to an orange), some with transparent walls, others more opaque; and again, mixed with these were larger old parent hydatids, dead and presenting a broken up and shrivelled appearance, their walls being less elastic and easily lacerable. The fluid secreted by the containing cyst, and in which the hydatids floated, consisted almost entirely of pus, though the fluid of the individual vesicles was limpid and transparent. The tumor, having thick and very firm walls, seems originally to have been formed of two which have coalesced, for we find in the cavity a septum rendered imperfect

by a circular central opening, through which the two tumors have communicated. This tumor caused the patient great pain in the lumbar region as well as pain at the inner side of the thigh, and extending along the spermatic cord to the testicle.

Another tumor was situated in the cavity of the pelvis, between the rectum and bladder, adherent to both, especially inferiorly, pushing the latter organ against the anterior wall of the abdomen. The entire cavity was filled by a single large hydatid, and within this were other sacs floating in the ordinary hydatid fluid, clear and transparent. In the large hydatid may be seen what was more evident perhaps in other specimens, *viz.*, hydatids enclosed within its walls; the presence of this tumor caused by its pressure the dilatation of the ureters, and further back of the calices and infundibula of the kidneys.

Besides these two tumors, seeming at first sight to be connected with the abdominal organs, were two others in the right iliac fossa connected together and to the cæcum by a short peduncle; these cysts have thinner walls, and contained the ordinary hydatid fluid with numerous hydatids.

To the right of the gall-bladder and adherent to the under surface of the liver, but external to its substance, was found a tough cyst (the size of a walnut), filled by a putty-like mass; this yielded a large quantity of lime, in the shape of carbonate and phosphate, and presented under the microscope oily globules, plates of cholesterine, hydatid membrane, hooklets and hæmatoid crystals. Connected with the two larger tumors were five or six of these nodules, in size from a pea to a walnut; on section, they showed a laminated structure, and, when examined more minutely, were seen to be evidently convoluted or folded up hydatids, some consisting of one, others of several sacs. The membrane has a waxy consistence, not possessing the elasticity of the ordinary hydatid membrane, though presenting the same structure under the microscope. This also showed plates of cholesterine in some abundance, and imperfect Echinococci, *i.e.*, where no hooklets were found.

Here, then coexist hydatid tumors in three forms.—First, those presenting their ordinary characters when fully developed in

cysts containing vesicles floating in fluid, usually clear and transparent, but in one instance purulent. We have another form in the remains of a tumor on the under surface of the liver, the putty-like substance abounding in lime. The third form is the more curious and interesting, where we have the folded up hydatids. Are we to consider these as once fully developed tumors that have undergone cure by the absorption of the fluid and contraction of the cyst, or have we the convoluted appearance from the containing sac not expanding as the hydatids multiply, or as the single hydatid increases in size? The latter view would seem the more tenable; but there seems in this case another and more interesting point to consider; here we have the subperitoneal cellular tissue, a single organ, but supplied by numerous vessels, and in this organ are developed a plurality of tumors. Let us suppose the ova of these hydatids as we may suppose those of Tænia with which the Echinococcus and cysti-cercus seem to be closely allied, let us imagine these to have entered the intestinal canal; they may be lining the mucous membrane of that tube and dipping down into its follicles; they may enter the circulation by perforation of the capillaries and we may find them developed in the liver; or if an ovum should escape the hepatic and get into the general circulation we have hydatids developed in whatever organ that ovum may be deposited and fertilized. But it seems that, in this instance, their curious distribution might, with more facility, be accounted for by a perforation by the ova of the intestine. This idea seems suggested by their situation, by their appearance merely in the subperitoneal cellular tissue, not supplied by one vessel but by many. If the ova entered the circulation, how curious that they should have entered these vessels only; or if they entered others, that they should only here have found a nidus for their future development.

One may be further inclined to this view by noticing an observation made by Mr. Simon, and published in his Lecture on the "Artificial Producibility of Tubercle." There, whilst combating with the generally prevalent idea of the proneness of rabbits to the development of tubercle, and whilst showing this so-called tubercle to be but the ova of some entozoon, he states

that he observed, in numerous instances, minute oblong eggs of some entozoon along the whole length of the intestinal canal, and in several parts of this, particularly in the cæcum, to be actually following the inflexion of the mucous membrane and lining its follicles like an epithelium. Such ova might, at the bottom of these follicles, undergo development so as to preclude the possibility of their re-entering the intestine. The position of these tumors with regard to the intestine by no means contradicts this view. Mr. Jones, *3rd of January*, 1854.

3.—*Hydatids of the Liver. Sudden Death.*

J. N., æt. 30, on presenting herself at the Dispensary, complained of epigastric pain and fulness in the right side. She was pale, anæmic in appearance, and somewhat emaciated. She had cough, occasional sweats, and disordered digestion. On examination, the liver appeared to be enlarged to some extent. No separate tumors were discovered. The chest was dull on percussion over the right anterior superior region, with tubular respiration and bronchophony. As she had restless nights, from cough, the sixth of a grain of morphia was prescribed. In the evening she was dressing to go out, when the cough becoming severe, she took the morphine pill as prescribed, and lay down. She soon after complained of dyspnœa, became very restless, talked wildly, and died in two hours, apparently in a comatose state. Her medical attendant informed me, that he arrived when she was just dying. He regarded the symptoms as possibly dependent on narcotic poisoning; but of her having taken any dose except the above there was no evidence. She had never been left alone.

On examination, twenty hours after death, the following were the appearances:—The brain and membranes were healthy.

All the abdominal organs were healthy, except the liver, which presented a well-marked specimen of hydatid cysts, with which it was studded. Two of these were of great size, being five inches in diameter, and in the interior were found hydatids in every stage of development and decay. One cyst contained a quantity of yellowish bilious-coloured fluid. An-

other, a pultaceous mass of soft material, dark-red in colour, in which blighted hydatids were embedded. There was no rupture or extravasation into the peritoneum, and the cause of death seemed obscure, till the chest was examined. There were extensive pleuritic adhesions over the anterior surface of the right lung, accounting for the auscultatory phenomena. Both lungs were filled with mucous effusion into the tubes, and were greatly engorged with blood. There was no tuberculous deposit. The heart was rather larger than natural. No degeneration of its structure was observed.

Dr. Pollock, 17*th of January*, 1854.

4.—*Hydatid Cysts in the Peritoneum.*

A female, about the middle period of life, who stated that she had never suffered from previous illness, was suddenly attacked with constipation of the bowels, for which appropriate remedies having been used, without benefit, Mr. Obre was requested to visit her.

The patient, who had now been suffering for five days, was in a state of great exhaustion, accompanied with tympanitis and incessant vomiting; the intestinal obstruction was found to be situated high up in the rectum; careful percussion over the tympanitic abdomen revealed several patches of circumscribed dulness, about the size of half a hand, and near the umbilicus a tumor was felt, about the size of an orange. The state of exhaustion of the patient, accompanied by diffused disease of the abdominal contents, the precise nature of which could not be made out, prevented any surgical means being had recourse to, for the relief of the distended intestine. Death took place the following day.

Post-mortem examination revealed a number of cystic tumors situated under the peritoneal covering of the intestines, uterus, and Fallopian tubes, and unconnected by adhesion to the surrounding structures; the cysts varied in size from a bean to a large orange. The largest was situated under the meso-rectum, and pressed so firmly on the lower bowel, near its commencement, as not only to impede a passage through it, but also to

DESCRIPTION OF PLATE XVI.

Figure 1 represents the Laminated Wall of a portion of an Hydatid Cyst, illustrating Mr. J. Hutchinson's Observations. Page 303. Magnified 150 diameters.

Figures 2 to 9 illustrate Dr. Hyde Salter's observations on the Development and Nested Arrangement of Hydatid Cysts. Page 304.

Fig. 2. Diagrammatic section of a secondary cyst, showing the reflection of one half upon the other, whereby it is cupped.

Fig. 3. Similar imaginary section of a system of these cysts, showing how they are nested one within another.

Fig. 4. Diagram, showing the whole tumor in section, and the relation of the secondary cysts to the primary containing one.

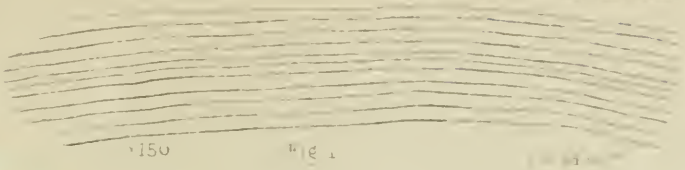
Fig. 5. Shows the manner in which the cupping of the secondary cysts is supposed to be produced.

Fig. 6. A minute secondary cyst magnified 70 diameters, showing its laminated walls, and stelliform central cavity.

Fig. 7. Group of rhomboidal plates, resembling hæmatic crystals, taken from within a secondary cyst. Magnified 80 diameters.

Fig. 8. Group of crystalline, semi-crystalline, and fatty particles, taken from the same situation. Magnified 40 diameters.

Fig. 9. Sketch of a system of the nested cysts, showing their natural appearance, colour, and form. (Natural size.)



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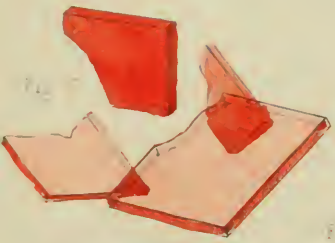


Fig 2

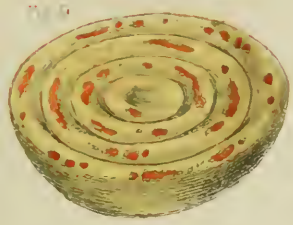


Fig 3

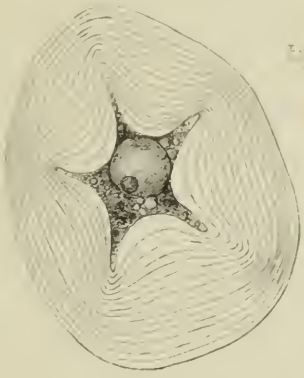


Fig 4

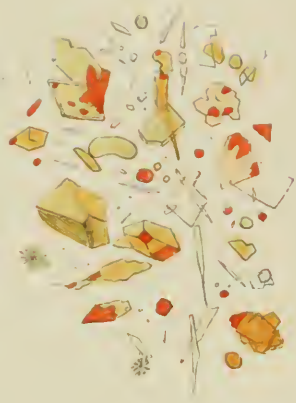
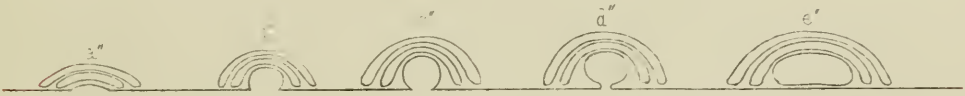


Fig 5



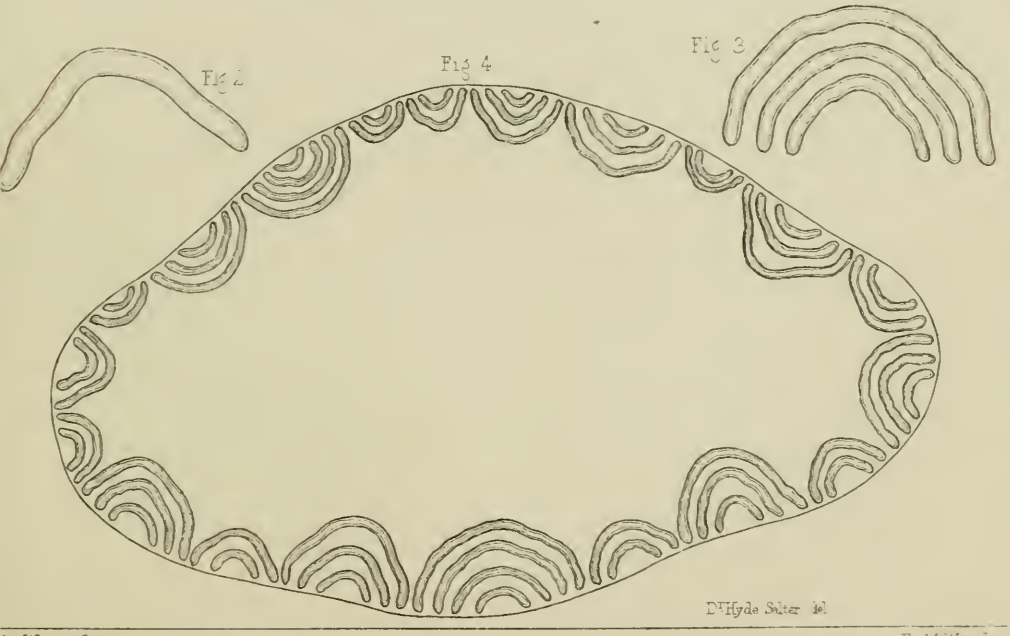


Fig 2 Fig 4 Fig 3

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have caused sloughing of its coats. The tumors were formed of a parent cyst, containing a number of loose unconnected smaller ones, about the size of a nut, filled with transparent fluid, one or two of the parent cysts contained only the envelope of the smaller cysts ruptured, the fluid having escaped. The fluid, when examined with a microscope, showed numerous echinococci and their hooklets. Mr. Charles Bloxam, on chemically examining the fluid, ascertained that it contained:—

"An organic portion, resembling (modified) albumen, and an inorganic, consisting of chloride of sodium, carbonate of soda, and lime. The liquid," he adds, "contained altogether only a small proportion of solid matter, the greater part of which appeared to consist of inorganic substances. The organic matter present was a proteine compound (probably albumen), which has been so far modified that it is coagulable by chloride of mercury, and by heat, but not nitric acid. I should think it probable, that the modification which the proteine compound has suffered, is similar to that which is effected in albumen by long boiling with water, when it is dissolved in the form of 'tritoxide of proteine' (as it is termed by Mulder), but, of course, the body in question cannot be absolutely identical with that substance, since it is coagulable by a gentle heat. The liquid had an alkaline re-action, due to carbonate of soda. I am also inclined to think that some salt of soda with an organic acid (probably lactic) is present, for the ash left by the liquid is far more alkaline than the liquid itself; arising, perhaps, from the conversion of the lactate of soda into carbonate by the ignition. Phosphoric acid, which is so common in all the secretions, could not be detected." Mr. Obre, 18*th of April*, 1854.

5.—*Expectorated Fragment of an Hydatid Cyst* (*probably from the Liver*).

The fragment was of triangular shape and about an inch in its longest diameter. It consisted of a whitish semi-opaque and very elastic membrane, about the sixteenth of an inch in thickness. The patient from whom it had been obtained was a middle-aged woman, under the care of Dr. Peacock, at the City

Hospital for Chest Diseases. It had been expectorated after a violent coughing fit, and many similar portions were said to have been previously brought up. The question to determine with certainty was whether or not it was a fragment of hydatid membrane. After a prolonged microscopic search in the soft matters which adhered to it, and in the mucus which surrounded it, neither Echinococci or their hooklets had been discovered. The question could therefore be determined only by the physical characters of the piece of membrane itself. By a little careful splitting up with a sharp pointed instrument it might be separated into a great number of thin layers, and each of these layers, ultimate to the naked eye, were seen when placed under the microscope to be made up of a great number of others. It was in order to elicit from the members of the Society an opinion as to the diagnostic value of this lamination of the membrane that the specimen had been exhibited. Mr. Hutchinson stated that the appearance was one which he had observed in a considerable number of instances, and seemed, according to authorities, to be almost constantly present in hydatid cyst walls. Was it present in any other membranes? The characters alluded to might be best seen by cutting a thin section of the cyst wall and subjecting it to light pressure between two pieces of glass. A number of parallel lines (Plate XVI. Fig. 1.) of greater or less distinctness are then well brought into view much resembling the markings of a polished agate. These lines are of very various distances from each other, the breadth of the interspace appearing to depend on the degree of pressure exerted by the glass. Sometimes the section would appear to be divided into a series of very distinct leaves, each single one of which, by much fainter markings, was divided into five or six yet thinner ones. The lines generally appeared a little dotted, the intervening matrix being structureless and transparent. Mr. Hutchinson, 16*th of May*, 1854.

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6. —*Hydatid Cysts. Observations on their nested arrangement, and mode of development.*

There are two or three circumstances in connection with this

specimen which I think worth communicating, and offering some observations upon. They are,

1. The peculiar nesting of the secondary cysts.

2. The relation which this nesting has to the theory of their development.

3. The existence of crystals, resembling hæmatic crystals, without and within the hydatids.

The tumor, which was taken from the liver of a patient of Dr. Todd, who sent it to me to examine it for him, was adherent to the under surface of that viscus, but only by a small part; the chief portion of it was free; it was about the size of a child's head of a twelvemonth old; its peritoneal surface smooth, and unattached to any of the neighbouring viscera; it was flaccid —not filled to distension.

On cutting it open, the walls were seen to be thick, and to present the usual appearance. The first thing that struck me was, the brilliant lemon-colour of the contents, not at all the colour of bile-stain, but just that of chromate of lead, except some patches and specks, which were of a bright cherry- or ruby-colour. The contents of the primary cyst consisted, as far as a naked-eye examination showed, of two materials:—

a, the secondary cysts.

b, a pultaceous, flocculent matter, of the colour referred to, and which one might imagine to be imitated by ground rice boiled in milk and stained with saffron, except that the saffron would not make the colour of so brilliant a yellow. On looking very close, a certain glistening appearance could in parts be detected, and this, on a microscopical examination, was found to be due to plates of cholesterine of considerable size. Mixed up with this matter were little clear, spherical bodies, the largest looking like boiled grains of pearl-barley, and varying in size from that down to a size almost invisible to the naked eye; these objects the microscope showed to be small hydatids.

The other contents of the primary cyst—the secondary hydatids—varied mostly from the size of an orange to that of a pea, but they were all empty, and collapsed in such a way that one hemisphere was cupped within the other, so that one half of the outer surface was convex, and the other concave;

the cup formed in this way was thus double, one fitting into the other, and the cavity which separated them was reduced to nothing. This cupping of a single cyst, is shown at Plate XVI. Fig. 2. All the cups thus formed were adherent, at their border, to the inner surface of the parent cyst, so that, at first, their convex side only was seen, and their cupped arrangement above described was not detected, till, on turning them over, and thus detaching them, it was at once perceived. At the same time was seen that peculiar nesting of the cysts to which I would particularly direct attention. Each of the cysts thus nested was not only cupped on itself, in the manner above described, but one was placed within another, and was, in its turn, a receptacle of a third, and this, it might be, of a fourth; and as they became regularly smaller and smaller, from the external to the internal, their edges were, although they were thus nested, all in one plane, and that plane coincided with the inner surface of the parent cyst to which they were attached; just as if one were to put a teacup inverted on a table, and over that a breakfastcup, and over that a small basin, and over that a larger one; the table would represent the inner surface of the primary cyst, the cups and basins the secondary cysts, and being placed one within the other, and of gradually decreasing size, their edges would all coincide with the surface of the table.

Now, this is a sort of spurious nesting, and a form which I have never heard described, and of which I can find no account; it is not only not the same as the nesting of the ordinary pill-box hydatid, but the very reverse of it, for there they are contained one within another, but here they are external to each other, for the concave surface of each cyst is as much its external surface as its convex surface, and if, by distending it, the double cup were converted into a sphere, all appearance of nesting would at once cease, and become impossible.

On first opening the tumor the secondary cysts appeared to be fewer, and their average size greater than was afterwards found to be the case, for each large cyst covering two or three smaller, by unnesting them their apparent number was greatly increased and their average size diminished. All these secondary

hydatids were stained of the same lemon-yellow, and had the same cherry-coloured spots on them, and were covered by the same flocculent matter, which dipped between them and existed in some quantity within them. It contained some cholesterine, free fat, amorphous granular matter, some crystals to be afterwards described, numerous hooklets of the Echinococci, but no perfect animals that I could see.

Some time ago Kuhn divided hydatid tumors into two sorts, according to their supposed method of multiplication—the clustered hydatids in which the multiplication took place from without, which he called the *exogenæ*, and the pill-box in which it took place from within, *endogenæ*. To Kuhn's description and its rationale exception has been taken, but this much is certain, that there is one form in which all the cysts are strictly external to each other, and no one cyst is contained in any other; and another form in which one cyst contains another, and that another, and so on.

Now the specimen under consideration belongs to neither one nor the other of these types, for both conditions coexist. All the secondary cysts are contained within the primary, which stands in the relation of parent, and so far the multiplication is endogenous; but no secondary cyst contains a tertiary, all the secondary cysts are strictly external to one another. Now whether this results from the secondary cysts being altogether incapable of giving rise, in their turn, to a fresh generation, or to their only enjoying that power on their external surface, I cannot say. In the first case all the contained cysts would be the offspring of the single primary cyst, all of one generation, that is the second, and the development might be called *arrested endogenous*, the second generation being barren. In the second case, the smaller contained cysts might be the offspring of the larger, and there might be three or more generations, and the type of multiplication would be mixed, *endo-exogenous*—endogenous of the primary cyst, and exogenous of the secondary, tertiary, &c. Diagrams of this form of nesting are shown at Plate XVI. Figs. 2 and 3, and an imaginary section of the whole tumor showing these nested, cupped, secondary hydatids adherent to the whole inner surface of the primary cyst,

at Plate XVI. Fig. 4. This peculiar nesting of the secondary hydatids was evidently not an accident; it was constant, and must have resulted from the law of development of the cysts. It would be an interesting question to determine exactly in what way it was produced. Such an explanation must necessarily be merely hypothetical, but still it is possible to conceive a method in which such an arrangement might have been effected, and I think it must have been something of this sort. A young cyst first becomes developed on the inner surface of the primary one by the raising of its inner lamina at the situation of attachment of the Echinococci, in the manner described by Busk, Huxley, and others. This young cyst, at first continuous with the parent, becomes free by the atrophy or stricture of its neck; but adhesion continues after continuity has ceased, and another young cyst being developed in the same way and in the same situation, pushes before it that part of the elder cyst that covers it, and so invaginates one portion of it in the other. In this way the growth of No. 2 cups No. 1; but as No. 1 grows at the same time, the edges of its cup still continue in contact with the primary cyst, although its centre is pushed out. Beneath No. 2 is now developed No. 3, and the same process of cupping takes place as in No. 1; and No. 3 may itself be the seat of a similar process produced by No. 4, and so on. Now this is a mere hypothesis, but it seems to me to be a rational explanation, and to be consistent with the generally received views of the development of these structures. The only peculiar element that the supposition involves is the existence, beneath each nest, of a persistent centre of nutrition, whereby the successive generations are evolved. The different stages of this process I have endeavoured to represent at Plate XVI. Fig. 5, which, I think, sufficiently explains itself.

The secondary cysts could not in this case have grown by distension, for they were empty. The mechanism of their nutrition appears to have had nothing endosmotic about it.

The minute spherules constituting the secondary cysts in their earliest stage, were, some of them, not more than $\frac{1}{80}$th of an inch in diameter, and were, I thought, the smallest that had been seen, for Mr. Owen gives as their minimum size that of a

pea, and Mr. Busk that of a pin's head. I find, however, that smaller than mine have been seen; Mr. Huxley has seen them as small as $\frac{1}{100}$th of an inch, and Dr. Bristowe tells me he has seen them smaller than an Echinococcus. On examining them with a microscope the concentric lamination is beautifully shown. The outer laminæ are smooth and even; but the inner undulating; the innermost so much so as to present considerable projections and recesses, giving to the central cavity a radiating form. This corrugation implies a greater superficies of the inner lamina than the outer, and it can only be produced by the contraction of the one, or the more rapid growth of the other. As it is an increasing and not a diminishing structure, I should be disposed to think the latter; and, taking into consideration the elastic character of the material constituting the walls of their cysts, this growth under pressure, and the corrugated condition of the inner laminæ, must act as a distending force on the outer. I have represented one of these small cysts of about $\frac{1}{70}$th of an inch diameter, at Plate XVI. Fig. 6. The compressed and corrugated condition of the inner laminæ is well shown.

One of the things that struck me most in examining these hydatids was the existence in the flocculent matter in which they were embedded, on their outer surface, and in their cavity, of a number of ruby-coloured crystals. They were too small to have a crystalline appearance, unless examined by the microscope; but, when so examined, they reminded me very much, at least in colour, of crystals of bichromate of potash, which struck me the more as, while their colour resembled that of the bichromate, the pale lemon stain which coloured the elements of the tumor universally resembled the chromate. I took a sketch of one group of the crystals (Plate XVI. Fig. 7), and then put it aside and forgot it. A short time ago, when looking at the figures of hæmatic crystals in the title page of Dr. Beale's Book on the Microscope, I was at once struck with the resemblance of some of the crystals to those that I had sketched from this tumor, and my suspicion that the crystals I had seen might be of the same nature was still further increased by reading, soon after, an account of some hæmatic crystals observed by Dr. Bristowe in an hydatid cyst in the liver. In Dr. Bristowe's case there were

the same general yellow-colour, the same free vermilion spots, the same ruby-coloured, more or less rhomboidal crystals, but they differed in being always attached to plates of cholesterine, and in being much smaller, about one thousandth of an inch in their long diameter, whereas some of mine were about a hundredth. In those which I sketched, which I have copied in Fig. 7, and coloured from memory, none of the crystals were quite perfect, but they were sufficiently so to show that their form was that of rhomboidal plates.

Besides these regular crystals there was a great deal of semi-crystalline matter, of all sorts and shades, and some highly refracting. The majority of the crystals were a bright yellow, some of the same ruby-colour as the regular crystals, and some partly yellow and partly red, the red generally looking as if they were patches upon the yellow. The most highly refracting had very much the appearance of semi-crystallized fat, and there were numerous bright red and yellow highly refracting globules, that had a very fatty appearance. Some of the crystals were arranged in stellate groups, and some were of the form of long slender fascicles. Of these and many of the smaller ones, which had the most definite shape, the true form could not be ascertained, as they were so deeply-placed in the specimen, and so far removed from the object-glass, that they could only be examined with a low power. There were only a few plates of cholesterine, but they were colourless, and free from red points. I have represented a group of these crystals and semi-crystalline particles at Fig. 8.

I have since searched in vain for the definite crystals that I saw so long ago. The specimen has become so opaque that the part where they were seen does not admit of examination. Supposing these to be hæmatic crystals, how they came there I cannot pretend to tell: they were within the secondary cysts: there was no trace of any organization in the walls of these cysts, nor any appearance of extravasation of blood. It seems to me that they must have been formed from those elements of the blood that permeated the walls of the cysts, both primary and secondary, in the process of their nutrition.

Dr. Hyde Salter, 16*th of May*, 1854.

7.—*Hydatids passed per Urethrum.*

The specimen of hydatids consists of some passed in the urine of a patient on the 21st of July last. They contain swarms of Echinococci. In different stages of growth, from the size of a nut downward, as many as could be piled in a table-spoon, together with innumerable hooklets of similar parasites, dead and decomposed at some earlier period, seemed to come from the right kidney. Distressing symptoms had existed for nine days, at the end of which time these were voided. The patient has previously passed (it is presumed) other hydatids. Four days after this discharge a single hydatid vesicle escaped, but with little distress to the patient. Now only oxalate of lime in urine.

Mr. Jones, *3rd of January*, 1854.

8.—*Suppression of Cancer in the Breast by the use of cold, followed by Development of the Disease in other Organs.*

A. D., calling herself 36 years of age, but, probably, in fact ten years older, came under Mr. Simon's care, at St. Thomas's Hospital, in the autumn of 1852, having, in her left breast, a hard tumor (diagnosed as scirrhus) which, in the preceding seventeen months, had grown from the size of a hazel-nut to that of an orange.

On careful examination of the axilla some glandular enlargement could be discovered there. The patient was, generally speaking, in bad health, suffering from gastrodynia and considerable chronic bronchitis, and having had (it was said) hæmoptysis occasionally to some extent. Mr. Simon dissuaded her from having the breast removed.

When the case was first seen, there was some inflammatory excitement about the tumor; temporary advantage was obtained by leeches and pressure; but, in the course of October and November, the complaint was advancing with almost constant and severe pain.

Mr. Simon, finding himself unable to diminish this symptom by the local use of opium and belladonna, ordered, at the begin-

ning of December, that a bladder of pounded ice should be applied to the breast, once a day. It was to be kept there, in the first instance, for about half an hour, but the length of each application was increased from day to day, till the congelation was continued for two hours and more at a time.

From the moment of its first use, the patient expressed great relief, and, within a fortnight, declared that her tumor was going. This proved to be the case. The decrease advanced with striking rapidity, and, in thirty-four days from the beginning of the treatment, A. D., at her own desire, and believing herself cured, ceased to be an in-patient of the Hospital.

At this time (Jan. 8th, 1853,) the tumor had so far gone, that there was no visible fulness of the breast, nor any rounded tumor in it; but merely some flat fibrous-feeling induration, over which the skin was adherent. No pain whatever was experienced either in the breast, axilla, or arm; and the patient had gained apparently as much in general condition as in regard of the local disease.

In this state she remained under notice for a month or two, occasionally visiting the Hospital, and was then lost sight of.

About the middle of October she again appeared at the Hospital, seeking re-admission, on account of sufferings occasioned by internal disease.

The breast was still free from any active growth: but, here and there, round about it, small tubercles of cancer existed in the skin. The patient's main ailment was referred to a large hard tumor at the epigastrium. She had frequent vomiting (sometimes of blood) and incessant pain. She was already much reduced in health; and this decline continuing, with increased urgency of her gastric distress, she died on the 1st of December, six weeks after her re-admission to the Hospital.

The specimens exhibited to the Society, consisted of the diseased breast, of portions of the lungs, pericardium, peritoneum, and liver, and of the uterus, with its appendages.

The breast, which was not of large size, was indurated and scirrhous, and its integuments presented small cancerous tuber-

cles. The glands in the adjacent axilla, and some of those above the clavicle were enlarged and cancerous.

On the surface of both lungs were, scattered in large numbers, patches of malignant growth, which appeared to be exclusively confined to the serous and subserous tissues. The lungs themselves were free from such disease, but their apices contained a few small chalky concretions. The parietal pericardium was similarly affected to the visceral pleura, but that enveloping the heart was healthy.

The surface of the peritoneum, especially where it covered the liver, stomach, intestines, and mesentery, was thickly studded with cancerous patches. The liver was much enlarged, very irregular in form, and consisted, in great measure, of masses of rather firm encephaloid cancer, between which a small quantity of tolerably healthy liver-structure still remained.

The uterus presented several fibrous tumors, of which two were as large as moderate-sized oranges, and were internally in a softened and partially disintegrated condition. All other organs were healthy. The breast-cancer presented no microscopic peculiarity, further than that the fibrous element was even more in excess than is usually the case. The malignant deposit in the organs differed in no important respect from that in other cases of the kind. The softened state of the uterine tumors, associated as it was with some accidental alterations of colour, at first suggested the idea that they were also the seat of malignant disease; such, however, was not the fact, for no abnormal cell-formation was detected in them, and the ruptured parts, equally with the firm, consisted of undeveloped muscular fibres, the only difference being, that in the former they were much more loosely arranged than in the latter.

Mr. Simon, *20th of December*, 1853.

9.—*Three specimens of Colloid Cancer of the Breast removed from the same individual at three operations in eight years.*

S., æt. 38, unmarried, had never borne children; a fat, flabby, loose-textured woman, of rather weak intellect; was

admitted into St. Thomas's Hospital under Mr. South in June, 1845. She had then a lobulated tumor, of the size of an orange, in the right breast, situated in the centre of the gland, and producing slight retraction of the nipple.

The following history was obtained. Menstruation was established at the age of 13, and continued at regular periods to the age of 21, when she became irregular in this respect, and was frequently troubled with severe headaches. Soon after this a white, milky discharge appeared from the nipple of the right breast, unaccompanied by pain or tumor; the discharge was enough to keep her linen moist. This gradually subsided, and attention was not further directed to the breast till within about a year previous to her admission to the Hospital, when a pale, bloody discharge appeared from the same nipple, and continued for three months, at the end of which time she discovered a tumor in the breast. The tumor gradually enlarged to its present size without causing any pain or inconvenience. Left breast always healthy; no discharge from this nipple.

In the year 1841 she had symptoms of some cerebral affection, and the intellect has since remained weak; her memory is very defective, and her sight imperfect.

The entire right breast was removed by Mr. B. Travers, jun., on the 12th of July, 1845. After removal the tumor was seen to consist of two distinct spherical masses, an inch and a half each in diameter, soft and elastic to the touch, coarsely lobulated, and separated by condensed gland tissue. One of these tumors was situated immediately beneath the nipple; and some of the ducts, in a dilated condition, were traceable into the tumor, running between the lobules,

On section, both tumors presented similar appearances. The structure was intersected by thin membranous bands of fibrous tissue disposed in a reticulate arrangement, forming meshes varying in size from that of a pea to a small pin's head, all of which were filled with a transparent gelatinous substance. The meshes were generally very small, and in some parts extremely minute; the fibrous element was therefore abundant. Numerous vessels of very small size, filled with blood, were seen ramifying in the delicate membranous walls of these meshes or

alveolar cavities, both large and small; and the amount of colour and appearance of general vascularity thus given to the tumors, was the chief point of difference between them and the specimens of colloid cancer I have repeatedly met with connected with the stomach, intestinal canal, &c., and also one specimen of colloid tumor situated in the neck, and removed by Mr. Clarke of St. Thomas's. Several of these specimens are reported in the Transactions of this Society.

Examined microscopically, the gelatinous, or colloid substance, taken from several parts of the tumors, was seen to contain, 1st, a few very large compound spherical cells filled with nuclei, or cells about a third larger than blood corpuscles; 2nd, numerous spherical cells of variable size, but generally large and containing a large nucleus and clear nucleolus; some of the largest of these cells contained two nucleated cells in their cavities; 3rd, a few clusters of very small nuclei about a fourth the size of blood corpuscles.

The gelatinous substance was everywhere intersected by very delicate fibrous threads, freely communicating with each other, and derived from the larger curved fibrous bands forming the boundaries of the alveolar spaces. When examined towards the edge of any portion in the field, these delicate threads were seen running in straight lines, and frequently splitting or bifurcating at acute angles; they were never wavy or undulating.

After this operation she made a quick recovery, and on the 20th of October, 1846, was reported to have remained well.

In September, 1848, however, this patient was again admitted into St. Thomas's Hospital. A lobulated tumor had reappeared in the neighbourhood of the old cicatrix, not involving the skin but deeply imbedded in the fat, which was very abundant. On the 23rd of September, 1848, Mr. South removed this second tumor by a very free operation, including a good deal of the surrounding textures, and a portion of the pectoral muscle to which one lobe was adherent. The wound healed quickly and no untoward circumstance occurred.

On dissection this tumor was found to consist of one large, coarsely lobed mass, and several small growths separated from each other by healthy fat. They all exhibited the same exter-

nal and microscopical characters as described in the account of the tumor first removed, but one portion appeared firmer than the rest, more vascular, and the colloid matter turbid and very scanty; it presented a somewhat medullary appearance, and from this I feared that any subsequent growth might be of a medullary form.

In March, 1853, this patient was admitted into King's College Hospital on account of the recurrence of a tumor, or rather several tumors, in the neighbourhood of the old cicatrix. Mr. Fergusson removed these growths together with a considerable portion of the surrounding skin and fat, and the wound healed favourably. The parts removed at this operation were preserved by Mr. Partridge, who has kindly permitted me to exhibit them to the Society. On dissection, these growths, which, together, reached a much larger size than those removed on either of the former occasions, presented essentially the same external and microscopical characters; the alveolar cavities were, however, of much larger size in all parts than those in any former growth, and the colloid substance being more abundant and very translucent, the resemblance to the colloid growths of the stomach and other parts was much closer. It might be said, that the ordinary characters of colloid cancer were more obviously marked in this than in any of the former tumors. A cyst-like cavity filled with colloid matter existed in one of the growths, and the vascularity was here greater than in other parts. In the gelatinous substance clusters of small cells, from about ten to fifty in number, were frequently met with, but they were not enclosed in any cell-wall, like the large compound or brood-cells, several of which were seen in the specimen removed at the second operation.

In the tumor last removed, some of the more delicate fibrous threads traversing the colloid substance were dotted with small oval and sometimes rounded nuclei, and also with some minute particles looking exactly like molecules of oil, but which may have been granules of phosphate of lime, such as described by Dr. Jenner in the Transactions of the Society.

The disposition of the colloid growths to recur in this case seems to approximate it to the ordinary forms of cancer, but its

DESCRIPTION OF PLATE XVII.

Figures 1 and 2 illustrate Dr. Beale's examination of a Colloid Tumor of the breast, removed by Mr. Fergusson. Page 317. Magnified 200 diameters.

Fig. 1. Portion of the tumor.
a. Fibre cells with distinct nuclei.
b. Small granular cells about the size of a blood corpuscule.
c. Larger oval cells, usually having distinct nuclei.
d. Aggregated oil globules.

Fig. 2. The same after the action of acetic acid.

Figures 3 to 7 illustrate Dr. Beale's examination of a Tumor removed by Mr. Fergusson from the Calf of the Leg. Page 319.

Fig. 3. Thin section of tumor, examined by the unaided eye.

Fig. 4. The same, magnified 20 diameters.

Fig. 5. Large cells containing oil-globules. 200 diameters.

Fig. 6. *a.* Transparent cells with large nuclei.
b. Fat cells with small oil globules.

Fig. 7. Portion of matrix treated with acetic acid, showing elongated fibre-cells with nuclei, free oil-globules, and large cells containing oil. The three last figures magnified 200 diameters.

Figures 8 to 11 illustrate Dr. Beale's examination of a large medullary Sarcoma removed by Mr. Fergusson from the thigh. Page 321.

Fig. 8. *a*, *a*, Naked eye appearance of two of the small bone-like masses scattered through the superficial portion of the tumor.
b. Portion highly magnified of one of the above, showing the arrangement, size, and comparative number of the lacunæ.

Fig. 9. Glistening, highly refractive material, with clear interspaces, from a deeper portion of the tumor.

Fig. 10. More distinctly fibrous structure, into which the latter passed off in parts; cells contained in some of the interspaces.

Fig. 11. Large granular cells, oval or elongated with square ends, with granular matter and oil-globules, from the portion of tumor in the popliteal space.

Fig. 12. Section of one of the nodules from the lungs of the same patient.
a. Calcareous matter becoming deposited in the centre of the fibrous matter filling one of the large interspaces.

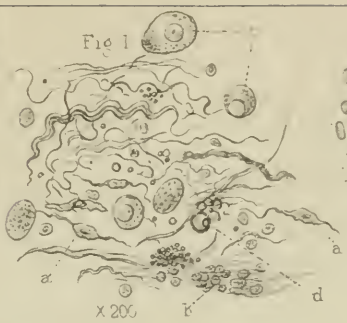
Fig 1
x 200

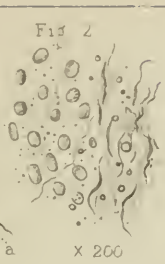
Fig 2
x 200


Fig 3.

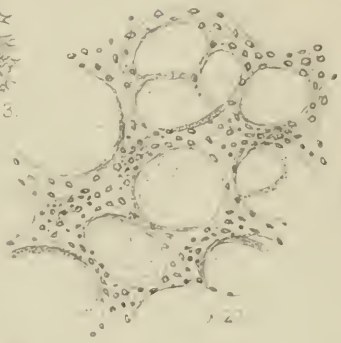
Fig 4


Fig. 8


Fig. 7.
x 200

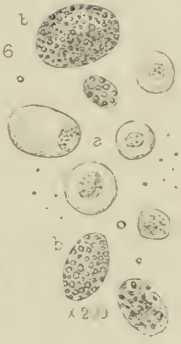
Fig. 6
x 200


Fig 5

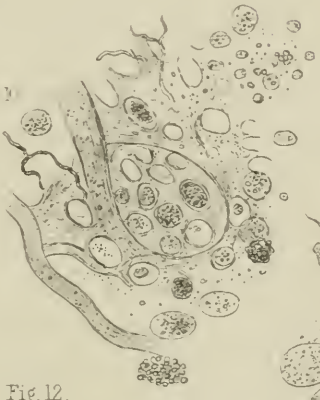
Fig. 10


Fig. 9

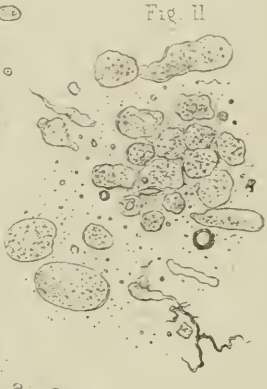
Fig. 11

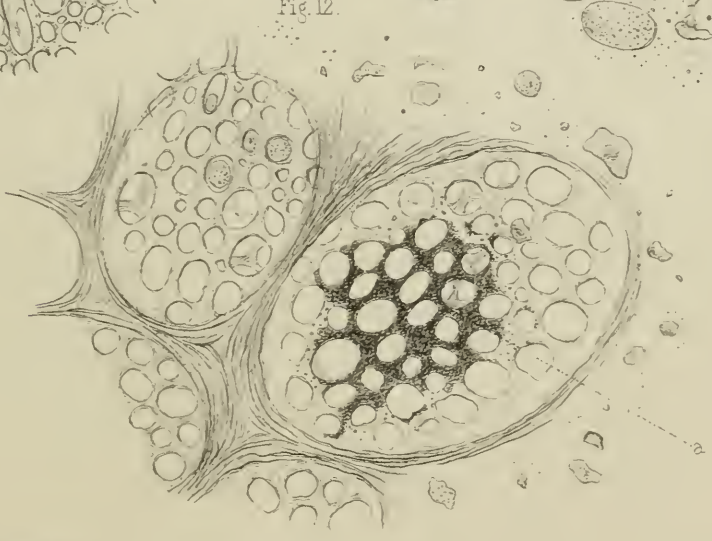
Fig. 12.

very slow progress, the absence of contamination of the neighbouring lymphatics, and of the internal organs as far as could be diagnosed, and the preservation of the characters of true colloid cancer in the tumors last removed, are points of great practical interest in the clinical history of this disease, of which our knowledge is very imperfect, as Mr. Paget observes, from the small number of well-recorded cases, especially of those in which external parts were its primary seat.

Mr. William Adams, 16*th of May*, 1854.

Report on the preceding Specimen.—We are of opinion that the elementary structure of the tumors corresponds in all points with that figured in table II. fig. 4 of Müller's monograph "Ueber den feinern Bau und Formen der Krankhaften Geschwülste," Berlin, 1838, and designated by that author "Carcinoma Alveolare."

Their structure is also identical with that of the tumor exhibited by the late Mr. R. R. Robison, and described in the 4th Vol. of the Transactions of the Society, page 275.

Dr. J. S. Bristowe and Mr. John Birkett, 16*th of May*, 1854.

Description of the (Colloid?) Tumor removed from the Breast, and alluded to in the preceding History.—This tumor was removed from the breast by Mr. Fergusson.

Upon examining a very thin section made with a Valentin's knife, under a power of two hundred diameters, the following appearances were observed :—

Crossing the section in various directions, a great number of extremely delicate fibres were seen; some having a slightly wavy course, others highly tortuous and arranged very irregularly (Plate XVII. Fig. 1). Here and there, however, the fibres seem to be collected in more dense bundles, which formed the boundaries of clear interspaces. A few fibre-cells with distinct nuclei, and terminating at either extremity in a delicate fibre, were observed (*a*).

Amongst the fibres, scattered at irregular intervals, were many cells exhibiting various characters: the most numerous being about the size of a blood-corpuscle, and granular (*b*);

others much larger, more or less of an oval form, often containing a large, distinct nucleus (*c*); external to which, in some instances, the cell appeared perfectly clear, whilst in others a greater or less quantity of granular matter was present in this situation. Several large cells, filled with fat globules, were seen scattered through the mass. Collections, and aggregations of small oil globules (*d*), and numerous free oil particles, varying much in size, some being very large, were also present.

In some situations, a considerable number of particles of yellow-colouring matter, varying much in form, were met with (probably altered blood).

The divided trunks of several small vessels were also observed in different parts of the thin section submitted to examination.

Upon treating the section with acetic acid, a considerable number of cells or nuclei, rather larger than a blood-corpuscle, were brought into view; while the greater number of the delicate fibres were no longer to be distinguished (Plate XVII. Fig. 2).

Upon the application of heat, or upon the addition of nitric acid to a portion of the tumor, it coagulated firmly, almost like white of egg, indicating the presence of a very large quantity of albumen. Dr. Lionel Beale, *7th of March*, 1854.

10.—*Large Fibrous Tumor, weighing between three and four pounds, removed from the Back.*

The gentleman from whom this tumor was removed was between 30 and 40 years old. The growth had been observed between three and four years. The tumor is remarkable for its hard, firm, and fibrous condition, being a good specimen of "fibrous tumor." It was situated immediately below the lower angle of the right scapula, and was so firmly attached to various muscles that its free motion on the ribs could be perceived with difficulty. In the removal it was found necessary to divide parts of the trapezius, the rhomboideus major, the latissimus dorsi, and serratus magnus. There was considerable hæmorrhage, and the shock of the operation (notwithstanding chloroform) was severe. The patient made a slow but steady recovery.

Mr. Fergusson presented also a small fibrous tumor from the forehead, resembling the above in structure.

Mr. Fergusson, *7th of March*, 1854.

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11. — *Large Tumor removed from the the Calf of the Leg by Operation.*

This tumor, weighing three pounds, consisted of a pulpy, jelly-like mass, and was removed from between the gastrocnemius and soleus muscles of the left leg, by Mr. Fergusson. The patient, W. H., was a healthy-looking countryman, æt. 46. There was no history of cancer of any form in his family. His father died of small pox, at the age of 58, and his mother of some chest-complaint, at the age of 66. About four years since he noticed that the calf of the left leg was larger and softer than that of the right. The swelling increased very gradually for two years, but during the next two years more rapidly.

At the time of his admission into King's College Hospital, a large, uniform, soft tumor was found, occupying the back of the left leg. It projected more upon the inner side, but its general form was that of the calf of the leg. The skin could be readily moved over the surface of the tumor. Fluctuation was very distinct.

On the 7th of January, Mr. Fergusson removed the tumor. Immediately upon cutting through the gastrocnemius muscle, which was spread out, as it were, upon its surface, much of the pulpy, glairy matter escaped, and was received into a basin; the remainder was scooped out with the hand. The pulpy, jelly-like mass did not appear to have been contained within the walls of a cyst, as no distinct remains of such a structure could be found. The patient at this date is going on well.

Mr. Fergusson, *17th of January*, 1854.

Examination of this Specimen.—Upon cutting a very thin section of the tumor, with the aid of Valentin's knife, and covering it with a piece of thin glass, the following appearances were observed.

The section seemed to consist of a delicate meshwork, enclosing perfectly clear and transparent spaces, which varied somewhat in size. Here and there the transverse section of a vessel was apparent (Plate XVII. Fig. 3). Upon subjecting the section to a magnifying power of twenty diameters, the arrangement of the elements composing the tumor became more distinct. Perfectly clear spaces were seen to be surrounded by an indistinctly fibrous stroma, which was everywhere freely studded by small dark cells (Plate XVII. Fig. 4). Sections of a few small vessels were observed in different parts of the stroma. Only one or two cells were observed in the clear interspaces, and the presence of these was probably accidental.

When the power was increased to two hundred, the dark cells were found to consist, for the most part, of cells, containing oil-globules. In some instances (Plate XVII. Fig. 6), the oil-globules were of large size, while in others they were much smaller, and of uniform dimensions. (Plate XVII. Fig. 6, *b*). Besides the fat cells just referred to, a few perfectly-transparent cells (Plate XVII. Fig. 6, *a*), with a large and distinct nucleus, were observed. Some of these contained a few oil-globules, while in others none could be detected.

These cells always appeared to follow the direction of the delicate fibres which marked the boundaries of the clear interspaces. In a few instances, however, one or two cells were met with in the latter situation. A few free oil-globules and some faint granules were also present.

Upon the addition of acetic acid (Plate XVII. Fig. 7), several elongated nuclei, with a dark outline, and a few long fibre-cells came into view, while the previous slightly-fibrillated character of the stroma disappeared.

Acetic acid produced no apparent change in the large cells containing oil-globules, but the nuclei of the transparent cells were rendered more distinct after the application of this re-agent.

Upon the addition of nitric acid, or upon the application of heat to a portion of the tumor it coagulated firmly.

It contained in 1000 parts,*

* The portion submitted to analysis was obtained by carefully separating the pulpy soft part of the tumor from all the larger vessels, and squeezing

Water	904·60
Solid matter	95·40
Extractive, soluble in water . .	15·20
Albumen	64·20
Fatty matter	5·53
Alkaline Salts	7·60
Earthy Salts	2·85
Sulphuric Acid	1·05
Chloride of Sodium . . .	2·912

Dr. Lionel Beale, 17*th of January*, 1854.

12.—*Large Medullary Sarcoma from the lower part of the Thigh.*

The structure of the tumor shows that it had originated in the lower end of the femur a little above the condyles. The bone has at first been expanded and enlarged by the growth, and ultimately its circumference has been lost in the surrounding soft parts. The disease extends some inches up the medullary canal, but the bone is healthy where it has been cut across. This patient died ten days after the operation, and the remaining part of the femur was then found to be free from any trace of the original disease. The tumor was examined by Dr. Beale. Mr. Fergusson, 2*nd of May*, 1854.

Examination of the Tumor by Dr. Lionel Beale.—Three small pieces obtained from different situations in the tumor were sent for examination.

1.—The first portion was taken from the more superficial part of the tumor, which consisted of cyst-like cavities, varying much in size and form. These contained clots of blood and bloody serum. The walls were fibrous, with hard bony plates scattered through them; they were much stained with the colouring matter of the blood. Upon microscopical examination of a portion of the wall of one of those cavities, it was found to consist of coarse meshes of fibrous tissue, amongst the

it through a strainer, so that the analysis only represents the composition of the soft albuminous portion of the tumor.

fibres of which, in many situations, hard calcareous matter had been deposited, so that it was very difficult to obtain a section sufficiently thin for examination. The disposition of the fibres was very irregular, but for the most part they followed a course obliquely upwards and forwards from the lower extremity of the femur. The fibres generally resembled those of white fibrous tissue, but interspersed amongst them were fibres approaching the yellow element more nearly in character. The calcareous masses, which were very irregularly scattered through this portion of the tumor, consisted, partly of amorphous masses in which no distinct structure could be made out, partly of masses much resembling true bone in structure. The appearance of the former is shown at Plate XVII. Fig. 8, *a a*; and at *b*, Fig. 8, the arrangement, size, and comparative number of the lacunæ in one of the ossific deposits. No Haversian canals could be demonstrated, neither was there any appearance of a lamellated structure. These portions of ossific matter were very hard and brittle, and could be reduced to a powder by pressure between glass.

II.—The second portion of the tumor was taken from a position deeper than the preceding. It was colourless, elastic, of a firm, hard consistence, and of a gristly or cartilaginous texture. A very thin section was readily made with a sharp knife, and upon being submitted to examination with a quarter, the following appearances were observed. This portion of the tumor appeared to consist of a delicate mesh-work, composed of a glistening, highly refractive and fibrous material, enclosing perfectly clear interspaces, in some of which a little granular matter, and one or two oil-globules, could be detected (Plate XVII. Fig. 9). The glistening material, above referred to, appeared in various situations to pass off into a more distinctly fibrous structure, in which similar interspaces were observed, Plate XVII. Fig. 10. Many of these, however, were occupied by cells, some of which were dark and granular, others contained oil globules, while some were perfectly clear, except in one spot, where a certain quantity of granular matter was collected. In many instances the wall of the interspace was seen to be separated from the wall of the cell by a considerable space. In those situa-

tions in which the cells were observed in greatest abundance, the tissue was softer, and more readily compressed between pieces of glass. By pressure some of the cells with oil globules and granules were squeezed into the surrounding fluid.

III.—The third portion submitted to examination was taken from the popliteal space, which was entirely occupied by a tolerably firm, yellowish, fibrous mass, which was readily cut with the knife; but, from its softer and more granular consistence, a section of any size was not easily made. This portion consisted almost entirely of large and very irregular granular cells packed closely together, and upon carefully focusing the glass, a faintly fibrous appearance could, in some situations, be made out. Here and there, also, a few fibres of the yellow element were detected. There was much granular matter, with many free oil globules. The cells varied much in form and size: for the most part they were of an oval form; but some were elongated, with square ends (Plate XVII. Fig. 11). All were highly granular; no nucleus could be detected in any, and in only very few could a few minute oil globules be distinctly made out with a quarter.

The man died on the 30th of April, ten days after the operation.

The liver, spleen, both kidneys, and the other viscera of the abdominal cavity were examined carefully. The organs above enumerated were also subjected to microscopical examination. They were all anæmic, but no other morbid appearance could be distinguished.

The lungs were very pale; the pulmonary tissue generally, however, appeared perfectly healthy. The apices of both lungs were carefully examined, and no trace of any abnormal structure could be found, with the exception of one or two of the masses presently to be described.

Sparingly scattered at various intervals through the pulmonary tissue, in each lobe of both lungs, were several (perhaps from ten to fifteen in each lung) small and very hard round nodules, varying in size from a hemp-seed to that of a large nut. Upon making a section through several of these, as the knife approached the central part, it came in contact with

coarse gritty matter, which gave the idea of the presence of calcareous matter.

Upon making a very thin section through the mass, and subjecting it to examination, the appearance represented in Plate XVII. Fig. 12, was observed. The walls of the spaces indicated in the drawing, had been originally, perhaps, the walls of the air-cells; an opinion confirmed upon treating the section with diluted caustic soda.

The calcareous material evidently began to be deposited in the centre of these spaces, and spread thence towards the circumference. It dissolved with effervescence in hydrochloric acid (carbonate), and the solution gave an amorphous precipitate upon the addition of excess of ammonia (phosphate of lime). Some of the spaces were completely occupied with this calcareous matter. No appearance of lacunæ could be observed in any part, and the general appearance of this hard material, and its continuity with the fibrous matter composing the walls of other interspaces, are shown correctly in Fig. 12, at *a*.

The great similarity in structure between the masses taken from the lung and the second portion of tissue described and represented in Fig. 9, cannot fail to be noticed, and it must be remarked, with reference to these two distant morbid structures, that it is in the very peculiar arrangement of the *fibrous matrix*, or interstromal tissue, that they so closely resemble each other.*

13.—*Termination of a case of Malignant Disease of the Leg, reported in the Fourth Volume of the Society's Transactions.*†

The patient left Guy's Hospital on the 12th of April, 1853. The stump was nearly healed, the child's health very much improved, but the left inguinal glands were enlarged.

June 1st, 1853. During the last month the child's health greatly improved; the stump was quite healed, the left inguinal

* All these drawings were magnified with a Powell's quarter, and are represented the exact size they appeared. Figs. 9 and 12 were made quite independently of each other.

† Page 270.

glands were of normal size, and she was able to run about and amuse herself.

She continued well until the month of November, when she complained of severe headaches, and would fall to the ground without, apparently, any discoverable cause. She also fell away and lost her appetite.

In the early part of December she squinted with the right eye, and the muscles of the right side of her face and right upper eyelid were paralysed. On the 22nd of December, violent vomiting commenced, and lasted twenty-eight hours, although various medicines were given to control it. Mucus and bile were the fluids ejected.

In the beginning of January, 1854, a swelling formed behind the right auricle which, increasing, pushed this organ from its normal site, and at last occupied the entire temporo-maxillary and mastoid regions. The child suffered intense pain during the formation of this tumor, which at last ulcerated, and then profuse hæmorrhages took place.

In February tumors formed on the vertex of the cranium.

At the end of March the left upper extremity became paralysed, and frequent convulsive movements of the member were noticed.

On April the 3rd she died.

Necropsy nine hours after death. — The head only was examined.

When the scalp was turned back, two new growths appeared upon the bones. One, the largest, of oval outline, measuring about two inches by one inch, was developed in the left parietal bone in the region of its anterior and superior angle. A smaller circular growth, one inch in diameter, was developed in the posterior superior angle of the same bone.

A very large new growth occupied the right temporo-maxillary region, destroying the bones thereof, and pushing the right auricle away from its situation. The longest diameter of this tumor was about six inches; its projection from the side of the head about four inches.

The *calvarium* was slightly adherent to the dura mater in the site of the tumors, and the external surface of this membrane

was diseased in consequence by contiguity. Its corresponding internal surface was healthy. The two new growths were entirely developed in the left parietal bone. They were composed of medullary carcinoma, and spiculæ of bone traversed their texture.

The *brain* itself and its arachnoid membrane contained much fluid, but no new growth existed in them.

The *right hemisphere* was removed, and a new growth was seen, which occupied the right middle fossa of the base of the cranium, and involved the right facial, the auditory, and the third nerves, and the branches of the fifth. It also compressed the right crus cerebri and the middle lobe of the cerebrum. The bones forming this compartment of the base of the skull were soft, and the finger could be thrust through them into the mass on the side of the face. The growth, both within and without the skull, was carcinoma medullare.

The *body* was greatly emaciated. Not a trace of disease was visible in any of the external parts of the trunk or extremities; and as the emaciation was so extreme, had there existed any tumors in the abdominal viscera or lumbar glands, they must have been visible through the attenuated abdominal walls.

The *stump of the left femur* was quite healthy. The inguinal glands of this side were also perfectly normal.

During life the child never manifested any indications of the slightest visceral disturbance, except those symptoms which might be attributed to the early development of the growth in relation to the brain.

The chief points of interest in this case appear to be the following.

1. The primary development of the cancer in the *left* fibula.
2. The secondary development of the cancer in the *right* ala-major of the sphenoid bone.
3. The freedom from secondary deposits in the course of the lymphatic system of the left lower extremity.
4. The development of cancer at the opposite extremities of the body.
5. The marked indications of the intra-cranial growth before any visible external tumor.

6. The circumstance that these growths were all attributed, by the parents, to contusions. The fallacy of which assumption is perhaps proved by the fact, that there is scarcely any part of the osseous system so well protected from injury as the ala-major of the sphenoid, in which the intra-cranial growth seems to have been developed.

Summary of facts.—The primary disease was discovered at seven years of age; it had been growing, before its removal, four months; the time which elapsed before its re-appearance, was eight months; death ensued after the operation in twelve months; death ensued after the re-appearance of disease, in four months; death ensued after the discovery of the primary disease in one year and four months.

Mr. John Birkett, 18*th of April*, 1854.

14.—*Congenital Fibro-cellular Tumor removed from the Arm of an Infant, æt.* 4 *months.*

The tumor was of an ovoid form, measuring an inch and a half in its long diameter, and was deeply embedded in the subcutaneous fat of the fore-arm, on the outer side of the ulna, a little below the elbow-joint. It presented a smooth external surface, except at its base, was coarsely lobulated, and had an imperfect capsule. It was not so freely separable from surrounding textures as fatty tumors generally are, and was rather firmly connected with them at its base, or deepest portion. Its structure, on section, presented a white fibro-cellular appearance, without any indications of fat. It was tough, elastic, and delicately striated or fibrous, the striæ running uniformly in one direction, from the base towards the external surface; this striated appearance was rendered conspicuous by an attempt to tear the structure, which could not readily be done.

A microscopical examination showed the structure of this tumor to consist mainly of extremely delicate white fibrous tissue, enclosing in many parts clusters of well-formed fat-cells. The fibrous tissue could be readily broken up, or torn into delicate wavy filamentous bands of considerable length, and,

under the action of acetic acid, numerous small, and, generally, oval nuclei were brought into view. No other cells were observed.

Mr. Paget had also examined this tumor, and, in a note to Mr. Adams, stated, that "the tumor appears to be a good example of the fibro-cellular kind. The tissue is well formed, but has more fat-cells and fatty matter in it than the other specimens I have examined. This may be an example of a general rule that growths in early life have a more mixed construction than those which form in later years."

History.—When the child was only two or three days old, the mother observed a small hard body the size of a pea in the situation of the present tumor, and when a week old, a medical man applied tincture of iodine to it; the tumor, however, continued to increase somewhat rapidly, and on the 26th of October, 1853, was removed by Mr. Lonsdale, by whose permission Mr. Adams was enabled to bring it before the Society.

Mr. William Adams, *3rd of January*, 1854.

15.—*Cystic Tumor removed from the side of the Neck.*

A. M., æt. 28, became an out-patient of the Westminster Hospital, under the care of Mr. Holthouse. For seven months prior to her application she had noticed a small tumor, situated immediately above the clavicle, and to the left side of the trachea. It was not painful to the touch, but occasioned an irritable cough which greatly annoyed her; the usual remedies were employed, such as iodine, both internally and externally, blistering, &c., but without avail, when Mr. Holthouse introduced a grooved needle, but no fluid escaped. She was eventually admitted under Mr. Holt, who removed the growth, under the supposition of its being fat. Some difficulty was experienced in dissecting it from its attachment to the larynx and deeper seated parts, and considerable venous hæmorrhage ensued, so that it became necessary to plug the wound; these plugs, as suppuration became established, were carefully removed, and the patient, at the expiration of a month, was discharged cured. The tumor (which was examined by Mr. Quekett) was of the cystic

variety, the parent cyst (in which there were numerous others embedded) being formed by the left lobe of the thyroid gland; they were devoid of any signs of malignancy, and the contained fluid was apparently broken-down blood mixed with a glairy secretion. Mr. Holt, *2nd of May*, 1854.

16.—*Portions of the Pectoralis Major Muscle and Diaphragm, containing numerous purulent deposits.*

The patient from whose body these sections were taken, was a gentleman's coachman, æt. 39, rather stout, and living in a healthy locality. He was seized with a rigor and other symptoms of fever about ten days prior to death. He had great pain in the right hypochondriac region, and difficulty of breathing, with some dulness on percussion over the lower portion of the right side of the chest. The formation of matter at the seat of pain was suspected by Mr. Francis Toulmin, who first saw him on the third day of his illness. About two days prior to death considerable swelling and redness appeared in the same region. An exploring needle was introduced, to the depth of two inches, and was withdrawn with pus in its groove. A crucial incision down to the rib was made, but without any further purulent discharge.

The patient died after great suffering.

On *post-mortem* examination there was found an adhesion on the right side of the pleura, about two inches in diameter, corresponding to the external swelling on the parietes of the thorax, recent and easily detached. The pleura costalis was highly vascular in the same region.

The peritoneum covering the diaphragm and liver, exhibited no unhealthy vascularity nor traces of lymph.

On dissecting the pectoral muscle, it was found studded with numerous small spots of purulent deposition (as exhibited) in a space extending from the fifth to the eighth ribs. Both layers of the intercostal muscles presented the like appearances, as also the portion of the diaphragm adjacent.

No purulent deposits were found in the lungs or liver, and the viscera were all healthy.

There was nothing in the man's history to account for the origin of the disease. Mr. Hacon, 18*th of October*, 1853.

17.—*Melanosis of the Eye, Liver, and Mesentery.*

G. W., a stocking-maker, æt. 41, was admitted into the Leicester Infirmary, on the 3rd of January, 1854, under the care of Dr. Shaw; he was a spare man, with a dusky, anxious-looking countenance, and grey hair. He stated that his general health, previously to the commencement of his present ailment, had been good, excepting that eight years ago he suffered for some weeks from sharp griping pain at the lower part of his abdomen, of an intermittent character.

Four years ago he noticed what he described as a deep mist in his right eye, and in twelve months he had lost the sight of that eye. After the loss of sight he began to suffer from shooting pain, which passed from the ball of the eye across the forehead. Latterly (he could not tell how long) the eye had been coming more and more prominent, and, on his admission, projected so far forwards, as only just to allow the lids to close. The lens was of a bright yellowish green-colour, pressing forwards against the iris, which was irregular, and the pupil was dilated and discolored; the conjunctiva was deeply injected, and the eye-lids were more vascular than natural, and there was an ecchymosed spot on the outer side of the lower. The pupil of the left eye was irregular, and adherent to the cornea, from an old injury.

A week before Christmas his attention was drawn to his abdomen, from the fact of his experiencing difficulty in buttoning his clothes. In a day or two it became the seat of sharp lancinating pain. The swelling had ever since been on the increase, but the pain had subsided into what he called a belly-ache.

The whole of the upper part of the abdomen, as low as the umbilicus, was occupied by a hard nodulated tumor, between which and the peritoneum there was, apparently, some fluid. There was dulness on percussion over the part occupied by the tumor; resonance below. There was a small hard dark tumor,

about the size of a pea, in the integument, to the right of the epigastrium, and over the situation of the place where he said the abdominal pain first commenced. There were also two small tumors of the same description in the scalp. His tongue was dirty; his urine was very dark coloured, and contained a copious deposit of lithate of ammonia. Pulse 100. There was no perceptible thoracic abnormal dulness or sound. His lower extremities soon became œdematous; he suffered much pain, and, at one time, had cough with a little rusty expectoration. He was, however, too ill to admit of a careful examination of his chest being made. On the 18th he became comatose, and died on the following day.

Post-mortem examination showed the liver enormously enlarged, weighing nearly fourteen pounds, and the greater part of it occupied by melanotic deposit. There was some straw-coloured fluid in the peritoneal cavity, with melanotic deposits in all the organs, thoracic, abdominal, and pelvic; nearly all the deposits were apparently in the areolar tissue of the different organs. The areolar tissue of the great omentum contained a large number of small melanotic tumors. The right eye and optic nerve were also the seat of a similar deposit. There were no deposits in the brain or in the cranial portion of the optic nerve. There was a small quantity of effused blood under the dura mater, over the left hemisphere.

Microscopical examination of the deposits showed nearly every variety of cancer(?)-cell; a great number containing pigment, more particularly, however, the oval-shaped ones.

Mr. Trotter for Mr. Bullock, *7th of February*, 1854.

18.—*The occurrence of Sugar in the Urine in a case of Acute Bronchitis.*

In order to investigate the pathology of that most obscure disease, diabetes, it is necessary to examine carefully the various circumstances which lead to the production of sugar in the urine. Many different theories have been advanced. 1st.—That it depends on some altered condition of the stomach (Bouchardat's theory), in which a species of ferment, or *diastase*,

is generated, leading to the conversion of all amylaceous matters of the food into glucose or diabetic sugar. It appears probable, however, that this conversion is a normal change in the animal body. 2nd.—That it depends on the excessive and abnormal production of sugar in the liver (Bernard's theory). 3rd.—That sugar appears in the urine from deficient action of the respiratory function, whereby the sugar, normally formed from starch or amylaceous matters, is incapable of being further changed and broken up into carbonic acid, water, &c.

A few days since I was called to see a patient, a female, about 50 years of age, who had been suffering for ten previous days with acute bronchitis, and who had become much worse within twelve hours of my visit. I found the following condition :—skin of body moderately warm and moist; extremities rather cold, also tip of the nose; countenance dusky, and lips livid; tongue congested and dark red, rather furred; cough frequent, less than it had been; expectoration copious and purulent, not tinged; pulse 120, very weak and intermittent (it had been intermittent for about twelve hours); respiration 40. No abnormal dulness on percussion over the chest; but over the whole extent, breath sound, accompanied with sonorous, sibilant, coarse and fine mucous rhonchi.

The patient had passed a small quantity of urine about 7 or 8, A. M., six hours before my visit, which was much clouded from the deposition of pink urates; and on ascertaining that she had taken, during the night, some arrow-root, it occurred to me that this case would be a good one to test the accuracy of the theory which has been propounded, *viz.*, that "sugar in the urine is dependant on the imperfect performance of the function of respiration."

Examination of Urine. — Abundant urate deposit of pink colour, cleared by temperature of 100° Fahr.; when heated above 200° Fahr. again became cloudy from precipitation of albumen not redissolved by nitric acid; precipitate occupied about one-third of the height of fluid in the tube. Sp. Gr. 1021, at 60° Fahr., and full acid re-action.

As much albumen and urates were present, it was useless to depend either on Moor's test with potash, or on the copper tests,

without previously removing most of such matters. I therefore added to the urine a solution of the tris-acetate of lead in slight excess, and, after filtration, treated the clear fluid with powdered bicarbonate of soda, and refiltered. The resulting solution was clear and colourless, and was thus tested:—

A portion boiled for a minute or so with strong solution of hydrate of potash, gave an orange-yellow coloured fluid, equal to that produced by one grain of glucose or diabetic sugar in an ounce of water, when heated in the same manner.

A second portion was treated with Poggiale's solution of tartrate of copper dissolved in excess of potash; discoloration of the fluid, and a very distinct precipitate of red oxide of copper, took place on boiling for a few seconds; the precipitate was soluble in ammonia.

Trommer's test was applied with equal success, and Poggiale's solution re-applied several times with invariably the same result.

Another portion, $\frac{30}{100}$th cubic inch, was put into a tube with a piece of the German yeast, and after allowing for the height of mercury in the tube, and temperature, it was found to yield $\frac{8}{100}$th cubic inch of carbonic acid gas.

A portion of the urine, before the addition of lead, was twice treated with yeast, and gave very distinct evidence of the presence of sugar, whereas another urine treated at the same time with the same amount of yeast gave no such indication.

On concentrating the clear decolorized solution to about one-fifth of its volume, and then endeavouring to ferment, I found no indication. The same occurred when treating the urine itself in the like manner; and, I may add, for I consider it a point of some importance, that, on adding sugar to urine and afterwards reducing its bulk, the fermentation was equally prevented, the presence of salts in large quantities having the power of arresting the process. I find that by some, concentration has been recommended, and therefore I mention this fact.

Dr. Garrod, *6th of December*, 1854.

19.—*Entire Crochet Needle, Two and a Quarter Inches long, from the Leg of a Child.*

The needle was removed from underneath the skin on the inner side of the calf, about three inches below the knee. The child, æt. $2\frac{1}{2}$ years, had not suffered from lameness, and neither suppuration or pain indicated its presence. The child could not tell how it came there, and had never complained.

Mr. PARTRIDGE, for Dr. ORWIN, *20th of December*, 1853.

20.—*Pins swallowed accidentally, and subsequently removed from various parts of the Body.*

E. G., æt. 26, a tolerably healthy-looking servant-girl, came under my care about twelve months ago for some slight derangement of the general health, which she believed to be connected with the circumstances detailed in the following history.

On the 20th of August, 1846, while taking clothes from a line upon which they were drying, after wash, she put the pins into her mouth, one at a time, to hold them, when a person seized her suddenly and unawares from behind "for fun," and she immediately swallowed all the pins involuntarily at one act. She experienced no pain at the moment, and felt no alarm about the accident. Her master, however, sent for a medical man, who administered emetics and aperients. These acted freely but no pins were discovered.

About a week afterwards she first felt pain at a point in her left side beneath the left ribs. This continued more or less severely during twelve months. It was generally increased by exertion. She received much treatment in the form of blisters and setons over the stomach which always relieved the pain, and she took medicine internally.

At the end of this year (1847) she felt pain in her left breast, Very soon a small red swelling, "like a boil," appeared there; this broke and she pulled a pin from it, which she describes as "perfectly black, entire, and straight."

Residing near Tenby, in Pembrokeshire, she went to see Mr. Jones, surgeon of that place, who, on examining the breast,

removed two more pins from it. These had lost their heads.

During the subsequent four years, nineteen more pins came to the surface at different times, the last in November, 1851. Of the total number, twenty-two, sixteen came out at the left breast, two at the pit of the stomach, one at the palm of the left hand, the other at the dorsal surface of the right wrist, one at the lower and inner side of the left knee-joint, corresponding with the insertion of the sartorious muscle, and one opposite the top of the sternum. Each was removed by means of a slight incision, except the first. All had lost their heads but two.

In the case of the pin which issued from the wrist, she felt pain first at the shoulder, and traced its passage along the outer margin of the biceps muscle by a red slender line, although she could never feel the pin itself; then it took the course of the flexor carpi ulnaris and appeared on the dorsum of the hand between the ring and little fingers; the passage from the shoulder occupied two months. It was then lost sight of for three years, and after some rather severe manual labour in which she was employed at this time, it appeared at the wrist.

She was unconscious of the passage of the pin through the other arm.

During the five years named she was a constant sufferer from severe and darting pains in the left side. She has lost flesh and is now pale; formerly she was robust. She never experienced vomiting or hæmorrhage until the winter before last, when, for two months, she suffered much from both and was confined to her bed. At the end of this time she threw up from the stomach several pin's heads on different days, which she gave to her medical attendant, Mr. Jones, in all eighteen.

I examined the patient myself very closely, and found scars at the points named. I wrote to Mr. Jones, of Tenby, whom I have the pleasure of knowing personally, and he kindly transmitted me the pins, which he himself removed in every case but one from small superficial abscesses, at various times during the last four years.

About six months ago I learned that her health was

indifferent, and that one more pin had issued from the breast.

Mr. Henry Thompson, *7th of March*, 1854.

21.—*Description of numerous Morbid Appearances found in an Aged subject.*

Mr. — æt. 93 and two months, was, as far as could be ascertained, a man of moderate habits at all periods of his life. Up to the age of forty he temperately enjoyed the use of fermented liquors, but at, and from that age, thinking they caused indigestion, he entirely renounced their use, and from that time up to the period of his death was never known, by an intimate relative living with him, to drink a tablespoonful of any vinous or fermented liquor whatever, except on the occasion hereafter to be detailed.

He was a man of simple and active habits, but very excitable and enthusiastic, especially on religious subjects, and possessed a hardy frame; he was a large eater, and in the habit of walking great distances after his meals.

It is probable that he scarcely clothed himself sufficiently to maintain the circulation at a proper balance, and he always strenuously resisted the endeavours of his relatives to increase his clothing.

The only decided illnesses with which he has been afflicted were hæmatemesis and paralysis. The hæmatemesis occurred twenty nine years before his death. It commenced with nausea and faintness, and was of so severe a character that he was believed to be in *articulo mortis*, and when by the use of pure brandy, under the superintendance of a distinguished hospital surgeon, the circulation was restored, his remark was, "the remedy is worse than the disease."

Sixteen years after the above attack, this gentleman was suddenly seized with loss of motion and sensation in one side, with loss of memory; the house in which he lived was at the time being painted. After lying in that state for three weeks he slowly recovered. Between that period and his final illness he had, three or four times, *after a full meal*, an attack of spurious

apoplexy, that is to say, such an attack as might follow an engorgement of the brain without actual rupture of the vessels and extravasation of their contents, for, when vomiting occurred, and the contents of the stomach were rejected, he always came to himself again. Two years before his death he fainted away and fell down, and his medical attendants considering that the heart was too feeble to propel the blood to the brain in sufficient quantity, and with adequate force, in the erect posture, kept him in bed for the remainder of his life.

For some time after the syncope alluded to above, the mind was much impaired; there was neither loss of motion or sensation, but strange fancies took possession of him, and for some time he did not know the members of his family. In a word, all the symptoms of a defective circulation, and the results of a brain imperfectly stimulated. He slowly recovered from this, and might be said rather to vegetate than live. His appetite continued good, and, by the aid of appropriate means, the secretions were perfectly performed.

On the morning of his death, a relative going into his room was greeted by his usual amiable smile of recognition; he had scarcely left the room again, however, when he was fetched back by the nurse. Upon his return he endeavoured to articulate a few words, but was unable. I accidentally called about this time and found him in *articulo mortis*, and he died in a few minutes.

Dissection sixty-four hours after death.—Weather warm; house remarkably cool; body very much emaciated; slight decomposition; toes of both feet firmly bent downwards.

Head. — Scalp pallid; bones of cranium thickened; dura mater exceedingly pale and thickened, especially in the situation of the anterior meningeal arteries, where it was divisible into layers. A large quantity of serum, both on the surface and ventricles of the brain—altogether full two ounces; brain soft; the posterior part of the lateral ventricles particularly so, and as if approaching ramollissement: vessels of brain by no means congested, and no where was there an apoplectic clot perceptible. The eminences just above the condyloid foramina very prominent and sharp, especially the left; and, indeed,

all the eminences on the base of the brain were particularly prominent and pointed. Basilar artery, and all the vessels of the brain, thickened and opaque, but not ossified. Medulla spinalis, as observed through the foramen magnum, remarkably small, apparently shrunk and soft.

Thorax and Neck.—Carotid arteries thickened, but not actually bony; mucous membrane of larynx pale, and covered freely with mucus. Thyroid and other cartilages bony; cartilages of the ribs also bony. The lungs filled their respective cavities; some serous fluid in each side of chest—three ounces in the right, and two ounces in the left side. Each lung pale towards the upper part, and emphysematous; posterior part of both, but particularly the right, of deep purple colour, heavy, very much congested and œdematous; large quantities of sero-sanguineous frothy fluid issuing freely upon incision; right lung perfectly unadherent; left, adherent both to the costal and diaphragmatic pleura, by old, tough, long, membranous adhesions.

Heart normal, as to size and muscular structure; *right* coronary artery thickened, but *not bony; left, bony* nearly *throughout;* valves on the right side of the heart, and the pulmonary artery, healthy; the mitral valve had a good deal of bony deposit upon it about its attachment to the auriculo-ventricular opening, but it was so placed as not to interfere with its function, as it was observed to close completely the osteum, the corpora sesamoidea being perfect. The whole aorta was very much dilated, thickened, and copiously sprinkled with ossific deposit; the iliac arteries were also thickened and dilated. No fluid in the pericardium.

Abdomen.—No fluid in the abdomen; omentum magus very perfect, but quite free from fat; stomach large, somewhat distended with a milky fluid; the mucous membrane free from vascularity, and rugous in parts. Intestinal canal, upon a superficial examination, healthy, as was also the pancreas. Spleen small, very dark coloured, mottled, soft. Liver of deep chocolate colour; upon the upper part of the convex surface of the right lobe were two deep fissures. The gall-bladder was rather large, and contained some yellow bile, and two small gall-stones of a green colour, and flattened at their sides.

The kidneys were the principal organs diseased. The right had on its surface two or three cysts and several half cysts, resulting apparently from rupture of the tunic, which separated easily; arteries bony; ureter, at the upper part, slightly distended, throughout the rest of its course small. The left kidney had its tunic also soft, and easily separable. There were here also numerous cavities upon its surface, some of them large, some lined with a white cyst, others formed apparently by the substance of the kidney itself, which was thickened in these situations. Upon section of the kidney the disease appeared confined to the surface. The left ureter was small. A little fluid taken from one of these cysts when heated had a urinous smell, and became flaky, as if containing albumen. Bladder, in structure healthy, contained about ten ounces of pale, remarkably healthy-looking urine; vesical orifice of the urethra remarkably patent; prostate gland entirely free from enlargement.

Mr. Robinson observed that the case related above was interesting, from the age at which the patient had arrived, and that he had been minute in the description of the appearances observed after death in a great measure on that account, as, in a person so advanced, the absence of morbid changes was almost as interesting as the existence of them. A further interest attaches to the case from the fact that *all* the illnesses to which he had been subjected were accurately noted, and thus a *complete history* was obtained.

The points which most attract notice are, the changes in the arterial system, which, in all probability, took place so gradually that but little interruption to the circulation occurred from this source. The ossification about the valves also was found in such a situation as not to interfere materially with their function, and the chief impediment was that of feebleness of the muscular structure of the heart, amounting almost to inability to carry the blood sufficiently to the brain in the upright position; which was strikingly counteracted by the recumbent posture, by which there can be little doubt that his existence was decidedly prolonged.

The prominences at the base of the brain are also worthy of observation, more especially in conjunction with his naturally enthusiastic temperament, as it becomes a question how far the latter was dependant upon the former; the great sharpness of those eminences and the absence of any disease in their neighbourhood seem to indicate that they were original and not morbid prominences. The quantity of fluid (two ounces) in the brain and on its surface is also interesting, and gives rise to the questions,—Did this result from the irritation of the prominences alluded to, or was it to be regarded as an augmentation of the cerebro-spinal fluid, resulting from shrinking of the brain and spinal cord, a not unfrequent, if not common occurrence in old age? Mr. Robinson inclined to the latter opinion.

The state of the kidneys is worthy of observation, as this gentleman's ailments had reference to derangement of the digestive organs,—the gall-stones, the hæmatemesis, and the *slight* apoplectic seizures, supposed during life to be caused by congestion, and not rupture of vessels (which the relief afforded by vomiting and the absence of any old apoplectic clot confirms), sufficiently indicate this. The case shows, that eating largely, especially of highly-carbonized food, as sweets, of which this gentleman was fond, may derange the kidneys almost, if not quite, as much as the free use of fermented liquors, and give rise to those appearances generally attributed to the latter cause.

The object for which the case was more especially brought before the notice of the Society was to exhibit the fissures in the liver,—fissures which, out of many dissections, Mr. Robinson did not remember to have seen before; and which, as they were situated upon the convex surface of the right lobe, he conjectures might be produced by compression between two of the ribs, as this gentleman was often in the habit of eating heartily, and walking great distances soon after a full meal.

Lastly, he would notice the *entire freedom from enlargement* of the prostate gland, as showing that that condition is not *necessarily* a consequence of age.

Mr. R. R. Robinson, 1*st of November*, 1853.

22.—*Senile Gangrene.*

S. W., æt. 74, a married woman, came under the care of Mr. Simon in St. Thomas's Hospital, on the 10th of January, 1854. For some months past she had had an aching pain in the foot and leg, which increased gradually till about two months previously, when a little black spot appeared on the fourth toe of the left foot. This spot, gradually spreading, involved the other toes and instep, the extension often causing great pain. She had not been in want of food, but rather of appetite. The gangrene, on admission, appeared perfectly dry, and occupied about four inches of the front of the foot, from the great toe backwards. There were the usual symptoms of debility. Morphia was given at night, with support and stimulants.

She remained alive twelve days in an irritable restless state. When she died, the gangrene had extended backwards about an inch, and the pain had continued to increase.

The body showed the following appearances :—The heart was of about the normal size, or rather enlarged; there were several ossific and also atheromatous deposits on the aortic valve, but not as much as, considering the state of the arteries, might have been expected; but the mitral valve was so densely occupied with bony or calciform matter, that it appears as though it must long have been but of slight service. The aorta was considerably roughened by like deposit. The left femoral artery (exhibited) was irregularly thickened, and in parts so contracted that but little blood could have found its way through it. The posterior tibial artery, which broke from its connection with the popliteal, was perfectly obliterated and brittle in various parts. The anterior tibial was imperfectly pervious. The liver was but slightly or not at all fatty.

Some calculi, which are composed of the triple phosphate, were in the kidneys, the largest in the right, its bulbous extremity being situate in the pelvis thereof, the branches projecting into the mammillary processes. The smaller calculi were in the left kidney; that dark portion where a spiculum is broken off, protruded through the organ and through its peritoneal coat; the lighter portion was in an abscess containing

thin pus, and is, I am assured by Dr. Dundas Thompson, composed of the same material as the rest; its peculiar appearance being due to a greatly increased rapidity of deposit, whereby the substance is in much larger crystals, as may, even by the naked eye, be determined.

Mr. Barwell, *7th of February*, 1854.

23.—*Distortion of the Wrist Joint.*

Mr. Shaw exhibited a cast of the right arm taken from a man, æt. 33, a carpenter, lately under his care in the Middlesex Hospital. It presented a complete dislocation of the hand at the wrist joint. The hand was bent at that joint to such an extreme degree, that it lay flat and extended upon, and in close contact with, the inside of the fore-arm; so closely pressed was the palm of the hand to the fore-arm, that, from absorption of the flexor muscles, a hollow had been formed for the reception of the hand, and it was to a certain degree embedded in it; the girth round the fore-arm and metacarpo-phalangeal joints, the thickest part of all, was only nine inches; the fingers were twisted, and partially overlapped each other. At the wrist joint the greatest displacement was between the upper row of carpal bones and the articular surfaces of the radius and ulna, but one carpal row was also partially displaced upon the other.

As to the mode in which this singular displacement of the hand had been effected, nothing satisfactory could be made out. The patient was detected in undoubted falsehoods in the story that he gave. At the meeting of the Society and afterwards, circumstances transpired to leave little doubt that the man was an impostor. It is needless, therefore to relate what he stated. The more probable explanation is, that he first doubled his hand inwards upon the fore-arm, and, by continued bandaging of them together, gradually brought them into the close contact which has been described.

Mr. Shaw, *18th of October*, 1853.

24.—*Cast of the Left Hand of a middle-aged man, and also a Dissection of the same hand, to show a Contraction of the Little Finger.*

The subject of the specimen was, for many years, the inmate of a London Workhouse, but nothing was known of the cause of the contraction of his finger. There was no sign of a scar on the hand or finger.

The little finger was bent on the hand to nearly a right angle at the knuckle, and to rather less than a right angle at its first phalangeal joint; the last phalanx was not contracted.

Before dissection there appeared (as shown in the cast) a firm round band of integuments, extending from the palmar aspect of the hand (where it corresponded to the middle of the fifth metacarpal bone) to the centre of the second phalanx; this band of skin covered and adhered to a firm round cord underneath, which had exactly the feel of a contracted tendon.

Dissection showed that the contraction of the finger was owing exclusively (as shown in the preparation) to a much thickened and contracted condition of the digital slip of the palmar fascia, to which the superjacent skin was firmly adherent.

That there was no contraction nor abnormal condition of the flexor tendons or of their sheaths.

That there was no disease or contraction of any of the joints of the fingers.

The cast and preparation show, that in operations for this deformity, the fascia, and not the tendon, is to be divided; and and that the fascia cannot be entirely divided by a subcutaneous incision, but that it is best first to dissect back the adherent skin by a longitudinal cut, and then to divide the contracted fascia by a transverse one.

Mr. Partridge, 20*th of December*, 1853.

25.—*A Child born without Extremities, and on whom Intrauterine Amputation of all the Limbs had probably been performed.*

The subject of this case was the first living infant of a

woman in good health, of middle age, and in very humble circumstances of life. She (the mother) had been married upwards of ten years, and had two miscarriages. Nothing unusual had occurred to her during her pregnancy with the present child, which was born at the full time after a short labour. The midwife in attendance did not observe anything peculiar in the funis as to length or thickness, or in the placenta, nor did she discover any remains of the deficient limbs amongst the decidua. The child was lively, and had continued up to the time of exhibition (two months) to thrive well.

Both arms were deficient at pretty exactly the same part, just below the insertion of the deltoid muscle. They had the appearance of healthy, well-healed, but rather conical stumps; the shoulder joint was perfect, and the bone, nearly two inches in length, was of almost natural thickness, its end being abrupt, and in each case attached to the skin, in which latter were evident lines of cicatrix. The child could lift up the stumps with ease, proving the integrity of the deltoids. The head, trunk, pelvis, and genital organs, appeared to be normally constructed and of healthy proportions. It was doubtful whether any bone occupied the acetabular cavities, and both lower extremities were entirely wanting. A little below the groin on each side was a nipple-like fold of skin, having a constricted neck and somewhat puckered, but not displaying any distinct lines of cicatrix. The appearances of the truncated limbs were, with slight exceptions, symmetrical, and in no case was there any development of a rudimentary member.

Mr. Hutchinson was inclined to believe that the limbs must have been amputated at a very early period of fœtal life by means of constricting bands of false membrane. Probably the whole trunk had been involved in a transitory inflammation, by which it had been enclosed in a case of lymph, through apertures in which the extremities would protrude. These latter, during growth, might be supposed to have been unable to break the bands by which they were constricted, a task which the trunk and neck, from their superior vital force, were competent to achieve. In this way, their separation from the trunk might be gradually brought about, and it would, of course, be most likely

to occur at or near the same point on each side. It was difficult to conceive any other method by which so symmetrical a result could have been produced.

Mr. Hutchinson, *7th of February*, 1854.

IX.—SPECIMENS OF DISEASE FROM THE LOWER ANIMALS.

1.—*Filaria in the Heart of a Peregrine Falcon.* (*F. Peregrinus.*)

Dr. Crisp showed the heart of a falcon kept a long time in confinement, in which were several *filaria*, embedded in the cellular tissue at the root of the great vessels: one of these worms was six inches in length. The pericardium was studded with small round elevated tubercles; and the spleen and liver were also tuberculated. The peritoneum, in some places, was covered with patches of thick lymph of old standing, which had a mouldy appearance; and on microscopical examination the sporules of mould were very apparent. The examination was made a few hours after death. Dr. Crisp remarked that he had often found mould upon the tubercular deposit in the lungs of birds kept in confinement; but, as far as he knew, its presence in the abdomen had never before been described.

Dr. Crisp, *18th of October*, 1853.

2.—*Disease of the Mesenteric Artery, produced by Strongyli within the vessel.*

The specimen consisted of a portion of the anterior mesenteric artery of an ass, and was taken from that part of the vessel which lies between the folds of the colon. *In situ* the vessel presented externally, here and there, an enlarged and thickened condition; several of these pouch-like dilatations being from six to eight inches in length. In these parts the coats of the artery had also a bluish aspect, produced chiefly by the ramifications of the vasa vasorum being distended with dark-coloured blood. In the intervening spaces the artery

retained its normal size and appearance. An examination of the aneurismal portions showed that the disease was depending upon the presence of numerous strongyles within the vessel. The worms had not simply produced a thickening of the coats and an enlarged calibre of the vessel, but a peculiar diseased state of the innermost tunics of the artery, giving to these a roughened and also a coarsely reticulated character. Within the sulci of the net-like structure, and in the contiguous parts, some fibrinous clots were found, and also many strongyli. Others of these worms were embedded in the septa of the sulci, being, as it were, hooked through these membranous partitions. The disease of the mesenteric arteries, which is thus cursorily described, is of frequent occurrence amongst asses, and occasionally met with amongst horses. Old asses, bought for dissection by the pupils of the Veterinary College, are often found to have the mesenteric arteries loaded with these worms. Not unfrequently they are located at the origin of the mesenteric artery, from the posterior aorta, and are not seen in any of the branches of the vessel. When here situated they usually produce an aneurismal sac, which may be as much as even two or three inches in diameter. At other times these strongyli are found in other vessels which spring from the aorta, and occasionally in the heart, where, evidently, they have been carried by the circulatory current. They exist also in young asses, and the writer has met with them in colts under six years of age.

If we except emaciation, which, in long existing and extreme cases, is present, there are no symptoms which will enable the medical attendant of an animal even to suspect the presence of strongyli within the vessels.

Mr. Simonds, *15th of November*, 1853.

3.—*Cysticerci and Tricocephali, from an Alligator* (*C. lucius*).

The first of these worms was found in the cellular tissue, around the duodenum and spleen, of a large alligator, that died at the Regent's Park Zoological Gardens, April, 1854. It was seven feet six inches in length, and had been several months in the Gardens. The *tricocephalus*, four inches long, was embedded in the spleen substance. Dr. Crisp believed that both these

worms were new species, for Deising, in his valuable "Treatise on Worms" (*Systema Helminthum*), had only mentioned two as having been found in the alligator, and these of a different kind. In the stomach of this reptile there were some large stones and pine-knots; the latter partly digested.

Dr. Crisp, *4th of April*, 1854.

4.—*Scirrhous Kidney of a Capybara* (*C. Hydrochœrus*).

The kidney was taken from the body of a capybara (the largest of the rodents), which had recently died at the Regent's Park Gardens. The animal was in poor condition, and weighed sixty-four pounds. The right kidney presented throughout well-marked characters of scirrhous degeneration. It was hard, white, fibrous, and a milky juice exuded from the cut surface on pressure. The microscopic appearances were those likewise said to indicate malignant disease. Other viscera, normal. The blood contained numerous diamond-shaped crystals (probably uric acid), with well-defined edges, and a large quantity of granular matter. This animal, Dr. Crisp said, had a larger blood-corpuscle than that of any mammal he had examined.

Dr. Crisp, *18th of October*, 1853.

5.—*Large Fungoid Tumor in a Carp.*

Dr. Crisp exhibited a tumor from a carp caught at Great Oakley, in Essex, November, 1853. The fish weighed ten pounds. The weight of the tumor was four pounds one ounce; it resembled somewhat in appearance and form the human brain, being convoluted externally, and its surface of a whitish-yellow colour. On making a section through the tumor, it was found to consist generally of a dense, white, elastic tissue, with fibrous bands; their direction being towards the sides of the tumor. One portion of the mass, to the extent of three inches, was soft, and had the appearance of *fungus hæmatodes*. The tumor had no special attachment to any organ, but was loosely connected with the peritoneal cavity in which it was placed. Both the liver and spleen were much elongated and flattened by pressure. The latter weighed one hundred and forty-seven grains; it was

of a darker colour than usual, but its structure was apparently normal. The ova weighed seventeen ounces, and one grain contained ninety-seven: deducting one ounce for membranes, &c., the total amounted to eight hundred and ninety-one thousand eight hundred and eighty grains.

Microscopical Appearances. — The blood corpuscles varied much in size (as in many fish and reptiles); several round cells, without nuclei, were also present, with needle-shaped crystals (dissolved by liquor potassæ), and plates of cholesterine. The juice of the denser portion of the tumor contained a few blood-corpuscles, granular matter, cholesterine, round non-nucleated cells, about one-third the size of blood-corpuscles; many narrow, long cells, with pointed ends, and a few round bodies, like the sporules of fungi. The yellow, soft portion of the mass consisted almost entirely of these sporule-like bodies.

Dr. Crisp believed the above specimen to be unique, and it formed, he thought, an interesting contrast with the one he had exhibited at the Society in May, 1848 (Transactions, Vol. 1, page 346), from the breast of a canary. Dr. Crisp believed that it would be found hereafter that there is a great resemblance between the origin and growth of these fungi and some of the tree-fungi (*Boleti*): he had found much similarity in their microscopical appearances, and, like the vegetable fungi, many of these excrescences, both in man and in the lower animals, possessed a power of growth (to some extent) independent of the body to which they were attached. Drawings of the fish, of the tumor, and of the microscopical appearances, were also exhibited. Dr. Crisp, *20th of December*, 1853.

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6. — *Malignant Tumor on the Pectoral Muscle of a Mouse* (*M. musculus*).

The animal, caught in a trap, was of the usual size, and upon the right pectoral muscle was a hard, scirrhus-like tumor, the size of a large nut. It presented, when microscopically examined, many of the appearances supposed to be characteristic of scirrhus. Dr. Crisp, *4th of April*, 1854.

7.—*Inflammation of the Os Carenæ of a Horse, succeeded by Ulceration of the Bone tissue, and of the Articular Cartilage.*

The subject, an omnibus horse, æt. 9 years, came, in October 1853, under the care of Messrs. Woodger and Broad, Veterinary Surgeons, Paddington, for a somewhat obscure lameness of the right hind leg. The general symptoms showed the seat of the disease to be the pastern joint, and it was supposed to depend on inflammation of the periosteum and surrounding ligamentous structures. The treatment adopted being conjoined with perfect rest, was attended with a marked benefit. In December, the horse was taken from the straw-yard, into which he had been turned, the lameness being, at that time, very slight. Some thickening of the pastern joint was, however, found to exist, and, as this was believed to depend on osseous deposition, counter-irritation was had recourse to, and further rest enjoined. On January 24th, 1854, the animal was becoming so free from lameness that it was thought he would be fit to resume his work in a few days' time. On the evening of this day, he was attacked, however, with extreme pain and lameness, so great as to prevent his placing the least weight upon the limb. Active inflammation supervened, and collections of pus took place in the ligamentous and tendinous connections of the joint. This pus quickly gained an external outlet, and sinuses, leading to the bone, were formed. The treatment adopted having failed to afford relief, the animal was destroyed on the 6th of February, twelve days after the recurrence of the severe lameness.

The *post-mortem* examination showed destruction of the cartilage on the outer half of the superior articular surface of the bone. A circular shaped opening existed in this part, which not only penetrated the cartilage, but extended to the depth of nearly half an inch into the bone. The cartilage surrounding the opening had a thickened edge, was of a softer consistence than natural, and of a whiter colour. This thickened edge overhung, to a slight extent, the cavity beneath. In every other part of the joint the articular cartilage was healthy. A section of the bone showed that the disease had originally begun here,

and was, doubtless, of a simple inflammatory nature at its beginning.

Ulceration having followed, the inflammatory action led gradually to the destruction of the cartilage, commencing on its attached or under surface. The cartilage being thus undermined, and thinned at the same time, it is probable that the increase of the symptoms, which took place on the 24th of January, depended on the giving way of the cartilage, which, up to this date, had bridged over the cavity in the bone.

Mr. Simonds, 21*st of February*, 1854.

8.—*Extensive Fibrinous Deposit on the Heart of an Ox.*

The animal from which the specimen was taken was a three years old ox, which was bought, by a respectable butcher, in Smithfield Market. It not only seemed to be in good health at that time, but was sufficiently fat for required purposes. Nothing particular was observed about it until after it was killed, when the outer surface of the heart was found to be covered with layers of fibrinous deposit, uniting it to the inner surface of the pericardium. The outermost layers of this deposit were, apparently, of very recent formation, but the deeper seated had, here and there, a tuberculous appearance. No inflammation had, seemingly, existed for some time; and the cavities of the heart, with the valves, were perfectly normal.

Mr. Simonds, 21*st of February*, 1854.

Report on the preceding Specimen.—The specimen consisted of the huge heart of an ox, weighing much above the normal weight. This increased weight was owing to a mass of deposit accumulated on its surface, which was thicker towards the base of the heart; and the interest of the specimen was owing to the fact, that the animal was bought and killed under the impression that it was in a healthy condition. The deposit may be described as follows:—The most superficial portion of the deposit was of a lightish-yellow hue, easily torn, and splitting up more or less into laminæ, being also succulent and spongy in texture, and evidently consisting of recently-effused albumino-

fibrinous deposit, the ordinary result of inflammation. This superficial layer, which, like the entire mass also, was in greatest abundance towards the base of the heart, had, doubtless, been formed at a later period than the rest, and by a little manipulation might be removed almost entire from the subjacent part of the mass to which it was adherent: moreover, in places it was perfectly smooth on its outer surface, as if the parietal layer of the pericardium had been adherent to it, but this was not brought before the Society. After removing altogether this superficial part, the mass beneath was found to be much firmer and closer in structure, having assumed a more or less granular character, and being of a blood-stained colour in parts. It was also very firmly united to the surface of the heart, and the line of separation was, in parts, not visible, so that altogether it appeared at first sight to be not unlike an instance of fatty conversion of the muscular walls of the heart. It formed, however, at the same time, a strong contrast, in colour and other characters, to the firm, suet-like fat about the corona of the heart and its vessels. This lower and firmer deposit, when the preparation was exhibited, was supposed to be possibly of a scrofulous or carcinomatous nature, but microscopical examination proved it to be otherwise. It was found to consist of granular, dark particles, and indistinct substance, for the most part, in which vast numbers of nucleus-like bodies, of various sizes and shapes, many being prolonged into fibrils, along with highly-refracting fatty particles, were contained. The whole appearance was exactly that of albumino-fibrinous exudation passing into a definite structure; and there can be no doubt that it was simply an exudation, the result of vascular action, and of the same essential character as, though of longer standing than, the more superficial parts. It is not quite certain whether the older and more recent deposits were results of one and the same action continued over a length of time, or were the results of two separate attacks; but it is difficult to reconcile the supposition of any severe acute attack with that of perfect healthiness of the animal. Amidst the mass of deposit at the base of the heart, which has been mentioned as being of greater thickness, a quantity of dark-coloured matter was found, giving some-

what the general appearance of melanotic malignant matter, but microscopical examination showed this to be merely deposit, very like that often found in the lungs and bronchial glands, &c. None of it was enclosed within cell-walls.

Dr. J. W. Ogle, *7th of March*, 1854.

9.—*Detached Uterus of a Hare containing two fœtal young.*

The animal from which this specimen was removed, was a large, well-conditioned, female hare, which was shot in Yorkshire, in January, 1854. The attention of the gentleman into whose hands she fell having been attracted by a tumor in the belly, which appeared quite loose, she was sent to the writer for examination. The tumor was so moveable that when the animal was hung up by the hind legs it was lost under the ribs, and when by the ears it sank low into the pelvis. The belly having been opened, the lump immediately escaped without lacerating any structure, having been quite unattached. It proved to be a uterus, having a body the size of a fist, but flattened, and a thick, rounded neck, about an inch long. Over every portion of its exterior it was invested by a smooth, glistening membrane, and, on the most minute inspection, not the slightest trace of laceration or injury could be perceived in any part. It was smooth, tense, unshrivelled, and had the appearance of being perfectly fresh. A shallow notch at its upper end, marked a division into two halves, which was yet more recognisable on handling it, when two distinct bodies were felt within. An incision having been made into one side, a fœtal hare, of seemingly full growth, and in a perfect state of preservation, escaped, having no connection whatever with the cavity in which it was lodged. There was no liquor amnii. The parietes of the tumor consisted of a serous layer, and a layer about the thickness of a sixpence, of a brown colour, and apparently muscular, which adhered closely to the serous, and also to the lining membrane, which latter was roughened and not distinctly mucous. The fœtus was invested in membranes which lined, but did not adhere to, the uterus itself. On dragging out these

membranes there came with them a flattened mass of reddish-brown colour, about an inch and a half across, and in the centre about a third of an inch thick, and much resembling, in its being evidently composed of lobes and lobules, a conglomerate gland. This was evidently the placenta. It had, however, no connection with the uterine wall, either by tufts or other provision, and it had no vessels at all resembling the cord. The vessels, which were small, all passed into the fœtal membranes, and were lost in them by subdivision. On looking carefully at the umbilicus of the fœtus, a small portion, about the eighth of an inch long, of reddish structure, was found, resembling the remains of a small funis, which had been torn across. On looking into the cavity of the uterine tumor, from which, as above said, one fœtus had been removed, it was seen to be divided from below by an incomplete septum, which extended about a third of the distance, and terminated in a sharp concave border. Above the edge of this septum the communication between the two chambers of the uterus was free, and the second fœtus in the opposite half could easily be seen.

When the specimen was shown, the other fœtus had not been removed, but was left *in situ*, in order to permit of further examination, if directed by the Society. The condition as to funis, &c., of the second fœtus, could not, therefore, be stated.

A careful dissection of the uterine organs had been made. The vagina was found perfect, as also the right uterus; the right Fallopian tube was long, tortuous, and, with the right ovary, in a natural state; the left uterus was wanting, together with almost the whole of the left Fallopian tube. The left ovary, by the absence of the Fallopian tube, was brought very near to the vagina, with the extremity of which it was united by means of a puckered cicatrix, and projecting from the middle of the latter was a small rounded knob, of very hard tissue, about the size of half a horse-bean. This cicatrix and the part just described were perfectly smooth, and appeared to have been healed for a considerable period. The appearance of the little projection was such as forcibly to suggest the idea

that it had been the part to which the neck of the uterine tumor had been last attached, and from which some slight violence had at length dissevered it.

It was quite evident in this specimen, both from the appearances of the neck of the tumor itself and those of the structures on the left side of the vagina, that a twin fœtation in its investing membranes had been detached from all connection with the parent, at a period considerably prior to her death. As, in the hare, the uterus itself is but a small pouch in the vaginal extremity of the Fallopian tube, and as gestation is normally carried on partly in the latter, it is idle to dispute the question as to whether the fœtation was extra-uterine or not. It was evidently *normal*. How the detachment had been effected it was difficult to say, but the twisted form of the projecting pedicle, from the cicatrix on the Fallopian tube, suggested the probability that it had been constricted by some band of tissue and gradually cut through. The circumstance that the neck of the uterine tumor was perfectly smooth in all parts, and presented neither trace of laceration or of recent cicatrisation, seemed to prove that nutrition had gone on in the mass subsequently to its complete separation from the parent animal; as to the absence of any connecting cord between the young animal and its placenta, no explanation could be given.

Mr. J. Hutchinson, 21*st of February*, 1854.

Report on the preceding Specimen.—The cyst, forming a perfectly closed sac, as large as the largest sized orange, oval in shape, tough and fibrous in structure, and about a line in thickness, was found lying loose in the abdomen. It was covered by peritoneum externally, and lined by a membrane apparently mucous. There was a nipple-like projection situated at one extremity on the outside; at this point the walls were thicker and more solid than at any other, gradually becoming thinner as they receded from it. Within the cyst and opposite to this nipple-like eminence, there was a semilunar process, something in shape like the falx of the dura mater, thicker at its attachment, becoming thinner towards its

edge, protruding about one-third across the cavity, and dividing the cavity partially into two chambers, in each of which lay a fœtus, so that it formed an incomplete septum between the two. One fœtus, with its placenta, had been removed from its bed, and its connection with the placenta had been broken. There were no remains of this funis, but the other fœtus was coiled up *in situ* like a ball, enveloped in its own proper membranes; and, when taken out, a funis was seen about two inches and a half in length, passing from the umbilicus to the placenta. This mass was nearly circular, two inches by one and three-fourths in diameter; and thicker in proportion than the placenta of the human subject: it was most easily separated from the internal surface of the cyst. Each fœtus was of a dark brown colour, and its form was perfect. They were almost of the same size, being about four inches and a half in length, and weighing rather more than two ounces each. The coating of hair was universal and quite natural in both; and there was not the slightest appearance of putrefaction in either. Each placenta weighed about five drachms.

The left uterine cornu, with its Fallopian tube and ovary, was perfect and of the natural size. The right cornu was also healthy, but about twice the size of the left, softer and more pulpy; its cavity was quite empty. The Fallopian tube, which should have arisen from the extremity of the right cornu, was wanting; and the small portion of it left attached, displayed unequivocal evidence of having been torn across. The ovary on this side could not be found.

This, then, appears to have been an extra-uterine pregnancy of the right Fallopian tube. We have no means of ascertaining when conception occurred, but from the time of year at which the animal was killed, it is most probable that she became impregnated during the previous autumn, and that the fœtuses had lain dead in the abdomen for some weeks, since hares rarely copulate in the winter months. Nor would this be by any means a singular occurrence, for numerous instances are on record of an extra-uterine fœtus in the human subject remaining in the abdomen for many years comparatively innocuous; and the same remark applies equally to the lower animals.

Three circumstances are especially worthy of remark in this case:—first, that there were no signs of putrefaction; but this is the well known result of the exclusion of atmospheric air. Secondly, that both the fœtuses were lying in one Fallopian tube; consequently both ovules had been furnished by the same ovary, whereas usually each cornu uteri is impregnated, if, as is commonly the case, there is more than one fœtus: and lastly, that the cyst containing them was quite loose, and not attached to any part of the mother's body. Nevertheless, there must of necessity have existed a connection, and the probability is that the nipple like projection was the point of communication, and that a forcible separation had taken place, most likely after the animal's death, in consequence of its body having been subjected to rough usage.

In the 5th volume of the "Veterinary Record," for the year 1842–43, page 492, there is the history of an extra-uterine fœtus found unattached in the abdominal cavity of an ewe, given by Professor Simonds; as well as the mention of another, also unattached, by Mr. Broackes, which came under his immediate notice.

Dr. Ramsbotham and Mr. Simonds, *7th of March*, 1854.

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