Catalogue of the Pathological Museum of the Western Infirmary, Glasgow / [edited by Robert Muir].

Contributors

Western Infirmary of Glasgow (Scotland). Pathological Museum.
Muir, Robert, Sir, 1864-1959.
University of Glasgow. Library

Publication/Creation

Glasgow : James Maclehose and Sons, 1902.

Persistent URL

https://wellcomecollection.org/works/swy7fvpa

Provider

University of Glasgow

License and attribution

This material has been provided by This material has been provided by The University of Glasgow Library. The original may be consulted at The University of Glasgow Library. where the originals may be consulted. Conditions of use: it is possible this item is protected by copyright and/or related rights. You are free to use this item in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s).

wellcome collection

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

RALPH STOCKMAN

Catalogue of the Pathological Museum of the Western Infirmary Glasgow

Glasgow
James MacLehose & Sons
Publishers to the University
1902

RALPH STOCKMAN.

Ralph

Glasgow
University Library

Store
HA 04574

3O114O11811158

C — a.1.

Glasgow University Library

ALL ITEMS ARE ISSUED SUBJECT TO RECALL

GUL 96.18

Digitized by the Internet Archive
in 2015

https://archive.org/details/b21464418

CATALOGUE OF THE PATHOLOGICAL MUSEUM OF THE WESTERN INFIRMARY, GLASGOW.

CATALOGUE

OF THE

PATHOLOGICAL MUSEUM

OF THE

WESTERN INFIRMARY, GLASGOW

SECOND EDITION

GLASGOW
JAMES MACLEHOSE AND SONS
Publishers to the University
1902

GLASGOW: PRINTED AT THE UNIVERSITY PRESS
BY ROBERT MACLEHOSE AND CO.

GLASGOW
UNIVERSITY
LIBRARY

PREFACE.

THE present edition of the Catalogue of the Pathological Museum of the Western Infirmary may be said to be the work of the late PROFESSOR COATS and his assistants. At the time of his death the manuscript had been prepared for publication, and I have accordingly carried out the classification in series and the arrangement of the specimens which he had adopted. It was not found practicable to include the description of specimens which have been added since I was appointed his successor; the Catalogue in its present form therefore stands as a record of his labours in this department of pathology.

Since the previous edition the number of specimens has been greatly increased, and certain changes in their arrangement have been made. The former series, 'Tumours' and 'Parasites,' have been split up, and the specimens placed under the various systems to which they are related; while a new series, 'Spleen, Lymphatic Glands,' etc., has been added. All the specimens have been re-numbered; this, though constituting a disadvantage in one way, was unavoidable owing to the extensive changes. For purposes of reference, however, a copy of the old Catalogue with the new numbers inserted has been preserved in the Institute.

Towards the expenses of publication a handsome grant was made by the Bellahouston Trustees, and the remainder of the cost was defrayed by the Managers of the Western Infirmary; to them the gratitude of members of the staff and students alike is due for their generosity.

I have pleasure in here expressing my hearty thanks to Prof. L. R. Sutherland and to my assistants, Drs. Ferguson, Logan Taylor, and Walker, for the assistance which I have received from them in passing the work through the press.

ROBT. MUIR.

PATHOLOGICAL INSTITUTE,
10*th March*, 1902.

CONTENTS.

SERIES I.—BONES, JOINTS, AND MUSCLES.

	PAGE
Congenital Malformations,	1
Rickets,	2
Injuries—Fractures and Dislocations,	4
Atrophic Changes,	24
Necrotic Changes,	26
Suppuration, Caries, etc. (Non-Tubercular),	33
Tuberculosis of Bones and Joints,	39
Ankylosis of Joints,	53
Syphilitic Affections,	57
Tumours of Bone—	
(*a*) Simple,	58
(*b*) Malignant,	67
Affections of Bursae, etc.,	93
Tumours of Muscles, etc.,	94
Gangrene of Extremities,	98

SERIES II.—THE CIRCULATORY SYSTEM.

1. The Heart—	
Malformations,	100
Wounds,	103
Cardiac Thrombi,	104
Lesions of Coronary Arteries—Rupture of Heart, Fibroid Change,	108
Atrophy and Hypertrophy,	114
Ulcerative Endocarditis,	117
Acute Endocarditis,	123
Chronic Endocarditis: Calcification, etc.,	130
The Pericardium—	
Abnormalities,	145
Pericarditis: Acute,	145
Chronic,	146
Tubercular,	148

PAGE

2. Arteries—
Atheroma, 151
Aneurisms—
(*a*) Of Aorta, 153
(*b*) Of other Arteries, 186
Dissecting Aneurisms, 188
Embolism and Thrombosis, 190
3. Veins—
Thrombosis, 193
Varicose Veins, 195

SERIES III.—RESPIRATORY SYSTEM.

1. Larynx and Trachea—
Injuries, 197
Inflammations—Diphtheria, 198
Tuberculosis, 201
Syphilis, 204
Tumours, 206
2. The Lungs—
Atelectasis and Collapse, 207
Emphysema, 210
Haemorrhagic Infarction, 211
Gangrene, 213
Interstitial Pneumonia, 215
Bronchiectasis, 218
Tuberculosis—
(*a*) Chronic, 219
Pulmonary Aneurisms, 225
(*b*) Acute, 230
Tumours, 232
The Pleura, 241

SERIES IV.—ALIMENTARY SYSTEM.

1. The Mouth, 245
2. The Oesophagus—
Injuries: Stricture, etc., 251
Corrosive Poisoning, 254
Diverticula, 256
Tumours, 259
Parasites, 266
3. The Stomach—
Malformations, 268
Corrosive Poisoning, 269
Ulceration, 269
Tumours, 276

4. The Intestines— PAGE
Diverticula, etc., 296
Hernia, 301
Injuries, 308
Volvulus and Intussusception, 312
Haemorrhoids, 317
Ulceration, Stricture, etc. (Non-specific), 318
Typhoid Lesions, 325
Tuberculosis, 327
Syphilis, 329
Dysentery, 330
Tumours, 332
5. The Vermiform Appendix, 355
6. The Peritoneum—
Results of Adhesions, etc., 361
Peritonitis, 365
Tuberculosis, 367
Tumours, 369
7. Parasites, 372

SERIES V.—ALIMENTARY SYSTEM Continued: THE LIVER, PANCREAS, AND SALIVARY GLANDS.

1. The Liver—
Malformations and Deformities, etc., 376
Amyloid Disease, 378
Passive Hyperaemia, 378
Abscess, 379
Cirrhosis, 381
Tuberculosis, 384
Syphilis, 384
Tumours—
(*a*) Simple, 387
(*b*) Malignant, 388
Parasites, 398
The Gall-bladder and Bile-ducts—
Strictures, Dilatation, etc., 401
Tumours, 403
Gall-stones, 404
2. The Pancreas—
Cysts, 407
Tumours, 407
3. The Salivary Glands—
Calculi, 409
Tumours, 409

SERIES VI.—SPLEEN, LYMPHATIC GLANDS, THYROID, AND SUPRA-RENALS.

1. The Spleen— PAGE
   - Malformations, 413
   - Rupture, 414
   - Amyloid Disease, 414
   - Infarctions, 415
   - Leucocythaemia, 417
   - Lymphadenoma, 419
   - Tuberculosis, 420

2. Lymphatic Glands—
   - Tuberculosis, 420
   - Lymphadenoma, 420
   - Lympho-sarcoma, 422

3. The Thyroid—
   - Exophthalmic Goitre, 431
   - Simple Tumours and Cysts, 432
   - Colloid Goitre, 433
   - Malignant Tumours, 434

4. Supra-Renals—
   - Tuberculosis (Addison's Disease), 437
   - Tumours, 438

SERIES VII.—URINARY AND GENERATIVE SYSTEMS.

I. THE URINARY SYSTEM.

1. The Kidneys—
   - Malformations, 439
   - Vascular Lesions—Infarctions, 445
   - Abscesses, 447
   - Parenchymatous Nephritis, 448
   - Granular Contracted Kidney, 449
   - Amyloid Disease, 451
   - Cysts, 453
   - Tumours, 455
   - Parasites, 462
   - Haemorrhage, 463
   - Hydronephrosis, 464
   - Calculi, 472
   - Pyonephrosis, etc., 473
   - Tuberculosis (Genito-urinary), 480

2. The Bladder, Prostate, and Urethra—
   - Malformations, 486
   - Injuries, 487

2. The Bladder, Prostate, and Urethra—*continued.* PAGE
Cystitis, etc., 488
Prostatic Enlargements, 491
Stricture of Urethra, 497
Tumours—
(*a*) Simple, 499
(*b*) Malignant, 500

II. FEMALE GENERATIVE ORGANS.

1. External Genitals—
Tumours—
(*a*) Simple, 503
(*b*) Malignant, 505
2. The Vagina, 507
3. The Uterus—
Malformations, 507
Pregnancy, etc., 509
Endometritis, 512
Rupture, 512
Displacements, 513
Hydatid Mole, 514
Tumours—
(*a*) Simple, 514
(*b*) Malignant, 529
4. The Fallopian Tubes—
Tubal Foetation, 530
Perimetritis and Salpingitis, 531
Pyosalpinx and Tuberculosis, 533
5. The Ovaries—
Cystic Tumours, 537
Dermoid Cysts, 544
Malignant Tumours, 549
Parovarian and other Cysts, 558
6. The Mamma—
Atrophy, 564
Tuberculosis, 565
Tumours—
(*a*) Simple, 566
(*b*) Malignant, 571

III. MALE GENERATIVE ORGANS.

1. The Penis—
Ulceration, 588
Tumours, 589
2. The Prostate—
Tumours, 591
Calculi, 592

3. The Testicles— PAGE
Malposition, etc., - - - - - - - - - - 592
Tuberculosis, - - - - - - - - - - - 593
Syphilis, - - - - - - - - - - - - 596
Tumours, - - - - - - - - - - - 597
Spermatocele, - - - - - - - - - - - 601
Hydrocele, - - - - - - - - - - - 602

SERIES VIII.—INTEGUMENTARY SYSTEM.

Tattooing, - - - - - - - - - - - - - 605
Injuries, - - - - - - - - - - - - - 605
Oedema, - - - - - - - - - - - - - 606
Ulceration, - - - - - - - - - - - - 606
Echthyma, Epidermic Casts, Scleroderma, - - - - - - - 609
Tuberculosis, - - - - - - - - - - - - 610
Syphilis, - - - - - - - - - - - - - 611
Abnormalities of Nails, Hairs, and Sebaceous Glands, - - - - - 611
Molluscum Contagiosum, - - - - - - - - - - 612
Tumours—
(*a*) Simple, - - - - - - - - - - - - 615
Cysts, - - - - - - - - - - - - 619
(*b*) Malignant, - - - - - - - - - - - 625
Actinomycosis and Madura Foot, - - - - - - - - - 657

SERIES IX.—NERVOUS SYSTEM.

1. Nerves—Tumours, - - - - - - - - - - - 659
2. Brain and Spinal Cord,
Hydrocephalus, - - - - - - - - - - - 661
Injuries, - - - - - - - - - - - - 662
Thrombosis and Embolism, - - - - - - - - 662
Haemorrhage, - - - - - - - - - - - 667
Aneurism of Cerebral Arteries, - - - - - - - 668
Abscess, - - - - - - - - - - - - 674
Meningitis, - - - - - - - - - - - 679
Tuberculosis, - - - - - - - - - - - 681
Syphilis, - - - - - - - - - - - - 687
Tumours, - - - - - - - - - - - - 688
Parasites, - - - - - - - - - - - - 707

SERIES X.—URINARY CALCULI.

Uric Acid Calculi, - - - - - - - - - - - 708
Phosphatic Calculi, - - - - - - - - - - - 712
Oxalate of Lime Calculi, - - - - - - - - - - 717

	PAGE
Mixed Calculi—	
Uric Acid and Phosphates,	719
Uric Acid and Oxalate of Lime,	725
Oxalate of Lime and Phosphates,	726
Uric Acid, Oxalate of Lime, and Phosphates,	729
Cystine Calculi,	730
Calculi from Urethra,	730

SERIES XI.—MALFORMATIONS.

Anencephaly, etc.,	732
Encephalocele and Meningocele,	734
Fissures of Thorax and Abdomen,	736
Extroversion of Bladder,	738
Congenital Diaphragmatic Hernia,	739
Siren Malformation,	740
Congenital Sacral Tumours,	741
Malformations of Hands and Feet,	744

SERIES I.

BONES.

I. 1. Congenital Malformation of Rib.

The rib is the sixth. The osseous portion is flattened and extended so as to measure 2·5 cm., as compared with 1·7 cm. on the other side. The costal cartilage immediately beyond the osseous rib bifurcates, but reunites so as to form an aperture, measuring 1·7 cm. by 1·3 cm. The aperture is closed by a membrane.

John H. (21) had suffered an injury to his back nineteen months before death. There was complete paralysis of both motion and sensation below the distribution of the intercostal nerves. When admitted fourteen months after the injury, large sloughing bedsores were present, and there was incontinence of urine and faeces. The urine was loaded with pus and highly ammoniacal. The septic inflammation extended to the kidneys, a pyelo-nephritis being demonstrated after death.

Path. Reports, 24th Mar., 1894, No. 3637.

I. 2. Congenital Malformation of Rib.

The osseous rib becomes unduly flat, and divides into two branches, which are continued as cartilaginous rib, the latter again uniting into one. An oval aperture is thus left.

Path. Reports, 20th Aug., 1875, No. 24.

I. 3. Surface Irregularities of Skull, simulating Disease.

(Dr. John Love.)

The upper preparation here shows depressions at the posterior superior angles of both parietals, especially the left. During life

the question of trephining for depressed fracture was considered, as the patient was subject to epileptiform seizures. He gradually, however, developed into a general paralytic. At the *post-mortem* the brain and other organs were found normal.

The second preparation shows a decided bulging of the upper angle of the occipital beyond the level of the parietals. The interdigitations are very loose.

I. 4. Thinning of Calvarium.

The bone is exceedingly thin and diaphanous. It presents internal depressions corresponding with the convolutions, between which the bone is more opaque.

I. 5. Spinal Column from a case of Rickets.

There is a marked lateral curvature in the middle dorsal region. It will be noticed that the curvature is much more marked in the bodies of the vertebrae than in the spines, there being considerable rotation of the vertebrae as well as lateral displacement.

I. 6. Humerus, Radius and Ulna, and Femur, from same case of Rickets.

The humerus shows very marked swelling of the upper end of the shaft, giving the bone a strikingly clubbed appearance, the enlarged upper end contrasting with the thin shaft The femur, which has been divided longitudinally, presents enlargement at both ends, and it can be seen, even with the naked eye, that the swollen part consists partly of cartilage and partly of ill-formed bone.

The radius and ulna are from the right side, and they present a curvature forming nearly a right angle about the junction of middle and lower thirds of the bones. The curvature is with the concavity forwards and outwards, so that the hand must have projected somewhat outwards from the general direction of the forearm.

I. 7. Enlargement of the Junction of Cartilaginous and Osseous Rib, constituting the "Rachitic Rosary."

The preparation is from the chest wall of a child affected with rickets. The first eight ribs are shown, and it is seen that each

presents a marked swelling at the junction of the osseous and cartilaginous portions. This swelling is seen better in the inside than the outside.

I. 8. Curvature of Clavicle from Rickets. (Dr. Finlayson, Children's Hospital.)

The preparation shows the left clavicle from a child five years of age. The bone has a somewhat sharp bend with its convexity forwards situated about the junction of the inner and middle thirds of the bone. The prominence caused by this curve produced an appearance suggestive of fracture. The other clavicle presented a similar appearance, and the other bones showed the characteristic lesions of rickets. More particularly the rachitic rosary was very prominently seen in the chest wall.

I. 9. Curvature of Tibia and Fibula from Rickets. (Sir Hector C. Cameron.)

The bones of this preparation were taken from the leg of a child amputated for extensive disease of the knee-joint, and are intended to show one of the common forms of curves occurring in rickets. The bend is an antero-external one, situated in the tibia a little below the middle of the shaft, and in the fibula on a lower level than that of the tibia—about the junction of the middle and lower thirds. The wedge of bone seen wired in position was removed to ascertain the relative thickness of the concave and convex borders of the shaft, but no difference was observable. Above and below, the superficial part of the bone has been removed to show the epiphyseal lines which, though somewhat irregular and widened, probably present no particular feature of interest.

It will be noticed that besides the curves the bones have lost their more marked normal anatomical characters ; thus, the anterior border or "shin" of the tibia is rounded, and the section of the shaft at its most affected part oval instead of triangular. The fibula is similarly affected, presenting at no part except the extremities the regular anatomical features. The tendency in both bones has been to present at the most curved parts a defined margin with flattening at the sides.

I. 10. Gunshot Wound of Skull.

The aperture of entrance and of exit are shown; that of entrance is near the saw cut and through the squamous portion of the temporal bone, while that of the exit is in the opposite parietal, slightly below its middle part. The aperture of entrance is, externally, a well-defined aperture about 1 cm. in diameter; internally the edges are bevelled all round to the extent of about 3 mm. In addition, a piece of the skull is loosened by a fracture which runs out from the upper limit of the aperture, passing forwards and downwards. The aperture of exit is oval in shape, and measures about 2 cm. in diameter. In addition to the piece of bone completely displaced, there is a piece partially thrown outwards measuring 1·3 cm. in diameter. Besides that there are radiating fractures passing out from the aperture. It is to be noted that the aperture in the dura mater, even in the dry state, is less than that in the skull, being only 1·3 cm. in long diameter. The bullet is preserved in specimen No. 11 of this series.

The case was that of a man who, after shooting his landlady, shot himself. (See next preparation.)

I. 11. Bullets from the two cases of Gunshot Wound of Skull.

That from the first case is cylindrical and with only a slight gash in it. The other is much contorted and a piece of it partially displaced. At the time of the *post-mortem* examination the metal was bright as if recently cut open, as it had been by the bone.

I. 12. Extensive Fractures of Skull from Fall on Occiput. Laceration of Brain by Contre-coup. (Sir G. H. B. Macleod.)

Three sets of fractures are visible—(1) on the right side posteriorly above and to the right of the occipital protuberance there is a point (just beneath the level of the saw cut) whence four limbs radiate in a crucial manner, viz.: a large gaping split which passes downwards and forwards to the lateral margin of the foramen magnum, the second is a continuation upwards of this to end at the lambdoidal suture. The other two limbs pass off on either side and are merely fissures in the external table. (2) Two fractures in the posterior part of the left parietal, the one involving

the external and the other the internal table. That in the external table passes from the lambdoidal suture about 3·8 cm. from the middle line obliquely upwards and inwards and then makes a sudden bend outwards. The latter crosses the upper end of the former nearly at right angles, ending at the apex of the lambdoidal suture. (3) Two almost symmetrical fractures pass through the petrous bones on either side; that on the left is most distinct and extensive. It passes through the base of the mastoid process, through the external auditory canal and through the squamous bone to end near the upper edge of the latter. Viewed internally this fracture extends through the petrous bone about the level of the superior semicircular canal. The fracture on the right has an almost similar course, but does not extend so far forwards. There is also a complete transverse fracture through the body of the sphenoid just behind the sella turcica.

A man (aet. 30) was admitted with symptoms of concussion. There was bleeding from both ears, but more from the left. No injury to the scalp could be detected and no information could be obtained as to the nature of the accident. He was very restless and frequently put his hands to his head. The temperature gradually rose till his death two days after the accident.

The *post-mortem* examination showed extreme laceration of both frontal lobes and slight laceration of both temporo-sphenoidal lobes. The injury to the brain was thus limited to the parts opposite the chief centre of fracture. *Path. Reports*, 29th Jan., 1886, No. 1479.

I. 13. Extensive Fracture of Skull from Fall into the Hold of a Ship. (Sir Hector C. Cameron.)

There is in the first place a nearly circular fracture surrounding the anterior and middle portions of the right lateral aspect of the skull. The upper border of this comes to within 2·5 cm. of the middle line, whilst the lower border runs through the temporal fossa. The portion of bone within the fracture looks as if flattened inwards. From the middle of this portion of bone, which corresponds nearly with the anterior inferior angle of the parietal bone, other fractures radiate downwards through the temporal fossa and body of sphenoid forwards into the orbit and backwards. The zygoma is also fractured nearly in the line of the downward extension. There was no wound on the scalp. There was also fracture of six upper ribs.

Alexander W. (aet. 50), a ship carpenter, fell into the hold of a ship, 17 feet, striking the iron deck below. His fall was not noticed, and he lay for nine hours before he was discovered. He lived for six days, but did not recover consciousness.

Path. Reports, 27th Nov., 1889, No. 2221.

I. 14. Fracture of Vault of Skull continued through Frontal Bone. (Sir Hector C. Cameron.)

The fracture at the vault is complicated, forming nearly a semi-circle on the right side with considerable depression, especially visible internally. The fracture continued forwards from this, gapes to the extent of 3 mm. (as measured in the recent state) as it passes through the right side of the frontal bone. Near the anterior extremity of this bone it forks, the main division running to the inner angle.

There was extensive laceration of the frontal lobe of the brain. A fracture of both bones of the left leg also existed.

Thomas P. (aet. 58), a riveter, was admitted with a lacerated wound over the vertex. He only lived for one day. There was some paralysis of the left side.

Path. Reports, 26th Nov., 1889, No. 2220.

I. 15. Fracture of Supraorbital Plate. Laceration of Brain, etc. (Dr. Renton.)

There is an irregular gap measuriug 2·5 cm. from before backwards and 1·5 cm. from within outwards uncovering the inner part of the left orbital plate of the cribriform. The corresponding pieces of bone were found partly in the lacerated brain tissue. The dura mater has a nearly circular aperture of corresponding size and there is a laceration of the brain seen in section to a depth of 1 cm. The eyeball was uninjured. An acute meningitis existed on the surface of both hemispheres and over the cerebellum.

John D. (aged 21) received his injury by the thrust of a stick or umbrella. He lived three days after the injury. Temperatures ranged high. *Path. Reports*, 6th April, 1895, No. 4110.

I. 16. Fracture of Posterior Fossa of Skull. (Sir Hector C. Cameron.)

The injury consists partly of fracture and partly of separation of

sutures. The temporal bone has been "started" from its union with the occipital and parietal bones, so that it could be separated from them. Further, there are fractures passing through the occipital bone from temporo-occipital suture to the foramen magnum. There is also a fissure passing forwards through the lower part of the squamous portion of the temporal bone, but it only affects the external table.

Jas. R. (aet. 50) fell from a height of 15 feet. Besides the injury to the skull he had fractured ribs and clavicle (see No. 31). He died apparently in consequence of pleurisy resulting from the injury to the chest. *Path. Reports*, 13th Mar., 1888, No. 1858.

I. 17. Fracture of Skull with Depression, etc. (Sir Hector C. Cameron.)

The posterior part of the left parietal bone shows two apertures of a quadrilateral shape, and about 2 cm. in diameter, lying one in front of the other with about 2 cm. between them. The edges are bevelled so that the internal table is considerably more lost than the external. The bridge between the two apertures shows a crack through the external table. There is also a fracture beneath the apertures nearly parallel with them, between which and the apertures the bone is depressed. Viewed internally, the posterior extremity of the depressed portion presents a sharp angle. There were wounds in the scalp corresponding with the apertures, and brain-substance presented at these. There was also a septic meningitis.

Jas. W. received his injury from a bar of pig-iron falling on his head. He lived for twelve days, and for two days before death presented right hemiplegia and facial paralysis.

Path. Reports, 14th Dec., 1886, No. 1639.

I. 18. Extensive Comminuted Fracture of Right Occipital, Parietal, and Temporal Bones. (Sir G. H. B. Macleod.)

The bone is in several portions of larger and smaller size, and these are bounded posteriorly and internally by a semicircular fracture which passes through occipital and parietal bones. There is also one fracture passing down through the parietal into the squamous portion of the temporal bone, where again there is some

comminution. The brain was greatly lacerated opposite the region of the fracture.

Wm. W. (aet. 40) sustained his injury by falling into the hold of a vessel. He was admitted unconscious, and died in thirty-six hours. There was great swelling over the right temporal and parietal regions, and no fracture could be detected.

Path. Reports, 31st March, 1888, No. 1866.

I. 19. Healed Depressed Fracture of Skull.

The preparation shows the amount of repair which has taken place, and the degree of displacement permitted without material damage to the brain. A blow was received by a stick on the forehead, depressing the frontal bone in two places, which depression is as well shown on the internal surface of the skull as on the external. The outer fragment of the frontal bone in contrast to the two internal is distinctly bulged outwards as if forming some compensation for the depression of these two fragments. A line of fracture starts back from about the spheno-parietal suture into the squamous part of the temporal; although plainly seen externally, there is no corresponding internal indication of its existence. Union of the different fragments with each other and the body of the frontal bone is almost complete. Here and there, however, fissures are seen which during life could only have been filled with soft material. The complete absence of any external callus will be noticed, the margins of the fragments being externally smooth and bevelled off. From the apparent similarity of depth of displacement both internally and externally, the frontal sinuses appear absent or but slightly developed. It should be noted that at the *post-mortem* examination very superficial softenings were found on the cortex of the brain corresponding to the prominent edges of the depressed fragments.

From a male patient (aet. 40), who died of pneumonia. He had fractured his skull, but how long ago was not known.

Path. Reports, 24th March, 1885, No. 1330.

I. 20. United Fracture of Nasal Bones.

There is great distortion and evidence of comminution of the bones. The right is partly displaced so as to form a flattened concave surface forwards, partially filling up the aperture of the

naris. The left is considerably displaced outwards and partially separated.

William J. (aet. 56), a plater, was admitted in a dying condition from cerebral softening. There was a marked deformity of the nose. The history of the injury was not discovered.

Path. Reports, 18th April, 1890, No. 2342.

I. 21. Fracture of Cervical Vertebra. (Sir Hector C. Cameron.)

The seat of fracture is the fifth cervical vertebra, the body of which is seen to be almost completely destroyed. The osseous tissue of the body has been displaced outwards, and forms a swelling on the outer aspect on either side. Besides this, the spinous process and part of the arch of this vertebra have been broken off and carried downwards, so that a gap is left through which, before removal, the cord was visible from behind. These structures impinge somewhat on the spinal canal and on the cord, which was considerably softened at this part.

The case was that of a man aged 60. A heavy door fell on him, knocking him down and pressing him over a trestle. There was motor paralysis of the legs and loss of power in the arms. Complete loss of sensation was detected in the legs and lower part of trunk. In the legs no response was obtained with the continuous or interrupted current. *Path. Reports*, 30th Nov., 1881, No. 739.

I. 22. Fracture with Dislocation of Twelfth Dorsal Vertebra. (Prof. Macewen.)

The specimen shows the parts in longitudinal section. The twelfth vertebra, which is the third from above in the specimen, has its body dislocated backwards irregularly, the bone being torn away from the anterior longitudinal ligament, but still leaving portions adherent, especially anteriorly and above. The dislocated body is irregularly conical in section, the apex projecting forwards and upwards. The base of the cone projects into the spinal canal, the upper angle of the base having an especial projection to the extent of 1·2 cm. beyond the general level. This angle greatly narrows the vertebral canal, which is here only $\frac{1}{2}$ cm. in diameter, and it impinges on and flattens the spinal cord.

There is also additional curvature in this region, but the narrowing of the canal is due essentially to the dislocation.

I. 23. Dislocation-Fracture of Vertebrae. Fracture of Cricoid Cartilage by Ulceration of Pharynx. (Prof. Macewen.)

The vertebrae which are divided in the middle line show an extreme dislocation of the seventh cervical on the first dorsal, the inferior surface of the former being applied and somewhat firmly fixed to the anterior surface of the latter. The superior surface of the first dorsal is almost free from the last cervical, and it forms an acute projection backwards into the spinal canal. It was found that the arches of the seventh cervical were fractured so that the spinous process was freely movable. The cord was greatly compressed and softened opposite the lesion.

The other specimen shows the pharynx and œsophagus laid open. In the anterior wall of the œsophagus the cricoid cartilage is exposed and there is an irregular fracture with considerable divergence of the ends, the fracture being generally from above downwards and nearly in the middle line. The œsophagus is ulcerated around the fracture, and there is a corresponding ulcer (divided in the specimen and half on either side) on the posterior wall of the pharynx. The latter ulcer was adherent to the bodies of the fourth and fifth vertebrae, and was opened into in the process of removing the vertebrae. It is inferred that at the time of the injury the great and sudden projection forward of the cervical bodies fractured the cricoid cartilage with resulting tearing of the pharynx. The mucous membrane of the larynx is intact. The laryngeal cartilages are not calcified.

Jas. D. (aet. 39) fell about twelve feet on the back of his neck. He lived more than a month. There was loss of motion and sensation, the former involving the intercostal muscles and legs, and the latter extending from the nipple downwards. Pain on swallowing was present, and fracture of the thyroid cartilage was believed to exist. *Path. Reports*, 17th Aug., 1894, No. 3830.

I. 24. Dislocation and Fracture of Cervical Vertebrae. (Dr. Patterson.)

The fourth and fifth vertebrae are considerably separated, partly by tearing of ligaments and dislocation, partly by a fracture of the body of the fourth vertebra. There was considerable hæmorrhage in the neighbourhood.

This preparation was obtained from the body of a tall, powerful

man, who, whilst engaged in carrying bags of grain, stumbled and fell, the bag resting on the back of his neck. He lived until the fourth day, completely paralysed from the seat of injury downwards. The blood effused at the immediate seat of injury made its appearance at the surface in the form of ecchymosis only a few hours before death. *Path. Reports*, 19th Feb., 1877, No. 192.

I. 25. Fracture and Dislocation of Cervical Vertebrae. (Dr. Patterson.)

The sixth and seventh vertebrae are the seat of the lesion. As seen in longitudinal section the anterior and upper edge of the seventh vertebra is chipped off, especially on the left side. The part broken off is attached to the inter-vertebral disc and sixth vertebra, the latter being carried forward so as to overhang the seventh to the extent of fully 6 mm. Behind, there is a similar displacement, so that the body of the seventh vertebra projects backwards behind the sixth, and the upper edge of the former impinges on the spinal cord, which is here distinctly narrowed, softened, and reddened. There is also a fracture of the articular process of the sixth vertebra on the left side, while on the right the ligaments are torn and the articulation is exposed through a gaping aperture. The parts as a whole are very movable at the seat of injury, and the appearances are such as to suggest a crushing of the vertebrae, the force acting in front and to the left, producing laceration to the right.

John L. (aged 17) fell off a waggon and pitched on his head. There was paralysis of motion and sensation of the lower limbs, and up to $3\frac{1}{2}$ cm. below the nipple respiration was entirely abdominal. The penis was in a state of erection. He died seven days after the injury. *Path. Reports*, March 24, 1891, No. 2617.

I. 26. Dislocation of Cervical Vertebrae. (Dr. Patterson.)

The preparation shows in median section the cervical vertebrae. The inter-vertebral cartilage between fifth and sixth vertebrae is disintegrated and the ligaments both within the canal and outside are lacerated. There was considerable hæmorrhage around and also within the canal, and the spinal cord presented an area of softening opposite the fifth and sixth vertebrae.

John C. was struck and knocked down by a bag of grain. He was admitted with paralysis of the body and legs, respiration being

diaphragmatic. He could at first move his arms, but his fingers were almost powerless. The power of the arms was gradually lost, the diaphragm became paralysed, and death resulted nine days after the accident. *Path. Reports*, July 3rd, 1889, No. 2134.

I. 27. Dislocation of Cervical Vertebrae, which impinged on Cord. (Sir G. H. B. Macleod.)

The lower cervical and four upper dorsal vertebrae are preserved. The uppermost of the series, which is the fifth cervical, is seen displaced forwards, the displacement observed at the time of the dissection being reproduced. The fifth vertebra is seen to project in front of the sixth and a similar displacement is visible from behind, the laminae having been removed. There is considerable roughness and some projection on the proximate surfaces due apparently to a certain amount of new bone-formation. Besides the antero-posterior displacement there is a distinct lateral inclination of the fifth vertebra with slight rotation so as to cause the left side of the body of the sixth to project more behind than the right side. No fracture was found. The spinal cord was found nearly normal in appearance, an undue softness opposite the seat of injury being the only change.

John D. (aet. 46) struck the back of his head and neck against a piece of rail, in consequence of a lever which he was using, slipping. He did not lose consciousness, but there was paralysis of motion and sensation of the legs, lower part of trunk, left arm, and partially of the right arm. In the course of ten days improvement in sensation was noticed. Subsequently urinary trouble ensued, and he died forty-eight days after the injury.

I. 28. Transverse Fracture of Sternum.

The sternum at the level of the third costal cartilage has a transverse and somewhat oblique fracture. The posterior ligament is torn across and the fracture gapes posteriorly. The anterior ligament is intact.

The injury was received by a crush between two waggons. There were fractures of nine ribs and there was rupture of the liver and right kidney. The man died about two hours after receiving the injury. *Path. Reports*, 2nd April, 1890, No. 2328.

I. 29. Fracture of Rib.

I. 30. Fractures of Ribs. Development of Callus. (Dr. Yellowlees.)

The ribs are those of an insane patient, and the history of the fractures is not known. Their texture is firm, but at intervals they present spindle-shaped thickenings, and on dividing the ribs longitudinally each thickening is found to represent a fracture and the surrounding callus. One of the swellings was prepared for microscopic examination, and it was found that in the mass of callus there was not only new-formed bone and connective tissue but masses of cartilage, chiefly fibro-cartilage. [The fact is to be noted that in the fractures of animals the callus normally contains cartilage, and that here in undiscovered fractures of the ribs, where rigidity could not be ensured, cartilage is also present.]

I. 31. Transverse Fracture of Clavicle. (Sir Hector C. Cameron.)

The fracture is through nearly the middle of the bone. It is roughly transverse and with some comminution. It was obtained from the same case as No. 16.

I. 32. Oblique Fracture of Clavicle.

I. 33. Comminuted Fracture of Left Scapula.

During maceration the bone separated into four principal fragments and a few small pieces. The four larger pieces were, neck and glenoid cavity with coracoid process; spine and acromion process; superior angle; and body from below the spine downwards.

Jas. B. (aet. 46) fell into the river Clyde, and in falling struck himself on the left side and shoulder. He sustained fractures of the first and second ribs on the left side, and separation of the cartilaginous and osseous portions of both first ribs. Extensive general emphysema developed, and pneumo-thorax subsequently with pleurisy. *Path. Reports*, 16th Sep., 1888, No. 1835.

I. 34. Fracture of Pelvis. (Sir G. H. B. Macleod.)

The specimen is a good example of the lines of fracture taking place as the result of a heavy weight passing over the bone. Pos-

teriorly, the lateral mass of the sacrum is fractured on the right side, and this fracture extends through the body of the bone towards the middle line below; on neither side was there any disjuncture of the sacro-iliac synchondrosis. In front the greater part of the pubic bones, with the symphysis, is completely separated from the rest of the pelvis, the cartilage being detached from the right bone. On the left side the ramus and part of the body of the ischium, and part of the body of the os pubis are displaced in separate fragments. A large portion of the ala of the left ilium is seen comminuted and detached from the body of the bone.

The bone was removed from the body of an old woman, aged seventy, who had been knocked down and run over by a cart. On admission she was in a state of shock, and complained only of pain in the back. The urine had to be withdrawn, and was found to be bloody. There was little bruising externally. She died within forty-eight hours of the receipt of the injury. At the *post-mortem* examination there was considerable extravasation of blood, but entirely located beneath the peritoneum, this membrane remaining intact.

I. 35. Fracture of Pelvis. (Dr. Patterson.)

The fracture of the bone has taken place at three different spots. (1) A transverse fracture running through the ramus of the right pubic bone: (2) a comminution of the body of the same bone, where it enters into the formation of the acetabulum, seen posteriorly: (3) a disjuncture of the left sacro-iliac synchondrosis, with fracture of the adjoining bones—the ilium and the sacrum. In the fresh state, the right pubis was found driven directly backwards so as to be apparently about 1·3 cm. behind the left, and this fragment had perforated the bladder. In the acetabula are seen the lines of union of the three bones which enter into its formation—these had separated in the process of maceration.

The specimen was removed from a boy (aet. 14), who died four days after being run over by a van. The wheel passed over his pelvis, bruising his hip and injuring his abdomen, but no fracture could be detected. *Path. Reports*, 14th Nov., No. 1770.

I. 36. Pubic Bones from a case of Extroversion of the Bladder. (Dr. Patterson.)

The specimen was obtained from a case of extroversion of the

bladder, and the bones have been mounted to show the distance which existed as the result of the malformation. The interval is about 9 cm. (See specimen of bladder in Urinary Series.)

Path. Reports, 16th July, 1886, No. 1579.

I. 37. Healed Fracture of Pelvis of Eight Years' Duration. (Sir Hector C. Cameron.)

The specimen shows a complete union, but with some displacement, of a fracture of the pelvis. In front there is considerable thickening about the external extremity of the right os pubis, the horizontal ramus being considerably shortened and thickened. There is again a fracture on this side at the lower part of the ascending ramus of the ischium. On the left side there is also thickening at the external part of the horizontal ramus of the pubis, and a fracture of the ascending ramus of the ischium, the latter with great over-riding of the two fragments, resulting in a marked asymmetry of the pelvis, the right side being much deeper from pubis to tuberosity of ischium than the left. Behind there is a united fracture on the left side, very visible externally and less so inside. The fracture seems to have passed partly through the sacro-iliac synchondrosis, and thence across the wing of the ilium. It is somewhat irregularly united and the sacro-iliac synchondrosis is ankylosed along with it. On the right side there is no appearance of fracture. Besides the united fractures there are prominent spiculae of bone in three regions, viz.: (1) round the border of the obturator foramen to the number of seven needle-shaped projections, (2) on the summit of the body of the right os pubis, and (3) a peculiar curved narrow projection from the front of the ischium on the left side arising between the third and fourth anterior sacral foramina.

Jas. C. (aet. 38). The case was an interesting one in respect that the patient was admitted to the Royal Infirmary under Dr. Cameron's care eight years before death, for fractured pelvis and ruptured urethra. The two halves of the pelvis were freely movable on each other, and the membranous urethra was torn across. It was necessary to puncture the bladder above the pubis, and it was drained by this aperture for three weeks. Perineal section was then performed and the patient was ultimately dismissed well. Five years afterwards he was admitted to the Western Infirmary with stricture, when Wheelhouse's operation was performed. He was re-admitted after three years with similar symptoms. Perineal section was again per-

formed, and was followed by suppression of urine for two days. He improved for some days, but then became collapsed and died. Inflammation of the bladder and pyonephrosis were found.

Path. Reports, 15th June, 1888, No. 1892.

I. 38. Intracapsular Fracture of Neck of Femur. (Dr. Beatson.)

The bone is seen in section. The head is completely separated and the neck apparently much atrophied; considerable new formation of bone has taken place in both head and neck. At its lower part the head of the bone was attached by tough fibrous bands to the femur, but there was no bony union. There was an intracapsular fracture of the humerus on the same side.

I. 39. Extracapsular Fracture of Neck of Femur—United. (*Normal Bone for comparison.*)

The fracture has united so that the head projects to a larger extent backwards, being nearly in the line of the linea aspera. The fracture has been just behind the inter-trochanteric line through the great trochanter, and across the anterior trochanteric line. Considerable new formation of bone has occurred especially on the two trochanters. The twisting of the head backwards is shown by comparison with the normal specimen, which is fixed with the shaft in the same plane.—The specimen was removed *post mortem* from a patient who had fractured his femur by a fall six years before.

I. 40. Fracture of Upper End of Femur, with great Displacement. (Prof. Geo. Buchanan.)

The fracture has taken place just below the neck of the femur, and the lower fragment has been carried upwards, so that the lesser trochanter lies immediately under the head of the femur, and this fragment is fixed by dense fibrous connections along the lower surface of the neck. There has been very great production of callus, so that enormous thickening around the head of the bone is present. Union is very firm but not complete.

Path. Reports, 3rd Feb., 1879, No. 421.

I. 41. Comminuted Fracture of Femur. (Dr. Patterson.)

I. 42. Compound Fracture of Femur. Sepsis; Non-union; Amputation. (Sir Hector C. Cameron.)

The parts removed include the lower end and greater part of the shaft of the femur in two fragments. The upper fragment, measuring 10 cm., tapers downwards and ends in a smooth rounded extremity. The lower fragment tapers upwards and has also a smooth rounded extremity. Slightly below this extremity there is an irregular depression about 1 cm. in diameter, which communicates by a small aperture with the medullary cavity. Beneath this, and on the outside of the shaft, there is some irregular callus, and in the midst of it a sinus is partly shown.

A man aged sixty-five sustained a compound fracture of the right femur ten months before operation. The wound became septic and recurrent abscesses formed. When first seen, about a week before amputation, there were non-union of fragments and a septic sinus. The sinus was slit up and the parts cleaned as thoroughly as possible, but febrile attacks continued, and amputation was called for.

Path. Reports, 7th March, 1898, No. 5363.

I. 43. Fracture of Femur produced by Osteotomy.

There is an oblique fracture of the femur about 11·5 cm. above the articular surface. The lower fragment has a tolerably uniform surface, whilst the upper fragment is in several pieces, and there is a gap from loss of some pieces. There is a marked elongation of the internal condyle.

Maximillian V. (aet. 29) was affected with genu valgum in an exaggerated degree. It began when he was eight years of age and increased till he was twenty. He died of pyæmia after the operation. *Path. Reports*, 24th June, 1885, No. 1381.

I. 44. Fracture of Femur. Osteotomy.

The chisel cut is on the inside of the femur, 10 cm. above the articular surface. It passes inwards and upwards for about 1 cm., and then a fracture extends obliquely upwards reaching the opposite side of the bone about 7·5 cm. above.

The case was that of a young subject, as shown by the fact of the epiphysis being unattached, who died from pyæmia after the operation.

I. 45. Oblique Fracture of Femur. Union. (Sir Hector C. Cameron.)

The specimen is a somewhat imperfect one, but the parts are seen to have been united by cancellated bone. This has been formed apparently to a large extent from the exposed medullary cavity of the lower fragment and corresponding surface of the upper. There is also a quadrilateral piece of new bone between the periosteum of the lower fragment and the riding lower end of the upper fragment. In the preparation the parts have come apart somewhat, but they were firmly united.

Robin C. (aged 6) died apparently in consequence of gangrene of the foot arising from the same injury that had caused the fracture of the femur.

I. 46. United Fracture of Femur. Great Displacement. (Dr. Patterson.)

The fracture is situated near the lower end of the bone, and union has taken place at an angle of 130°, the apex of the angle pointing backwards. The upper fragment rides behind the lower, and union has taken place chiefly by new-formation of bone, which proceeds from the lower fragment to the surface of the upper, chiefly on its anterior and lateral aspects. The section of the bone above shows great wasting of the tissue, the diameter of the shaft being diminished and the thickness of the dense bone also diminished.

Wm. T. (aet. 14) had suffered from hip-joint disease for about twenty months before amputation was performed at the hip-joint.

Path. Reports, 4th June, 1886, No. 1546.

I. 47. Old United Fracture of Femur, of Thirty Years' Duration.

The fracture is about 10 cm. below the neck and there is considerable curvature with the convexity outwards.

David B. (aet. 46). The fracture occurred at the age of 16, viz. 30 years before death. *Path. Reports*, 13th Feb., 1888, No. 1832.

I. 48. Separation of Lower Epiphysis of Femur. (Dr. Beatson.)

The bone has been sawn longitudinally and shows the epiphysis displaced outwards and backwards. The lower end of the diaphysis

projects in front and internally, and the bone here is partly exposed by a rupture of the periosteum, which, however, is to a certain extent preserved so as to bind diaphysis to epiphysis in its new position. Posteriorly the periosteum has been raised for a distance of 10 cm. from below upwards, and this has left a cavity which was chiefly occupied by blood. A shell of new bone has developed from the periosteum and forms the posterior boundary of the cavity, the latter being from 2 to 2½ cm. in measurement from before backwards. The shell of bone unites the displaced epiphysis to the shaft, forming a kind of new outline to the shaft bulging posteriorly. The line of the fracture itself is almost exactly that of the epiphyseal line, there being a trace of the cartilage still preserved. The lower end of the diaphysis where torn is much more irregular than the corresponding part of the epiphysis. A transverse section of the other half of the bone, about 2 cm. above the articular cartilage of the bone, shows a great new-formation of bone posterior to the diaphysis; the thickness of this, including part of the cavity mentioned, is in general about 2·5 cm.

Alexander J. (17), about five weeks before death fell into the coal bunker of a vessel, a distance of about twenty-five feet, injuring his knee. The nature of the injury was not diagnosed, the end of the diaphysis being taken for a projecting inner condyle. Patient died under chloroform. *Path. Reports*, 9th April, 1890, No. 2335.

I. 49. Fracture of Patella. (Sir Hector C. Cameron.)

The specimen illustrates a possible cause of weak union. The supra-patellar aponeurosis is seen overlapping the fractured surfaces, and to this may be attributed the fact that union has not occurred in front, while it has to a considerable extent behind.

The specimen was taken from a patient who died suddenly from aneurism of the aorta after having been under treatment for fracture of the patella for six weeks. (For a full discussion of this case see paper read before the Glasgow Pathological Society by Mr. Maylard, published in *Glasgow Medical Journal* for February, 1884.)

I. 50. Transverse Fracture of Patella. Partial Union. (Dr. Beatson.)

The patella presents a transverse fracture, which on the articular surface is double. On longitudinal section it is seen that the fracture,

which is single in front, divides into two limbs towards the articular surface, its section being like a Y. There is thus separated a piece of patella consisting chiefly of cartilage. There is osseous union at the dense layer forming the anterior surface of the bone, but elsewhere the union is soft, and the piece included within the limbs of the Y is slightly movable. The aponeurosis in front of patella is continuous, but on careful examination it is seen that there is some displacement of the fragments under the aponeurosis, the lower fragment projecting about 2 mm. beyond the upper.

The case was that of a woman aged 30, who sustained a compound fracture of the femur and a fracture of the patella. After three months of treatment the leg was amputated. The patient ultimately recovered, and was dismissed three months and a half after the amputation. *Path. Reports*, 1st July, 1884, No. 1210.

I. 51. Fracture of Patella. Wiring; Ligamentous Union.
(Sir Hector C. Cameron.)

The preparation shows, on the anterior surface and to the right, one of the ends of the wire knot, the sulcus in which it lies indicating the line of separation between the two fragments. On the posterior surface the articular surface of the patella is seen covered with cartilage in its upper part, but the surface of the lower fragment is covered with soft lobulated fat. The section is carried longitudinally through the centre of the specimen, and shows above the bony surfaces of the upper and larger fragment, and below, those of the lower and smaller. Between the two is a dense entirely fibrous band uniting completely and firmly the two fragments. No bony tissue can anywhere be detected in this bond of union, but only slight movement is obtained in bending one fragment upon the other. The upper fragment measures 3·8 cm., and the lower 2·3 cm., while the ligamentous structure is 1·7 cm. The ends of the fragments are rounded.

The man (aged 45) was admitted for operation in May, 1882, having seven months previously fractured his patella. Great weakness of his limb with inability to use it actively was his condition on admission. An interval of about 4 cm. existed between the fragments (see vol. ii., Ward xx.). He left with good union, and was able some months later to play football. In March, 1884, he was re-admitted for fractured skull, from which he died (see vol. v., Ward xx.).

I. 52. Old Fracture of Patella which presented Firm Fibrous Union.

The fracture is roughly transverse and its line nearly corresponds with the lower border of the articular surface, the upper fragment being thus much larger than the lower. There is great irregularity from new-formation of bone around the line of fracture and on the lateral and anterior aspects. Previous to maceration the union was supposed to be osseous, the fibrous connection being so firm. Nothing is known as to the history of the case.

I. 53. Fracture of Patella.

The fracture has been a more or less transverse one, but dividing the bone unequally, the upper fragment being much the larger. Previous to maceration it was thought to be a case of bony union, but as seen there is no sign whatever of such having occurred.

Path. Reports, 7th March, 1887, No. 1684.

I. 54. Comminuted Fracture of Head of Tibia. (Prof. Geo. Buchanan.)

The head of the bone is extensively comminuted. One transverse fracture has separated the upper end of the bone all round, the piece separated varying in thickness from about 6·5 mm. to 3·2 cm. This piece is again divided into six separate portions by fractures, most of which pass through the articular surface. The top of the fibula is also separated by fracture. The femur was intact as well as the semilunar cartilages. The joint contained blood.

Samuel K. (aet. 54) was running across a common when his foot went into a ditch and he fell forwards. He died suddenly a fortnight after the injury. *Path. Reports*, 10th Nov., 1888, No. 1971.

I. 55. Fracture of Lower End of Tibia. Piece found loose in Ankle-joint; Simulation of Dislocation of Astragalus. (Sir Hector C. Cameron.)

Piece of bone preserved was broken off from anterior and outer aspect of tibia. It is generally wedge-shaped, measuring 5 by 3·5 by 2 cm. It was found lying free in the ankle-joint, where it was mistaken for a dislocated astragalus. Its lower end, which is covered with cartilage, projected under the skin at the outer part

of the ankle-joint in front of the lower end of the fibula, simulating the head of astragalus dislocated forwards and outwards. There was another small piece of cancellous bone in the joint. The fibula was not fractured.

John W. (aged 30) sustained a fall of about 26 feet.

Path. Reports, 4th March, 1894, No. 3729.

I. 56. United Fracture of Tibia and Fibula.

Found after death. No history.

I. 57. Displacement of Astragalus.

I. 58. Lateral and Rotatory Curvature of Spine. (Dr. Finlayson.)

The specimen represents an exaggerated form of this condition. On viewing it from the front, the column is seen to form in its dorso-lumbar region an acute lateral curve to the right with considerable posterior displacement. In following the bodies from below upwards, they are seen to be gradually rotated in their vertical axis, so that at the most prominent part of the curve the front of the bodies faces the convexity, while the spinous processes are directed towards the concavity, and the transverse processes look almost forwards and backwards. The bodies are also seen to have undergone considerable alteration in their shape, being greatly narrowed on the side of the concavity and correspondingly enlarged on the convexity. This is well seen, for instance, in the third lumbar vertebra. On looking at the transverse processes, these also are seen to show considerable alteration beyond that of their position as the result of rotation alluded to above; thus, on the left side the lumbar processes are much larger as compared with those on the right, and in the dorsal region they have been almost completely flattened by the ribs pressing on the side of the concavity, while they appear normal on the convex side.

Viewing the specimen from behind, one or two of the ribs will be seen ankylosed with the transverse processes. The articular processes are much altered in shape through pressure and rotation of the vertebrae, and many are firmly ankylosed together. Several of the spinous processes and laminae are ankylosed together,

especially above and below the position of greatest curvature. The ribs show considerable change. Those on the right side are better developed, and three or four of the middle ones are ankylosed together near their vertebral attachment. On the left side and below the ribs are much atrophied, and the seventh and eighth are united by bone to the bodies and transverse processes.

The specimen was obtained from a man aged 45, who died from cerebral haemorrhage. *Path. Reports*, 28th Feb., 1886, No. 1677.

I. 59. Ribs excised from a Patient suffering from Empyema. (Sir Hector C. Cameron.)

The operation was Estlander's.

I. 60. Parts after Resection of Two Ribs Seven Years previously. (Dr. Renton.)

The affected ribs are the ninth and tenth. In the tenth it is well seen that a gap has existed, filled up with new-formed bone to the extent of 2 cm. The posterior fragment has been drawn upwards to some extent, and has a kind of bulbous extremity. In the case of the ninth rib the gap has been only about 1 cm. The posterior fragment is also pulled upwards, and is united by somewhat bulky new-formed bone to the lower border of the eighth rib. In both cases the new-formed bone filling the gap is considerably smaller than the rib itself. The situation of the lesion is 12 and 10 cm. from the anterior extremities of the osseous ribs.

John J. (aged 28) died from the rupture of a gastric ulcer. Seven years before Dr. Renton removed portions of two ribs to allow of drainage of the pleural cavity on account of empyema. At the *post-mortem* examination the lung was found fully expanded. The pleura was firmly adherent throughout, but without considerable thickening. There was also complete adhesion of the pericardium.

See *Glasg. Med. Jour.*, vol. xlix., p. 441, and *Path. Reports*, 3rd Dec., 1897, No. 5247.

I. 61. Tibia and Fibula from Syme's Stump.

These bones were removed from a patient who, some years previously, had had Syme's operation performed. The fibula is ankylosed to the tibia, and the under surface of each is covered with a thin layer of compact bone.

I. 62. Atrophy of Tibia and Fibula from Infantile Paralysis. (Prof. Geo. Buchanan.)

The leg was amputated at the knee. The bones preserved are greatly diminished in outline and thinned, especially the tibia, which has been divided longitudinally. It is noted that the limb as a whole looked plump and healthy. It was found, however, that the proper muscular tissue was almost entirely absent, being replaced largely by fat, whilst there was also a layer of subcutaneous fat over 1 cm. in thickness. Whilst the muscles were atrophied, the tendons, with their extensions and expansions into the muscles, appeared normal.

A girl (aet. 18) had infantile paralysis at the age of ten months. The right leg below the knee remained perfectly paralysed. The leg was so subject to chilblains and troublesome ulcers on the dorsum of the foot that it was removed.

Path. Reports, 9th July, 1886, No. 1576.

I. 63. Disease of Elbow. Rarefaction and New-formation of Bone from Inflammation. (Dr. Patterson.)

This preparation indicates the effects of inflammation, on the one hand rarefying and on the other producing new formation of the bone. The inflammation affected the elbow-joint, and the preparation shows the lower half of the humerus and the upper halves of the radius and ulna. The articular surfaces are almost completely removed, being left here and there only in small smooth patches. On the three bones, and more especially the humerus and ulna, a worm-eaten appearance (rarefying osteitis) is seen extending beyond the articular surfaces. On the surface of the bones there are, scattered about irregularly, numerous little nodular and spinous projections of new bone.

The bones were obtained from the arm of an old woman, aged 63, the limb having been amputated on account of disease of the elbow. The affection commenced about five months previously with acute pain in the joint. This was soon followed by suppuration and complete disorganisation of the joint.

I. 64. Bones. Osteo-porosis. (Sir G. H. B. Macleod.)

The preparation shows the bones of the leg macerated. The shaft of the femur is three times as thick as normal, but is a mere shell, so

thin that it has been broken in several places by stripping off the periosteum. The original size of the shaft as shown in transverse section is represented by a very thin cylinder in the interior, no thicker than paper, from the anterior part of which there spring a series of concentric arches (four can be indistinctly traced) of new but very thin bone, evidently successive attempts at the formation of a new shaft. A prominence, 3·8 cm. long, on the outer side of the bone has the appearance of a node. This node also consists of a mere shell of bone, supported by firm bony trabeculae, remains of cancellous bone.

Similar trabeculae are seen in the interior of the old shaft and between the thin layers of new bone, while the epiphysis consists merely of a cartilaginous shell with trabeculae in its interior. Above the inter-epiphyseal cartilage, which is intact, the medullary cavity of the femur is much expanded, its walls being formed of plates of bone so thin as to be quite flexible, and presenting a reticulated appearance when held up against the light.

The shaft of the tibia is a mere shell of bone, so thin as to be semi-translucent before being dried, but still retaining perfect rigidity. When sawn open the bone shows traces of lamellation on its inner surface. There is no enlargement of the epiphysis, and the inter-epiphyseal cartilages are entire. The cancellous bony tissue of the epiphysis is much rarefied, as are also the ends of the bones, only a few trabeculae remaining.

The shaft of the fibula is completely hollowed out from end to end, and is so thin that before being dried it was quite flexible, and had very much the appearance of a large quill. The epiphyses are mere capsules of cartilage.

There was true ankylosis, by very cancellous bone, between the outer condyle of the femur and tibia, and between the femur and patella. In the other parts of the joint the synovial membrane was completely destroyed, the ends of the bones being covered only by pulpy granulations.

In all the bones the medulla was soft and pulpy, resembling very closely in colour and consistency fresh milt-roe of fish, and was very oily. In the epiphysis and what remains of the cancellous ends of the bones, and in the new bone uniting the femur and tibia, the medullary tissue was dried-looking, and yellow, like butter. When dried the bones are white and smooth, without a trace of caries or necrosis, even in the joints; even the trabeculae and thinnest laminae are firm, smooth, and polished. The periosteum all over was

apparently normal, and there was no appearance either of separation or of undue adhesion between it and the bone.

The case was that of a boy (aet. 13), admitted 17th November, 1880, with ankylosis of the left knee-joint and extensive sinuses in the lower part of the thigh. Amputated 1st Dec.—Result, recovery.

I. 65. Erosion of Vertebrae from Aneurism. (Dr. Christie.)

The specimen consists of fifth, sixth and seventh dorsal vertebrae. The left side of the bodies shows a well-marked erosion with a rounded outline above and below. The anterior aspects of the fifth and sixth vertebrae show projecting new-formed bone at the edge of the erosion of the two projections nearly meet.

Wm. W. (aet. 63) presented two aneurisms and the beginnings of a third in the course of the thoracic aorta. The principal one of these was adherent to the vertebrae, and had caused the erosion shown. *Path. Reports*, 30th Oct., 1886, No. 1615.

I. 66. Necrosis of a Great Part of the Body of Lower Jaw. (Dr. Patterson.)

The preparation consists of the somewhat worm-eaten and eroded body of the jaw extending from the position of the first molar tooth on the right side round to the middle of the ramus on the left, thus involving the symphysis. The whole extent of the necrosed bone is about 17 cm. It was removed in two pieces, which are set together in the preparation.

John L. (aet. 35), shepherd. Attributed his condition to a dead tooth removed eleven weeks before admission, which, he said, had occupied his jaw for at least a year and a half previously. The necrosed bone seems to have been lifted out, the bone lying exposed in a large ulcer. *Path. Reports*, 17th May, 1894, No. 3702.

I. 67. Necrosis of Humerus. Sequestrum removed. (Mr. Maylard.)

The specimen hung in the jar consists of the upper half of the humerus. The upper end shows an irregular surface which is the line of separation from the epiphysis. The smooth surface of the sequestrum shows that it consists of the entire thickness of the

shaft. Loose in the jar is a long spicule removed from the lower half of the shaft, which was necrosed to a much less extent than the upper.

The parts were removed by operation from a girl aged 10. At the operation a sheet of new bone with numerous cloacae had to be penetrated. The epiphysis of the humerus had previously become ankylosed to the glenoid cavity, and although the patient recovered with a firm strong humerus, there was no movement at the shoulder-joint.

I. 68. Necrosis of Lower End of Humerus. New-formed Sheath. (Dr. Patterson.)

The sequestrum consists of the lower 12 cm. of the humerus, including the articular extremity. The upper part and posterior aspect are very irregular and worm-eaten in appearance, and there are similar patches in front. The posterior part of the trochlea and capitellum are wanting, and the cancellous tissue exposed. The bone has been surrounded by an irregular new sheath, the lower part of which has been preserved. It consists of spongy bone with a somewhat smooth corrugated surface, and has been formed mainly upon the posterior and outer aspects.

The parts were removed by operation from a lad aged 17, who had received a compound injury to the part nine months previously.

I. 69. Bones of Elbow altered by Necrosis in Ulna.

The olecranon is seen to be the seat of a number of cavities which formerly contained sequestra. From these the joint had become affected and great new-formation of bone had occurred, as shown in the specimen, in all the three bones of the joint. This is indicated by the irregular projections on their surfaces, but is most manifest in the head of the ulna itself. The articular surfaces are not affected, except where the cavities in the ulna communicate with the joint.

I. 70. Necrosis of Shaft of Femur in a Child. (Sir Hector C. Cameron.)

The specimen consists of about 18 cm. of the femur removed by operation. The bone generally presents a smooth surface, but

above and below it is irregular, and the anterior surface presents a worm-eaten appearance, which in the lower half has destroyed the entire thickness of the dense bone; about the middle of the sequestrum posteriorly there is a considerable aperture for a nutrient artery, and above this another smaller aperture.

James M. (aet. 9) sustained an injury to the thigh several months before operation. About a week afterwards he became feverish, with headache and sleeplessness, and later on with delirium. This continued for a fortnight. There were pain and swelling of the left thigh, and a large quantity of pus was evacuated. On admission there was a sinus leading down to dead bone, and great thickening of the femur. At the operation it was found that no new bone had formed on the outer aspect, but there was a thin shell on the inside. Other pieces of bone had to be removed at subsequent operations, and the boy ultimately made a good recovery. *Path. Reports*, 28th Dec., 1889, No. 2253.

I. 71. Necrosed Bone from Femur. (Dr. J. G. Lyon.)

The sequestrum is in two pieces. One of these forms an exceedingly irregular tube, measuring 11·5 cm. in greatest length. The external surface presents here and there the smoothness of the natural surface of the bone, but for the most part it is worm-eaten in appearance. At the lower part of this fragment there is seen some remains of the cancellated tissue, and the shaft is here thicker than elsewhere. On passing upwards the worm-eaten appearance increases, and at the upper part there are gaps in the continuity of the bone. The other fragment measures about 5 cm., and comprises merely a portion of the circumference of the shaft. In its inner part it shows some cancellated tissue.

The patient was a girl aged 17 years. Seventeen months before admission she had what was called rheumatic fever, which affected the left "leg" most severely. The thigh became swollen and painful. It was poulticed, and an opening formed on the outer aspect above the knee. This opening closed, but months afterwards another formed 10 cm. above the knee on the outer side of the thigh. This remained open, and through it and a small cloaca in the new bone some dead bone was found. On 2nd October, 1880, the cloaca was enlarged by chiselling, and the sequestrum broken up and removed. The parts preserved are the main fragments, the lower part of the sequestrum, which reached to the epiphysis, having been broken up.

I. 72. Extensive Necrosis of Femur. Great New-formation of Bone. (Sir Hector C. Cameron.)

The preparation shows a large central cavity from which sequestra have been removed. At the upper part a portion of the necrosed shaft is still seen partially separated. The bone is greatly thickened by irregular new-formation, and numerous cloacae lead through the new-formed shell to the central cavity.

I. 73. Necrosis of Femur in Popliteal Space. (Sir G. H. B. Macleod.)

There is a sequestrum with a smooth surface on the posterior aspect of the femur. All around the bone is irregular, and in some places trabeculated from new-formation. This applies both to the lower end of the diaphysis and to the epiphysis, which shows at the articular surface considerable gaps. There was considerable ankylosis of the joint by means of fibrous tissue, which united the patella to the femur and the internal condyle to the tibia.

Thos. W. (aet. 12) traced his illness to a fall at school. This was followed by pain and swelling in the neighbourhood of the knee. An abscess formed, which was opened, but continued to discharge. Latterly abdominal symptoms supervened, and the patient died of peritonitis, which was traced to an abscess in the inguinal region. This abscess extended beneath Poupart's ligament and upwards behind the caecum, but whether connected with the lesion in the bone or not does not appear.

Path. Reports, 3rd March, 1886, No. 1496.

I. 74. Necrosis of Stump of Femur.

The preparation shows the end of the stump with a piece of necrosed bone, the neighbouring living bone being considerably thickened by new-formation of bone.

The specimen was taken from a patient who died of phthisis. The leg had been amputated for injury three years previously.

I. 75. Necrosis of Femur in Stump. Re-amputation four years afterwards. (Prof. Geo. Buchanan.)

The amputated portion is shown on section. The end of the stump is rounded and is covered below by a pad of granulation

or cicatricial tissue which is covered with a well-formed stratified epidermis in which are a few downy hairs. In the midst of this there is seen on section a piece of necrosed bone, and there is hung along with it the corresponding portion removed from the other half. This shows the sawn lower end of the bone and an irregular but somewhat worm-eaten upper extremity.

John K. (aet. 20) had his left leg amputated for disease of the knee at the age of 16. The stump did not properly heal, and kept almost constantly discharging for four years. The re-amputation was followed by a rapid recovery.

Journal, Ward iii., p. 201, No. 18.

I. 76. New-formation of Bone in consequence of Necrosis of Tibia. (Sir Hector C. Cameron.)

There is a considerable cavity in the lower end of the tibia which contained sequestra (several of these lying loose). This cavity communicated with the joint. There is great thickening of the tibia and to a less extent of the fibula, from new-formed bone, whose structure is cancellated, and there is also considerable opening-out of the dense tissue of the shaft. The ankle joint, with the exception of the tibia, was healthy.

Geo. W. (aet. 19) traced his illness to a sprain six years before operation. It has continued to trouble him more or less ever since, and three or four years ago an opening was made on the inside of the foot in the Royal Infirmary. The ankle was rigid in the position of talipes equinus and the leg much emaciated.

Path. Reports, 21st Feb., 1885, No. 1306.

I. 77. New-formation of Bone and Ankylosis of Tibia and Fibula in consequence of Necrosis; Cloaca.

There is a cavity in the centre of the lower part of the tibia visible through a considerable cloaca from which a sequestrum has been removed. The lower parts of both tibia and fibula are much enlarged by new-formation of bone, and the two bones are to a large extent united by bridges of new bone. The sides of the cloaca show that the shaft of the tibia at this part is composed of cancellated bone. On the surface of the new-formed bone there is a well-marked groove, sometimes with overhanging edges, for the tendon of the tibialis posticus.

I. 78. Piece of Necrosed Bone removed from the Tibia. (Dr. Patterson.)

The portion of bone is from the outer part of the shaft, and it presents on its convex surface the smooth aspect of the surface of the tibia. This is at one place interrupted by a worm-eaten appearance, and on the other surface the bone is rough and irregular in the highest degree.

The preparation was removed from a boy aged 10, on 15th February, 1880.

I. 79. Acute Necrosis of Shaft of Tibia. (Sir Hector C. Cameron.)

On looking at the specimen it will be seen that the tibia presents one long piece of dead bone, extending from the epiphysis above (which appears to have escaped) to the ankle-joint below. The bone in many parts shows a worm-eaten surface, but nowhere is there the slightest indication of any new osseous formation except to a small extent about the anterior surface of the shaft below. The disease appears limited by the upper epiphysis, the articular surface being quite healthy. Below, however, the inferior epiphysis is extensively involved, and the ankle-joint, and even the os calcis and astragalus, have been invaded, as shown by the erosion of their articular surfaces. The specimen shows the parts as found ten weeks after the onset of the disease (the sprain). The patient died one week after the amputation, apparently from septic mischief.

The specimen was taken from the amputated limb of a boy (aet. 15). About two months previous to admission he sprained his ankle, two days after which the front of the shin bone began to swell and became red, all the parts being extremely painful to touch. Leeches and fomentations were applied, but doing no good, two small incisions were made, from which pus escaped. On admission to hospital, the leg was greatly swollen and oedematous, with foetid discharge exuding from the two incised wounds. The ankle-joint was swollen and painful.

I. 80. Gap in Fibula from Necrosis. New-formation. (Prof. Geo. Buchanan.)

The gap in the bone which is about 8 cm. in length, corresponds with a necrosis, the dead bone having been removed. The lower fragment shows much new-formation of bone and cloacae.

James G. (aet. 21) suffered from an affection of the leg from three years of age, some bone having been removed about that time. There was a further operation for removal of bone in June, 1888, and amputation of the leg in November of the same year.

Path. Reports, 20th Nov., 1888, No. 1978.

I. 81. New-formation of Bone and Cloacae from Necrosis of Tibia and Fibula.

Both bones are seen to present great irregularity of the surface, and the dense bone of the shaft is largely replaced by cancellated bone. There is also great thickening, especially of the tibia. There are several cloacae, two at the lower and one at the upper end of the tibia. These open into cavities which contained sequestra, portions of which are still present at the lower and upper ends of the tibia. (The upper ends of the bones have been somewhat destroyed in maceration.)

The bones are evidently from a young subject, but no history is known.

I. 82. Necrosis in Tarsus. Great Shrinking and Deformity of Foot; Atrophy of Tibia, etc. (Prof. Geo. Buchanan.)

The preparation shows in section an almost black piece of necrosed bone situated dorsally, and in front of the position of astragalus. It is loose in a cavity, and the latter communicates by a sinus with the dorsum of the foot. The tarsus is greatly shrunken, and the foot consequently deformed, chiefly by shrinking of its dorsal portions. The sole has thus a general convex form. The lower end of the tibia is shown on section, and it consists of a thin shell of bone enclosing adipose tissue with scarcely any trabeculae. The shaft is greatly atrophied, measuring from before backwards only 1 cm. The os calcis, also seen on section, is similarly affected. The relations of the other bones are not fully made out. No evidence of tuberculosis was obtainable on microscopic examination. The right foot presented a less degree of a similar deformity, there being here also a sinus at the base of the great toe.

Catherine P. (aged 18) was affected with swelling, and discharge of both feet of seven years' duration. Shortly after the onset the "top" of the left foot "broke," and has discharged ever since.

Path. Reports, 9th Jan., 1894, No. 3999.

I. 83. Sequestra of Tarsal Bones removed in connection with Inflamed Joint, probably Septic. (Sir Hector C. Cameron.)

There are six fragments, only two recognisable, the lowest one as internal cuneiform, the one next in order as cuboid. All the fragments are much eroded.

The bones were removed by operation from a woman aged 20, who had suffered from disease of the foot for many years. There had been numerous sinuses, but all had healed except two. There was little or no pain, but considerable swelling of the foot, and on pressure grating and rubbing of loose portions of bone could be felt. Fœtid pus intimately mixed with gas escaped from the sinuses. On exposure the bones were found quite loose lying in a cavity lined with smooth granulations. The foot ultimately healed perfectly.

Path. Reports, 28th June, 1886, No. 1570.

I. 84. Abscess-cavity in Temporal Bone. (Abscess in Brain.) (Dr. Gemmell.)

A large cavity occupies the greater part of the mastoid process and the neighbouring part of the petrous bone. The posterior wall of this cavity is almost wanting, the external wall, represented by the surface of the mastoid, has perforations in it, and the upper wall, which is inside the skull, is of a papery thinness and has a number of perforations. The dura mater was adherent to the petrous bone, and a large abscess cavity, lined with a thick membrane and containing a very fœtid pus, was found in the temporo-sphenoidal lobe. A soft white exudation occupied the surface of the cerebellum and pons.

Jas. C. (aet. 48) had had a purulent discharge from the right ear for forty years. There was a discharging sinus over the mastoid process, the date of which is unknown. Ten days before admission to the Infirmary a small polypus was removed from the ear, and head symptoms soon followed. Headache of a very severe character was the first symptom; but coma supervened before admission, and he did not recover consciousness, but died in three or four days.

Path. Reports, 27th Aug., 1887, No. 1737.

I. 85. Acute Occipito-atlantoid Disease with Cario-necrosis. Suppuration inside Skull. (Dr. Christie.)

The specimen consists of the occipital region of the skull with the

atlas. The basilar part of the occipital bone and the jugular processes consist of mere sheets and spicules of bone. The atlas shows, especially on the right side, considerable rarefaction. At the *post-mortem* examination the articular cartilages had completely disappeared.

Thos. R. (aet. 47) began to complain of pain in the head eight weeks before death. The pain was first in the right temple, but soon spread to the left. A few days later strabismus appeared with dimness of vision. Later on he became drowsy, and at times delirious. About fourteen days before death there was a rigor, and swelling supervened on the right side of the head and face. An incision was made with only partial relief, and he died unconscious. A considerable accumulation of pus was found inside the skull, so as almost to form an abscess on the left side of the medulla oblongata.

Path. Reports, 9th Sept., 1886, No. 1602.

I. 86. Femur with Septic Osteo-myelitis after Amputation. (Prof. Geo. Buchanan.)

The end of the bone has a worm-eaten character, the dense layer of the shaft being replaced by cancellated tissue. The medullary canal contained a reddish marrow infiltrated with pus.

Wm. H. (aet. 45) sustained an injury to the knee-joint, which resulted in septic mischief requiring amputation about a month afterwards. The septic inflammation subsequently attacked the stump and bone, and the patient died about a month after the amputation. *Path. Reports*, 20th Oct., 1886, No. 1613.

I. 87. Abscess in Lower End of Femur. (Sir Hector C. Cameron.)

As seen in section, a cavity is visible in the bone, around which the tissue is considerably condensed. This cavity has canals passing downwards and upwards, the latter being visible at the cut extremity, which is the saw-cut made in amputation. The diseased part not being fully removed, the portion of bone hung highest in the jar had to be subsequently removed.

Jane M'K. (aet. 30). The knee began to swell four years before admission, but the swelling came and went, sometimes disappearing for a few months. Latterly the symptoms became very severe, the joint being apparently disorganised, whilst an abscess formed

outside the joint. There was high temperature and pain in other joints. After amputation she made a good recovery.

Path. Reports, 22nd May, 1886, No. 1535.

I. 88. Cavities at Upper and Lower Ends of Tibia from Disease of over Fifty Years' Duration, resulting in Acute Arthritis. (Dr. Dalziel.)

The bone has been sawn longitudinally, and this has displayed at the upper and lower ends cavities, which contained in both cases foul green pus, although there is no communication through the bone, and the lower one does not communicate with the surface. They both contained small sequestra. The upper cavity has a communication with the surface posteriorly by a small sinus, and there is also a wide communication upwards and forwards into the knee-joint. This channel is largely occupied by white fibrous tissue, whose strands are parallel to the direction of the passage. The joint was occupied with stinking pus. The cartilages are markedly eroded, whilst the bony surface is irregular.

Mary Ann D. (aged 68) sustained an injury to the leg when 11 years of age. The knee was never well since, but she was able to go to school with the help of crutches. The leg broke out every now and then below the knee, and kept running for a time. She became unable to walk several weeks before admission, and then took to bed, bedsores developing thereafter. Amputation of the leg was performed, but she died five days later.

Path. Reports, 19th April, 1890, No. 2344.

I. 89. Upper End of Tibia from preceding case. Macerated.

The preparation shows the cavity in upper end of tibia, and also shows a marked irregular new-formation of bone, chiefly near the joint, but extending nearly half-way down the shaft.

I. 90. Cystic Diverticulum of Knee-joint. (Dr. Kennedy.)

The preparation, which consists of a capsule of fibrous tissue with partial partition inside, was removed from the popliteal region, where it was in open communication with the knee-joint.

Thos. D. (aged 20) first noticed a tumour in the popliteal region after an injury to the knee at the age of 6 years. The knee was

swollen and painful, and he was confined to bed for four weeks. On the subsidence of the swelling the tumour was detected. The swelling increased with his growth, and latterly after a fall it became painful. *Path. Reports*, 12th March, 1896, No. 4527.

I. 91. Wasting of Articular Cartilages from Non-pressure. (Dr. Patterson.)

The specimen consists of the articular surfaces of the bones entering into the formation of the knee-joint. It is mounted to show the wasting which the cartilages have undergone from want of pressure in the case of an old displaced joint. The cartilage has almost entirely disappeared from the patellar articular surface, except at its upper part. On the femur a thick rim of cartilage is seen bordering the inter-condyloid notch. This represents the part of the articular surface upon which the patella pressed. Elsewhere it is bluish in colour from thinning, except at the extreme posterior part of each condyle, where there is a round thickened patch of cartilage indicating the points of articulation with the tibia. These points are best seen by looking at the preparation from behind. The articular surface of the tibia also shows the cartilage thick and normal opposite the points of pressure of the femur. The joint was excised on account of extreme malposition of the part, the tibia being carried back and so fixed as to press only upon the extreme posterior part of the femoral condyles. *Path. Reports*, 7th June, 1886, No. 1548.

I. 92. Gouty Deposit in Cartilage of First Phalanx of Great Toe. (Sir Wm. T. Gairdner.)

In the cartilage of the proximal end of this phalanx a chalky deposit in the form of aggregated granules is visible. A similar deposit was present in the great-toe joint of the other foot. The murexide test shows that these deposits contain or consist of uric acid. There were contracted granular kidneys and hypertrophy of the left ventricle along with aortic valvular disease.

I. 93. Loose Body from Knee, consisting of Cartilage and Bone. (Sir Hector C. Cameron.)

About half the mass has been preserved. It was a very irregular body measuring variously from 2·5 to 3·8 cm. in diameter. It is

nearly white in colour, and its surface presents a congeries of rounded knobs which have a perfectly smooth surface. On section the central parts require to be sawn through, and are composed of cancellated bone, which exists to such an extent as to give a diameter of 2 cm. At one side the bone comes close to the surface. Microscopic examination shows the structure to be typically bone and cartilage; the cartilage is in some places very cellular, the capsules of the cells being close together, but elsewhere there is a well-developed hyaline matrix. The bone is of the ordinary cancellated character.

Jane G. (aet. 16) jerked her right knee nine months previously when jumping off a car. She experienced some pain and a feeling as of the joint giving away under her. This has occurred ever since occasionally, especially going up a stair. The body was put in a pouch above and outside the patella and easily removed.

Path. Reports, 8th June, 1892, No. 3023.

I. 94. Femora and Patellae in Chronic Rheumatoid Arthritis.

(Prof. Macewen.)

The preparations show marked new-formation of bone at the borders of the articular surfaces and loss of cartilage with replacement by bone. In the right femur there is visible along the edge of the patellar surface, and to a less extent on the condyles, a prominent new-formation of bone giving a markedly lipped appearance. This lipped part on the outer side has a burnished ivory-like surface, and this condition is continued inwards so that a burnished bony surface replaces the cartilage for a distance of 2·5 cm. from the edge. There is a ridge between the inner and outer parts of this burnished surface as if they had been ground against surfaces lying at an angle to each other. In addition, the cartilage of the patellar surface has, in its upper part especially, a fibrous and almost villous appearance. The patella which is lying below has an exposed burnished surface replacing more than half its cartilage, the affected part corresponding with that of the femur and showing a similar difference in level. The left femur presents a lipped appearance similar to the other, and on the outer part of the patellar surface a burnished bony surface of smaller dimensions than the other. The patella has also a small burnished surface, and the remaining cartilage is considerably fibrous and presents in some places a furry appearance.

Jacob M. (aged 50) died after removal of a sarcoma from the head of the right tibia. The history obtained makes no reference to the condition of the knee-joints.

Path. Reports. 22nd Dec., 1892, No. 3212.

I. 95. Hip-joint Disease, probably Septic. Absorption of Head of Femur. (Sir Hector C. Cameron.)

The articular surfaces of both bones were devoid of cartilage, and they show an eroded appearance. The acetabulum appears increased in size, and the head of the femur is almost entirely destroyed at the borders of the affected parts; spicules and nodules of new bone are visible. There were abscesses around the joint, one of which passed above the brim of the pelvis to the iliac fossa.

Mrs. M. (aet. 27). Her illness began after parturition. It had lasted for a year, and the patient died of pyaemia.

Path. Reports, 6th May, 1885, No. 1358.

I. 96. Erosion of Cartilage and Bone from Suppurative Disease of Knee. (Dr. Patterson.)

The preparation shows the condyles of the femur. The outer condyle is denuded of cartilage over more than half its surface and the remaining portion presents erosion, frequently in the form of deep pits. The patellar surface and the other condyle are similarly affected, but to a less extent. In some of the pits a softened slough of cartilage was found. In these pits there was pus with sometimes a small sequestrum. The exposed bone is considerably eaten into, but the laminae that remain are firm so that a needle can scarcely penetrate. The surface of the tibia presented similar features.

Wm. B. (aged 46) sprained his right leg three months before the operation; he remained from work for about three weeks and then resumed for a month. Afterwards the leg and knee became swollen and painful. When admitted there was pus in the knee and soft parts around. The leg was amputated at the knee.

Path. Reports, 20th Feb., 1886, No. 1890.

I. 97. Disorganization of Knee. Fibrous Ankylosis with Flexure of Knee. (Sir Hector C. Cameron.)

The bones have been divided longitudinally and show great

irregularity of the articular surfaces, partly from erosion and partly from new-formation. The tibia and femur were fixed by fibrous adhesions at as nearly as possible a right angle, and the patella was forming adhesions to the femur. All the fibrous adhesions have been removed, but the bones have been mounted approximately in the position which they occupied. There is considerable rarefaction of the cancellated tissue, and the spaces were filled with fat in great quantity.

Alexander D. (aged 39). There was a history of injury to the knee in childhood, by a fall, followed by recurrent attacks of arthritis with gradual flexion of the knee. The case may have been tuberculous. *Path. Reports*, 5th Aug., 1889, No. 2152.

I. 98. Malposition of Knee-joint and Alteration of Articular Surfaces from Old Disease of the Joint. (Sir Hector C. Cameron.)

During life the bones were fixed by fibrous ankylosis and the tibia was considerably displaced backwards, these conditions being due to old disease of the knee-joint. The articular surfaces of the femur are exceedingly irregular and the head of the tibia is greatly altered in form. This alteration is partly due to erosion and partly to new-formation, which has extended the head on the inner side very markedly.

Margaret M. (aged 27) was affected with old-standing disease of the right knee. There were cicatrices about the joint, and the joint was immovable. The knee was often painful, and the limb was atrophied and useless. Amputation was performed, and the patient made a good recovery. *Path. Reports*, 4th Nov., 1886, No. 1618.

I. 99. Tuberculosis of Cervico-dorsal Vertebrae. Abscess; Tracheotomy; Ulceration of Trachea into Innominate Artery. (Mr. Maylard.)

The cavity of an abscess bulging forwards and laid open is shown. Inside it are the bodies of several vertebrae, viz. the last two cervical and first two dorsal; these bodies are greatly eroded and present much irregularity. Towards the lower end a probe shows an aperture which communicated with the spinal canal. The abscess bulges greatly in front and below, giving an antero-posterior diameter in some places of over 2 inches.

In the other preparation, towards the upper part, the edges, including the skin, of a tracheotomy wound are shown. The wound has been carried downwards after death by incision in the middle line in front. At the bottom of the incision the trachea is greatly ulcerated and the innominate artery has been opened. A probe is passed from the trachea through this aperture, which was large enough to admit a No. 5 catheter.

James M. (aged 8) was affected with great difficulty of swallowing, and latterly of breathing, due to the abscess shown in preparation, although this was not detected during life, the obstruction being deep down in the neck. Breathing became so harassed that tracheotomy was performed, and the obstruction was got over by means of a catheter passed for about 5·5 cm. down the trachea. This was three days afterwards replaced by a vulcanite tube, the length of whose vertical portion was 5·5 cm. With some vicissitudes the patient got on well after the operation. In addition to the symptoms mentioned there was a degree of spastic paralysis, affecting chiefly the legs but also the arms. During a residence of two months the general condition improved greatly, and the spastic symptoms diminished, but it was found impossible to do without the long tracheotomy tube. It is related that in introducing the tube it seemed to hitch against some hard prominence and then go on with a jump. The patient took scarlatina and was removed to Belvidere Fever Hospital. After a week's residence there a sudden and profuse haemoptysis occurred, which being renewed fourteen hours afterwards caused death. (See account in *Annals of Surgery*, ix. 192, 1889.) *Path. Reports*, 20th Oct., 1889, No. 1951.

I. 100. Tuberculosis of Dorsal Vertebrae. Abscess pressing on Trachea; Narrowing of Spinal Canal. (Dr. Finlayson.)

The parts are shown in section. The bodies of the third and fourth dorsal vertebrae are affected, the anterior parts of the former and almost the whole of the latter being destroyed so that a gap is left. There is some displacement backwards of necrosed bone and other structures so that the spinal canal is much narrowed, the narrowing being increased by the curvature produced by the collapse of the bodies. The spinal cord is considerably flattened in consequence. In front of the vertebrae there is an abscess cavity which extends from about the level of the lower border of fifth

body upwards to the upper border of the last cervical, a distance of about 7 cm. It bulges anteriorly, its cavity from before backwards measuring from 2 cm. to 2·3 cm. The œsophagus and trachea are flattened over it, and there is a place opposite the first dorsal vertebra where the narrowing is extreme, the anterior and posterior walls being almost in contact. This place corresponds with the crossing of the aortic arch, which is here immediately in contact with the trachea. The abscess undermines the pleura for a considerable distance on both sides.

Andrew M. (aet. 3) was admitted with difficulty of breathing of five months' duration. The first symptom noticed was irritation in the throat, causing cough and wheezing. There was no difficulty in swallowing. The cough diminished, but the difficulty in breathing continued, being specially bad at night, causing him to start in his sleep and gasp for breath. On admission, which was a fortnight before death, great dyspnoea was present, all the extraordinary respiratory muscles being called into play, and marked retraction of the intercostal spaces being visible during inspiration. Respiration was accompanied by croupy sound. The head was kept rigidly fixed between the shoulders, any attempt to move it causing great pain and increasing the dyspnoea. Head and pelvic extension were used but without relief, and the patient died from a sudden attack of cyanosis, respiration ceasing.

See *Journal of Children's Hosp.*, No. iv. 9, p. 198.

I. 101. Tuberculosis of Vertebrae. Collapse of Bodies; Encroachment on Spinal Canal. (Dr. Finlayson.)

The bodies have been sawn in the middle line. Two bodies (sixth and seventh dorsal) have been affected, their substance being occupied by yellow caseous material. The two bodies have been crushed together so as to produce an irregular broken-down portion which looks like a fracture through the vertebrae. In the midst of this crushed part there is an elongated piece of white tissue about 1·3 cm. in length, which is the remains of intervertebral substance. With the crushing there is considerable shortening, so that the two vertebrae measure together about 2·5 cm. as compared with 4·5 cm. in the two vertebrae above. The crushed and necrosed substance of the vertebrae is considerably dislocated backwards so as to impinge upon and greatly narrow the spinal canal for about 2·5 cm. At this point the spinal cord was narrowed and softened. The three portions

which are connected with the affected vertebrae are brought close together as compared with those above and below. Outside the vertebral column, and on its lateral aspect, there is a considerable swelling, but there was no proper abscess.

Alexr. S. (aet. 60), a sailor, complained of localised pain in spine, five months before death, ascribed to exposure to cold. The pain went round the body. About two months later he began to feel numbness in the feet, and paresis with involuntary startings. This increased till complete paraplegia developed. Bed sores formed over the trochanter and sacrum. There was no suspicion of tubercular disease during life. *Path. Reports*, 8th March, 1887, No. 1684.

I. 102. Tubercular Disease of the Bodies of Two Vertebrae, with Abscess. (Dr. Finlayson.)

The vertebrae affected are the second and third lumbar, and, as shown in preparation, the cartilage between these is almost entirely destroyed, while the bone is eroded only to a very limited extent and that only in front, as shown in the section and still better in the following preparation, which is a drawing of the appearances in the fresh state. The bodies of these vertebrae are infiltrated with a yellowish-white material, which has displaced the normal red bone marrow without, however, immediately destroying the bone. This infiltration extends, in the case of the third vertebra, almost through its entire thickness from above downwards in its anterior part, but much less deeply in the second.

An abscess existed in connection with this disease, a portion of which has been preserved in the preparation. The abscess extended from the front of the sacrum as high as the level of the second lumbar vertebra, and had a very irregular outline.

In addition, there were in this case tubercular peritonitis, rupture of the intestine, acute peritonitis, and amyloid disease affecting the spleen.

During life, the patient, a lad aged 21, suffered from pain in the back, with hectic fever. After a time a marked Pott's curvature was produced. Death resulted from acute peritonitis.

Path. Reports, 31st May, 1883, No. 988.

I. 103. Water-colour Painting of preceding Preparation, made in the fresh state.

I. 104. Tuberculosis of Vertebrae. (Dr. Renton.)

The specimen consists of the second and third lumbar vertebrae with part of the first. The bodies of the second and third vertebrae show considerable erosion and rarefaction, especially on the right side, along with a certain amount of new-formation on the surface. An abscess was connected with the disease which pointed in the left lumbar and iliac regions. The only complaint during life in connection with this lesion was constant pain in the small of the back.

I. 105. Tuberculosis of Vertebrae. Collapse of Bodies; Partial Healing; Ankylosis, etc. (Sir Wm. T. Gairdner.)

The specimen comprises seven dorsal vertebrae, from the third to the ninth. The bodies of these are greatly eroded, there being many deep pits exposing the cancellated tissue. In addition there is great loss of substance in the seventh and eighth bodies, these two being compacted into one, which forms a single somewhat wedge-shaped body without a trace of demarcation into two. The arches of these two are also ankylosed and the articulations abolished. There is also ankylosis of the spinous processes of the sixth and seventh. There is some enlargement of transverse processes especially those of the seventh. Considerable curvature has resulted with the concavity forwards. An abscess bulged on both sides of the bodies in the dorsal region.

Geo. A. (aet. 48). In the report, which is a long and careful one, there is no reference to disease of the spine. The patient was ill for seven years or more with general weakness, and symptoms of pulmonary tuberculosis. Latterly he had signs of tubercular meningitis, of which he died. In connection with the nervous symptoms it is definitely stated that he could draw both legs up, that the knee jerks were normal, and that there was no ankle clonus.

Path. Reports, 29th Oct., 1887, No. 1759.

I. 106. Tuberculosis of Vertebrae. Collapse of Two Bodies; Pott's Curvature; Partial Healing. (Sir G. H. B. Macleod.)

The lesion has affected the bodies of a large number of the vertebrae, erosion and new-formation being frequently visible. The bodies of the sixth and seventh have almost entirely disappeared, so that the fifth and eighth have come together at their anterior parts,

and are firmly united. The posterior view is interesting, showing an ankylosis of the arches and spinous processes of the sixth, seventh, and eighth vertebrae. There is an acute curvature, the upper vertebrae forming with the lower an angle slightly less than a right angle. On the other hand the ankylosis of the spines gives a somewhat rounded contour posteriorly, and has preserved to a large extent the spinal canal, which at the apex of the curve scarcely seems flattened. There were abscesses connected with the vertebrae on both sides, that on the right reaching and involving the psoas muscle.

Wm. L. (aet. 17) was in hospital three years before death with Pott's curvature and paralysis of the lower limbs. He improved greatly and was able to walk. Paralysis returned about six months before death, which gradually increased and extended to bladder and rectum. Death was sudden from syncope.

Path. Reports, 30th Nov., 1887, No. 1780.

I. 107. Retro-pharyngeal Abscess from Tuberculosis of Vertebrae. (Sir Wm. T. Gairdner.) See also following preparation.

In the preparation the anterior wall of the abscess is shown undermining and bulging forward the posterior wall of the pharynx, which is considerably thinned; this bulging is shown in the preparation by the removal of the anterior wall of larynx and trachea. The abscess was a very irregular one, passing down along the bodies of the vertebrae from the second cervical to the third dorsal; it was everywhere lined with a yellow gelatinous membrane, which is partly preserved in the preparation.

The abscess had extended to the spinal canal, and caused softening of the cord. See next preparation.

Path. Reports, 12th April, 1883, No. 970.

I. 108. Tubercular Abscess affecting Dura Mater of Cord. (Sir Wm. T. Gairdner.)

This was a case of tubercular disease of the cervical vertebrae resulting in abscess, as shown in preceding preparation. The abscess extended into the spinal cord, causing a gelatinous thickening of the dura mater for about 7 cm. of its length. This condition is shown in the preparation, and in some places the thickening amounts to over 1 cm. The surface is very irregular,

and it formed part of the wall of an abscess lying in front of the cord. The cord was pressed on and softened in this region.

The case was that of a man who was affected with progressive loss of motion beginning in the arms, and extending till there was almost complete paralysis of all the limbs. Sensation was also impaired latterly. Invasion of the disease was rapid, only sixteen days before admission, when he first had paralytic symptoms in the right arm and stiffness in the right side of the neck, no evidence existing, apparently, of previous disease of the bones. While under observation temperatures were only slightly elevated, at first almost normal, afterwards averaging about 100°—absolute maximum, 101°. Death occurred, about three months after the first symptoms, by mere asthenia, without any new phenomena, except difficult respiration shortly before death, and possibly disorder of articulation and deglutition for some time before.

Path. Reports, 12th April, 1883, No. 970.

I. 109. Tuberculosis of Bodies of Vertebrae.

The vertebrae have been sawn nearly in the middle line, and the cut surface shows three separate tuberculous lesions as follows: (1) The fifth dorsal vertebra presents in its body a cavity containing a loose sequestrum. The cavity extended through the body from side to side, and to more than half the antero-posterior diameter. From above downwards it only leaves a narrow portion of the inferior part unaffected. It projects obliquely into the spinal canal, there being only the posterior ligament separating it, and it projected laterally on the right side in the form of a small abscess. (2) The eleventh and twelfth dorsal vertebrae are affected. The intervertebral cartilage in the posterior two-thirds is replaced by a gap, and the neighbouring parts of the bodies present a yellow tuberculous infiltration, which in the case of the eleventh vertebra extends to two-thirds of the thickness of the body, and in the case of the twelfth is somewhat superficial. In connection with this lesion there was an abscess in the posterior parts of the thorax on the right side. (3) In the anterior part of the first lumbar vertebra there is a cavity occupied by a soft yellowish material, and there is a somewhat similar cavity in the posterior part of this vertebra.

John G. (aged 46) died apparently in consequence of a perforating ulcer in the duodenum, and there is no reference in the history to any spinal disease. *Path. Reports*, 22nd March, 1893, No. 3297.

I. 110. Tuberculosis of Vertebrae. Collapse of Two Bodies; Acute Curvature. (Sir Hector C. Cameron.)

The preparation shows a portion of the vertebral column sawn in the middle line. The eleventh and twelfth dorsal vertebrae have their bodies entirely broken up and collapsed, and there is a corresponding acute curvature with pressure on the spinal cord at a point about 3 or 4 cm. above its inferior termination. There was a lumbar abscess connected with the disease, the opening of which was followed by acute symptoms.

Annie K. (aged 4) was affected with Pott's curvature for two years. She died with acute febrile symptoms five days after the opening of a lumbar abscess.

Path. Reports, 1st April, 1889, No. 2071.

I. 111. Tuberculosis of Vertebrae. Destruction of Intervertebral Cartilage; Psoas Abscess. (Dr. Nicoll.)

The vertebrae which are shown in section are the two lower dorsal and three upper lumbar. The intervertebral disc between the last dorsal and first lumbar has entirely disappeared, and the two bodies are in contact by a rough irregular line, and there is considerable concavity in front. The measurement of the two bodies along their anterior aspect is 3·7 cm. The eleventh dorsal measures 2·5, and the second lumbar 3 cm. The spinal canal shows, at a part corresponding with the two bodies, a distinct curvature with the convexity backwards. In the two bodies concerned, and also in the second lumbar, there are several well-defined cavities which were filled with caseous or pultaceous matter. There were also sinuses through the anterior ligament. A right psoas abscess was found with its apex between the twelfth dorsal and first lumbar bodies and its base at Poupart's ligament.

Path. Reports, 4th Oct., 1893, No. 3461.

I. 112. Tuberculosis of Sacral and Lumbar Vertebrae. (Prof. Macewen.)

The preparation shows an obvious gap between the first sacral and last lumbar vertebrae, the cartilage having entirely disappeared. The sacrum shows a sequestrum with a depression partially isolating it, and there is also a narrow area of necrosis on the under surface of the lumbar vertebra. With the gap there communicates an

aperture which passed to an abscess-cavity, part of which is preserved. It formed a psoas abscess, which pointed in the groin. The patient was also affected with phthisis pulmonalis and lupus of the margin of the nasal orifice.

Mrs. C. (aged 29) was admitted suffering from a psoas abscess, which was opened. *Path. Reports*, 9th Nov., 1895, No. 4378.

I. 113. Tuberculosis of Wrist. (Prof. Geo. Buchanan.)

A cavity exists occupying the place, in great part, of the carpal bones and wrist-joint. The lower end of the radius is eroded, and in a cavity of it there is a spongy worm-eaten sequestrum. The upper row of carpal bones is entirely gone, and the lower row nearly so, the metacarpal bones being exposed and carious.

Path. Reports, 16th Nov., 1875, No. 42.

I. 114. Tubercular Disease of the Middle Phalanx of the Index Finger. (Sir Hector C. Cameron.)

There is great thickening of the soft parts and of the skin, and three sinuses penetrate to the bone, while there are several prominences in the skin as if about to form sinuses. The disease is localised in the middle phalanx, and especially at its proximal extremity. This extremity is largely replaced by pulpy tissue, the cartilage having disappeared and the bone having been eroded. The rest of the phalanx is somewhat destroyed. The other bones of the finger are not affected.

Path. Reports, 26th March, 1882, No. 816.

I. 115. Tuberculosis of Middle Phalanx of Finger.

The finger is shown in section. The middle phalanx is seen to be almost entirely replaced by a soft tissue, only the distal cartilage being still recognisable. Continuously with the altered phalanx, the parts around are greatly infiltrated and thickened, and on the summit of the swelling, and on the dorsal aspect of the finger, there is an ulcer with raised edges.

The finger was amputated from a child. History unknown.

I. 116. Tuberculosis of First Metacarpal Bone.

The preparation shows the condition often seen in children, and

designated "strumous dactylitis." The diaphysis in its whole extent is affected. It is much enlarged, and consists of cancellated bone with erosions and cavities.

I. 117. Tuberculosis of Hip-joint. Morbus Coxae. (Sir G. H. B. Macleod.)

The acetabulum and the head of femur are preserved, and it is seen that the cartilages are completely gone, the articular surfaces being covered with granulation tissue in pretty thick layers. The head of the femur is considerably atrophied. There was a large abscess in the thigh. *Path. Reports*, 24th June, 1876, No. 109.

I. 118. Tuberculosis of Hip-joint.

The acetabulum shows marked erosion, especially at its upper part, where there are two considerable pits. The exposed bone is considerably rarefied. Around the altered acetabulum there are considerable spicules of new-formed bone. The head of the femur also shows rarefaction and erosion, especially on its upper surface, and there are spicules of new-formed bone at the neck.

The history is not known, but the existence of separate centres of ossification along the crest of the ilium indicates that it was a young subject.

I. 119. Tubercular Disease of Lower End of Femur. (Sir G. H. B. Macleod.)

The specimen consists of a thin slice of bone taken from about the centre of the lower end of the bone. Above, the medullary canal is seen filled with a white flocculent material; this in the fresh state consisted of thick curdy-like pus. Lower down, and extending towards one condyle, a tuberculous infiltration of the bone is seen continuous with the abscess-cavity above. A piece of the cancellated bone was found necrosed, although still inseparably connected with the surrounding osseous tissue. At the lower apex of the condyle the tuberculous process is seen to have extended to the articular surface of the joint, and caused, as the examination showed, a general tuberculosis of the articulation.

The limb was removed by operation from a man aged 56. He had, six years previously, been kicked on the left knee by a horse,

but stated that for years before he got the kick he felt the knee weak and painful. About a year ago his health commenced to fail, and his knee became more swollen and painful, until about five months back he was finally compelled to give up work. The joint, when examined after removal, had all the appearance of being a "strumous" one. (See water-colour painting of femur in fresh condition and also macerated preparation, Nos. 120 and 121.)

Path. Reports, 19th Dec., 1887, No. 1789.

I. 120. Tuberculosis of Femur. (Sir G. H. B. Macleod.)

This is the other half of preparation (Series I., No. 119). There is also a water-colour drawing. The preparation shows the abscess-cavity in the midst of the shaft, with rarefied tissue around. Below there is a partially separated piece of rarefied tissue, which in the fresh state was yellow from tuberculous infiltration.

For the history see Series I., No. 119.

I. 121. Tuberculosis of Femur and Tibia. Extension to Knee-joint. (Sir G. H. B. Macleod.) (*Water-colour Drawing* by Dr. Alex. Macphail.)

The drawing represents a longitudinal and transverse section in the fresh state through the lower end of the femur and upper end of the tibia. In both bones there is, near the inner aspect, a wedge-shaped area of a yellowish colour which represents necrosed caseous bone. These surfaces were bare of cartilage and somewhat eburnated. Towards the outer aspects there are in both bones some smaller yellow areas with softening. The synovial membrane of the knee-joint was pulpy and somewhat tough.

Robert M'K. (aged 52), a blacksmith, suffered from what was assumed to be rheumatism in the knee for two and a half years. Nothing serious was apprehended for about eighteen months after the onset, when the knee swelled up and became painful.

Path. Reports, 12th June, 1891, No. 2687.

I. 122. Old Necrosis (Tubercular) of Os Calcis. New-formation of Bone. (Sir Hector C. Cameron.)

The preparation is the inner half of the os calcis. The cut surface shows beneath the posterior half of the main articular surface, a

cavity measuring 1·5 cm. in diameter in which is a sequestrum lying loose. With this communicates a cloaca, which passes to the inner aspect of the bone, both cloaca and cavity being lined with a soft pulpy tissue. The bone as a whole is much condensed and heavy, and there are projections, particularly one posterior to the articular surface, which forms a process of dense bone 12 mm. in height. It corresponds with the anterior margin of the tendo Achilles.

The patient suffered for twenty years from a discharging sinus on the under aspect of the ankle.

Path. Reports, 6th April, 1896, No. 4565.

I. 123. Tuberculosis of Ankle-joint. (Dr. Patterson.)

The preparation was obtained from the foot removed by Syme's amputation. The articular surfaces of the tibia and fibula and astragalus are markedly eroded, and the compact articular laminae have entirely disappeared, so that the surfaces have a sponge-like texture.

I. 124. Tubercular Disease of Ankle.

The exact relation of parts is made out with a little difficulty as follows: There is no proper ankle-joint, but the lower end of the tibia is ankylosed to the astragalus, which again is ankylosed to the os calcis; so that tibia, astragalus, and os calcis form a continuous solid bone. Between the astragalus and scaphoid there is a cavity filled with soft granulations, and the head of the astragalus is denuded of cartilage and considerably eroded, while the scaphoid is also bare of cartilage, and reduced to about half its thickness. A sinus or sinuses have communicated between the surface and this cavity. In sawing through the bones of the foot they were found generally to be exceedingly soft; in fact, they could be cut with a strong knife.

I. 125. Tuberculosis of Ankle. Sinuses on Outer Aspect. (Prof. Geo. Buchanan.)

The parts have been split between the second and third toes, and it is seen that on the proximal surfaces of the tibia and astragalus the cartilages are absent, and a soft bulky tissue takes their place, especially in front. Similarly, in the articulation between astragalus

and calcaneum the joint is lined with exuberant granulations. There is also visible below the tarsal bones, but unconnected with the joints, an elongated cavity lined with tubercular granulations. Viewed from the surface the outer aspect of the ankle is greatly swollen, and there are eight or nine openings of sinuses. There was one opening also in front and one behind, as well as two on the inner aspect.

Anne B. (aged 63) stated that without any known cause the ankle began to swell. Three months before operation the first sinus formed. During residence the temperature was habitually febrile.

Path. Reports, 5th June, 1896, No. 4662.

I. 126. Caries of Ankle-joint. (Sir Hector C. Cameron.)

The preparation shows a section through the articulation between tibia and astragalus. The cartilages have disappeared, and the synovial membrane is in the form of a pulpy tissue. It was found on dividing the parts that the bones of the foot generally could be cut with a strong knife.

Path. Reports, 2nd Nov., 1882. No. 866.

I. 127. Astragalus from Case of Tuberculosis of Ankle-joint.

The upper articular surface is eroded, and the bone rarefied. Posteriorly there are bony projections indicative of new-formation.

I. 128. Os Calcis showing Erosion and Necrosis from Tuberculosis. (Mr. Maylard.)

The surface is eroded, and there is a central sequestrum with cloacae leading to it. On the under surface there is a considerable layer of new-formed bone. The specimen was excised during life.

I. 129. Os Calcis showing Erosion and Necrosis from Tuberculosis.

The specimen shows greater erosion than the preceding one. There is an incompletely detached sequestrum contained in its midst.

I. 130. Deformity of Third and Fourth Toes in Tuberculosis of Ankle. (Sir Hector C. Cameron.)

The case was one of complete disorganisation of the ankle-joint

from tuberculosis with discharging sinuses. The deformity has arisen apparently from defective growth of the metatarsal bones; those of the third and fourth toes, as seen in section in the preparation, show an excessive fatty marrow with a thin rind of bone. The fourth toe has suffered most, being drawn backwards and upwards. There is not much, if any, shrinking of the toes themselves, but rather a retraction, due apparently to defective growth of the metatarsal bones.

Rebecca M. (aged 14) had disease of the foot for about twelve years, with almost constant abscess-formation.

Path. Reports, 5th March, 1897, No. 4970.

I. 131. Tuberculosis of Metatarso-phalangeal Articulation of Great Toe.

The proximal ends of the bones are much eroded, especially the phalanx, but there is also considerable new-formation, especially at the lower end of the metatarsal bone, and the two sesamoid bones are ankylosed to the former.

I. 132. Curvature of Spine after Complete Healing of Disease of Vertebrae. Acute Spinal Symptoms a few days before Death. (Sir Wm. T. Gairdner.)

The preparation is the lateral half of the cervical vertebrae sawn longitudinally. It is seen that the anterior portions of the third and fourth vertebrae, and, to a certain extent, of the second also, are atrophied, the section of the second especially being in the form of a wedge, the thin edge of which is directed forwards. This atrophy has caused a deep concavity, but this concavity, as well as a portion of the anterior aspect of the bodies, is occupied by a mass of dense bone which lies mainly in front of the third vertebra, but is separated from it by ligamentous structures. With the concavity in front there corresponds a marked convexity behind, with an extreme narrowing of the spinal canal. The point of greatest constriction is near the upper extremity of the third vertebra, where the total width from before backwards is about 6 mm.

The patient was discharged from the army, presumably on account of incipient paralytic symptoms, more than four years before his death; but there was evidence that he had served seventeen years previously to his discharge without appreciable inconvenience from his disease, which, however, presented itself

in the form of a swelling in his neck during adolescence, noticed as such by his father at the time, but attributed to stooping in his work. Age at enlistment, 18, at discharge, 35, at death, 39. Admitted to the infirmary in an insensible state from drink, previously to which he was stated to have been walking about with a companion. Paralysis of arms, and also, but to a less extent, of legs, after admission. Death evidently due to paralysis of respiration. There was no recent disease other than the paralysis, and no important disease of any of the internal organs of chest or abdomen. (See *Glasgow Medical Journal*, March, 1879, p. 248.) *Path. Reports*, 26th June, 1875, No. 14.

I. 133. Excision of Knee-joint. Union of Bones; Abscess-cavity in Femur. (Dr. Patterson.)

The bones have been divided longitudinally and show a complete union between tibia and femur, there being only a slight indication of the line of junction. In the shaft of the femur there is an elongated abscess-cavity which in the fresh state was lined with a thick membrane and filled with curdy pus. For this condition the limb was amputated.

I. 134. Disease of Elbow-joint (probably Tubercular). Rarefying and Constructive Ostitis. (Sir Hector C. Cameron.)

The articular surfaces are seen to be entirely devoid of the compact articular laminae, and the exposed cancellous tissue is much worm-eaten. In the olecranon there is a sequestrum almost completely detached from surrounding parts. The bones around the joint show great new-formation in the form largely of stalactite-looking projections. At the base of the olecranon posteriorly, there is an aperture leading to the sequestrum.

A woman (aet. 58) had suffered from joint trouble for twelve months. Sinuses opened externally and great pain existed. The arm was amputated. The compact layer of the shafts, as seen in preparation, was found thin and friable, and the medullary canal was widened and filled with fatty substance.

I. 135. Ankylosis of Elbow-joint. (Sir Hector C. Cameron.)

The parts were removed by operation, and they show the lower

end of the humerus with part of the upper end of the ulna. The union appeared bony during life, but the effect of maceration has been to show a line of separation. No union apparently existed between radius and humerus. The joint became ankylosed in consequence of a compound fracture.

I. 136. Ankylosis of Elbow-joint. (Sir G. H. B. Macleod.)

Specimen shows in section a union between humerus and ulna, with considerable thinning of the shafts from disease. The history is unknown.

I. 137. Parts from Excision of Elbow at a remote date.

The joint is represented by a distinct cavity of comparatively small size, but allowing of free movement. The ends of the bones are covered with a layer of dense fibrous tissue continuous with that forming the joint. The radius and ulna both enter into the formation of the joint, the head of the former lying nearly in front of the latter.

Nothing is known of the history of the case. The parts were removed from a man, who was affected with tuberculosis of the vertebrae (see I. 111) and psoas abscess. The body was much emaciated, but the muscles of the left forearm were particularly atrophied, being those connected with the excised joint.

Path. Reports, 4th Oct., 1893, No. 3461.

I. 138. Excision of Knee for Tubercular Disease. Parts four months after. (Dr. H. C. Cameron.)

The case was one of tuberculosis of the knee of eight years' duration. The joint was excised, but did not do well, and the limb was subsequently amputated. The preparation shows fibrous union between femur and tibia, but the femur has been rotated outwards so that it even overlaps the fibula externally. There is very great wasting of the bone, so that the dense layer is rarefied and the cancellated tissue has large open spaces which were filled with fat.

Jane D. (aged 18), a dressmaker. After amputation the stump did well, and she improved greatly in health.

Path. Reports, 19th April, 1893, No. 3318.

I. 139. Obliteration and Ankylosis of Knee-joint, the result of Healed Tuberculosis.

The bones are shown in section, the inner half being preserved. The femur shows where it is in contact with the tibia considerable atrophy, but the femur has been displaced inwards, and the atrophy affected the central parts and external condyle (absent in preparation), whilst the internal condyle, which in the preparation is seen to be beyond the tibia, has either its normal or an increased projection, as it reaches about 2·5 cm. lower than the surface in contact with tibia. The tibia and femur are firmly united, but at the point of section at least there is fibrous tissue between the ends. Firm manipulation shows slight movement, and there is a slight gnawing feeling as if the bones were in some places close. The patella is firmly ankylosed to the femur, and, indeed, forms part of that bone, there being in section no indication of a line of demarcation. There is considerable atrophy of the cancellated tissue of the femur, and a considerable cavity is seen just above the position of the condyles. The shaft of the tibia is also thin.

The parts were removed from a man (aged 58) who died with cancer of the pylorus. No history was obtainable of the leg condition. There was a healed tuberculosis of the lungs.

I. 140. Bony Ankylosis of Knee-joint and Rarefaction of the Bone from Old Tuberculosis of Joint. (Prof. Geo. Buchanan.)

The femur is rotated inwards, and its internal condyle is united to and incorporated with the internal condyle of the tibia. The patella is united to the femur along the patellar surface and neighbouring parts of the condyles. The bony union is here complete, but section shows the remaining septa of the two bones. It is also shown on section that the bony tissue is much rarefied, and this applies both to the cancellous tissue and the shaft, the dense bone of the latter being markedly thinned especially in the case of the tibia. There was a pulpy condition of the soft parts in and around the joints, but no tuberculosis of the bone.

Julia R. (aged 36) traced her illness to a swelling of the knee-joint when twelve years of age. After being treated by a MacIntyre splint for months the joint became quite stiff. About three years after the onset of the illness sinuses formed, some of which persisted

till the time of admission. During the greater part of her illness she used a crutch, but ten years before admission she was able to walk unaided. *Path. Reports*, 10th Oct., 1888, No. 1942.

I. 141. Great New-formation of Bone from Suppurative Disease of Ankle-joint. (Dr. Beatson.)

The tibia is much increased in weight, and in its lower two-thirds has lost much of its normal shape, being considerably rounded and roughened. A partial section of the bone has been made, and it shows an extraordinary thickening of the condensed bone of the shaft, with encroachment on the medullary cavity. This condensation of the bone by new-formation of osseous tissue, extending down to the lower extremity, has greatly increased the weight of the bone. The fibula also shows an irregular thickening of its lower extremity.

Anthony M. (aged 45), a coachman. The history seems to indicate that the great new-formation of bone in the lower two-thirds of the tibia was due to a suppurative disease of the ankle-joint. The disease began two years before amputation with an injury to the leg, which caused a swelling. This broke, and a nasty foul-smelling discharge made its way out. On admission, the ankle was much swollen and boggy. There was a sore below the internal malleolus and another in front. A probe could be passed till it encountered the lower end of the tibia and fibula. The disease does not seem to have hindered him from going about till a fortnight before admission, when another blow on the ankle produced pain, which prevented further movement. *Path. Reports*, 29th Sept., 1893, No. 1418.

I. 142. Chronic Periostitis, with Thickening of Bone from Disease of Ankle-joint. (Prof. Geo. Buchanan.)

The lower ends of the tibia and fibula are shown sawn transversely about 2·5 cm. above the joint. The joint-surface is nearly normal, but the surfaces of the bones show irregular, sometimes warty-looking, bony layers. It is seen on section that these layers are superimposed upon the surface of the shaft, which can be generally traced. The dense layer of the shaft is thinned, and on the posterior aspect of the tibia it is almost lost, so that the new-formed cancellated bone is continuous with the internal cancellae. There is little or no new-formation where the tibia and fibula are in proximity to each other. The longitudinal section of the tibia shows again the surface

new-formation with thinning of the dense layer of the shaft. There is also a suggestion that the medullary cavity is more occupied by cancellated bone than normal.

Francis C. (aet. 22) traced his illness to a sprain. There was great thickening and pulpy softening of the synovial membrane as well as along the sheaths of the flexor tendons, but the cartilages were unaffected. There are three suppurating sores on the inner aspect of the ankle. The foot was removed first, but the leg had to be amputated subsequently—two months and a half afterwards.

Path. Reports, 20th Nov., 1886, No. 1623.

I. 143. Thickening of Shaft of Humerus. Congenital Syphilis. (Children's Hospital.)

There is a spindle-shaped swelling in the middle of the shaft produced by new-formation of bone, causing increased thickening of the external wall and projection both outwards and inwards. The medullary cavity is greatly narrowed by the inward projection. The new-formed bone is generally dense, but on one side there is a slight appearance of cancellation.

I. 144. Syphilitic Disease of Calvarium.

The outer surface of the calvarium presents universally an irregular worm-eaten appearance, which becomes extremely marked anteriorly. In the posterior parts of the frontal bone there is a considerable brownish and apparently necrosed portion, whilst around this the bone is generally more prominent and partially overlapping. Viewed from within there are several gaps, the largest of them corresponding with the necrosed area. In its anterior half the internal surface presents some thickening and irregularity, and, besides this, the internal surface generally is dotted with innumerable pin-hole punctures. The sawn surface of the bone illustrates the condensation which occurs in syphilis. No diploë is seen, and the whole thickness is composed of compact bone, except in front and behind, where, especially internally, there is some cancellated bone, apparently new-formed.

A man (aet. 46) gave no history of primary or secondary syphilis, but he ascribed his disease to the "excesses of youth." Five or six years before death he first experienced pains in the flat bones of the head. Over these bones there appeared small swellings, one

of which eventually burst. This remained open till death, and was in the form of an ulcer with bone exposed to the extent of over 6 cm. in diameter. The discharge was very profuse.

I. 145. Syphilitic Necrosis of Skull.

I. 146. Massive Fibroma of Lower Jaw removed by Operation. (Mr. Maylard.)

The preparation embraces the tumour, which is about the size of the fist, with rather more than half of the lower maxilla, namely, from the right maxillary articulation to the left side of symphysis. The tumour surrounds the jaw, completely burying the bone from the symphysis up to the neck of the condyle. In section it is seen that the bone of the jaw remains comparatively unaffected, but the molar and tricuspid teeth, which project from the upper surface of the tumour, are loosened and somewhat displaced. The tumour is lobulated on the surface, but otherwise it seems to surround the bone equally. Its tissue is composed of dense fibrous tissue.

The case was that of a woman aged 28. She first noticed the tumour a year before admission, when it commenced as a small swelling projecting from the outer surface of the maxilla. Within the last month or two it began to grow much more rapidly. The operation was quite successful, and three months afterwards, there was no appearance of recurrence. (For fuller account, see *Transactions of Pathological Society of Glasgow* and *Glasgow Medical Journal* for 1885.)

I. 147. Fibroma of Lower Jaw (Epulis) removed by Operation along with the half of the Jaw-bone. (Sir Hector C. Cameron.)

The tumour occupies the external aspect of the jaw, outside the alveolar process. It has an irregularly lobulated outline, being convex externally and somewhat flattened on its internal aspect next the jaw. It represents about half an oval, the long diameter, which is from before backwards, measuring 6·3 cm. The tumour is covered with mucous membrane. It is attached by a somewhat narrow pedicle to the bone at or near the alveolus, and at a point corresponding with the first and second tricuspid teeth, which are somewhat pushed inwards by a localized projection of the tumour,

but otherwise these teeth are normal. The remaining teeth comprise a rudimentary loosened tooth, two bicuspids and a canine, the saw-cut having been made through the alveolus of the second incisor.

Under the microscope the tissue of the tumour is essentially wavy fibrous tissue, with inflammatory cells near the surface.

Path. Reports, 2nd June, 1883, No. 991.

I. 148. Fibroma of Upper Jaw and Base of Skull. (Prof. Geo. Buchanan.)

The specimen shows the right superior maxilla with the tumour *in situ*, except a piece which is seen lying at the bottom of the jar, and which was removed after the main mass of the growth was extracted. The tumour is irregularly lobulated, and although closely applied to the jaw, was at no point firmly adherent to it, its point of attachment being the base of the skull. The tumour was found (as will partly be seen in the specimen) lying on the anterior and lateral surfaces of the maxillary bone, passing under the zygoma and curving round the pterygoid processes into the posterior nares. The front portion of the tumour hangs down over the teeth. Under the microscope the tumour is found to consist mainly of connective tissue. In some parts an approach to spindle-celled tissue is observed, but even here there is a considerable amount of intercellular material, and it is probably the initial stage of connective tissue.

The symptoms were of three years' duration, and commenced with those of nasal polypi, several of which were removed by Dr. Foulis. About a year after, this swelling appeared in the right cheek, which gradually, without pain, increased until the eyeball became so much protruded that the lids could not meet, and the right nostril was completely obstructed. Patient died on the evening of the operation. *Path. Reports*, 26th June, 1880, No. 568.

I. 149. Osteoma of Upper Jaw. (Sir Hector C. Cameron.)

The preparation consists of the whole left superior maxilla. There is slight bulging in front and laterally. The section shows an almost homogeneous and somewhat dense osseous formation. A molar tooth, partly shown on section, is inserted directly into the tumour mass, there being no distinction of alveolar process.

The antrum is obliterated and the mass of bone extends uninterruptedly from the floor of the orbit to the roof of the mouth.

Helen M. (aged 17), a dressmaker, stated that the tumour had a duration of about ten years, beginning in what was considered a gum-boil. Latterly there was considerable pressure on the palate and nostril, but not on the orbit.

Path. Reports, 22nd Oct., 1891, No. 2784.

I. 150. Exostosis Cartilaginea of Scapula. (Dr. Patterson.)

The tumour is in the form of a flattened hemisphere with a diameter of about 7 cm. It overhangs its base to some extent, but without being definitely pedunculated. The greater part of the tumour is composed of cancellated bone, but it has an external layer of hyaline cartilage generally about 3 mm. in thickness, but at one part extending nearly 2 cm. into the substance of the tumour. The bony mass of the tumour is continuous with that of the scapula, a portion of which has been removed along with it.

James M. (aet. 13). The tumour first attracted attention five years before operation. It increased very slowly and produced no pain or inconvenience till lately.

I. 151. Pedunculated Exostosis Cartilaginea from Lower End of Femur. (Prof. Geo. Buchanan.)

The growth has a narrow neck by which it is attached, measuring 1·5 cm., whilst the expanded portion measures 4·75 cm. In its general shape the tumour considerably resembles the head of a small femur, but with a considerably narrower neck and a much thicker layer of cartilage. The tissue is mainly cancellous bone, but on the summit there is a layer of cartilage varying in thickness from 5 to 8 mm. The cartilage slightly overhangs the bone laterally, but it is chiefly confined to the summit. No history has been obtained. *Path. Reports*, Feb., 1893, No. 3269.

I. 152. Ossifying Chondro-sarcoma of Lower Jaw. (Dr. Dalziel.)

A portion of the ramus of the jaw is preserved and shows a prominent tumour occupying the alveolar margin and internal surface. It extends from the position of the first bicuspid tooth backwards a distance of 4½ cm. It measures 3 cm. from above

downwards, and on the inner side shows a well defined and overhanging margin which projects about 12 mm. from the inner surface of the jaw. It scarcely extends to the outer surface of the jaw, being almost limited to the outer alveolar margin. This alveolar margin shows an oval area in which the mucous membrane is wanting, and there are some pouting granulations. This obviously represents an alveolus occupied by tumour tissue. A section of the tumour shows that it is intimately connected with the bone of the jaw and that spicules of bone run into it from the jaw, while more superficially, rounded areas of cartilage are seen separated by a looser tissue. Microscopic examination shows bone and cartilage as above, the cartilage being unduly cellular. Between the cartilage there is a highly cellular tissue composed of round and spindle-shaped cells, with a fibrous intercellular substance.

Miss T. (aet. 34) had suffered from enlargement of the inside of lower jaw for six months, supposed to be gum-boil. There was very troublesome haemorrhage at times. Pain was not marked at any time. Two teeth sockets were represented by ulcers. Portions from the edge of those ulcers showed only granulation tissue.

Path. Reports, 2nd May, 1894, No. 3684.

I. 153. Enchrondroma of Lower Jaw. (Sir Hector C. Cameron.)

The tumour is seen springing from the outer surface of the body of the bone, but it extends over the alveolar border to the inner surface. It was removed by operation from a woman aged 30. It commenced a year ago as a lump on the inner side of the gum on the left side of the jaw opposite second molar tooth.

Path. Reports, 6th May, 1887, No. 1723.

I. 154. Gigantic Enchondroma of Ilium. (Dr. Patterson.)

The tumour, of which less than half has been kept, weighed nearly 4½ kilos. and measured 35 cm. from above downwards and 30 cm. from side to side. It was attached to the iliac bone along the crest and outer aspect, extending backwards from the anterior spine about 9 cm. and downwards from the crest about 6 cm. This attachment is partly shown in separate preparation. The bone in this locality is evidently rough and probably eroded, but there is no penetration through the bone into the pelvic cavity. On the other hand, on the internal surface of the bone, a short distance behind the position of the tumour, there is a small lobulated cartilaginous

outgrowth just over 1 cm. in diameter. The tumour is almost completely encapsuled, the principal exception being that, at the upper extremity and in connection with its attachment to the bone there is a piece of tumour about 5 cm. in diameter which somewhat overhangs the capsule which covers the rest of the tumour. The capsule consists of connective tissue along with some muscular fibre and tendon. The tumour hanging from the crest of the ilium lay over the great trochanter with the gluteus maximus stretched over it. On section the general aspect of the tissue is that of clear translucent cartilage divided by septa into lobules, but it is frequently interrupted by opaque calcified portions which render it difficult to divide the tumour. Microscopic examination shows the most of these to be merely calcified cartilage, but there are some which are composed of true bone, this being especially the case in a mass near the upper and outer portion. The tumour tissue consists of hyaline cartilage. The cells are mostly large, and they are often in groups suggesting a preparation for ossification. On the whole the matrix is somewhat sparse, but there are places where it is more abundant and it has the general character of a hyaline matrix.

Mrs. L. (aet. 29) came into hospital complaining of a growth on the right side of four years' duration. It was not painful to the touch, nor did it in any evident way affect her general health. The tumour was injected with iodine (see apertures in capsule in preparation) and since then began to break up and patient's health began to give way. She was four or five months pregnant at the time of death. *Path. Reports*, 19th May, 1885, No. 1365.

I. 156. Enchondroma of Tibia. (Dr. Patterson.)

The specimen consists of an irregular nodulated mass about 6·3 cm. long by 2·5 broad. At one part is seen a piece of bone from which the tumour appears to be growing. It is encased in a more or less dense fibrous capsule which could be peeled off in places, while at other parts it passed inwards to form incomplete septa between the nodulated portions of the growth.

Microscopically, the tumour showed an external layer of pure hyaline cartilage, while deeper the cartilage had undergone considerable calcification. The patient was a woman, who had noticed the tumour for about ten years. It had grown rapidly recently, but without causing pain. It was situated at the upper end of the tibia. *Path. Reports*, 25th Oct., 1885, No. 1429.

I. 157. Ossifying Chondro-fibroma of Metatarsal Bone. (Sir Hector C. Cameron.)

The tumour, which is shown in section, measured 7·5 by 6 by 4 cm. and had a flattened ovoid form. Two considerable lobules project from the main mass, as shown. The tumour is exceedingly dense, and is visibly composed of intersecting fibres with here and there masses of cartilage. Small pieces of bone occur in different parts. Microscopic examination shows the three tissues mentioned.

Wm. M'D. (aet. 41) had the tumour connected with the first metatarsal bone of right foot. It was first noticed seven years before operation, and was then about the size of a bean. The great toe was removed along with the tumour, but its bones seemed unaffected. *Path. Reports*, 20th April, 1894, No. 3673.

I. 158. Central Enchondroma of First Phalanx of Great Toe. (Dr. M'Millan, Pollokshields.)

The toe is seen in section. The proximal phalanx is distended into a somewhat bulky tumour which protrudes upwards, and has apparently destroyed the upper aspect of the bone. The lower wall and the articulations are preserved. The tumour presents a markedly lobulated character, the lobules being small in size and definitely demarcated.

Under the microscope there are rounded masses of cartilage, of which the matrix is hyaline, and the cells generally are branching. These masses are separated by connective tissue.

I. 159. Enchondroma of Big Toe. (Sir Hector C. Cameron.)

The specimen shows a tumour intimately attached to the first phalanx. It appears to be connected solely with the periosteum, as almost complete separation of the tumour and bone is possible. The shaft of the bone is seen arched, and into the concavity the tumour has fitted itself. The tumour itself is seen to be irregular on the surface, and was ensheathed in a fibrous capsule with septa passing in between the surface irregularities. Microscopically, it was found composed of abundant fibrous tissue with cartilage, the matrix of the latter having in many places calcified.

Path. Reports, 16th Dec., 1886, No. 1475.

I. 160. Subungual Exostosis Cartilaginea. (Dr. Dalziel.)

The tumour is a small flattened oval one, measuring 1·5 by ·7 by ·5 cm. The toe nail is preserved alongside. The little tumour lay in a kind of cup under the toe nail, and its capsule of connective tissue remains adherent to the nail. The corresponding surface of the tumour is smooth. On its deep surface the tumour shows a small bony peduncle only 3 mm. in diameter. Microscopic examination shows cancellated bone in the central parts, then a layer of cartilage which merges superficially into a fibrous layer.

Miss T. (aet. 23) suffered six months before operation from pain in the great toe, which was supposed to be from an ingrowing nail. Shortly afterwards a little lump appeared projecting from under the nail. This she attempted to pare, and caused some bleeding. As the lump continued to grow, it was removed by operation. It was situated on the outer aspect of the left great toe.

Path. Reports, 29th August, 1894, No. 3842.

I. 161. Central Lipoma of Rib.

I. 162. Central Lipoma of Rib. (Sir Hector C. Cameron.)

These two preparations show each the half of the fourth rib, the one half macerated and the other not. The rib was swollen into a massive tumour, which extended from near the anterior extremity of the osseous rib for a distance of 10 cm., with a transverse diameter of about 5·5 cm. and a thickness of 5 cm. It extended outwards and inwards almost to same extent, and impinged on the proximate ribs above and below. The tumour has a bony shell generally thin, and in some places as thin as paper. There are also cancelli, especially in the peripheral parts. The cavity was filled with a very soft flickering tissue, which the microscope showed to be pure adipose tissue.

Robina D. was affected with cancer of the mamma. The tumour of the rib was not noted during life. Besides these two tumours, there were an ovarian cystoma and an angioma of the liver. See an account of the case in *Glasgow Medical Journal*, August, 1890.

Path. Reports, 1st March, 1890, No. 2293.

I. 163. Cyst of Head of Fibula. (Prof. Geo. Buchanan.)

"A. L. (aet. 12), a healthy well-developed country lad, was sent to consult Professor Buchanan concerning a large oval-shaped tumour

on the outer side of the right leg, extending downwards from the fibular articulation for about 15 cm., and measuring from its inner side to the middle of the leg behind, over its most prominent part, 20 cm. On the inner side it was pretty well circumscribed; a slight furrow existed between it and the tibia, but behind its limits were lost in the sural muscles. It was immovably fixed, smooth and uniform in its outline, felt hard on palpation, with here and there a spot which gave a semi-elastic sensation, with eggshell crackle, on firm pressure. The skin was freely movable over it, and showed very plainly the blue veins coursing over the tumour. No pain was felt on manipulation or in walking, which was not in any way interfered with. The glands in the groin were unaffected. He gave the following account of its causation and history:—Twelve months ago he had fallen from a tree and bruised his right leg below the knee-joint, the effects of which were soon relieved by fomentations, but there remained a slight thickening of the tissues where the blow was sustained. Shortly after he received another bruise on the same part by falling over a stone, causing it to become swollen and painful. Treatment by rest and fomentations relieved the pain and reduced somewhat the swelling, which after a little began slowly to increase in spite of the counter-irritation applied. It went on increasing but slowly at first, then rapidly for a short period, and lately had been stationary, or not increasing to any appreciable extent.

"4th February.—After a consultation, it was agreed, as the tumour was considered to be malignant, to amputate the limb through the knee-joint, and patient was put under chloroform; but Professor Buchanan, prior to doing this, cut down on the tumour on its outer side to make certain of its nature. On cutting through the skin a bony shell was laid bare, through which, when the knife was plunged, a dark-coloured serous fluid spurted out with considerable force. Passing the forefinger through the opening thus made, he found that the bone was expanded to a mere shell without any solid contents, and suspecting it to be a simple cyst, he prolonged the incision for 22·5 cm. on the outer side over the fibula. The tumour was then carefully dissected out, the shaft of the bone being divided by bone forceps 3·8 cm. below the termination of the tumour. It was raised up and dissected from the structures behind, and disarticulated. The musculo-cutaneous nerve was so firmly adherent to the surface of the tumour as to necessitate its being separately dissected off, a procedure which led to its being isolated from all

surrounding tissues for about 10 cm. in its course. A vein and two small arteries were ligatured; a drainage-tube was inserted, the wound being sutured over it, and dressed antiseptically.

"1st April.—The wound had healed without any difficulty, and patient was now allowed to get up, but though he could bear the weight of his body on the affected limb, he could not walk on account of the loss of power over the extensor muscles of the foot, due no doubt to the injury to which the nerve was unavoidably exposed in the excision of the tumour. "Prickling" of the toes was complained of for six weeks after the operation, but this has slowly disappeared, leaving sensation normal.

"8th April.—Dismissed cured.

"*Remarks by Prof. Buchanan.*—Cystic tumours of the jaws are not uncommon, even serous cysts. But of bones of the extremities examples must be very rare, as I cannot find any reference to such a case as that here recorded. The most careful microscopic examination failed to detect in the reddish fluid which escaped anything resembling tumour structure, beyond some blood cells, and the membrane with which the cavity was lined was in all respects like a simple serous membrane.

"The measurement of the tumour was 8·8 cm. long and 7·7 cm. in diameter; it was of a fusiform shape."

I. 164. Recurrent Myxoma attached to Skin and Periosteum of Ulna. (Prof. Geo. Buchanan.)

The tumour which is shown on section is elongated, its longitudinal diameter being 6·5 cm. Throughout its extent it is attached to the periosteum of the posterior aspect of the ulna. It lies directly between ulna and skin, its general thickness being 2·5 cm. It is closely attached to the skin and presents here a somewhat lobulated appearance. The cut surface has a translucent appearance and microscopically it presented the structure of a myxoma. The translucent intercellular substance as well as the fluid which passed from the section gave an abundant precipitate with acetic acid.

Christina M. (aet. 63) had a tumour of the fore arm a little below the elbow. A year before a tumour was removed from the same site. A part of the cicatrix is still visible in the preparation. It is designated in the Ward Journal "a cellular tumour arising from the deep fascia of the fore arm," and was of four years' growth. The

present tumour was of six months' growth. It presented elastic knobby prominences and was fixed to the ulna. The arm was removed. *Path. Reports*, 12th Nov., 1889, No. 2207.

I. 165. Osseous Tumour of Lower Jaw, with Spindle-celled Tissue in Medullary Spaces. (Dr. Patterson.)

The tumour which was removed from the right side of the lower jaw is in the form of the segment of a sphere. It has been sessile on the jaw so as to require sawing and clipping to remove it. It appears to be composed of tolerably dense bone with a smooth and somewhat lobulated surface. It measures about 4 cm. in diameter. Under the microscope the tissue is composed of bony trabeculae with somewhat large and frequent bone corpuscles, and of a soft tissue between, which is generally spindle celled, but has occasionally a more fibrous development.

Eliz. G. (aet. 33) stated that the tumour had been present for ten years. *Path. Reports*, 5th May, 1893, No. 3335.

I. 166. Giant-celled Sarcoma of Upper Jaw. Epulis. (Prof. Geo. Buchanan.)

The tumour is about the size of a flattened nut, and is covered with a smooth layer of mucous membrane. On section its tissue was seen to be of a transparent grey colour, and under the microscope showed innumerable giant cells embedded in a cellular tissue composed mostly of spindle cells.

The tumour was removed from the upper jaw of a child (aet. 12). It was seated over the position of the canine and tricuspid teeth. It is said to have been growing for six months.

Path. Reports, 29th Nov., 1879, No. 494.

I. 167. Myeloid Sarcoma of the Jaw of a Child. (Sir Hector C. Cameron.)

The specimen is the greater part of the body of the lower jaw, with two incisor teeth in front and a temporary molar behind. Between these the alveolus is occupied by soft tissue which is continuous with a tumour which distends the jaw. The swelling is chiefly external and measures about 3·3 cm. from before backwards and 2 cm. from above downwards. Section shows a more

or less rounded mass of soft tissue with a comparatively thin shell of bone internally and a thicker shell externally. The soft tissue has been considerably torn by manipulation. Microscopic examination showed the typical characters of a myeloid sarcoma.

Annie G. (aet. 8). Attention was first directed to the jaw about four months ago by the fact that the child complained of pain while chewing hard food. There was no tenderness on pressure.

Path. Reports, No. 3761.

I. 168. Myeloid Sarcoma of Jaw. Epulis. (Dr. Patterson.)

The tumour, which is of irregular form, measures 3·5 by 2·5 cm. and has an average thickness of 1·3 cm. It has a generally smooth surface, but is somewhat raw on one aspect. The cut surface is homogeneous and pale, there being little or none of the usual brown colouration. Spicules of bone penetrate the tumour and pass almost to the surface. Microscopic examination shows the bulk of the tumour to be composed of spindle cells, but with frequent giant cells.

Agnes I. (aet. 12) had a swelling on the right side of the face, and a tumour was detected on passing the finger between the cheek and the upper jaw. It had never caused any discomfort.

Path. Reports, 28th March, 1896, No. 4547.

I. 169. Round-celled Periosteal Sarcoma of Base of Skull. Secondary Tumours in Bones, Kidneys, etc. (Dr. Gemmell.)

The preparation includes portion of base of skull, frontal bone, rib, and kidney. At the base of the skull there is a massive tumour internally connected with the periosteum of the right sphenoid, temporal and occipital bones, the external meatus lying in a pit and almost surrounded by the tumour tissue. The tumour extends across the middle line behind the posterior nares and here in the section can be seen impinging upon the basilar part of the sphenoid. It somewhat infiltrates the pillars of the fauces and the soft palate, a part of which is preserved. In the other section, which is 6 cm. further back, the tumour does not advance quite to the middle line. In the anterior section there is a cavity or space in the midst of the tumour which contained the ramus of the lower jaw. This was embedded in tumour, but easily shelled out. Inside the skull the dura mater is infiltrated with tumour tissue which does not attain

to a great thickness, and the infiltration is limited to the anterior part of the posterior fossa, slightly crossing the middle line. The fifth nerve is involved in this infiltration, but the Gasserian ganglion can still be made out. There is no apparent softening of the bone lying between the external and internal tumour masses.

A piece of the frontal bone is seen in section. It is the seat externally and internally of a flat tumour about 5 cm. in diameter which adheres to the surface of the bone, but does not apparently infiltrate it. The bone beneath is rough, but this seems to be as much from new growth outwards as from erosion.

There were tumours in many other bones, amongst them the ribs, one of which is shown in longitudinal section. There is a tumour on the internal surface which seems limited to the periosteum and penetrates little, if at all, into the substance of the bone.

There were secondary tumours in the anterior wall of the abdomen, in the pancreas, the left supra-renal capsule, the liver, and the kidneys. One of the kidneys is shown in section. It is the seat of numerous white tumours having a diameter up to 2·5 cm. They are chiefly in the cortex, but not limited to it. They present considerable bulging externally.

Under the microscope the tissue consists essentially of small round cells with a fibrous intercellular substance.

Roderick M. (aet. 40) dated his illness to a period ten months before death when he was admitted to the Royal Infirmary with facial paralysis. Its onset was sudden and was ascribed to sleeping all day before an open window. It was four months before any tumour was noticed in the region of the skull. The first position was the right mastoid region. Small hard nodules, presumably periosteal, appeared in various parts of the head, generally preceded by acute cranial pain. The tumour slowly increased and emaciation became extreme. Death was somewhat sudden.

Path. Reports, 5th April, 1893, No. 3308.

I. 170. Sarcoma of Vertebrae penetrating into Spinal Canal. (Sir G. H. B. Macleod.)

The tumour is an exceedingly soft one, and it occupied the left side of the lumbar vertebrae, infiltrating on the one hand the psoas muscle as seen in specimen, and on the other hand partially destroying the fourth, and to a less extent the third lumbar vertebra. The tumour has extended into the canal, but remains outside the

theca, which it pushes before it, compressing the spinal cord. In the psoas muscle the tumour formed a bulky mass immediately beneath the level of the kidney.

The patient (a man aet. 23) was healthy till about four or five months before death, when he fell a height of 6 or 7 feet. Afterwards pain occurred in the back and legs, and after a time he lost power in both legs, and control of his bladder and rectum. The power in the right leg returned. After admission a tumour was detected in the left lumbar region.

Path. Reports, 28th May, 1878, No. 330.

I. 171. Sarcoma of Rib extending to Arches of Vertebrae and Theca of Cord, and causing Softening of Cord.

(Sir Wm. T. Gairdner.)

The ninth rib (right) is replaced by a bulky tumour whose structure, as shown in transverse section, is somewhat cribriform, and contains spiculae of bone. The tumour extends to the anterior aspect of the vertebrae, but does not apparently involve the bodies to any considerable extent. It also extends to the arches, which are softened. The tumour tissue was found occupying the dura mater of the cord, where it formed a somewhat bulky mass of soft grey tissue, the cord itself being narrowed and softened for about the distance of 2·5 cm.

The patient was a man (aet. 45) who had been ill for about five months before his death. The earliest symptom was a dull aching pain in the right lumbar region, which did not at first disable him, but ultimately obliged him to give up work, without his being conscious of any loss of power in the limbs till five weeks before death. At this time both motor and sensory paralysis appeared simultaneously and made rapid progress, with retention and subsequently incontinence of urine. Entire want of control over the alvine evacuations followed within a few days, with complete loss of sensation, except that the pain and a certain amount of the "girdle sensation" had passed over to the left side, the limit of impaired sensibility being about the level of the umbilicus on both sides. There was no "hyperaesthetic zone," and the progress of the disease was not marked by any unusual sensations in the affected limbs, the reflexes being almost wholly lost. Temperatures, while under observation, more or less febrile, the maximum 102·2°. A large bedsore had formed over the sacrum before death. There was

unconsciousness, with stertorous breathing shortly before death, but no abnormal appearances were found in the brain.

Path. Reports, 12th July, 1883, No. 1008.

I. 172. Sarcoma of the Scapula. (Dr. J. G. Lyon.)

The specimen consists of the whole of the right scapula except a small portion of the tip of the coracoid, which was not removed, and of a large tumour occupying chiefly the infra-spinous region of the dorsum, but extending also underneath the acromion into the supra-spinous portion. The portion of the tumour in the infra-spinous fossa is much the largest, measuring about 10 cm. in the vertical (which is its longest), and 7·5 cm. in the transverse diameter. Its thickness from the surface to the dorsum scapulae is about 3 cm. This portion is connected with that in the supra-spinous fossa (which is much smaller, but presents the same microscopic characters) by a narrow neck. The ventral surface of the bone is filled up by tissue of the same kind as that composing the tumour on the dorsum. Notwithstanding the great amount of the bone invaded by the tumour, the general form of the scapula is preserved, and its prominent points well seen. Although the same morbid tissue exists on both sides of the bone, the osseous tissue is found to be quite preserved, and gives out a ringing sound on being struck with the blade of a knife. On microscopic examination the tumour is found to consist of the same essential ingredients in all its parts, viz.—large round cells, with here and there spindle-cells arranged in longitudinal lines and intersected occasionally by connective tissue. In the tumour over the infra-spinous portion small, hard, gritty spiculae are felt, and on examining them with the microscope, they present all the characters of bony tissue in the form of trabeculae. In some of the sections distinct muscular fibres were seen mixed up with the cellular elements.

I. 173. Spindle-celled Sarcoma of Scapula. (Dr. Patterson.)

Almost the entire body of the scapula is enveloped in tumour tissue, which fills up in massive fashion the infra-spinous fossa, and to a less extent the supra-spinous. It also extends to the subscapular fossa, there being interruptions in the continuity of the bone at various places. There emerge from the tumour mass the glenoid head, the acromion and coracoid processes, and the inferior

angle. On microscopic examination typical spindle-celled tissue is revealed, but there is a considerable amount of fibrous tissue, masses of spindles occupying larger and smaller spaces in the connective tissue.

Mrs. B. (aet. 51) dated her illness eight months before operation. It began with pain. Two months later a small lump was observed at the upper part of the shoulder-blade.

Path. Reports, 15th June, 1894, No. 3749.

I. 174. Tumour of Scapula in Hare. Secondary Tumour in Lung.

The right scapula is replaced by a bulky tumour, measuring 8 by 5·5 cm. The triangular shape of the bone is in part retained, and the muscles were tightly stretched over the tumour and thinned, but no remains of the bone were discovered, except a small facet representing glenoid cavity, some spicules representing the spine, and a small pointed fragment at the inferior angle. The tissue was greyish pink in colour, and beset with opaque yellow streaks and spots. The lungs are studded throughout with small whitish tumours from a pin point to a small pea in size. There was a single growth of small size in the liver, and one of the portal glands was found enlarged. Under the microscope, the tumour in the scapula presents mainly necrosed tissue, but where fresh tissue remains, an alveolar structure is presented consisting of a fine stroma with elongated cells and large polygonal cells with round nuclei in its meshes. The tumours in the lung present a similar structure, which under ordinary circumstances would be regarded as cancerous.

The animal was a male, shot on a Lanarkshire moor.

I. 175. Sarcoma of Humerus. Spontaneous Fracture. (Sir G. H. B. Macleod.)

The upper end of the humerus is replaced by a tumour, which lies largely posteriorly, and, while involving the head of the triceps muscle, impinges on the humerus so as to destroy it and replace it from behind. At its upper and lower extremities the tumour is separated from the bone by rugged fractures. In this way the head of the bone was loose, and the other fracture was about one-third down the arm, the tumour itself being 7·5 or 10 cm. in length.

The tissue is somewhat dense, and under the microscope presents spindle-celled tissue and a stroma, in which are large epithelioid cells.

The patient was a woman (aet. 44) of a florid healthy appearance. The tumour was first noticed twelve months before admission, and shortly afterwards, when being rubbed with a lotion, the humerus broke after a slight twist. It was placed in a splint for three months without effect, and the arm was afterwards amputated successfully at the shoulder. *Path. Reports*, 2nd June, 1880, No. 559.

I. 176. Sarcoma of the Humerus. Almost Complete Destruction of the Bone. (Sir G. H. B. Macleod.)

The preparation shows the half of this arm, and it is seen that the humerus is replaced by a large pyriform tumour, thickest above, the only part of the bone left being the condyles. The tissue of the tumour is soft, and here and there spicules of bone occur, but there is no indication of the outline of the humerus, which has completely disappeared. In the midst of the tumour, and at the upper part, there is an irregular cavity, probably due to softening of the oldest part of the tumour. Under the microscope abundant round and spindle-shaped cells are found, with pretty frequent areas of fatty degeneration.

During life the first indication of disease was a fracture occurring on a trivial injury while dancing, the patient being a healthy-looking young lady. This occurred about eighteen months before death, and it was many weeks before the swelling of the arm became manifest, the only abnormal circumstance being that the bone would not unite. Subsequently the other arm underwent a spontaneous fracture, and became affected in a similar way. The arm shown in this preparation was amputated at the shoulder, and a good recovery took place. The other arm was removed some months afterwards at her own urgent request (see next preparation), and she sank rapidly after that operation.

I. 177. Sarcoma of Humerus. (Sir G. H. B. Macleod.)

This is the other arm in section from the same case as No. 176, and it presents almost identical characters. Shortly after the amputation of this arm the patient sank.

I. 178. Sarcoma of Humerus displacing greater part of Shaft. (Sir G. H. B. Macleod.)

The preparation is the upper arm divided longitudinally, including the elbow-joint. At the lower part the ulna and its articulation at the humerus are visible, but, above that, the humerus for a distance of about 12·5 cm. is almost completely replaced by an exceedingly soft tumour tissue, which is expanded in every direction, so as to form a bulky oval mass about 8·8 cm. in diameter, the shaft of the bone being to this extent virtually wanting. At its lower extremity, as shown in a separate section in next preparation, the tumour seems to end somewhat abruptly in the bone, there being a place where tumour tissue and cancellated bone are directly in contact, and no appearance as if the tumour were specially invading the medulla. Under the microscope the tumour tissue is found to consist mainly of very large irregularly-shaped cells with oval nuclei. Very often these are close together and resemble the nests of cancer cells, at other times a stiff fibrous intercellular substance is visible. The cells frequently contain pretty large drops of oil.

I. 179. Sarcoma of Humerus displacing the Bone. (See preceding preparation.)

This is a portion of the same preparation as the preceding one. It shows more specially the merging of the tumour tissue in the bone.

I. 180. Sarcoma of Humerus. (Sir Hector C. Cameron.)

The tumour is a round-celled sarcoma, and of the periosteal variety. It involves solely the shaft of the bone, and is observed both above and below springing from its surface. The tumour on its surface is extremely lobulated, and in many parts will be observed fragments of muscular tissue which at the examination of the specimen in the fresh condition it was found extensively to infiltrate. At the posterior aspect is a long deep incision made to examine the deeper structure of the growth. It was found that the knife impinged upon the hard, bony humeral surface deeply, some spicules of bone existing in the tumour tissue superficial to it. The tumour otherwise was uniformly soft throughout.

Removed by operation from a girl (aet. 21). Her arm commenced to trouble her a year ago with what she believed to be rheumatic

pains. They disappeared for a time, returning about four months later. They were never constant, and latterly have caused her most trouble at night. Three months back her arm commenced to swell.

I. 181. Periosteal Sarcoma of Upper Part of Humerus. (Sir Hector C. Cameron.)

The tumour completely surrounds the bone, but is particularly prominent on the anterior aspect. The biceps muscle passes into the tumour at its lower part, and the long head of this muscle emerges between bone and tumour just where the bone has been sawn. The tumour has not invaded the tendon, which is freely movable in its sheath. The tumour has dimensions of 9 cm. from above downwards and about 3·5 cm. in thickness in its bulkiest portion. In one of the halves of the preparation the tumour tissue has been removed from the surface of the bone, and it is seen that it has considerably eroded the dense bony layer.

Microscopically the tissue presents a strikingly alveolar arrangement, there being a basis of firm connective tissue, in the interstices of which are cells often having a close resemblance to those of cancer. They are generally round or polymorphous, but occasionally groups of them are spindle-shaped. On the other hand the stroma occasionally runs intimately amongst the cells in a manner different from that of cancer.

Alex. F. (aet. 19) fell from a bicycle on his right shoulder twenty months before operation. Since then there was slight pain in the shoulder, but no swelling was observed till seven weeks before operation. There was considerable interference with movement, especially abduction. *Path. Reports*, 19th April, 1898, No. 5420.

I. 182. Secondary Sarcoma of Humerus. Spontaneous Fracture; New-formation of Bone. (Sir Wm. T. Gairdner.)

The humerus, which is preserved in its length, shows nearly in its middle an irregular swelling. The bone above and that below the swelling are evidently detached and lie in different planes. The swelling consists in an external shell of bone which is incomplete and is in some places broken across. Through gaps in this shell a soft tissue is distinguishable and a needle can be passed into the central parts. Microscopic examination of these soft parts shows

a highly cellular tissue, the basis of which is large round cells with undivided nuclei, but the tissue is in a remarkable manner overrun with multinuclear leucocytes, which in some places are much more numerous than the others. The tumour tissue is covered with a capsule of connective tissue in which cartilage is occasionally present. This capsule is pigmented by means of somewhat large cells with brown colouration.

The primary tumour in this case was a large one in the left ilium, and there were numerous smaller ones in the right ilium, in the muscles, and elsewhere.

Geo. P. (aet. 47) presented symptoms which at first simulated those of spinal disease, viz.—pains in back and lower limbs, stiffness and inability to walk. These began more than two years before death. Secondary tumours appeared in the mamma and its neighbourhood seven months before death—that in the humerus was observed three months before death and the spontaneous fracture did not long precede the fatal issue.

Path. Reports, 1st July, 1897, No. 5109.

I. 183. Spindle-celled Sarcoma attached to Phalanx of Finger. (Dr. Macdonald, Auchtermuchty.)

The preparation shows a tumour about the size of a small walnut situated on the flexor aspect of the finger and seen in section to be closely connected with the bone although distant from it. The phalanx is much arched and apparently hollowed out. The skin is intact. Microscopical sections of the tumour showed it to be a spindle-celled sarcoma.

It was removed from a girl (aet. 21). At birth it was noticed that her finger was enlarged and of a peculiar shape as compared with the others. For a number of years it gave no trouble, increasing in size with the normal growth of the finger, but during the last two years it had shown increased activity in growth.

I. 184. Myelogenous Sarcoma of Femur. Spontaneous Fracture. (Prof. Geo. Buchanan.)

The tumour occupies the lower part of the thigh, and on section of tumour and bone it is seen to have been extending in the medulla, where it reaches both upwards and downwards farther than elsewhere. The entire extent of the tumour from above downwards

is about 17·5 cm., and although the bony tissue of the shaft is not entirely replaced, yet in several places it is greatly destroyed, and a fracture exists at two places—one being in the midst of the tumour, and the other near its upper end. The tumour extends beyond the bone, forming a bulky mass among the muscles. It is tough in consistence, and under the microscope presents numerous spindle cells. *Path. Reports,* 4th March, 1878, No. 306.

I. 185. Myeloid Sarcoma of Lower End of Femur. (Sir G. H. B. Macleod.)

The end of the femur is entirely occupied by the tumour, which has, for the most part, destroyed the bone and extended outwards among the muscles, which it has partially incorporated. At the joint the tumour is immediately beneath the cartilage, which, however, is intact. At what appears to be the upper end of the tumour, the shaft of the femur is broken across, and on sawing the upper fragment longitudinally it is seen that in the medulla the tumour has extended in a conical form for almost 4 cm. above the fracture, and that the internal layers of bone have been in process of erosion, the erosion being so far advanced at the lower part as nearly to destroy the dense bony tissue. The tissue of the tumour is mostly soft, in some parts pale, and in others brownish. There are occasional bony plates forming alveoli in which are soft masses of tumour, but this is by no means universal.

I. 186. Macerated Parts from a Central Sarcoma of the Femur. (Mr. Maylard.)

Specimen shows the lower half of the femur, the lower part of which towards the articular end is so extensively eroded and destroyed that a solution of continuity has occurred and the articular end is separated from the shaft. The articular surface of the femur, however, is preserved, and with this extensive destruction there is also great new-formation of bone, consisting partly in a thickening of the shaft and partly in projections from the surface of the bone. These latter are very prominent in the upper part of the preparation. In the fresh state the tumour itself was extensively interpenetrated by bone spicules and lamellae, which were too slender to be preserved in the macerated specimen. The tumour was composed of large round cells.

Donald M'L. (aet. 45), a carter, suffered from pain in the thigh, followed by swelling, fifteen months before admission. About six months before admission he felt something "give" in his knee, and this was followed in three days by extreme swelling, which, however, diminished gradually. On admission the circumference round the tumour was 50 cm. as compared with 20 cm. in the other thigh. *Path. Reports*, 1st Sept., 1886, No. 1598.

I. 187. Periosteal Ossifying Chondroma or Chondrosarcoma of Femur. (Prof. Geo. Buchanan.)

The tumour is shown in longitudinal section, and it is seen to form a prominent mass attaining a thickness of 4 cm. It is situated on the internal surface of the femur near its lower end. In the section the line between epiphysis and diaphysis is well marked, and it is seen that the tumour belongs entirely to the diaphysis, tapering to the epiphyseal line and swelling out gradually above it. The tumour in every part presents spicules of bone, but at its upper part there is a wedge-shaped piece of bone forming the tapering upper extremity of the tumour. The piece is about 5 cm. in length and about 1·5 cm. in the thickest part. It is closely applied to the bone, to which it was originally adherent, but got separated by manipulation. The periosteum passes outside this piece of bone and is continued over the tumour. The tissue of the shaft is considerably eroded by the tumour, the destruction extending in one part of the section to the depth of 1 cm. Otherwise the cancellated tissue of the end of the diaphysis is considerably condensed almost through the thickness of the bone, the condition visibly contrasting with that of the epiphysis and a small portion of diaphysis distal to the tumour.

Microscopic examination shows the tumour to be mostly composed of cartilage in the form of small lobules. The cells are sometimes very large, but they are not much closer together than in ordinary cartilage. Between the lobules there is frequently spindle-celled tissue and occasionally a condition suggestive of mucous tissue.

Helen H. (aet. 13) began to be affected with pain in the knee and swelling about two months before the operation. The veins over the tumour were very prominent and the skin somewhat glazed. It was very sensitive, so that patient shrank from the slightest touch. The knee-joint was unaffected.

Path. Reports, 25th Nov., 1891, No. 2815.

I. 188. Periosteal Sarcoma of Lower End of Femur, highly Haemorrhagic. (Dr. Renton.)

The posterior aspect of the lower end of the femur is occupied by a bulky prominent structure consisting mainly of a partly ossified shell with a cavity inside, within which the shaft of the femur is partly visible. The tumour extends round to the internal aspect and partly to the anterior, where the bone is exposed by separation of the tumour tissue. There is a partial extension also between the condyles. The internal cavity was produced at an operation by the removal of a soft haemorrhagic tissue. The soft tissue which remains, whether externally or internally, presents on section very much the appearance of a blood clot. On microscopic examination a tissue is revealed composed of irregular, generally elongated cells, which have very loose attachments together, the tissue being evidently highly friable. There are frequent collections of blood, and these extend even amongst the individual cells.

Wm. H. (aet. 19), a waiter, fell from a bicycle seven months before operation. Pain in the knee ensued two months later, and swelling of the knee a month after that. There was little pain at any time, and the general health was not appreciably affected.

Path. Reports, 21st April, 1898, No. 5426.

I. 189. Periosteal Spindle-celled Sarcoma of Lower End of Femur. Great New-formation of Bone in Medullary Cavity. (Sir Hector C. Cameron.)

The bulky tumour surrounds the shaft of the femur to the extent of its lower third. Anteriorly it is most bulky, but here it does not reach the articular cartilage of the knee although it does so posteriorly. The tumour completely envelopes the shaft. It is composed of a soft whitish tissue, and in some places haemorrhage has occurred. There is great new-formation of bone both outside the shaft and more particularly inside, as is shown more completely in the next preparation. A portion of the tumour, however, in this preparation has been removed from the surface of the shaft, and this removal could not be continued down to the dense bone because of innumerable new-formed spicula of bone in the midst of the tumour tissue to a distance of 1 cm. from the proper surface of the femur. Whilst the medullary cavity corresponding with the situation of the tumour is largely occupied by dense new-formed bone, there is at the lower part some soft white tissue, which is found microscopically

to be tumour tissue. Microscopic examination shows the general type of the tissue to be the spindle-cell formation, but there are various gradations from tissue composed of oval or branching cells up to elongated spindles, sometimes with great intercellular development of fibrous character. In the deeper layers there is a manifest bone formation in the form of delicate spicula.

A man (aet. 17) noticed a swelling on the inner and anterior aspects of the right leg above the knee five weeks before the operation. The growth was rapid. There was effusion into the knee-joint, and after the operation infiltration of the vasti and crureus muscles was observed.

Path. Reports, 28th Feb., 1898, No. 5355.

I. 190. Periosteal Spindle-celled Sarcoma of Lower End of Femur.

Half of preparation macerated.

I. 191. Pigmented Sarcoma of Leg penetrating into Knee-joint. (Dr. Patterson.)

The tumour is of large dimensions, situated mainly in the popliteal space, but to a great extent surrounding the lower end of femur, and to a less extent the upper end of the tibia. The tumour is in several masses—one larger than the closed fist in the popliteal space, one even larger in front of the femur, and several subordinate ones elsewhere. All the masses are of a brown colour, speckled with white, and are often somewhat tough. The tumour has extended among the intermuscular connective tissue, and has penetrated into the knee-joint, whose ligaments and synovial membrane are largely converted into tumour tissue, which is here of a deep brown colour, and much softer than elsewhere. The patella presents a peculiar appearance, lying in the midst of the soft, nearly black tissue. The cartilage of the joint is mostly preserved, but at one place the cartilage of the patella is slightly invaded. In its posterior aspect the cancellated tissue of the femur is partially invaded by the tumour.

The tumour, microscopically, is seen to be very cellular, large oval and spindle-shaped cells predominating. In the synovial membrane the cells are particularly abundant.

Path. Reports, 17th Jan., 1880, No. 513.

I. 192. Myeloid Sarcoma of Head of Tibia. (Sir Hector C. Cameron.)

The upper end of the tibia is entirely replaced to the extent of about 10 cm. from the articular surface by a bulky soft tumour, which has a diameter from before backwards of 9·5 cm., and from side to side of about the same. Viewed externally, the tumour has a somewhat lobulated appearance, and it completely replaces the bone, with the possible exception of a band on the inner aspect corresponding with the posterior margin of the shin surface. The tumour comes close up to the articular cartilage, which is, however, preserved. At one part towards the posterior aspect of the joint there is even a thin layer of bone beneath the cartilage. At its lower extremity the tumour tissue penetrates into the medullary cavity for a distance of about 2 cm., but at the margins of this extension there is a rapid destruction of the dense bone of the shaft, and a spontaneous fracture is visible on the cut surface, and can be felt on moving the parts. The tissue of the tumour is entirely soft, no bony spicules being detectable either at the surface or in the midst of the tumour, except remains of pre-existing bone. Under the microscope the tissue is found to be highly cellular, the bulk of the cells oval or round rather than spindle-shaped. The giant cells are very numerous. All gradations are visible, from cells with 1 or 2 nuclei up to those with 20 or 30 or more—up to over 100 in some instances.

John M'K. (aet. 34) first noticed the swelling 8 months before amputation. From the time of observation the rate of growth was uniform. He was unable to bear his weight on the leg.

Path. Reports, 15th March, 1898, No. 5374.

I. 193. Periosteal Sarcoma of Upper End of Tibia. (Dr. Dalziel.)

The posterior part of the bone is shown, and a portion of the outline of a prominent tumour is visible, extending from close to the fibular articulation over the most of the posterior aspect, and in the parts removed (on the internal aspect) the tumour is firmly incorporated with the periosteum. The muscles are stretched over it and infiltrated with its tissue. In structure the tumour has the characters of a spindle-celled sarcoma, but there are spicules of new bone somewhat abundantly in it and occasionally cartilage.

I. 194. Myxo-sarcoma removed from Upper End of Tibia. (Sir Hector C. Cameron.)

The tumour, of which about half is preserved, was a nearly globular one, of 7·5 cm. in longest diameter by 5·5 cm. in thickness or elevation. It consists of an external shell of bone, which is not quite continuous, and is nearly everywhere thin, and an internal white or lemon-yellow tissue of a gelatinous appearance. It was found at the operation that a similar tissue occupied a cavity in the upper end of the tibia, the tumour evidently growing out from the medullary structures. No bony tissue was found intersecting the tumour. Microscopically the structure consists of large, variously-shaped, branching cells, in a clear matrix, which became opaque on the addition of acetic acid.

A policeman (aet. 28) had known of a tumour in the front of the tibia for about five years. He fell and cracked the shell, thus causing some effusion of blood under the skin.

Path. Reports, 25th May, 1891, No. 2670.

I. 195. Ossifying Spindle-celled Sarcoma of Upper End of Diaphysis of Tibia. (Sir Hector C. Cameron.)

The tumour is situated on the anterior and internal aspects of the bone, and, as the section shows, it is absolutely limited to the diaphysis. The tumour, which measures 6 cm. from above downwards, with a thickness of about 4 cm., has a dense bony shell externally. This is continuous below with the dense bone of the shaft, whilst above it seems to merge almost in the cartilage between diaphysis and epiphysis. Internally the tibia is greatly eroded, so that there is even more tumour inside what would be the natural contour of the bone than outside. This part of the tumour stops abruptly at the epiphyseal cartilage, so that the summit of the tumour is truncated. The bony external shell is continued some distance inwards, leaving interstices occupied by tumour tissue. Further in there is a soft tissue, which is considerably composed of blood, probably the result of first operation (see below). Under the microscope the tumour tissue is composed essentially of spindle-shaped cells, but these give place frequently to small bony trabeculae.

John G. (aet. 14) had a swelling in the upper part of the tibia, first noticed four months before operation. When opened into by

operation, it was found to consist of a shell of bone, including a cyst filled with clear fluid. The cyst was scraped out, but as fungation took place the leg was amputated nine days afterwards.

Path. Reports, 15th April, 1889, No. 2084.

I. 196. Spindle-celled Sarcoma of Tibia; Erosion of Bone; and Ulceration of Skin. (Sir Hector C. Cameron.)

The preparation has been injected with carmine gelatine, and the parts divided longitudinally. There is a prominent tumour bulging from the anterior and inner aspects of the upper third of the tibia. It is closely adherent to the periosteum throughout its entire length, and in its middle and lower parts is seen to erode the bone, exposing the medullary cavity, where a piece of tumour-tissue is planted, which nearly reaches the opposite wall. In front the skin is invaded, and there is an ulcer with prominent walls 4·5 cm. in diameter. The tumour is considerably lobulated, and its tissue is very dense and tough. The microscope shows masses of spindle cells without any developed connective tissue.

Mrs. B. (aet. 47) stated the duration of the tumour as 18 months, but also stated that a small swelling had been noticed 4 years before, which she thought disappeared. Growth was very slow till a few weeks before the operation. The ulceration occurred 4 months before operation. The leg was amputated through the thigh, and the patient made a good recovery.

Path. Reports, 21st Sept., 1891, No. 2759.

I. 197. Erosion of Surface of Tibia from Periosteal Sarcoma. (Sir Hector C. Cameron.)

The tumour was an exceedingly soft one, situated chiefly at the junction of the middle and lower thirds of the leg, but extending beneath the periosteum downwards. The muscles around were infiltrated. The surface of the bone shows an eroded appearance, with numerous round apertures, these appearances being visible chiefly on the inner and posterior aspects.

I. 198. Sarcoma of Head of Tibia; Spontaneous Fracture. (Sir Hector C. Cameron.)

The tumour is a bulky one, measuring in transverse diameter about 12 cm. and longitudinally 15 cm. It is limited accurately above

by the upper surface of the tibia, the cartilage of which is preserved, although in some parts immediately impinged on by the tumour. The tumour partly occupies the upper end of the tibia, and partly protrudes outwards in lobulated masses. The portion in the bone largely destroys the shaft, replacing it by tumour tissue to the extent of about 9 cm. But there is still at the posterior border a layer of dense bone and in the upper part of cancellated bone, which, however, is interrupted by a fracture. The tumour tissue is soft, and in some parts there has been bleeding. No spiculae of bone are met with in its substance.

Microscopic examination shows the tissue to be essentially composed of large cells with oval nuclei, and a very irregular and sparse intercellular substance. Sometimes this intercellular substance shows groups of vacuoles.

It is probable in this case that the tumour has originated in the medulla of the cancellated portion of the head of the bone, and has grown outwards as well as downwards.

Bella S. (aet. 15) first noticed a swelling over the head of tibia ten months before operation. This gradually increased in size. Ten weeks before operation she broke her leg in this situation, and the swelling over the seat of fracture being regarded as suppurative, was incised. There resulted a *fungus haematodes*. The leg was amputated, and the patient did well for three days, but sickness and vomiting came on, which ended in death.

Path. Reports, 29th March, 1892, No. 2943.

I. 199. Periosteal Chondro-sarcoma of Tibia. (Dr. Dalziel.)

The tumour projects from the outer border of the right tibia, and, as seen on section, is connected with the surface of the bone to the extent of 9 cm., the upper limit, corresponding accurately with the upper border of the diaphysis, the epiphysis escaping altogether. The tumour has a projection of about 2·5 cm., and it erodes the shaft of the bone to the depth of ·5 to ·75 cm. The tumour has a somewhat lobulated outline, and it extends round the tibia, but does not pass beyond the tuberosity. The tissue is somewhat firm, but has been torn on dividing the specimen.

Under the microscope the tissue consists mainly of large cartilage cells with a sparse matrix, but this is interrupted by irregular and largely spindle-shaped cells, which often partly isolate the cartilage cells. The latter show marked nuclear division.

Wm. F. (aet. 18) first noticed the swelling about four months before amputation. The leg was removed, and the patient was dismissed well. *Path. Reports*, 13th Sept., 1890, No. 2468.

I. 200. Spindle-celled Sarcoma of Lower End of Tibia following a Sprain. (Dr. Dalziel.)

The specimen has been divided longitudinally and one-half preserved. The lower end of the tibia is surrounded by a nodular swelling which extends irregularly about 10 cm. up the shaft. It partly surrounds the fibula and partly pouts into the joint. The section shows that the tumour is entirely superficial, giving a thickness in the part divided nowhere exceeding 1 cm., but in the case of some of the more prominent nodules a needle penetrates to the extent of 2·5 cm. The anterior tibial vessels and nerve were spread out over the surface of the tumour.

The microscope reveals a typical spindle-celled tissue.

J. T. (aet. 19), a farmer's son, sustained a sprain of the ankle at a high jump a year before. Recovery took place in due course; but three months afterwards the lower end of the tibia was seen to be enlarged. The growth continued steadily but slowly, and was attended with pain more or less constant. The ankle joint was quite free.

Amputation was performed through the condyles of the femur with good result. *Path. Reports*, 20th June, 1894, No. 3754.

I. 201. Small-celled Sarcoma of Great Toe. (Dr. John Young.)

The preparation shows the great toe divided longitudinally. There is a bulky tumour distending the toe and presenting on its upper surface, where the skin is awanting, a prominent brown fungating crust. Around this the skin is intact, except where it has been dissected off in amputation. On section it is seen that while the last phalanx with skin and nail are apparently intact, the second is buried in the midst of the bulky tumour, only its two extremities being distinctly visible. The bone in the middle of the shaft is somewhat impinged on by the tumour, but its continuity is preserved, and the appearance is not as if the tumour had originated inside the bone, but rather from the periosteum. On microscopic examination the tumour tissue, which is very soft, is found to consist mainly of small cells, round and oval.

The case was that of a girl aged 17, whose toe had been swelling for about a year. About ten weeks before its removal, a country doctor cut into the toe, and this relieved pain, but a fungating mass protruded from the incision.

Path. Reports, 20th July, 1884, No. 1222.

I. 202. Multiple Sarcoma of Bone. (Dr. Patterson.)

The parts preserved are half the sternum and half the vertebral column. In these bones the cancellated tissue is in great part replaced by tumour tissue and the structures greatly distended. The sternum is converted into a bulky structure. The manubrium and body can be still distinguished. The former is most bulky, measuring from before backwards 7 cm., whilst the body has a thickness of 4 cm. Whilst the proper bone is almost destroyed, fine spicules are occasionally present.

The bodies of the vertebrae, with the exception of one or two at the upper and one or two at the lower extremity, are almost entirely replaced by tumour tissue, the intervertebral cartilages standing out between the masses of tumour, which in the fresh state were light brown in colour and deliquescent. The substance of the spinous processes is in nine places partly replaced by tumour tissue.

There were spontaneous fractures of the right humerus and left femur, and the gaps were occupied by brown turbid juice in which pus corpuscles and staphylococci were found; there was, however, some tissue, especially in the bone marrow connected with the fractures. The ribs showed several spindle-shaped swellings, and besides these, connections with sternum and vertebrae were frequently loosened by the formation of tumour tissue.

Microscopic examination of the tumour tissue shows it to be composed of an almost homogeneous mass of round or polygonal cells about a two-thousandth of an inch in diameter at the border of tumours and bone. The former could be seen penetrating into Haversian canals.

Arch. L. (aet. 43), engineer, suffered from various swellings and pains in the back and legs. The largest tumour was over the sternum. During the few days of residence spontaneous fracture of the right humerus occurred, and a few days before admission, of the left femur.

See a full account of the case, *Glas. Med. Journal*, vol. xxxvi. p. 420. *Path. Reports*, 6th Oct., 1891, No. 2772.

I. 203. Cystic Cancer of Lower Jaw. (Dr. Patterson.)

The preparation is the posterior part of the body of the jaw and lower part of ramus, removed by operation. The lower border of the bone appears to be normal in outline, but the upper border, including the alveolar surface covered with mucous membrane, is greatly protruded upwards in the form of a somewhat bulky tumour. A section of the tumour shows a whitish tissue, in which, especially at the marginal parts, cysts are visible. The tumour tissue extends down to about 1·5 cm. from the lower margin, and leaves unaffected a series of well-formed cavities, mostly surrounded by bone and lined with a thickish membrane. There are other cyst-like cavities near the surface, and some of these are in connection with depressions which resemble scars after teeth have been removed. Under the microscope the tissue is remarkably complex, but aberrant epithelial masses of larger or smaller size are the most characteristic elements. There is occasional cystic expansion. The bulk of the tissue, however, is an irregular connective tissue with occasional pigment cells, and there are sometimes spicules of bone.

Eliza B. (aet. 60), a servant, first noticed a small pea-like excrescence from the outer aspect of the jaw, two and a half years before operation. The tooth adjacent was extracted, with no good result. Of late there had been a rapid growth till it attained its present large dimensions. *Path. Reports*, 27th Aug., 1896, No. 4753.

I. 204. Epithelioma involving the Lower Jaw. (Mr. Maylard.)

On the outer side of the body of the jaw is seen an elliptical piece of skin, in the centre of which the tumour is situated, surrounded with hairs. The tissues between the skin and the bone were found infiltrated with tumour growth, and the mass inseparably connected with the bone.

The patient four years previously had been operated upon for epithelioma of the lip. *Journal of Ward XX.*, 23rd Feb., 1886.

I. 205. Cystic Epithelioma of Lower Jaw, associated with a Retained Tooth. (Mr. Maylard.)

The preparation consists of about 4 cm. of the left ramus, from the canine to the first molar. It has been divided so as to show the internal structure. The lower border of the ramus is not involved in the tumour, and contains, firmly imbedded, a single-fanged tooth,

lying horizontally. Above this the bone is greatly distended to more than three times its normal thickness by a partially cystic growth. The cysts are numerous, and the largest is about the size of a bean. Under the microscope it is seen that the surface epithelium is connected with in-growing processes, the cells of the deeper parts of which undergo swelling and vacuolation.

Sarah M'K. (aet. 34) had a nodule growing for three years about the region of the bicuspids. Gradually a swelling developed in the subjacent part of the ramus. Three months before operation the second bicuspid became loose, and was removed. (See *Glasgow Medical Journal*, Nov., 1889.)

Path. Reports, 21st April, 1889, No. 209.

I. 206. Cancer of Lower Jaw. (Prof. Geo. Buchanan.)

The tumour is a bulky one, as large as an apple, attached to the body of the right side of the jaw, projecting on either side of and below the jaw. By a section made through it, it is seen to be attached to the periosteum, but not to involve the bone. The principal part of the tumour is to the inside of the jaw, and here it must have occupied the floor of the mouth, its outline at this part being less definite than elsewhere. On microscopic examination the structure is that of cancer. There are processes of flat epithelium, as well as more glandular-looking structures, and these exist both in the deep and superficial parts.

I. 207. Cancer of Lower Jaw.

The tumour and portion of jaw were excised by Professor George Buchanan in the Royal Infirmary on 26th November, 1873.

I. 208. Cancer invading Base of Skull, Dura Mater, and Brain. (Prof. M'Call Anderson.)

The facts were not fully investigated in this case, and the account is therefore somewhat imperfect. A cancer, evidently originating about the pharynx or posterior nares, has extended through the skull, involving partly the body of the sphenoid in which the bone is infiltrated and partly replaced by tumour tissue. The infiltration has extended along the dura mater, which in the posterior and middle fossae presents on the internal aspect soft tumour tissue with

a rough surface. The invasion extended to the brain structures as follows: (*a*) The optic commissure was adherent in the sella turcica, and the pituitary body was involved in new formed tissue; (*b*) the right temporo-sphenoidal lobe was adherent on its internal and inferior surfaces; (*c*) the pons was adherent on the right side, and a rounded nodule partly involved its substance; (*d*) the left lobe of the cerebellum was adherent and softened on the under surface. There was infiltration of the glands of the neck, and two tumour masses in the liver. Microscopically examined the growth shows distinct epithelial processes penetrating among the bony trabeculae, and occurring in the midst of these is a considerable amount of fibrous tissue.

Wm. S. (aet. 36).—His first complaint was of pain in the right ear twelve months before death. This was followed by deafness. There was swelling of the neck about a month later, and further on right facial anaesthesia, facial paralysis, and internal strabismus developed. Suppuration took place in the neck. Subsequently a collection of pus occurred in the anterior chamber of the right eye, followed by corneal ulcer and sclerotitis.

Path. Reports, May 8th, 1893, No. 3336.

I. 209. Cancer involving Skull and Dura Mater. (Dr. Finlayson.)

The lesion in the bone here was by secondary extension, probably from nasopharynx, but it was impossible to obtain permission to examine the chest, abdomen, or neck. The base of the skull was extensively involved and replaced by tumour tissue. The posterior wing of the sphenoid, the left orbit, the sella turcica and basilar part of the sphenoid were all involved, being thickened and softened so that they could be cut into with a knife, which, however, encountered considerable bony remains. A slice from the base of the skull is retained in the preparation. The tumour extended, as shown, along the left coronal suture, upwards to the sagittal suture, and partly along it there is also a wider extension in the upper part of the parietal bone, occupying a surface measuring 10 cm. from before backwards, and about 8 cm. transversely. The tumour extends very slightly beyond the middle line. Viewed from the cut surface, the tumour tissue extends nearly through the thickness of the skull; viewed from within, the internal table is greatly eroded, and tumour tissue still partly adheres. The dura

mater, part of which is preserved, showed tumour tissue in a flat layer on its outer surface, and there was also some extension inwards. There was thrombosis of the longitudinal sinus. The left femur was the seat of a bulky tumour, which occupied the internal and posterior aspects of the surgical neck, and produced a spontaneous fracture. (See next preparation.)

Microscopic examination showed the tumours in the skull and femur to be typically cancerous, the cells large, and contained in a well-formed stroma.

Susan D. (aet. 42) was affected with ptosis and complete ophthalmoplegia externa of the left eye. There was also some exophthalmos. These symptoms are stated to have begun about two months before. About the same time, pain in the hip became so severe that she could not stand. The tumour and fracture of the femur were detected during life.

Path. Reports, 5th February, 1895, No. 4027.

I. 210. Femur with Secondary Cancer producing Spontaneous Fracture. (From above case.)

The tumour, which has evidently sprung from the bone marrow, has destroyed and replaced the base of the neck and the base of the trochanters, and has grown outwards so as to form a bulky tumour. As a result, the head with the greater part of the neck and the great trochanter are isolated, and there is a gap between the shaft and the remaining bone of the neck which measures 3 cm.

I. 211. Epithelioma developed in an Old Tuberculous Cavity in Femur. (Dr. Dalziel.)

The lower part of the femur is preserved. In its posterior and external aspects there is a large cavity measuring 8 cm. from above downwards, 3 cm. from side to side, and 2·5 cm. in depth. It is lined with a distinct layer, interrupted in parts, of whitish grey tissue, which shows many minute, slightly raised translucent points. At places the tissue forms masses of considerable size, particularly at the lower part of the cavity. This tissue has a typical epitheliomatous structure, consisting of squamous cells arranged in more or less cylindrical processes with the usual "pearl-nodules."

J. S. (a man aged 39) became affected thirty years ago with caries of the femur, presumably tubercular. Since then a sinus on the

outer side of the right thigh has continued to discharge, and several attempts were made to remove the disease. The last of these was four months ago, and the wound had not healed. Operation was begun with a view to local measures, but it was decided to amputate.

Path. Reports, 21st March, 1894, No. 3629. See also *Glas. Med. Journal*, vol. xlii., p. 68.

I. 212. Epithelioma developed in Sinus connected with Necrosis of Fibula. (Sir Hector C. Cameron.)

There is a generally rounded surface measuring about 7 cm. in diameter. There is a depression centrally, and here the structure was firmly anchored to the bone. The upper half of the surface has a flattened "shorn" appearance, whilst the lower half, or two-thirds, shows accumulated epithelium, sometimes, especially below, showing elongated papilliform or filiform projections. The fibula is also shown, and corresponding with the ulcer a deep excavation is visible. This was filled with a soft tissue which extended right through the bone. The outline of the bone is considerably enlarged for some distance above and below the seat of lesion.

Microscopically the tumour presented the usual characters of epithelioma.

The history is that of a necrosis of the fibula thirty years before. The epithelioma developed on the site of a sinus which led down to the necrosed bone. The leg was amputated.

Path. Reports, 11th August, 1894, No. 3824.

I. 213. Fibula from preceding Specimen.

I. 214. Photograph of Leg in fresh state in previous case.

I. 215. Secondary Cancerous Tumour in Iliac Bone and Rib. (Sir Wm. T. Gairdner.)

There were many tumours in the bones, chiefly in the ribs, the skull, and the iliac bone, the primary tumour being in the stomach. The growth in the bones here is apparently periosteal. This is well shown in the rib tumour displayed. The rib has been divided longitudinally, and it is seen to present a spindle-shaped swelling

composed of tumour tissue which has the appearance of radiating from the surface of the rib, the latter traversing the tumour apparently unaltered. The tumour is permeated by bony trabeculae, and it is readily made out microscopically that these trabeculae form the stroma of the cancerous growth. The trabeculae also, it is noted, are to a considerable extent cartilaginous, especially in the parts more distant from the rib, although it is noted also that many of the older trabeculae are cartilaginous in their middle parts whilst osseous externally. The other tumour preserved is situated just at the posterior spine of the ilium, projecting nearly backwards. It had a diameter of 4·5 cm., and apparently grows from the periosteum. On being cut into, it also presents bony spicules.

Agnes D. (aet. 59) was affected with stomach symptoms for five months before death. The tumour in the iliac bone was observed during life. *Path. Reports*, 3rd Nov., 1892, No. 3172.

I. 216. Secondary Cancer in Femur. Spontaneous Fracture.
(Dr. Patterson.)

The upper part of the bone is shown in section, and it is seen that the neck, trochanters, and upper part of the shaft are replaced by soft tumour tissue in which no bony spicules are found, there being, however, a trace of bone at the surface corresponding with the great trochanter. At the upper and lower extremities of the tumour it is seen that the tumour has had a markedly destructive effect on the bone, there being an abrupt margin at the advancing edge. This is particularly well seen at the lower extremity of the tumour, where the dense bone of the shaft is abruptly truncated. Some of the tumour tissue extends into the medullary cavity. There is a considerable cavity in the central parts of the tumour from softening.

Under the microscope the typical characters of cancer are shown, with considerable resemblance to the cylinder-celled epithelioma, there being almost papilliform processes with cylindrical epithelium covering them.

The primary tumour here was in the uterus. There were in addition, small cystic tumours of both ovaries, cirrhosis of the liver, and hydronephrosis.

Mary M. (aet. 35) was affected chiefly with ascites. During the course of her illness swelling took place in the right thigh, which was diagnosed as sarcoma. *Path. Reports*, 4th Oct., 1892, No. 3136.

I. 217. Bursa Patellae greatly enlarged and thickened from Chronic Inflammation. (Prof. Geo. Buchanan.)

The specimen is seen to present all the appearances of a large thick-walled cyst, having upon its unopened surface something of the shape of the front of the knee. On cutting into the cyst it was found to be filled with a gelatinous material, part of which may still be seen adhering to the wall as a brownish, somewhat fungoid looking mass. In the fresh state this presented the characters of coagulated albumen. The walls of the cyst are about 3 mm. thick, white, and of hard, almost cartilaginous consistence.

The swelling was said by the patient to have existed for about three years. *Path. Reports*, 27th January, 1881, No. 623.

I. 218. Bursa Patellae enlarged and thickened. (Prof. Geo. Buchanan.)

From a man aged 46, engine driver, in whom for ten years the bursæ over upper ends of ulnae and over patellae had been enlarged. This tumour had been suppurating as a result of injury for about ten days previous to removal. The tumours at the knee on both sides were situated for the most part below the patellæ. This one had to be dissected off the ligament. The wall, thickest posteriorly and inferiorly (2 cm.), is composed of very dense fibrous tissue. The inner surface is irregular, but mostly smooth.

I. 219. Melon-seed Bodies from a Large Palmar Ganglion. (Prof. Geo. Buchanan.)

The bodies have become much shrunken since placed in alcohol. The specimen comprises half the number removed from the ganglion.

I. 220. Casts showing "Dupuytren's Contraction," very marked in Right Hand. (Dr. John Carslaw.)

The casts were taken with the maximum degree of extension of the fingers. In the right hand the little finger is brought down almost close to the hypo-thenar eminence, the distal phalanx is not drawn in, but, on the contrary, rather hyper-extended. The ring and middle fingers are partially drawn towards the palm. In the left hand the little finger is semi-flexed, and with a similar extension of the last phalanx. A ridge is well shown proceeding from the

palm to the little finger and extending to the base of the middle phalanx. A lesser ridge passes down the middle of the palm and extends, bifurcating, chiefly to the ring and index fingers, and the whole fingers, including the middle one, are partially flexed.

The case was that of a man over 50. His mother, a maternal aunt, and a maternal uncle were similarly affected.

I. 221. Fibroma of Abdominal Wall, which during life resembled a "Floating Kidney." (Dr. Dalziel.)

The tumour, half of which is shown, resembled the adult kidney in form and size. It weighed 185 grms., and measured 13 × 6·5 × 3 cm. It was exceedingly tough, and the section had the white colour and general aspect of dense fibrous tissue. The external surface is in some places smooth, but there is muscle adherent over a considerable extent of it, as well as some adipose tissue. The microscopic structure was that of a somewhat cellular fibroma.

Janet G. (aet. 36) first noticed a lump in her left side fifteen months before the operation. There was considerable pain, which was worse when she stood up, and almost disappeared when she lay on her back; the tumour was felt just above the anterior superior iliac spine, and was firm, smooth, and freely movable. The case closely resembled one of "floating kidney." The tumour was dissected from the muscles of the abdominal wall.

Path. Reports, 16th Aug., 1894, No. 3829.

I. 222. Spindle-celled Sarcoma over Knee. (Probably in Bursa Patellae.) (Sir Hector C. Cameron.)

The tumour is a bulky one, which projects forwards and bursts through the skin, forming a protruding mass measuring 5·6 cm. in diameter. As seen in section, the tumour has its upper limits near the level of the upper border of the patella; but, judging from the feeling, that bone is not itself involved, and the tumour is chiefly internal to it, the patella being displaced outwards. The tumour does not extend into the knee joint; but its posterior aspect is closely in contact with the mucous ligament aud its expansion into the alar ligament, and this surface is also prolonged down in front of the tibia, but without involvement of the periosteum. From this posterior border there is a solid mass of tissue measuring 6·5 cm. from before

backwards, and about the same from above downwards. In front it involves and replaces the subcutaneous fat and the skin. The tissue is somewhat soft, and in part infiltrated with blood. It contains several cavities, the largest 2 cm. in diameter at its lower part close to the tibia, and a smaller irregular one just to the inside of the patella. There are small spicules of bone in the walls of both of these.

Microscopic examination shows the tissue to be composed of small spindle-cells.

Sarah A. (aet. 26) had stiffness in the knee for eight years. Six years ago she was in the infirmary with an affection of the knee, and at that time the hollows on either side of the patella are described as being "filled up." The knee remained in *statu quo*, and her general health excellent, until six months ago, when the skin began to get red and matters rapidly got worse. An incision was made, which resulted in the fungating protrusion shown.

Path. Reports, June, 1895, No. 4193.

I. 223. Bulky Spindle-celled Sarcoma of Axillary Region impinging on Scapula. (Sir Hector C. Cameron.)

The tumour, which is partly shown on section, was a bulky lobulated mass measuring 19 cm. in length and 14·5 cm. in greatest thickness. It weighed, with scapula attached, 1·5 kilos. Both on the external surface and on section there are rounded masses conjoined in the tumour, but these are not such as definitely to imply the axillary glands. The tumour protruded in the axilla, where it formed, as is partly shewn in the preparation, a pouting projection. Beneath this the section shows that there is a necrotic and partly softened mass. The axillary vein is involved in the tumour. The tumour abuts on the fossa subscapularis, occupying more than half of this fossa. The subscapularis muscle is partly stretched over the convexity of the tumour.

Microscopic examination shows the tissue to be composed essentially of small spindle-cells. Some gritty matter encountered on dividing the tumour is composed of true bone.

Geo. W. (aet. 31), an ex-soldier, first noticed the tumour about ten months before operation. It grew steadily, and latterly ulcerated in the axilla. It was removed along with arm, scapula, and outer two-thirds of clavicle. *Path. Reports*, 3rd March, 1896, No. 4509.

I. 224. Spindle-celled Sarcoma. Recurrent Tumour, from Back of Shoulder. (Sir Hector C. Cameron.)

The skin is somewhat protruded over the tumour, which is somewhat remarkably encapsuled, and by a cleft divided into two. The whole mass measures 7 cm. by 5·5 cm. In the fresh state the tissue to the naked eye resembled adipose tissue, especially that of the smaller portion. Under the microscope a spindle-celled tissue is revealed as the structure of the tumour.

The tumour was removed from a man aged 40, its situation being behind the acromial region. A tumour, described as a lipoma, was removed five or six years before the present operation. This is the second recurrence, and it was observed as a slightly movable, lobulated mass. *Path. Reports*, 4th Nov. 1897, No. 5215.

I. 225. Bulky Recurrent Fibro-sarcoma connected with Tendon of Biceps. (Dr. Messer.)

The tumour, of which about a half is preserved, was a bulky one situated on the anterior aspect of the elbow-joint. It was roughly of the shape and size of a large cocoa-nut, its greatest measurement being 14 cm. The skin was stretched over it, and in front was adherent and considerably thinned. The tumour has a pale colour, is tough in consistence, and presents considerable lobulation. As shown in the preparation, it is intimately connected with the biceps, whose tendon of insertion is lost in the tumour about 4 cm. from its termination in the radius. The belly of the biceps emerges from the tumour, the intermediate part being lost. The remaining muscles of the lower part of the upper arm were found either pressed on or expanded over the tumour. There was no connection whatever with the bone or periosteum. The microscopic structure is that of the large spindle-celled sarcoma, with a striking tendency in parts to fibrous development.

A tumour, said to be connected with the radius or ulna, was removed by Sir Hector C. Cameron. The present tumour, which is a recurrence, is stated to have been of two months' growth.

Path. Reports, 12th Nov., 1895, No. 4384.

I. 226. Spindle-celled Sarcoma of Forearm. (Prof. Geo. Buchanan.)

The specimen consists of the forearm, amputated at the elbow. There is a tumour, about the size of the fist, situated on the ulnar

surface, immediately beneath the elbow. The skin over the projecting mass is thin and tense, and at one or two places there was a superficial ulceration. The tissue in the fresh state was exceedingly soft, and gave a sense of fluctuation in some parts. A section showed that the tumour mass extends from beneath the skin down to the ulna, but that the bone is not eroded, and there is no distinct connection between the two. Microscopic examination shows the mass of the tumour to be composed of large spindle cells. At the growing edge these are seen to infiltrate and replace the connective tissue bundles beneath the skin, but they do not invade the papillary layer of the skin, which, with the epidermis, is continued over the greater part of the tumour.

M. M. (aet. 60) first noticed a small lump on the back of his left forearm about two years before the amputation. It was firm to the touch but movable, and was free from pain. During the last four months it enlarged rapidly, and within the last few days it bled profusely from an ulcerated spot of the size of a shilling. The wound healed readily and the stump was satisfactory.

Path. Reports, 12th Dec., 1888, No. 1994.

I. 227. Elongated Sarcoma from Muscles of Forearm. (Sir Hector C. Cameron.)

The tumour is spindle-shaped, and measures 12·5 cm. in length by 3 cm. in thickness. It was of dense consistence. A tendon passes into it close to the thicker extremity. The tumour consists mainly of spindle cells, of large size, running in strands; but there is sometimes a development of sparsely cellular fibrous tissue.

A man (aet. 40) had for many years a tumour in the fore-arm, which had been lately increasing in size. It occupied nearly the upper three-fourths of the fore-arm on the extensor aspect. It was freely movable, and the skin was unattached. It was easily separated from the muscles, except where the tendon passed into it.

Path. Reports, 8th Feb., 1898, No. 5336.

I. 228. Soft Sarcoma of Forearm. (Dr. Finlayson.)

The forearm is occupied by a bulky tumour situated chiefly on its anterior aspect, and extending from the elbow downwards for about 13 cm. On section, it is seen to be irregularly lobulated, and composed of an exceedingly soft tissue, with occasional hæmorrhage.

The tumour lies among the muscles of the forearm, having generally a layer of muscle between it and the skin. It is not connected with the bones of the forearm. Under the microscope little can be seen but small cells, most of them oval in shape, and some round, but none properly spindle-shaped. It had only been noticed about four or five months before death. Death occurred with pulmonary symptoms, and there were numerous tumours in the lungs, as shown in next preparation.

Path. Reports, 26th March, 1880, No. 539.

I. 229. Multiple Sarcoma of Lung, secondary to Tumour of Forearm. (See preceding case.)

The lung tissue is seen to be occupied by numerous smaller and larger white rounded tumours, which are more abundant towards the surface than deeply. The tumours are of a very soft consistence, and were much more numerous and softer in the other lung.

During life there were evident signs of pulmonary disease, which had lasted for two months, and were accompanied by physical signs, chiefly on the right side, of consolidation of the lung.

Path. Reports, 26th March, 1880, No. 539.

I. 230. Spindle-celled Sarcoma of Buttock with Central Softening. (Sir Hector C. Cameron.)

The tumour, which is oval in shape, and measures 10 cm. by 8 cm., is in the form of a cavity, with walls formed of a soft tissue generally from 1 to 1·5 cm. in thickness. This tissue is very friable, so that a probe passes readily through it. The cavity was filled with recent blood coagulum, and the internal surface of the wall presented deposition of fibrine here and there. The structure of the tumour tissue is that of a large spindle-celled sarcoma.

I. 231. Gangrene of Hand and Forearm from a Burn. Separation of Gangrenous Parts. (Dr. Renton.)

The parts are those of a child aged 2, in whom amputation has been performed in the upper arm. The gangrene extends to near the elbow, and here there is a retraction of the soft parts, so as to expose the bones, the gangrenous structures being hard and

variously discoloured. The lower termination of the parts which had survived consists of a rounded or conical stump-like structure composed of granulation tissue. From this the bones of the forearm emerge, and the ulna lies exposed in the midst of the granulations almost to the elbow-joint.

Richard M. (aet. 2) suffered from a severe burn.

I. 232. Senile Gangrene of Foot. (Prof. Geo. Buchanan.)

The gangrenous parts are mostly black, except where partial separation has taken place on the dorsum of the foot. The toes are conspicuously black, and the third and fourth have dropped off, their place of detachment being marked by a rough surface. The gangrenous condition extends over almost the entire sole of the foot, but the black condition is not visible at the heel, where the thick epidermis conceals it. On the dorsum of the foot the line of demarcation is well marked, extending across the arch of the foot in a curved line, so that the gangrenous condition is much less extensive on the internal than the external aspect of the foot. The marginal parts of the healthy skin are considerably infiltrated.

The leg was amputated at the lower third, and on examination it was found that the posterior tibial artery was filled at the place where it was cut across, with an old clot which was very adherent. The wall of the artery was also considerably thickened. The anterior tibial artery was free at the point of division, but contained a tapering clot farther down.

Path. Reports, 2nd May, 1883, No. 974.

I. 233. Senile Gangrene of Foot. (Sir Hector C. Cameron.)

The gangrene involves all the toes and part of the dorsum of the foot. It is more extensive on the inner than the outer side, and appears to have only slightly encroached upon the plantar aspect. On the dorsum the line of demarcation is seen sharply defined.

The patient was a man aged 75. About two years before amputation, after the cutting of a corn on one of his toes, his foot became extremely painful and red. The second toe then commenced to grow black in colour, followed first by the little toe and secondly by the great toe. The limb was amputated at the knee-joint, and the patient made a good recovery.

Journal of Ward XX., May 11th, 1887.

SERIES II.

THE HEART.

II. 1. Patent Foramen Ovale without Functional Defect.

The septum between the auricles is shown, and it is seen to be for the most part of a parchment-like character. At the anterior border there is a crescentic gap measuring 2 cm. vertically, forming a communication between the auricles. The edges of the parchment-like septum pass on to the wall of the left auricle, and the state of matters is such that during the systole of the auricles, the aperture would be almost valved.

Margaret M. (aet 41) had been for many years subject to bronchitis. The fatal illness was associated with gangrene of the lung.

Path. Reports, 10th April, 1891, No. 2628.

II. 2. Patent Foramen Ovale without Functional Defect.

The foramen ovale is filled with a thin, somewhat loose membrane, and there is an aperture at its anterior border. The membrane filling the aperture is attached chiefly in the left auricle, and is so arranged that the blood pressure in that auricle would close the aperture.

II. 3. Fenestration of Aortic and Pulmonary Valves.

In both sets of cusps the marginal parts show distinct tendinous cords, and in the case of the pulmonary there is a little pouch between two of the curtains.

Path. Reports, No. 705.

II. 4. Fenestration of Aortic Curtain.

One of the semilunar folds has been preserved so as to show the common fenestration affecting the marginal part of the curtain, but not of a character to interfere with function.

II. 5. Extreme Fenestration of Aortic Curtains. (Dr. D. Yellowlees.)

There is no thickening of the aortic valve, but the curtains are somewhat deeper than normal, and the line of contact is considerably farther from the edge than usual. The free part of the curtain beyond the line of contact is very thin, and in some places highly fenestrated, so that actual tendinous cords are in some places present. The edges of the curtains are inserted somewhat high in the aorta, and in one case the aortic wall forms a distinct projection into which the angles of the curtains are inserted.

Path. Reports, 6th January, 1881, No. 609.

II. 6. Malformation of Aortic Valve (Congenital); Coalescence of two Curtains. (Sir Wm. T. Gairdner.)

There are two curtains, a large and a small one. The large is posterior and right, the small anterior and left (cut through on opening the vessel). In the middle of the large curtain there is some thickening, with slight calcareous deposition at the margin. Deep in the pouch a very partial septum is visible, which passes about 6 mm. up the sinus. Otherwise the curtain is of normal thickness. The heart was slightly enlarged, weighing 12 oz. The case was one of renal disease, and there were no cardiac symptoms. The valve, with its two curtains, seems to have acted perfectly.

Path. Reports, 26th January, 1880, No. 516.

II. 7. Malformation of Pulmonary Valve; two Curtains.

The valve presents two large and complete semilunar curtains; it was quite competent.

II. 8. Congenital Malformation of Pulmonary Valve; four Curtains.

The four curtains are quite normal in appearance but vary somewhat in size, their diameters being respectively 3·4, 2, 2,

and 1·5 cm. The smallest and the largest are next one another. The case was one of extreme contraction of the mitral, and acute endocarditis affecting aortic and tricuspid valves (see No. 25A).

Path. Reports, 7th Nov., 1893, No. 3486.

II. 9. Peculiar Bagging of Aortic Valve, which had produced Incompetency. (Sir Wm. T. Gairdner.)

The curtains show at their marginal parts a peculiar nodulated appearance which is seen to be largely due to bulgings, some of which amount almost to valvular aneurisms. The valve was found in a high degree incompetent as tested with water. There was considerable thickening of the mitral valve, but without stenosis; the pericardium was completely adherent.

Peter T. (aged 35) had two rheumatic attacks, the last 6 years before death. There were the physical signs of aortic and possibly also of mitral disease, and of hypertrophy of the left ventricle. *Path. Reports*, 20th Mar., 1894, No. 3627.

II. 10. One Coronary Artery arising from the Pulmonary Artery and one from the Aorta. Adherent Pericardium. Fibrous Transformation of Left Ventricle. (Dr. Finlayson.)

One coronary artery arises in the aorta from behind the anterior curtain, and passing to the right seems to supply chiefly right ventricle and posterior parts. There is no other coronary branch from the aorta, but an artery of considerable size originates from the pulmonary artery behind the left anterior curtain and passes leftward to supply chiefly left ventricle. The pericardium was completely adherent, and over the left ventricle anteriorly calcareous matter is deposited. The muscular substance of the left ventricle is greatly atrophied, and the atrophy becomes extreme opposite the calcified portion, where at one point the muscle is almost absent, the greatly thinned wall of being formed of dense fibrous tissue.

Jeanie M. (aged 21) was affected with exophthalmic goitre. There is nothing in the history relating to the conditions displayed. *Path. Reports*, 28th Nov., 1893, No. 3507.

II. 11. Punctured Wound of Heart and Pericardium. (Prof. Geo. Buchanan.)

The parts preserved are right auricle and a portion of pericardium. In the former there is a longitudinal wound about 2 cm. in length, situated about midway between the orifices of the two venae cavae. It is almost closed with fibrin, but at its upper extremity there is a small aperture. There is a corresponding wound completely closed with fibrin in the parietal pericardium. The general surface of the pericardium was covered with a veil of fibrin, and the sac contained a large quantity of blood-coloured fluid which, especially in the lower part, was turbid and almost purulent. It was found to contain abundant streptococci. There was a wound in the chest and a fracture of the fourth right costal cartilage; but although the anterior edge of the lung intervened between the external wound and that of the pericardium, and was glued there by fibrin, no wound of the lung was present.

Jane W. (aged 10) while playing on a railing slipped and fell, impaling herself on one of the sharp spikes, off which she was lifted shortly afterwards. There was some haemorrhage and afterwards extensive emphysema of the chest-wall. She recovered considerably and was fairly well for seven days, after which fever and respiratory difficulty supervened and she died nine days after the accident. For full account of case see *Glas. Med. Journ.*, vol. XXXVI., p. 427. *Path. Reports*, 9th June, 1891, No. 2686.

II. 12. Stabbing Wound of Left Ventricle of Heart, involving Septum and Musculus Papillaris.

The adjoining portions of chest-wall and pericardium have been preserved. In the former a linear wound 9 mm. in length is displayed. It was situated 7 cm. below and slightly to the right of the left nipple. The wound has passed through the intercostal space and the preparation shows it emerging in the form of an angle enclosed by two limbs each about 1 cm. in length. The lower limb slightly incises the upper border of the sixth costal cartilage just at its junction with the osseous rib. There is much ecchymosis in the subcutaneous and muscular tissues.

The pericardium shows a wound which in the fresh state measured 2·5 cm. There is some infiltration of the substance of the pericardium with blood, and the pericardial sac contained 8 ounces of fluid blood and a similar quantity of clot.

The anterior aspect of the left ventricle shows a gaping, slightly crescentic wound about 3 cm. from the apex. In the fresh state it measured nearly 2 cm. in length. Continuous with this wound there is a long gaping slash in the septum, this cut communicating freely with the cavity of the left ventricle.

Its total length was 3·5 cm. Opposite the extremity of the wound one of the musculi papillares of the mitral valve is cut square across, the impression given being that the knife must have been turned round in order to reach the musculus. At the lower end of the wound in the septum there was a small communication with the right ventricle.

The weapon used in this case was a pocket knife with a long narrow blade about 3 in. in length and $\frac{3}{8}$ in. in breadth. The man (aged 19) died within five minutes after the infliction of the wound. In this connection it may be stated that, in addition to the blood in the pericardium, there were over two pints of fluid blood in the left pleural cavity as well as huge clots which weighed over 24 oz.

II. 13. Gigantic Thrombus in Left Auricle; Mitral Contraction. (Sir Wm. T. Gairdner.)

The mitral orifice is so contracted as not to admit the tip of the finger, and there was also thickening of the tricuspid valve. In the left auricle there is an enormous thrombus. It is adherent to the anterior wall of the auricle, and consists of a globular part 5 cm. in diameter, and an irregular tail hanging from the lower border of this and extending nearly to the mitral orifice. On cutting into the globular part a brown juice escaped; the preparation shows an internal cavity. The symptoms were chiefly those of abdominal disease requiring paracentesis; on one occasion only a murmur was detected over the heart, but could not be carefully examined. *Path. Reports*, 2nd July, 1884, No. 1212.

II. 14. Large Thrombus in Left Auricle and at Mitral Orifice. (Sir Wm. T. Gairdner.)

The preparation shows left auricle displayed by removal of part of its wall and the mitral valve opened up. In the auricle there is one half of a globular thrombus, which measured 3 cm. in diameter.

The central parts of this thrombus contained a light brown pus-like fluid, and all that remains in the preparation is the rind of the thrombus, which contained the fluid as in a cyst. The thrombus was prolonged into the appendage, although in preparation the connection has been separated. This portion distends the appendage, and is also hollow. A smaller thrombus is situated immediately below the globular one, just at the border of the mitral orifice. This orifice is greatly contracted by the usual thickening and funnel-shaped deformity, and the thrombus, acting as a valve, almost closed the orifice.

There were infarctions in the spleen, kidneys, and lungs, the latter being explained by the presence of thrombi in the right auricle.

The patient suffered from symptoms of cardiac disease, latterly with extreme dyspnoea. A murmur (v.s.) was detected, and there was great enlargement both of heart and liver. Treatment ineffectual throughout. *Path. Reports*, 22nd October, 1881, No. 718.

II. 15. Globular Vegetations in the Left Ventricle. (Prof. M'Call Anderson.)

The case was one of great enlargement of the heart, which weighed 24 oz., without valvular disease. The thrombi are of various sizes, and they are seen to project between the columnae carneae. *Path. Reports*, 7th June, 1876, No. 102.

II. 16. Globular Thrombi in Right Ventricle. (Sir Wm. T. Gairdner.)

Larger and smaller white thrombi are visible. The heart was somewhat enlarged and the ventricles dilated, but there was no valvular disease. There were similar thrombi of smaller size in the left ventricle. There was the unusual combination of phthisis pulmonalis with haemorrhagic infarction, the pulmonary artery being largely plugged. The kidneys were in a state of granular atrophy, weighing 3 and $3\frac{1}{4}$ oz. There was also a softening of pons Varolii. During life the symptoms were those of Bright's disease and phthisis pulmonalis, with extreme dyspnoea on admission.

Path. Reports, 21st July, 1882, No. 843.

II. 17. Vegetations upon the Semilunar Cusps of the Pulmonary Artery. (Dr. J. Wallace, Greenock.)

The vessel has been opened by a longitudinal incision, dividing one of the curtains near its centre; the remaining two are seen intact. At the middle of each valve, close to the margin, is a small ragged projection, which on two of the valves is somewhat pedunculated. The largest vegetation is in size about that of a large pea.

The specimen was removed from a patient who died of passive congestion of the lungs. The symptoms referable to the heart during life were—increased area of cardiac dulness, both to right and left, but specially in the latter direction, the apex beat being to the outside of and 3 in. below the nipple; presence of a v.s. murmur heard with equal intensity all down the sternum and at the apex, and frequent reduplication of the second sound. At the *post-mortem* examination the heart was found greatly enlarged, the right side being distended with blood. Tricuspid orifice admitted four fingers, and the mitral three. Aortic valves quite competent; arch of aorta slightly atheromatous.

Path. Reports, 29th November, 1884, No. 1285.

II. 18. Obstruction of Tricuspid Orifice by Condensed Thrombus in Right Auricle. (Sir Wm. T. Gairdner.)

A thrombus of a globular shape and about 4 cm. in diameter is attached by a narrow base to the posterior wall of the right auricle immediately to the right of the opening of the inferior cava. From its attachment the tumour hangs down so that its lower extremity is at the tricuspid orifice. The surface of the tumour is somewhat lobulated, and it is of a dense, almost cartilaginous, consistence. Under the microscope no organised structure is visible, merely an indefinite fibrous condition, with almost no cells or nuclei and no proper connective tissue corpuscles. On the surface of the tumour there was found a more recent coagulum which surmounted it and sent a process into the appendage. This is hung alongside the preparation. The heart is not appreciably enlarged or altered in any other way.

The case illustrated in this preparation is one of most extreme rarity, and of quite unique importance in its bearing upon the diagnosis, the physical causes, and the prognosis of auriculo-ven-

tricular obstructive murmurs. The facts have been recorded, with a commentary on these points, by Prof. Gairdner in the first volume of the *Edinburgh Hospital Reports*, 1893, p. 221; the clinical facts, as observed more than ten years before the patient's death, being taken from Dr. Gairdner's *Clinical Medicine*, 1862, p. 602. "The murmur," it is there stated, "begins immediately after the second sound, continues, *diminuendo*, throughout the pause, and then goes on, *crescendo*, up to the first sound, at which it stops abruptly." The situation of the murmur, and the very remarkable undulating movement in the veins of the neck (ascribed to the right auricle) gave assurance that the valvular lesion was on the right side of the heart, and that "tricuspid contraction" (the word here ought to have been obstruction, to be perfectly correct) "may in this case be predicted with all but mathematical certainty." The verification of this diagnosis by a *post-mortem* examination of the heart in 1872 allows of the remark that this young Irish labourer who in 1861 had little or no complaint beyond the leaping of the veins in his neck, must have pursued his ordinary active occupation for a period indefinitely longer than ten years, without (so far as is known) having suffered so as to lead to his being laid up, or requiring medical assistance, till he died of acute pneumonia in the Dundee Royal Infirmary. Further, in this long period, the heart itself had undergone so little hypertrophic change, that it "looked externally very much like a healthy heart of moderate size, without any marked disproportion between its right and left sides, or between its auricular and ventricular cavities." In other words, with a ball-valve tumour falling downwards on the auriculo-ventricular opening at each auricular systole, and at least partially closing it, and with the leaping veins in the neck giving positive evidence of reflux from the right auricle, compensation was nevertheless effected to the extent that this patient, when first seen in 1861 (having had the leaping in the veins at least two years before that date) was "rather pallid and perhaps not very strong, but of firmly-built frame, tolerably active, and neither livid nor dropsical." He was detained in the hospital mainly as a "show case," and was in fact seen and examined by numbers of persons with respect to the curiosities of the physical diagnosis, without the slightest appearance of grave cardiac suffering; and there is every reason to suppose that he continued fit for his work till very near the close of his life. Dr. Gairdner draws the inference, that in the corresponding, but much more common, case of mitral stenosis, the presumptions

(verified in many cases by actual clinical experience) are that the prognosis, as represented in perhaps the majority of text-books and memoirs, is of undue gravity as compared with that of the other valvular diseases, and especially the regurgitations. He also points out that the case affords no room at all for the hypothesis that the auricular-systolic (or presystolic) murmurs is one of regurgitation, as affirmed by several authorities.

II. 19. Thrombus in Pulmonary Artery. (Sir Wm. T. Gairdner.)

This preparation is from the case of acute pericarditis, with thrombi in right auricle preserved as II. 100. The thrombus is pyriform in shape, and occupies the first part of the pulmonary artery, almost occluding it; but it also passes partly into the principal branch. The thrombus was softened in the centre, so that there was merely an external rind with fluid contents.

Path. Reports, 6th June, 1883, No. 994.

II. 20. Deposition of Fibrine on Mitral Valve and Neighbouring Parts of Left Auricle. (Dr. Finlayson.)

There were great hypertrophy and dilatation of the left ventricle with comparatively little aortic valvular disease, but with smallness of the aorta. The fibrinous deposit occupies the greater part of the line of contact of the mitral and extends somewhat to the posterior wall of the auricle.

Hugh M. had history of rheumatism; but the record generally is imperfect. *Path. Reports*, July, 1889, No. 2141.

II. 21. Rupture of Left Ventricle of Heart; Thrombosis of Coronary Artery. (Dr. D. Yellowlees.)

There is a large irregular aperture of a generally oval shape and 2·5 cm. in long diameter, situated in the anterior wall of the left ventricle, close to the septum; the wall of the heart is somewhat bulged around it, and the edges of the aperture are everted. The left coronary artery is highly atheromatous, and completely plugged by a thrombus. The muscular substance of the heart shows fatty degeneration. The pericardium was full of blood. There is no valvular disease.

The case was that of a woman, 70 years of age, who had been long insane. She was apparently in a sound state of health till she sank suddenly on the floor shortly after the usual weekly warm bath, and died almost immediately.

II. 22. Rupture of Heart at Apex of Left Ventricle; Atheroma of Coronary Arteries. (Dr. Wallace, Greenock.)

The apical portion of the heart shows on section a tear in the muscular wall leading into irregular torn spaces in the subpericardial fat, and these again to an aperture on the surface which had a blood clot in it. The muscle at the apex, and for some distance up the ventricle, had a softened appearance and a brownish colour (myomalacia cordis), and this softened part had a distinct line of demarcation. There were several tendinous patches in the muscular substance. The coronary arteries generally were highly atheromatous, in several places almost obstructed, and in some instances thrombosed. Microscopic examination in the apical region shows great atrophy of the muscle, whose place is to a considerable extent taken by a comparatively cellular granulation tissue. Where the muscular tissue is preserved it is insusceptible of nuclear staining.

The patient died in Smithston Asylum from haemorrhage into the pericardium. *Path. Reports*, 2nd June, 1891, No. 2680.

II. 23. Rupture of Left Ventricle of Heart; Aneurism and Obstruction of Coronary Artery. (Professor M'Call Anderson.)

The pericardium was found distended with red serum, and a large clot was moulded on to the surface of the heart. A linear ragged tear, about 2·5 cm. in length, is present on the left border of the left ventricle, about midway between the auriculo-ventricular groove and the apex. The branch of coronary artery going to this part of the heart wall is completely obstructed by an aneurism filled with clot, and both arteries are highly atheromatous. Fatty degeneration is only very slightly present, but the muscular tissue in the neighbourhood of the rupture was much softened.

The specimen was obtained from the body of a man, aged 60, who had been treated in the cutaneous wards of the Western Infirmary for a somewhat generalised eczema. There had been

no complaint whatever of any heart trouble, and death was sudden, while the patient was alone in the bathroom applying his ointment.

Path. Reports, 16th September, 1884, No. 1237.

II. 24. Rupture of Left Ventricle of Heart, probably from Aneurism of the Heart. (Dr. D. Yellowlees.)

On the external aspect of the left ventricle near the base a longitudinal ragged aperture, about 2 cm. in length, is visible. Within the aperture the rough torn muscular tissue can be seen. The internal aperture is situated behind a curtain of the mitral valve, and is of much smaller size, being only 2 mm. in diameter. It has a rounded shape, and its edges are perfectly smooth, there being no appearance as if this aperture had been formed by rupture, but rather as if it were the aperture of an aneurism. The coronary arteries are healthy. The muscular tissue of the heart generally was found slightly fatty.

The case was one of sudden death, and the pericardium was found filled with blood. *Path. Reports*, 4th March, 1882, No. 785.

II. 25. Fibroid Transformation of Heart-muscle; Atheroma of Coronary Artery. (Dr. Christie.)

The left ventricle has been sliced so as to show a number of tendinous patches interrupting the muscle; they are visible to some extent also on the exposed internal surface. The patches were chiefly posterior. The larger branches of the coronary artery were markedly atheromatous, and the branches going towards the fibrous patches are not visible beyond the middle of the ventricle. On the other hand, other branches were traced round the apex of the ventricle towards the fibrous areas. The heart was greatly enlarged, weighing 26½ oz., and there were thrombi in both ventricles. The valvular structures were little altered. There were infarctions in the lungs, and plugs in the pulmonary artery.

John N. (aet. 35) was ill with swelling of the legs for eleven months, followed latterly by shortness of breath and cough. Towards the end he spat up large quantities of blood.

Path. Reports, 27th July, 1886, No. 1583.

II. 26. Fibroid Transformation of Heart-muscle; Atheroma of Coronary Artery. (Sir Hector C. Cameron.)

There is an extensive fibrous transformation of the muscular substance of the left ventricle, occupying the posterior wall. The coronary arteries were atheromatous and calcified. The heart was dilated, and weighed 17¾ oz.

Duncan G. (aet. 74) was affected with enlarged prostate and with hypertrophy and dilatation of the bladder. (See also Mr. Steven's paper, *Lancet*, Dec., 1887, case 6.)

Path. Reports, 26th February, 1885, No. 1313.

II. 27. Thinning and Dilatation of Apical Portion of Left Ventricle from Obstruction of Coronary Artery. (Dr. R. S. Thomson.)

The ventricle is very thin, and the muscle in large part replaced by a pale yellow substance, at whose borders the wall was very hyperaemic. There were thrombi at the dilated apex. The large main branch of the left coronary artery going to supply the left ventricle was found plugged by a thrombus for a distance of about 4 cm., and here the wall was atheromatous and calcified.

Henry R. (aet. 55), a shoemaker, was affected with pain in chest and shortness of breath, which had lasted for only about eight days before death. *Path. Reports*, 2nd Sept., 1893, No. 3431.

II. 28. Fibroid Transformation of Wall of Left Ventricle. Hypertrophy of Heart, with Double Apex. (Dr. G. P. Tennent.)

The extreme left lateral part of the left ventricle was found adherent to the pericardium over a limited area, by somewhat elongated fibrous connections. This part of the wall of the ventricle is converted (as shown in section) into fibrous tissue, the muscular substance being almost completely replaced. This transformation extends through the entire wall, and affects a bulky papillary muscle, which is almost entirely fibrous. The affected portion of the ventricle is distinctly bulged outwards. Examination of the coronary arteries showed no obstruction, but the capillaries in the affected region are greatly diminished, as shown by injection

of soluble Prussian blue. The heart, as a whole, is much enlarged, weighing 22 oz., and there is a deep groove between the two ventricles, producing a double apex. The aortic valve is considerably thickened, and the auriculo-ventricular orifices dilated. There were thrombosis in the veins, as shown in No. 85, and pulmonary infarctions, etc.

The origin of the fibrous transformation here is not perfectly clear, but it has probably originated in embolism of a small branch of the coronary artery—the circulation having been restored by anastomosis after the muscular tissue had already suffered softening. This is rendered the more probable by the fact that there were old embolic lesions in the spleen and kidneys, and the endocarditis of the aortic valve afforded a source of embolism when it was in the acute stage. *Path. Reports*, 6th November, 1884, No. 1253.

II. 29. Fibroid Transformation of Posterior Wall of Left Ventricle involving Musculus Papillaris. (Sir Wm. T. Gairdner.)

The posterior part of the septum and of the ventricular wall has been preserved. The posterior wall of the left ventricle is virtually converted into white fibrous tissue, which extends from base to apex, and partly involves the septum. The posterior musculus papillaris of the mitral valve is greatly atrophied and almost entirely converted into fibrous tissue. It and the chordae tendineae appear to be stretched so that the corresponding portion of the valve readily passes upwards towards the auricle. The coronary arteries were highly atheromatous with considerable calcareous infiltration, but the exact seat of obstruction was not discovered. The heart was much enlarged as a whole, especially the left ventricle, and there was visible externally a bulging of the affected part.

There was atheroma of the cerebral arteries in a high degree, and the femoral artery presented extensive calcareous infiltration of the media.

John S. (aet. 64), a shoemaker, presented mitral regurgitation attended by well-marked general dropsy. There was no rheumatic history, and the general health had been good up till about nine months before death, when palpitation began.

Path. Reports, 1st March, 1894, No. 3604.

II. 30. Syphilitic Gumma of Heart. (Dr. D. Yellowlees.)

A portion of the anterior wall of the left ventricle is replaced by firm fibrous tissue in a circular area, over which the pericardium was adherent. Not only does the growth replace a certain area of ventricular wall, but around it the muscular substance is partly converted into similar tissue, and the wall of the heart is considerably puckered. On the internal surface a globular thrombus (shown in section) is adherent to the affected area.

The patient was a man who died of general paralysis.

Path. Reports, 3rd July, 1875, No. 17.

II. 31. Localised Dilatation or Aneurism of Left Ventricle; Obstruction of Coronary Artery. (Dr. G. P. Tennent.)

The external configuration of the left ventricle is greatly altered, there being a large rounded bulging of the apex region, especially on the anterior aspect. On viewing the heart from the inside, this bulging is seen to be due to a localised dilatation of the ventricle forming a distinct pouch with comparatively thin walls, having a diameter of about 6·5 cm. The tissue of the ventricle passes partially into the sac, and musculi papillares are seen to be partially flattened out on its internal surface; the greater part of the wall of the sac, however, is composed of fibrous tissue. The general wall of the ventricle is normal, as is that of the right ventricle; the latter presents, however, a general dilatation. The organs generally presented evidences of venous engorgement.

On examination of the coronary arteries, they are found considerably atheromatous. The descending branch of the left is rigid, and at a point about 2·5 cm. from the bifurcation is occluded by thrombus, the artery beyond this being collapsed and fibrous. This vessel is distributed to the affected portion of the wall of the ventricle. The right coronary artery was very tortuous and dilated, and posteriorly passed beyond the septum to supply a considerable portion of the left ventricle.

The patient was a woman who had suffered from symptoms of cardiac disease for about 18 months.

Path. Reports, 17th January, 1883, No. 916.

II. 32. Atheroma of Coronary Arteries. Brown Atrophy of Heart. (Dr. Newman.)

These two conditions have no direct connection. The heart is small, and has a brown atrophy as part of a general emaciation due to cancerous obstruction of the pylorus. The external fat is also deficient. It is due to this largely that the arteries stand out prominently, but in addition these vessels are highly atheromatous, having largely the character of rigid pipes. There is, however, little apparent obstruction, and comparatively few tendinous patches were present.

Path. Reports, 25th January, 1892, No. 2868.

II. 33. Atrophy of Heart in Phthisis. (Dr. Jas. Finlayson.)

From a girl 16 years of age. The heart only weighed $4\frac{3}{4}$ oz., and is almost entirely devoid of external fat. Illness of six months' duration, with intense pyrexia and intestinal ulceration as well as lung disease. *Path. Reports*, 5th October, 1876, No. 140.

II. 34. Dilatation of Tricuspid and Mitral Orifices and of Auricles. Thrombosis in Auricles. (Dr. Finlayson.)

In this case both ventricles and auricles were dilated, but the greater part of the ventricles have been removed. The valvular structures were not thickened, and the aortic and pulmonary valves were competent. The auriculo-ventricular orifices as seen in preparation are much dilated, the mitral admitting five fingers and the tricuspid seven. There are many thrombi in the wall of the right auricle, and the right and left auricular appendages are both stuffed with thrombus. A portion of thrombus projects from the left appendage into the auricle. There were infarctions in spleen and kidney and an organised embolus in the pulmonary artery.

James H. (aged 58) a watchman, was not known to be affected with any chest complaint till two months before death. There was at this date an attack diagnosed as haemorrhagic infarction of the lung. After a partial recovery there supervened swelling of the legs, albuminuria, etc.

Path. Reports, 3rd February, 1892, No. 2878.

II. 35. Hypertrophy of Left Ventricle. Smallness of Aorta. Thrombosis of Mitral Valve. (Dr. Finlayson.)

The proportion of right and left ventricles is obviously altered, the heart being elongated and the septum pushed to the right. The heart is not greatly enlarged as a whole, weighing 10½ oz., which, however, is heavy for the age of the person, the mean for that age being something under 8 oz. The aorta is obviously small and its coats thin. It measures immediately above the valve 4·5 cm. in inside circumference, which is scarcely more than half that of the adult female. The mitral valve presents several shaggy, polypoid thrombi, attached to the ventricular surface of the curtains, and occasionally to the chordae tendineae. There is very little chronic thickening of the valves.

A girl (aet. 15) had been subject to palpitation since her eleventh year, when she had an acute illness called influenza fever, which was accompanied by great pain in the knees and swelling. Since then there have been repeated attacks of rheumatic pains in the joints. Hypertrophy of the heart was detected during life with A.S. and V.S. murmurs at the apex. She died from cerebral haemorrhage due to rupture of an aneurism.

Path. Reports, 22nd January, 1886, No. 1473.

II. 36. Enlargement of the Left Ventricle in Cirrhosis of Kidney. (Dr. Jas. Finlayson.)

The heart as a whole weighed 19 oz., the enlargement being entirely of the left ventricle and without valvular disease. In the preparation part of the walls of the ventricles has been removed. The right ventricle is seen to be pushed upwards and partially filled up by the prominent septum, whilst the left is much elongated. The kidneys showed advanced interstitial nephritis.

The case was one of eight years' duration. The patient was 19 years old, and employed in the spirit trade.

Path. Reports, 27th October, 1876, No. 149.

II. 37. Hypertrophy of Left Ventricle. Congenital Smallness of Aorta. Granular Kidney. (Dr. Tennent.)

The aorta is that of a girl aged 21. It is markedly narrow, the diameter of the ascending arch being 2·2 cm. and of the

thoracic aorta about 1·4. There is a somewhat thick cord forming the remains of the ductus arteriosus, and in the corresponding portion of pulmonary artery there is a distinct dimple, whilst the aortic insertion shows a dimple and below it a slight pouch. There are distinct atheromatous patches in the arch and thoracic aorta, those in the arch being of considerable prominence. The half of one kidney is shown, and it presents the extreme granularity of interstitial nephritis. The left ventricle of the heart is described as greatly hypertrophied.

Minnie J. (aet 21) had been ill for about nine months, complaining of weakness and anaemia, with latterly palpitation and great dyspnoea. On admission there was marked lividity. The first sound at the apex was very feeble.

Path. Reports, 9th April, 1891, No. 2627.

II. 38. Hypertrophy of Left Ventricle from Renal Disease. (Dr. Finlayson.)

The ventricles are shown in transverse section, and it is seen that the walls of the left ventricle are greatly thickened, the septum taking part in this thickening and bulging into the right ventricle. The heart as a whole weighed 27 oz. The kidneys were granular on the surface and with adherent capsules, but were not much reduced in size ($4\frac{1}{2}$ and 5 oz.). The aorta was atheromatous, but not dilated.

The case was that of a man aet. 47 ; he suffered from palpitation for ten years and urinary symptoms for a year or two. Latterly there was general oedema, etc., and the urine was highly albuminous

Path. Reports, 15th Dec., 1885, No. 1456.

II. 39. Hypertrophy and Dilatation of Right Ventricle consequent on Bronchitis and Emphysema. (Dr. Finlayson.)

A slice of the ventricles showing right and left in their relative proportions. It is seen that the right greatly exceeds the left in volume, and that it even approaches it in thickness of wall. (Compare with No. II. 38.) As a whole the heart was considerably enlarged, weighing $15\frac{3}{4}$ oz. There was no valvular disease, but the tricuspid orifice admitted six fingers. The lungs were highly

emphysematous, and the bronchial mucous membrane much injected. In one lung there was considerable bronchiectasis.

Mary J. (aet. 59) had been subject to cough almost every winter for years. When admitted she was complaining of heart trouble, with breathlessness and swelling of the feet. The heart was enlarged, and there was a v.s. apical murmur.

Path. Reports, 23rd Feb., 1893, No. 3270.

II. 40. Tear of Curtain of Aortic Valve. (Dr. Finlayson.)

The curtains are not considerably thickened, and the right curtain is almost normal, although slightly shortened. The anterior curtain is greatly altered, having the appearance of being partly torn away at both of its edges. At one edge there is a partial fenestration, but the fenestrated part hangs free, as if torn away from its insertion. The remaining curtain is shortened and slightly thickened. Tested with water, the valve was in the highest degree incompetent. The first part of the aorta is highly atheromatous. There was great hypertrophy of the heart.

Alex. G., a policeman, had an attack of congestion of the lungs two years before death. Four months before death, after a struggle with a prisoner, he became weak and shaky and short of breath. He afterwards suffered from palpitation and swelling of the legs, and had to give up work in a month.

Path. Reports, 26th Nov., 1887, No. 1778.

II. 41. Ulcerative Endocarditis. Perforation of Aortic Valve; Projection through Undefended Space. (Dr. Finlayson.)

The posterior segment of the aortic valve is in great part replaced by a shaggy thick mass in which there is a large gap. The gap is partly bridged by a flap of separated tissue. Beneath this cusp and in the upper part of the pars membranacea there is a rounded aperture measuring about 1 cm. in diameter which leads into a sac. This sac is seen, on examining the other side, to project into the right ventricle and auricle just at the auriculo-ventricular orifice. A portion of the tricuspid valve is preserved, and the sac is entirely on the auricular surface of this curtain. There was an acute pneumonia with pleurisy. There was also embolism of the left internal carotid artery.

Thos. F. (aet. 40), a steam-crane man, was admitted with the signs of pleurisy and pneumonia. These had existed for twenty-four days at the time of death. About sixteen hours before death stupor came on with hemiplegia.

Path. Reports, 30th May, 1895, No. 4180.

II. 42. Ulcerative Endocarditis. Perforation of Aortic Valve. (Sir Wm. T. Gairdner.)

In the right curtain of the valve there is an aperture about 1·2 cm. in diameter, whose upper margin is close to the edge of the curtain. The aperture is surrounded by lobulated masses which project into the ventricle, the aortic aspect being smooth. Around the aperture there is for a certain distance softening with irregularity of the surface. The projections are very soft and readily detached. There was an acute lepto-meningitis with yellow exudation, chiefly at the base; there was also disease of the middle ear.

Henry T. (aged 24), admitted with pleuro-pneumonia and delirium tremens. After admission there was progressive coma and high temperature. A cardiac murmur, said to be A.S. in rhythm, was discovered five days before death, and had not been previously present. (Reported *Internat. Journ. of Med. Sc.*, vol. 98, Aug. 1889.)

This case was fully described, so far as the cardiac phenomena are concerned, in the *International Journal of the Medical Sciences* for 1889, p. 187. What gives it some importance, notwithstanding great imperfections of detail, is the statement by Dr. Gairdner that it is "the only instance occurring in my experience for a long series of years, which admitted at all of being construed as bearing in the direction of Dr. Austin Flint's theory as to the auricular murmur." The mitral orifice in this case was normal, but the aortic valves admitted largely of regurgitation. The murmur, unfortunately, was only observed very shortly before death, and appeared to be "of auricular-systolic rhythm, but brief and rather indefinite in quality, so that Dr. Gairdner would have some difficulty in pronouncing upon it absolutely as a murmur of mitral stenosis." There was also a question, during life, of pericardial friction; and "there was noted after death some rough old deposit on the pericardium near the left apex." The discussion of the whole subject in connection with other cases recorded will be found in the article above mentioned, and in the *Glasgow Medical Journal* for 1887, N.S. vol. 28, p. 226; the cerebral aspects of this case, which were still more interesting,

but not in any very obvious clinical relation with the facts here presented, being recorded in a separate paper in the same volume of the *G. M. J.*, p. 242 (Case I.).

Path. Reports, March 23rd, 1887, No. 1695.

II. 43. Ulcerative Endocarditis of Aortic Valve with Slight Penetration into Right Ventricle. (Dr. W. G. Dun.)

The anterior and left posterior cusps of the aortic valve are in great part replaced by a bulky hollow projection which communicates mainly with the left posterior cusp, about half of which is destroyed. There is a large gap in the projection towards the ventricle so that a free communication existed between aorta and ventricle. The projection consists largely of polypoid masses of fibrine. On the right side of the heart the septum close to the base shows a rough surface coated thinly with fibrine, and a probe could be passed with little resistance into the hollow projection at the aortic valve. The left kidney contained two small infarctions, haemorrhagic in character but surrounded by a yellowish white zone.

Cultures from the heart lesion gave staphylococcus pyogenes albus.

Eliz. B. (aged 22) was affected with breathlessness, palpitation, and cough, and with occasional pains, the illness being of six weeks' duration. The pains were called rheumatic, but they were not definitely related to any special joints. She was not laid up till a week before death, and she died thirty hours after admission.

Path. Reports, 17th Sept., 1897, No. 5169.

II. 44. Ulcerative Endocarditis of Aortic Valve. (Prof. Geo. Buchanan.)

The aortic valve, part of which is preserved, was the seat of a massive granular vegetation, seen partly on section, which involved the greater part of the ventricular aspect of the posterior cusp and extended partly to the adjoining parts of the neighbouring cusps whilst the rest of the cusps were unaffected. There were various suppurative lesions in the body, and this condition of the valve was probably secondary to them. The primary disease was a peri-typhlitic abscess connected with the vermiform appendage, followed by peritonitis. There were infarctions in the spleen and kidneys, and numerous abscesses in the right kidney. There were also acute pleurisy and pericarditis.

John B. (aged 26) was affected with abdominal symptoms referable to the region of the caecum followed by peritonitis.

Path. Reports, 18th Feb., 1893, No. 3266.

II. 45. Ulcerative Endocarditis of Aortic Valve. Abscesses and Haemorrhages in Heart. Pyelitis. (Dr. Tennent.)

The anterior curtain of the aortic valve is almost entirely converted into a mass of thrombus, and its middle part is pouched out (as seen on section) into an aneurism. The deposition is both on aortic and ventricular surfaces of the curtain, the curtain being to a large extent lost in the fibrinous mass. There is also a fibrinous deposition on the proximal half of the posterior curtain, the rest of the valve being unaffected. In the substance of the heart there were a number of haemorrhages (one of them shown in section) and abscesses, and also a more extensive pale, opaque appearance of the muscular substance. These lesions correspond with the distribution of the anterior coronary artery, which is seen in the preparation to come off just above the affected anterior curtain. The left kidney was atrophied, but its pelvis was dilated and contained yellow pus. The soft membranes of the brain were highly oedematous and there was a small haemorrhage in the cerebellum.

Geo. M. (aet. 42) became suddenly ill a month before death, the chief symptoms being severe rigors with profuse perspiration, and rise of temperature, sometimes nearly to 105° F. Patient died comatose. There was considerable albumen in the urine.

Path. Reports, 23rd March, 1889, No. 2068.

II. 46. Ulcerative Endocarditis of Aortic Valve. (Dr. J. C. Renton.)

The appearances are considerably destroyed, as the *post-mortem* was made in a private house, and the structures had to be transferred. The aortic curtains were found fringed with an exceedingly soft and friable material. It formed a very abundant deposit on the right semilunar curtain, and where this existed the valvular structure is disorganised, so that when the deposit was scraped off a circular gap, seen in the preparation, was left. On the other curtains there is very little deposit, except in the parts adjoining that just described. In addition to these conditions, there is some thickening of the semilunar curtains, and also a localised thicken-

ing of the endocardium of the ventricle, extending along the base of the curtains in the form of a dense tendinous-looking layer. The mitral orifice is also furnished with a very abundant fringe of soft vegetations. The spleen was greatly enlarged, weighing 13½ oz., and before opening it, several hard parts were detected in it, which felt like infarctions, but on cutting into them little more than fluid blood was found. There were haemorrhages in the walls of the intestines, in the brain and its membranes, and in the kidneys. It should be added that the pericardium was completely adherent.

The patient was a man aged 34 who had had previous attacks of acute rheumatism. The fatal illness lasted only about a week. (*Glasgow Medical Journal* for October, 1880.) *Path. Reports*, No. 537.

II. 47. Ulcerative Endocarditis with great destruction of Aortic Valve. (Dr. Scobie, Belvidere.)

The central curtain, as shown, which is the anterior one, is replaced by a massive irregular structure, apparently chiefly thrombus. At its base the aortic wall shows considerable excavation. The neighbouring curtains are also largely destroyed, the left posterior showing a marked bulging with apertures so as to form a valvular aneurism. The neighbouring part of the mitral curtain has been preserved, and it shows lobulated masses of thrombus on the ventricular surface. There are three coronary arteries, one originating behind each cusp.

Path. Reports, 5th April, 1898, No. 5405.

II. 48. Ulcerative Endocarditis of Aortic Valve. Destruction of Cusp. Cardiac Aneurism. (Dr. Tennent.)

The valve has been laid open by an incision passing through the middle of the left posterior cusp. This curtain is almost completely disorganised, being represented chiefly by festoons of thrombus attached to a fibrous peduncle. At the right border the cardiac substance is considerably excavated, and necrosed tissue is visible in the cavity. Communicating with this cavity by a small aperture is another cavity measuring 2 cm. from above downwards excavated in the substance of the ventricle and constituting an aneurism of the heart, from which fresh blood-clot was removed.

II. 49. Ulcerative Endocarditis of Aortic Curtain with Extension to Muscular Substance, Mitral Valve, Undefended Space, and Tricuspid Valve. (Dr. M'Harg, Belvidere.)

The left posterior aortic cusp is almost destroyed and the anterior cusp is considerably involved in the lesion on its ventricular side. There is a bulky valvular aneurism whose aperture is on the aortic aspect of the latter cusp. In the neighbourhood of these cusps the muscular substance of the basal parts of the left ventricle, including the anterior parts of the septum, is largely necrotic and excavated, the tissue being replaced by a friable material which in the fresh state had the aspects of a greenish slough. The lesion mentioned extends to the base of the anterior mitral curtain, which it excavates and perforates, and there is an extension of the lesion to the auricular surface of this curtain in the form of a bulky and somewhat lobulated adherent thrombus, which appears to be on the surface of a valvular aneurism or perforation. There is further a discontinuous involvement of the pars membranacea or undefended space. Viewed from the left ventricle there is some prominence and irregularity, with a depression leading to an aperture through the septum, which emerges at the base of the tricuspid curtain. There is on the auricular aspect of this curtain a bulky lobulated thrombus, and there is also at the base of this ventricle and in connection with the lesion in the pars membranacea a considerable rounded area of necrosis similar to that at the base of the left ventricle.

James H. (aged 10) was admitted to Belvidere on the twelfth day of illness, which began abruptly with shivering, headache, sickness and vomiting. Temperatures ran up to 104·4°. A loud v.s. murmur was audible both at apex and at mid sternum. He died about the fifteenth day of his illness.

Path. Reports, 27th Feb., 1898, No. 5367.

II. 50. Ulcerative Endocarditis of Aortic and Mitral Valve, with Aneurisms of both. (Prof. M'Call Anderson.)

There is a marked prominence with very irregular surface about the middle of the anterior segment of the aortic valve, which is an unruptured aneurism having an opening with smooth and rounded edges on the aortic surface of the segment. The anterior

segment of the mitral valve, at the situation corresponding with the lesion of the aortic, presents a considerable rough flocculent surface which is greatest towards the base and partly extends to the attachment of the right posterior aortic segment. At the lower part of the mitral lesion there is a considerable oval aperture communicating with a sac, which, as viewed from the auricle, is seen to bulge markedly into the auricle.

There was a bulky false aneurism connected with the ulnar artery, as shown in preparation.

Walter D. (aged 68) was admitted with a swelling of the fore-arm which had come on suddenly 5½ months before death. A V.S. and V.D. aortic murmur was detected.

Path. Reports, 25th Jan., 1896, No. 4456.

II. 51. Suppurative Ulcer in Left Ventricle, from Pyaemia. (Dr. Nicoll.)

Between the aortic and mitral valves there is a circular area 1 cm. in diameter presenting an ulcerated surface and a softened floor. The softening extended for some depth in the substance of the ventricle. There were also beneath the endocardium of both ventricles several minute opaque yellowish white points. The case was one of suppurative periostitis, and there were suppurative foci in the intestine, lungs, kidneys, mesenteric glands, skin, etc.

Maggie G. (aged 11) is said to have had a fall eight days before admission and injured her right leg, which became painful, red and swollen. There was high fever with delirium. The left leg was covered by a pustular eruption, which was present to a slighter extent over other parts of the body. The leg was laid open on the day of admission and pus found in connection with the femur, the periosteum being raised by it.

Path. Reports, 21st Aug., 1893, No. 3419.

II. 52. Acute Endocarditis of Aortic Valve. (Sir Wm. T. Gairdner.)

Along the line of contact of all the curtains there is an irregular warty condition, the projections being continuous and somewhat soft. The curtains are somewhat thickened from chronic endocarditis,

the acute attack having supervened on an older endocarditis. The patient was a miner, aged 45, who had an attack of rheumatic fever eighteen months before admission.

Path. Reports, 21st April, 1876, No. 91.

II. 53. Acute Endocarditis of Aortic and Mitral Valves.
(Prof. M'Call Anderson.)

The semilunar curtains present small warty projections which are nearly continuous on two of the curtains and are situated in curved lines along the lines of contact. The mitral valve has been turned outside in and is hung upside down so as to show the auricular surface. This surface presents at intervals near the margin warty projections, in rows or single. There were extensive pleural effusion and oedema of the limbs, and the kidneys were contracted and fatty, weighing $3\frac{3}{4}$ and $2\frac{1}{4}$ oz.

Mary A. complained of extreme breathlessness, and latterly was affected with uraemic convulsions at irregular intervals up till death. Urine loaded with albumen.

Path. Reports, 9th Nov., 1885, No. 1438.

II. 54. Acute Endocarditis, Aneurism of Aortic Valve, etc.
(Prof. M'Call Anderson.)

The aortic valve is seen to be much disorganised and coated with fibrinous deposit. One of the curtains is completely broken down, a portion of it hanging loose and covered with bulky vegetations. Another is the seat of an aneurism the ventricular surface of which is exceedingly rough and shaggy, and which presents an open mouth. On the aortic side the curtain is smooth, and the aperture of the aneurism presents rounded margins. The mitral curtains are thickened, and present a few warty vegetations. The heart was greatly enlarged, weighing 23 oz.

Path. Reports, 29th January, 1877, No. 180.

II. 55. Aortic Valvular Disease with Aneurisms of the Valve.
(Sir Wm. T. Gairdner.)

The curtains present very abundant projections, partly festooned. Two of them present valvular aneurisms in the form of little pouches, projecting towards the ventricles. They are both situated

to the side of a curtain, and slightly down from its edge. The left ventricle is greatly hypertrophied, and the heart shows the usual elongation. There was an aneurism of a branch of the posterior cerebral artery, and cerebral haemorrhage. Also embolism in the spleen.

Alex. Y. (aet. 32) was affected with symptoms referable to the cerebral condition. An aortic murmur (v.s. and v.d.) was detected.

Path Reports, 13th February, 1880, No. 525.

II. 56. Aneurism and Perforation of Aortic Valve. (Dr. Tennent.)

The preparation shows in the right anterior cusp a rounded perforation capable of admitting a pea, with ragged borders. The posterior cusp presents a ruptured aneurism near its centre. The neck of the aneurism is large enough to admit a crow quill, and the pouch has a smooth internal surface. Its bottom has disappeared, leaving a ragged aperture. The ventricular surface of the pouch is covered and almost concealed by masses of vegetations. The right edge of this cusp is somewhat torn, and there is a projecting tag above the aneurism. The remaining cusp also presents fibrinous deposition on the ventricular surface, but no perforation. The spleen presented a number of small recent infarctions and several old infarctions and cicatrices. The spleen, liver, and kidneys were much enlarged.

James M. (aet. 42) first began to fail in health five months before death. There was dyspnoea and swelling of the feet and eyelids. The general signs of cardiac disease were pronounced on admission and became extreme. *Path. Reports*, 29th Sept., 1892, No. 3129.

II. 57. Aneurism of Aortic Valve; Rupture. (Dr. Tennent.)

The curtains generally are slightly thickened and shortened, especially at the junction of the posterior and right curtains, where there is considerable calcareous deposition. From the middle of the posterior curtain there is a prominence partly consisting of a ruptured aneurism, which has an aperture $\frac{3}{8}$ in. in diameter, and partly of thrombus deposited on the aneurism. There were infarctions in spleen and kidneys.

Robert S. (aet. 31), tea-blender, had four successive attacks of sub-acute rheumatism, beginning 20 years before death. There

were great dyspnoea, and latterly extensive purpura, as well as haemorrhage from the kidneys. He was subject to angina and died suddenly. *Path. Reports*, 13th March, 1893, No. 3291.

II. 58. Coalescence of two Curtains of Aortic Valve and Aneurism of Valve. (Sir Wm. T. Gairdner.)

The valve presents only two segments. The larger of the two represents the left posterior and anterior cusps, but by no means occupies the space of two normal cusps. The aorta is distinctly narrower than normal, its circumferential measurement immediately above the attachment of the valve being 6·5 cm., while that of the pulmonary artery is 9 cm. There is no appearance of a remaining septum in the coalesced curtain, but the sinus of Valsalva is slightly exaggerated, and the orifices of both coronary arteries are visible in it, being separated from one another by a space of 1·5 cm. The middle of this curtain presents on its ventricular aspect a shaggy projection, which corresponds on the aortic aspect to a protrusion or aneurism. The aneurism is not definitely sacculated, and, whilst comparatively smooth on the internal surface, has not a perfectly definite lining. There are two or three small apertures in the pouch. The remaining cusp of this valve, which is slightly larger than normal, is slightly thickened, but not otherwise remarkable.

The pulmonary valve also presented only two segments, the right anterior and posterior cusps having coalesced. There was here a slight fraenum indicating the line of junction. There were marked cardiac hypertrophy and dilatation, and infarctions in the spleen, as well as passive hyperaemia of liver, spleen and kidneys.

James C. (aet. 21) had never been affected with rheumatism, but had chorea ten years before death. He had been ill for some months before admission, but did not associate this with his heart, and he was at work a week before his death. There were great breathlessness and cyanosis latterly.

Path. Reports, 27th July, 1893, No. 3400.

II. 59. Acute Endocarditis of Aortic Valve; Disorganisation and Thrombosis of Valve. (Dr. G. P. Tennent.)

The valve is greatly altered. Viewed from the ventricular aspect, shaggy masses are seen pouting out, some of which hang into the ventricle. From the aortic aspect the valve is seen to be mostly replaced by large excrescences, and there are various tears in the

remaining valvular structures. In one of the curtains there is a considerable aperture surrounded by shaggy projections, apparently a valvular aneurism which has ruptured.

Path. Reports, 25th July, 1884, No. 1224.

II. 60. Acute Rheumatic Endocarditis of Mitral Valve. (Dr. Jas. Finlayson.)

There are abundant warty vegetations along the line of contact of the mitral curtains, with very slight thickening of the curtains generally. One small vegetation existed on a curtain of the aortic valve. In addition, there were acute pericarditis and pleurisy, and infarctions were present in the spleen.

Acute rheumatism, affecting various joints, existed for six weeks before death. High temperature, delirium, generalised bronchitis, and albuminuria developed after admission. The patient was a woman 48 years old. This was her first attack of rheumatism.

Path. Reports, 17th December, 1875, No. 52.

II. 61. Acute Endocarditis of Mitral Valve in case of Chorea. (Prof. M'Call Anderson.)

The edges of the valve on the auricular side are fringed with warty vegetations, some of them somewhat bulky.

The case was that of a girl aged 20, who had had two attacks of chorea, the second having followed a severe fright. This attack was very severe, so that she could not speak or swallow, and a fatal result followed. There was no history of rheumatism.

Path. Reports, 15th March, 1882, No. 790.

II. 62. Endocarditis and Aneurism of Mitral Valve. (Dr. Tennent.)

The mitral orifice is laid open so as to display the auricular surface of the valve. From this surface there projects a more or less conical but hollow body above 2 cm. in length. It has been torn open and shows a distinct lumen, which communicates by a wide aperture with the ventricular surface of the valve, thus forming an aneurism which has ruptured. There is marked irregularity of the mitral valve near the aneurism, chiefly in the form of rounded projections among the chordae tendineae. The aortic valve was also greatly disorganised.

James L. (aet. 45), a painter, presented the usual symptoms of cardiac disease, with great hypertrophy of the heart.

Path. Reports, 6th May, 1892, No. 2984.

II. 63. Endocarditis, with Disintegration of the Mitral Valve and Rupture of Chordae Tendineae. Aneurism of Superior Mesenteric Artery. (Dr. Finlayson.)

The anterior curtain of the mitral valve presents inferiorly a rough granular surface, and is mostly devoid of chordae tendineae, so that it can pass upwards into the auricle. There are various evidences of ruptured chordae tendineae, viz.: projecting stumps with knapped ends at the apices of the musculi papillares, also more elongated chordae of various lengths with clubbed ends. There are warty vegetations on the aortic valve and on remaining parts of the mitral.

The aneurism of the superior mesenteric artery is shown laid open. It is oval in shape and measures 3·5 cm. in long diameter. Its lower extremity is some distance above the intestinal insertion of the mesentery. The branch with which the aneurism is connected passes to the ileum about 4 feet above the valve. The vessel is about the size of a small goose quill, and it communicates with the aneurism by means of a pin-point aperture. The aneurism has a distinct connective tissue wall, and it contained coagulum.

Joseph D. (aet 33), a spirit salesman, had a rheumatic history. He complained of shortness of breath and cough of a year's duration. There was a loud systolic murmur over the mitral area, and considerable oedema of the legs and feet. He was less than 24 hours under observation. *Path. Reports*, 16th Jan., 1893, No. 3237.

II. 64. Acute Endocarditis affecting Left Auricle. (Prof. M'Call Anderson.)

There were warty vegetations on the curtains of the mitral valve, especially the anterior curtain. In addition, the large patch, shown in the preparation, of fibrinous deposit on the left auricle was found. It is very irregular in outline, and presents a shaggy surface. There was very slight endocarditis of the aortic valve.

There was a large embolic infarction of the spleen, the organ itself weighing 26½ oz. There was also embolism of the left

middle cerebral. The kidneys were much enlarged, each weighing 12½ oz., and having the characters of large white kidney with tubular haemorrhage.

Path. Reports, 12th June, 1883, No. 996.

II. 65. Acute Endocarditis of the Aortic, Mitral, and Pulmonary Valves. Peculiar Localisation. (Sir Wm. T. Gairdner.)

There are here very prominent warty vegetations attached to the valves mentioned, and it is peculiar that these have a somewhat limited localisation. This is best seen on the aortic and pulmonary valves. In the case of the aortic, two of the curtains (the left and anterior) are occupied in great part by a very prominent almost mulberry-like excrescence, which projects at least a quarter of an inch from the ventricular surface. The remaining curtain has merely a small warty projection here and there along its line of contact. One of the curtains of the pulmonary valve also presents a limited but very prominent excrescence. In the case of the mitral, the outgrowths are present all round, but much more prominent in some parts than others.

In addition, there were in this case embolism of the pulmonary artery and infarctions of the spleen and kidneys, as well as atrophy and oedema of the brain, with cortical softenings. No embolism of the cerebral vessels was found.

The patient was a woman aged 40, admitted with dyspnoea, oedema, etc., and loss of power on left side, with stupor.

Path. Reports, 7th December, 1882, No. 885.

II. 66. Acute and Chronic Endocarditis, with prominent Vegetations, affecting Aortic and Mitral Valves. (Prof. M'Call Anderson.)

The aortic curtains are considerably shortened, and from their edges project pendulous irregular vegetations, which are very brittle. There are also prominent vegetations on the auricular surface of the mitral valve, and one patch on its ventricular aspect. There is also a small patch over the unprotected spot.

The heart was greatly enlarged, weighing 18¼ oz., and its tissue presented well-marked fatty degeneration.

Path. Reports, 23rd or 24th August, 1883, No. 1032.

II. 67. Chronic Endocarditis of Aortic, Mitral, and Tricuspid Valves. Dilatation and Hypertrophy of Right Auricle and Ventricle. Acute Endocarditis of all four Valves. (Sir Wm. T. Gairdner.)

The most striking lesion here is great thickening and contraction of the mitral, the orifice only admitting the tip of a finger. There is also marked thickening with contraction of the aortic curtains, and the valve was found incompetent. The tricuspid valve presents a certain coalescence of the curtains, and there is an abnormal tendinous adhesion of the left curtain to the septum. All the valves showed in the fresh state the small warty projections characteristic of acute endocarditis. The pulmonary valve is scarcely thickened, but the curtains are distinctly contracted, and the valve was found incompetent. There is very marked enlargement of the right ventricle, which contrasts with the left very markedly. There is a still greater contrast between right and left auricles. Consistently with the hypertrophy of the right ventricle, the pulmonary artery is markedly thickened, being if anything rather thicker than the aorta. A few small white thrombi were found in the recesses of the right auricle, and there were old and more recent infarctions in both lungs.

Arch. M'D. (aet. 22) had repeated rheumatic illnesses at intervals of years, beginning in childhood. There were distinct evidences of mitral stenosis as long as five years before death. On admission, about six weeks before death, there were the usual aggravated cardiac phenomena with murmurs, indicative of both tricuspid and mitral insufficiency. A later feature was a ventriculo-diastolic murmur, whose centre of greatest intensity was a point 1½ in. above and 1 in. inside the left nipple.

Path. Reports, 13th May, 1896, No. 4611.

II. 68. Chronic and Acute Endocarditis of Aortic Valve. (Dr. Alexander.)

There is adhesion at the junctions of the curtains; in the case of two such junctions there is corresponding shortening of the curtains, but without any considerable thickening. At one of these unions, viz., that of the anterior and right curtains, there is a very marked irregularity with considerable prominence of warty vegetations. At the lower part also there is a small aneurism of the valve. A slight warty projection is visible at the other union.

John B. (aged 67) died with acute pneumonia. There were atheroma of the aorta and an aneurism of the abdominal aorta.

Path. Reports, 28th Sept., 1894, No. 3886.

II. 69. Chronic Endocarditis and Deformity of Aortic Valve. (Prof. Geo. Buchanan.)

The principal change here is coalescence of the proximal borders of the curtains, and the formation of little tendinous bands passing up from the coalesced curtains on to the wall of the aorta, these resembling chordae tendineae. In the coalesced portion of the curtains there are calcareous masses. The heart was enlarged (weighing 14½ oz.), the left ventricle being chiefly affected.

Path. Reports, 17th Jan., 1878, No. 287.

II. 70. Chronic Endocarditis and Deformity of Aortic Valve (probably congenital). Mitral Disease. Adherent Pericardium. (Prof. M'Call Anderson.)

The aortic curtains are thickened and contracted, forming three thickened bands of a crescentic shape. From the points of junction of these bands there pass upwards groups of small tendon-like bands, some of which are free except at their extremities, and some partially attached by their lateral borders to the aortic wall and each other. These bands are inserted above at a level corresponding with the normal insertion of the curtains. The mitral valve is much thickened both in its curtains and chordae tendineae, and the apices of the musculi papillares are to a considerable extent transformed into fibrous tissue. The mitral orifice was only slightly contracted. The pericardium was firmly adherent throughout, and the heart much enlarged, weighing 25½ oz. The enlargement was chiefly of the left ventricle.

The patient was a man, aged 23, and there was no history of rheumatism. During life there were the usual symptoms of valvular disease, which began five years before death.

Path. Reports, 27th Sept., 1877, No. 250.

II. 71. Disorganisation of Aortic Valve. Aneurism above and beneath the chiefly affected Curtain. (Dr. Tennent.)

The ring of the aorta is preserved and it is seen that the posterior and right curtains, although coalesced by their proximal

margins, are not otherwise greatly altered. There is, however, a small valvular aneurism on the right curtain. On the other hand, the greater part of the circumference corresponds with the greatly altered anterior curtain, which is represented by a thick triangular flap having a projection of 2 cm. It is attached at its base, but is freely movable down into the ventricle and up into the aorta. It has a lobulated surface on its ventricular aspect and a smoother surface on its aortic. Between the insertion of this flap and the right curtain there is a considerable gap. In the fresh state the valve offered almost no obstacle to the passage of water backwards into the ventricle. Corresponding with the affected curtain the ring of the aorta is dilated, and there is in addition a sacculated aneurism with a distinct aperture above the insertion of the flap. There is another small aneurism —a portion of whose wall has been reflected—just below the right border of the flap.

John S. (aged 36) was affected with angina pectoris and died very suddenly, apparently from obstruction of a coronary artery, as evidenced by paleness and fatty degeneration of the heart muscle. There were also chronic stricture of urethra, hypertrophy of bladder, and pyelitis, with amyloid disease of kidneys.

Path. Reports, 18th Oct., 1892, No. 3147.

II. 72. Extreme Disease of Aortic Valve; Calcareous Deposition. (Dr. Tennent.)

The aortic valve is the seat of massive shaggy deposits, which are largely infiltrated with lime salts. These almost blocked the orifice, so that water could scarcely be passed either way. There is a similar deposit in the posterior aspect of the aortic arch extending from the valve as high as the middle of the arch. There is also a small deposit in the mitral, where the aortic masses have come in contact with it. The left ventricle was somewhat enlarged.

Janet A. (aged 9) complained during life of pain and great breathlessness. A v.s. murmur was loudly audible all over the chest. Had rheumatism 14 months before death.

Path. Reports, 1st June, 1886, No. 1544.

II. 73. Extreme Disorganisation of Aortic Valve. Infarction of Heart. Thinning of Ventricle. (Prof. Joseph Coats.)

The aortic valve is extraordinarily disorganised. The right curtain is greatly broken up, the one half of it being represented by little more than a bridge with projecting polypoid processes extending from the aortic attachment to about the middle of the curtain. The other half is shortened and irregularly covered by fibrinous deposit. The bridge mentioned above is so placed that its polypoid projections would impinge on the aortic wall, and there is in the latter a depression bordered by small vegetations, from the midst of which the posterior coronary artery emerges. The posterior curtain is narrowed and greatly covered by deposit, and above it also there is an area of the aorta bulged and beset by deposit. Beneath the curtain the wall of the ventricle and the anterior aspect of the mitral valve are beset with vegetations, but the valve itself is not appreciably altered. The left ventricle is generally dilated, but at the apex there is a special bulging, and the wall is so thinned as to be like paper. The anterior wall of the ventricle shows the appearance of an embolic infarction, namely, pale areas of necrosis with slight haemorrhage. A soft yellow plug is found in a corresponding branch of the anterior coronary artery.

Wm. G. (aet. 25), sailor, ascribed his illness to a severe "rack" about a year before death. It was followed by sudden pain with a feeling of suffocation and sensation as of something giving way. He continued at work for two or three months, but palpitation, dyspnoea, etc., increased. During residence in hospital there were extreme and agonising dyspnoea and general discomfort, with occasional attacks of "angina." Murmurs of aortic obstruction and regurgitation were heard. *Path. Reports*, 19th Dec., 1889, No. 2240.

II. 74. Coalescence and Calcification of Aortic Curtains. (Dr. Tennent.)

The aortic valve is transformed into a rigid diaphragm with a triangular aperture. With the exception of the adjacent extremities of the anterior and left curtains, the curtains have completely coalesced. They are also greatly thickened and so infiltrated with lime as to present bulky cauliflower-like masses of a stony consistence projecting into the calibre of the aorta. The thickening and calcification extend somewhat below the valve, and also partly

occupied the anterior aspect of the mitral valve. The heart was greatly enlarged, weighing 27 oz.

Edmund H. (aet. 60), a painter, was affected with dyspnoea and general anasarca, and presented pronounced aortic valvular murmurs.

Path. Reports, 14th May, 1892, No. 2996.

II. 75. Aortic Valvular Disease with exposed Calcareous Material. (Prof. M'Call Anderson.)

Two of the curtains are nearly completely coalesced and greatly thickened, there being a thick, hard septum at their point of union. The ventricular surface of the coalesced curtains presented shaggy fibrine, on partially removing which an exposed calcareous surface was found. The heart was enlarged entirely from hypertrophy of the left ventricle.

A portion of kidney is preserved, showing a small cicatrix from an old embolic lesion.

Path. Reports, 24th November, 1879, No. 491.

II. 76. Extreme Calcification of Aortic Valve; Coalescence of two Curtains and Obstruction. (Sir Wm. T. Gairdner.)

The valve is converted into a rigid diaphragm, highly calcified. As seen from below there are two segments whose edges are closely and rigidly apposed except a small slit at the anterior margin. Prominent ridges extend from the larger curtain downwards towards the ventricle, and these are calcified. There are rough surfaces on this under surface with exposed calcareous matter and occasional fibrinous deposition. Viewed from the aortic side the two curtains are nearly equal in size, but in the case of one of them there is a slight indication of formation by coalescence.

There were great hypertrophy and dilatation of the left ventricle. The heart weighed 580 grms. There was slight atheroma of the coronary arteries and of the aorta.

Daniel M'I. (aged 45) had never suffered from rheumatism, and his complaint only dated back ten months before death. The symptoms consisted of breathlessness, palpitation, and pain in epigastrium. There was a feeling of impending death during some of the attacks, and on several occasions he was unconscious. Death occurred during one of them.

Path. Reports, 17th December, 1896, No. 4862.

II. 77. Chronic Endocarditis of Aortic Valve. Coalescence of Curtains and Partial Disintegration. (Aneurism of Cerebral Artery.) (Dr. Tennent.)

The valve is greatly altered, there being apparently only two curtains, although, on inspection, one of them presents a ridge in its middle indicating the junction of two. The curtains are rigid, and between them there is a rough transverse aperture the borders of which are thick and granular and very irregular, especially as viewed from the ventricular surface. On these rough surfaces calcareous matter is exposed.

There was a small aneurism on a branch of the left middle cerebral, which had ruptured and caused death by haemorrhage into the brain substance.

Alexander N. (aet. 27) presented the signs of cardiac disease dating back about eight months. He had a slight attack of hemiplegia, apparently due to a small haemorrhage, about a fortnight before death, and a second fatal one on the day of death, the onset of which he survived for six or eight hours.

Path. Reports, 9th February, 1888, No. 1830.

II. 78. Thickening and Contraction of Aortic Valve. Thrombosis on Aortic and Mitral Curtains. (Dr. Finlayson.)

The aortic curtains are considerably thickened and shortened, so that when stretched to the fullest extent they leave a wide triangular aperture, which, however, was considerably filled up with thrombi (partly preserved in preparation). It was found on testing that water passed with difficulty from the ventricle into the aorta, and also with difficulty in the reverse direction. Thrombi are also present on the mitral curtains, and there is especially a considerable surface on the ventricular aspect of the anterior curtain, which is rough and shaggy from adherent thrombi. There is a peculiar ring-shaped thrombus on one of the chordae tendineae surrounding it like a loose bracelet, and there are thrombi on the auricular surface. The left ventricle was greatly hypertrophied, the heart weighing 22 oz. The kidneys were enlarged and pale, and the brain showed acute meningitis.

Charles L. (aged 34) complained for many years of palpitation. During residence in Hospital he had febrile temperatures and retention of urine, with head symptoms latterly.

Path. Reports, 23rd February, 1886, No. 1491.

II. 79. Aortic Valvular Disease, Tear of Valve. Aneurism of Heart at Base. (Sir Wm. T. Gairdner.)

The curtains of the aortic valve are considerably thickened and their edges coalesced. There is no coalescence between the posterior and right semilunar folds, but instead of that a space of about an eighth of an inch. In the neighbourhood of this space both curtains show abundant shaggy prominences. In the half of the posterior curtain next this space there is a deep tear, extending from its edge nearly to its middle, and of such a character as to make of the marginal part of the curtain a flap, on which are rough projections like those just referred to. Immediately beneath the aperture between the two curtains, there is the rounded aperture of an aneurism 1 cm. in diameter, the borders of the aperture being partly formed by the proximal curtains. The aneurism projects backwards for a distance of about 2 cm. lying behind or in the aortic wall, in a position corresponding with the pouch of the posterior curtain. The aneurism can be seen externally as a prominence somewhat elongated from side to side at the base of the aorta, between it and the right auricle, near the septum. The aperture is immediately above the undefended space, although separated from it by a distinct ridge of firm tissue. The internal wall of the aorta, corresponding with the position of the aneurism, presents a transverse tear, apparently extending through the internal coat. This tear is about half an inch in length and passes beyond the edge of the aneurism. There is, however, no communication between aorta and aneurism, nor between aorta and pericardial sac.

In addition to these lesions the mitral valve was contracted, and there were embolic lesions in kidneys and spleen. There was also atrophy of the brain. The symptoms were those of cardiac valvular disease generally, with physical signs mainly of aortic regurgitation, but also of mitral disease.

Path. Reports, 13th November, 1883, No. 1059.

II. 80. Coalescence and Contraction of Aortic and Mitral Valves [Embolism of Middle Cerebral]. (Sir Wm. T. Gairdner.)

The preparation shows aortic valve with its curtains so coalesced as to have nearly lost all trace of their semilunar shape. The

mitral curtains are also coalesced so as to give the funnel-shaped deformity, and the orifice barely admits the tip of the finger. On the auricular surface of this valve there is a rough surface of calcareous character, with the appearance as if part had broken off. There was embolism of the right sylvian artery at the second division of the artery. The embolus was riding over the bifurcation, but there was still a narrow passage by the side of it. There were old lesions in the brain, corresponding with the distribution of this artery, consisting of a cyst and cicatricial shrinking.

Mrs. F. (aged 40) had rheumatic fever twenty-four years, and again ten years, before death. There were obvious murmurs referred to the valves, but also a sound suggesting pericardial disease or aneurism. Numbness and slight paresis in left upper and lower extremities suggested a cerebral lesion, but there was no history of apoplectic attack. Probable date of origin of these symptoms was two to three years before admission.

Path. Reports, Feb. 23rd, 1888, No. 1844.

II. 81. Contraction of Mitral and Tricuspid Valves (probably congenital). Retraction of Aortic Curtains by Membranous Diaphragm. (Sir Wm. T. Gairdner.)

The aortic curtains are markedly shortened and thickened so as to present the appearance of crescentic elevations, and before opening the vessel, the valve was found absolutely incompetent. The left ventricle was greatly hypertrophied. The mitral and tricuspid valves present a much more membranous appearance than normal. They form an almost continuous diaphragm, composed of comparatively soft membrane without much thickening, to the edges of which the chordae tendineae are attached. The orifices are at the apices of these diaphragms, but although somewhat contracted are not greatly so, the mitral admitting one finger very freely, and the tricuspid three. The pericardium was completely adherent.

The case was that of a man, aged 29. Signs of acute pericarditis were present thirteen months before death. These subsided but left signs and symptoms of aortic regurgitation, which had been present along with the pericarditis. Latterly, the usual symptoms of severe cardiac disease supervened.

Path. Reports, 4th May, 1882, No. 810.

II. 82. Contraction of Aortic, Mitral, and Tricuspid Valves (probably of congenital origin). (Sir Wm. T. Gairdner.)

The aortic valve is converted by the coalescence of its curtains into a diaphragm with thickened edges. The normal division is indicated by groups of adherent tendinous bands, which pass at three points from the diaphragm on to the aortic wall. The mitral valve is greatly thickened, its curtains are coalesced, and there is frequent calcareous deposition in its curtains, the calcareous matter being exposed at one point as a rough surface immediately beneath the aortic valve. The tricuspid curtains are not remarkably thickened, but they are coalesced, so as to form a funnel-shaped projection into the ventricle, at the apex of which the orifice barely admits the tip of one finger. There was also a partial malformation of the pulmonary valve, the curtains being slightly coalesced, and tendinous bundles passing from them to the wall of the artery. There were a few small infarctions in the spleen.

The murmurs, as observed during life, were difficult of analysis, but were said to be V.S. and V.D. with a most questionable trace of A.S.; diagnosis of "valvular lesions probably both of aortic and mitral valves, if not also of right side." Heart and liver much enlarged; lividity, orthopnoea, dropsy, etc. Pericardium was adherent. *Path. Reports*, 16th December, 1880, No. 604.

II. 83. Great Contraction of Mitral Valve by Membranous Diaphragm (probably congenital). (Dr. Tennent.)

The mitral orifice is extremely contracted, so as to leave only a slit-like opening 1 cm. in long diameter. The contraction is due to a coalescence of the curtains into a membranous diaphragm, which is not markedly thick and is considerably flatter than the ordinary funnel-shaped form of mitral disease. The chordae tendineae, which are not greatly thickened, are not inserted round the aperture, but pass over the surface of the curtains, being partly adherent or coalesced and partly free.

There are thus obvious differences from the ordinary mitral contraction. In the same case the pulmonary artery had four semilunar curtains. (See II. 8.) There were also warty vegetations on the aortic and tricuspid valves.

Margaret F. (aged 23) presented great dyspnoea, with swelling of feet, etc. The illness dated five years back. There was no history of rheumatism. *Path. Reports*, 7th Nov., 1893, No. 3486.

II. 84. Extreme Contraction of Mitral and Tricuspid Orifices by Membranous Diaphragms. (Dr. Samson Gemmell.)

There is extreme coalescence of the mitral curtains, which are also thickened so that an almost homogeneous diaphragm is produced, in the middle of which is an oval aperture 6 mm. in diameter. The tricuspid valve is almost similar, but the diaphragm is thinner and the orifice rather larger, being 1 cm. in diameter. Both the auricles are markedly dilated, but especially the right. There was some thickening of the aortic curtains, but not of the pulmonary. There were infarctions of the lung, and the usual signs of general venous engorgement.

Maggie D. (aged 11) had repeated attacks of acute rheumatism during the three years previous to death. During residence in hospital she presented extreme dyspnoea. A loud presystolic murmur was distinguished. Death was sudden.

Path. Reports, 5th May, 1896, No. 4599.

II. 85. Great Contraction and Funnel-shaped Deformity of Mitral Valve in a Boy aet. 13. (Dr. G. P. Tennent.)

The greater part of auricle and whole of ventricle have been removed. It is seen that the curtains of the mitral valve and the chordae tendineae are greatly thickened and coalesced, so as to form a funnel which projected into the ventricle. At the apex of this funnel there is a small orifice not larger than the diameter of a goose quill, fringed with small warty projections. Besides this orifice there are three small ones between the thickened chordae tendineae of right segment of valve. The right ventricle was greatly dilated.

The patient died apparently from the effects of an acute pleurisy of ten days' duration; but he suffered from general oedema, dyspnoea, and pain in precordial region. There were also symptoms of acute Bright's disease, and the kidney showed a generalised fatty degeneration. *Path. Reports*, 20th May, 1882, No. 822.

II. 86. Coalescence and Funnel-shaped Deformity of Mitral Valve. (Dr. Finlayson.)

The curtains and chordae tendineae are converted into a solid thick diaphragm composed of dense connective tissue which extends to the apices of the musculi papillares. At the apex of the

diaphragm there is a narrow slit-like orifice; thrombi adhere to the orifice and project into ventricle and auricle. The heart as a whole presented considerable hypertrophy and dilatation of the right ventricle, and there was venous hyperaemia of the body generally.

Miss M'L. (aged 44) had been long ill with cardiac symptoms, and was three times resident in the hospital between 1881 and 1886. There was a presystolic murmur and thrill.

Path. Reports, Feb. 8th, 1886, No. 1484.

II. 87. Contraction and Calcareous Infiltration of Mitral Valve. (Dr. Jas. Finlayson.)

The curtains of the mitral valve are coalesced, and without being very extremely thickened they have undergone a very remarkable calcareous infiltration, rendering them very hard. On the auricular side calcareous masses project like irregular warts, one of them being as large as a good-sized cutaneous wart. The orifice is displaced downwards, as in the usual funnel-shaped deformity, and is greatly narrowed, forming an elongated slit 1 cm. in length. This orifice is fringed with small, apparently recent, vegetations. There were also slight thickening of the aortic valve and vegetations on the tricuspid. The heart was enlarged, weighing $13\frac{3}{4}$ oz., and the enlargement was mainly of the right side. There were several haemorrhagic infarctions of the lung, and a large thrombus was found in the main trunk of the pulmonary artery.

The patient was a woman, aged 32. There was a history of breathlessness for years without distinct rheumatism till a month before death, when there was pain in the shoulder. Latterly there were great dyspnoea aud other cardiac symptoms, and a loud harsh systolic murmur was detected; the action of the heart was described as "thumping." *Path. Reports*, 2nd February, 1883, No. 925.

II. 88. Disease of Mitral Valve with Calcareous Deposition. (Prof. M'Call Anderson.)

The curtains are much thickened and coalesced. In the anterior curtain, and at the angle between the two, there is a calcareous mass of considerable extent and thickness.

Path. Reports, 26th October, 1876, No. 148.

II. 89. Mitral Stenosis with Calcareous Infiltration. (Prof. M'Call Anderson.)

The valve presents the usual funnel-shaped deformity, and the aperture only admits one finger. There are several massive deposits of lime salts, and, at one place, a ragged surface, as if a piece of calcareous matter had been recently carried away. Embolism of the superior mesenteric artery was found. See II. 169.

II. 90. Extreme Contraction of Mitral Orifice, without Murmur during Life. (Sir Wm. T. Gairdner.)

The mitral orifice is in great part closed by a membranous funnel-shaped diaphragm, which does not consist, to any great extent, of coalesced chordae tendineae; the latter generally pass over the membrane, and are inserted at its base. There are several apertures, the largest being oval in shape, and 1·2 cm. in long diameter, situated at the apex of the funnel: to the left of this there are several smaller ones. The larger aperture lies in a peculiar manner between two heads of a large papillary muscle which partly obstructs it. The membranous diaphragm is in some places very thin, and nowhere exceedingly thick, although in some parts there is calcareous deposition.

During life this patient was examined by several medical men, among them Dr. Gairdner, and no murmur was detected. The inferences from the previous history were that the disease may have been of very long standing, possibly congenital. The patient was the mother of a large family, and had suffered much mental anxiety and distress. The case is related by Dr. Gairdner in the Glasgow Pathological Society's Transactions for 13th May, 1879. See *Glasgow Medical Journal. Path. Reports*, No. 444. Private Case.

II. 91. Mitral Stenosis with a Thrombus which had completely altered the Murmur during Life. (Sir Wm. T. Gairdner.)

There is the usual thickening and coalescence of the curtains with narrowing of the orifice, which is however not extreme. A thrombus attached to the auricular aspect of the anterior curtain further diminishes the orifice, but would also prevent the closure of the orifice during the systole of the ventricle.

Mary C. (aged 21) presented rather the aspects of a case of phthisis with high temperatures and haemoptysis, but a distinct A.S. murmur revealed its cardiac nature. There were much congestion of the lungs and bronchitis, and latterly evidences of renal inflammation, which was confirmed by microscopic examination post-mortem. Three days before death the murmur, which had been characteristically A.S., was found to have changed to a distinct V.S. murmur, mitral in distribution, apparently from interference by the thrombus with the closure of that valve. For full account of the case see *Glas. Med. Journal*, XLVIII., p. 118, and *Trans. Glas. Path. and Clin. Soc.*, VI., p. 183.

II. 92. Stenosis of Mitral Orifice. Thrombosis in Left Auricle. (Dr. Tennent.)

There are two large thrombi in the upper part of the left auricle. The mitral orifice is contracted so that it did not admit even the tip of the little finger.

Ann M'K. (aged 45) was admitted moribund and no history was obtained. *Path. Reports*, Dec. 24th, 1889, No. 2247.

II. 93. Contraction and Calcareous Infiltration of Mitral Valve. Thrombus in Left Auricle. (Dr. D. C. M'Vail.)

As seen from the auricle, the mitral orifice is greatly contracted, only admitting the merest tip of the finger, and fringed with rough calcareous projections. In the left auricular appendage there is a large globular thrombus, and there was one of somewhat similar size opposite the foramen ovale. The aortic curtains were slightly thickened and partly coalesced. The pericardium was firmly adherent throughout.

There was a large haemorrhagic infarction of right lung, with plugging of corresponding artery. The uterine veins also presented thrombosis. *Path. Reports*, 2nd October, 1882, No. 853.

II. 94. Contraction of Mitral and Tricuspid Valves. (Dr. Jas. Finlayson.)

The mitral valve is much altered, its curtains thickened and coalesced, and the chordae tendineae are thickened and shortened. The orifice admits only one finger easily. The tricuspid curtains are

also thickened and hard, and the orifice admits only two fingers. The aortic curtains were slightly thickened, but the valve was found to be competent. Globular vegetations are present in the right auricular appendage. The heart is not much enlarged, it weighed 12 oz. There was what appeared to be an acute fatty degeneration of the renal epithelium.

The patient, a woman of 28, had rheumatism when 16 years old, and suffered from symptoms of heart disease since that time. Great aggravation of symptoms, with oedema, and latterly albuminuria, etc., existed for a short period before death.

Path Reports, 23rd Oct., 1876, No. 145.

II. 95. Contraction of Mitral and Tricuspid Orifices. Great Dilatation and Thinning of Right Auricle, etc. (Sir Wm. T. Gairdner.)

The preparation shows an extraordinary dilatation of the right auricle. The muscular bundles are separated and between them merely a thin paper-like translucent membrane appears. The dilated auricle extends right across the base of the heart, having a diameter of about 13 cm. The mitral valve is greatly thickened and its curtains are coalesced so that the orifice is displaced downwards and narrowed, admitting merely the tip of one finger. The tricuspid valve is only slightly thickened, but the curtains are coalesced and form a kind of membranous diaphragm with an orifice which only admits the tips of two fingers. The aortic curtains are slightly thickened and two of them partially coalesced. The right ventricle is considerably enlarged, whilst the left is rather smaller than normal. There were two rough surfaces on the auricular surface of the mitral valve from which matter may have been transported. Embolic infarctions were present in the spleen, and there was a localised softening in the basal parts of the brain.

Ellen C. (aet. 42) was affected with the usual signs of cardiac disease and latterly with hemiplegia.

Path. Reports, 12th June, 1892, No. 2394.

II. 96. Contraction of Tricuspid and Mitral Orifices. Great Dilatation of the Right Auricle. (Dr. Finlayson.)

The conditions here are almost identical with those in the preceding preparation. The right auricle is greatly distended, measuring 12 cm. transversely, and it is thin and translucent in

places. The mitral orifice only admits the tip of the index finger, and the tricuspid valve which, as in the preceding case, forms a membranous septum, has an aperture merely admitting one finger to the first joint. Thrombi are present in both auricles, a very typical globular one in the left.

Eliza H. (aet. 44) had a history of rheumatic fever in childhood. The fatal illness dated from about six months before death, but was greatly aggravated after the birth of a child about a month before death. She suffered from breathlessness and extreme oedema of feet, legs, and abdomen. *Path. Reports*, 17th Oct., 1889, No. 2184.

II. 97. Great Contraction of Mitral Orifice; very large Thrombus in Left Auricle; Coalescence of Aortic and Tricuspid Curtains. (Dr. Jas. Finlayson.)

The chordae tendineae and neighbouring parts of the mitral valve are greatly thickened, coalesced, and calcareous, so that the papillary muscles appear almost directly inserted into a rigid diaphragm. The mitral orifice is a slit-like opening at the apex of this diaphragm, about 2 cm. in length. On the auricular surface of the altered valve there are several calcareous projections. An enormous thrombus occupies the left auricle, having its seat mainly just opposite the mitral valve, but extending downwards along the posterior surface of the auricle to within half an inch of the orifice. The thrombus attains a thickness of 3 cm. It is stratified on the surface, and on section presents various grades of colour, the part next the wall of the auricle having a white, almost fibrous appearance. This thrombus was continued a short distance into the right pulmonary vein, but did not obstruct it. The aortic curtains are considerably thickened and coalesced, so that before division they were seen to form a diaphragm with triangular aperture. The tricuspid curtains are also coalesced, and the orifice narrowed, but there is no great thickening. The heart was greatly enlarged, weighing, with the thrombus, 23½ oz., and its muscular tissue, especially that of the right ventricle, presents very marked mottling from fatty degeneration.

The case was that of a labourer aged 37, who had suffered for two years from symptoms of cardiac disease. There was irregular action of the heart, a double murmur at apex and mid-sternum, and evidences of hypertrophy.

Path. Reports, 25th July, 1883, No. 1015.

II. 98. Hernia of the Pericardium. (Dr. Jas. Finlayson.)

The oval pedunculated sac projected from the pericardium on its right lateral aspect, the preparation showing the sac with neighbouring portion of pericardium. The sac measures about 4 cm. in its long diameter, and has a narrow neck about 1·2 cm. in diameter. It communicates with the pericardium by an aperture large enough to admit a quill, and at the time of the post-mortem the pericardium contained fluid; the sac was also found full, and could be readily emptied and refilled.

There was also in this case a peculiar perforation of the aorta, by a dissecting aneurism of the pulmonary artery, which finally burst into the aorta.

Patient (a woman, aet. 29), was in hospital only two days with extreme dyspnoea, anasarca, etc. The patient could not be carefully examined, as she was *in extremis*.

Path. Reports, 21st June, 1883, No. 1002.

II. 99. Acute Pericarditis. (Dr. Jas. Finlayson.)

Both layers of the pericardium present the shaggy and occasionally honey-combed appearance of acute pericarditis, with fibrinous exudation. The sac was filled with a turbid fluid approaching the purulent condition.

The patient was a man aet. 32 years. He had also consolidation of the upper part of the right lung. No history of rheumatism.

Path. Reports, 9th March, 1884, No. 1153.

II. 100. Acute Pericarditis. Globular Vegetation in Right Auricle and Pulmonary Artery. (Sir Wm. T. Gairdner.)

Both surfaces of the pericardium are coated with a yellow fibrinous exudation, which presents the usual honey-combed appearance of acute pericarditis. The heart is much enlarged, and there are four large globular thrombi in the right auricular appendage. There is also a large globular thrombus in the right pulmonary artery. (See II. 19.) This, as well as some of those in the auricle, contained fluid, the solid portion forming a thin rind.

Patient was a man, aged 55, whose symptoms began with ascites, followed by oedema, and other symptoms apparently of renal disease. The kidneys, however, after death presented nothing but hyperaemia.

Path. Reports, 6th June, 1883, No. 994.

II. 101. Acute Pericarditis and Chronic Endocarditis of Mitral, etc. (Sir Wm. T. Gairdner.)

The pericardium was found adherent in this case, but the adhesion was by soft fibrine, which is partly seen in the specimen in the form of irregular deposits and tags. This is the stage of pericarditis after absorption of the serous exudation. The heart is enlarged, weighing 16 oz. The mitral curtains are thickened and so coalesced as to form a funnel, the apex of which merely admits the tip of the finger. Fibrous bands pass from the septum to the opposite wall of the ventricle.

This was a case of old cardiac disease, with hemiplegia of three years' duration, due to destruction of the corpus striatum, probably from embolism. The acute attack of pericarditis and pleurisy concurred with rheumatic pains developed with great intensity in the course of the chronic disease; but the orignal stenosis of the left auriculo-ventricular opening can scarcely be said to have a clinical history, having been discovered solely through the physical signs after the hemiplegia had first attracted attention, and without any very obvious cardiac symptoms. The brain and spinal cord beneath the lesion in the corpus striatum presented typical descending sclerosis. (See *Glasgow Medical Journal*, April, 1879.)

Path. Reports, 13th October, 1877, No. 254.

II. 102. Limited Adhesion of Pericardium. From same case as II. 80. (Sir Wm. T. Gairdner.)

The pericardium is adherent by long vascular connections over an area measuring 8 cm. from above downwards and 4 cm. transversely. The area was in the anterior aspect of left ventricle from the apex upwards. For history and statement as to murmur see No. II. 80. *Path. Reports*, Feb. 23, 1888, No. 1844.

II. 103. Hypertrophy of the Heart. Adherent Pericardium. (Prof. M'Call Anderson.)

The heart is enormously enlarged, weighing 33 oz. The enlargement is nearly uniform. There is disease of the mitral valve, consisting of a coalescence of certain of the chordae tendineae into a thick firm mass, which has become calcareous, but the curtains are not thickened and the orifice is not contracted. The pericardium was completely and very firmly adherent.

There were the usual passive hyperaemia of the liver, kidneys, etc., and collapse of lower lobe of lung from old pleural exudation.

Path. Reports, 15th March, 1880, No. 535.

II. 104. Adhesion of Pericardium. (Dr. Finlayson.)

At the time of examination the pericardium was firmly adherent, but yet could be separated, though with some tearing. The heart is enormously enlarged, weighing 31 ounces. The enlargement is nearly homogeneous, and dilatation predominates over hypertrophy, the walls of the ventricles not being at any one point distinctly thicker than those of the normal heart. There is no definite thickening of the valvular structures. The aortic and pulmonary valves were found competent, but both auriculo-ventricular orifices were much dilated. The mitral admitted seven fingers, and presented slight thickening of its chordae tendineae, and the tricuspid admitted six fingers. The left auricle is much dilated and its endocardium thickened generally, with patches of special thickening and roughness on posterior wall close to the orifice. There was marked fatty degeneration of the muscular fibre of both left and right ventricles, and it was particularly noticed that the external layers were specially affected. There were oedema and hyperaemia of the lungs and lower limbs, and "nutmeg" liver.

The patient was a tall, spare lad 19 years of age. He is stated to have had rheumatism and "inflammation of right lung" four years ago, and a return of rheumatism six months ago. His chief complaint was of palpitation, orthopnoea, slight haemoptysis, and slight oedema of the feet. There was no albuminuria. In addition to the enlargement of the heart there was observed during life a ventricular systolic murmur, with a suspicion of a murmur before the first sound. There was a marked tactile snap and deep-toned second sound over the pulmonary artery. Latterly slight jaundice.

Path. Reports, 20th August, 1875, No. 24.

II. 105. Adhesion of Pericardium with Massive Calcareous Deposition extending to Muscle. Contraction and Calcification of Mitral Valve. (Prof. M'Call Anderson.)

The preparation includes heart and both layers of pericardium, the pericardial sac being obliterated. In the coalesced pericardium

there are massive depositions of lime, so that it was necessary to use the saw in opening the ventricles. These depositions are exhibited over the left ventricle, and it is seen that towards the base of the ventricle there is a marked extension of lobulated calcareous masses to the muscle. They are also present in even a more massive form over the right ventricle, and to a slight extent over the right auricle, lying over the adipose tissue at the base of the heart and thence extending to the auricle. There are marked thickening and contraction of the mitral orifice, and towards the base of the valve a calcareous infiltration.

Mrs. D. (aged 24). As the lesions imply a pericarditis probably of long duration and possibly suppurative, and also an endocarditis at a remote date, the clinical record is examined with a view to acute rheumatism, and the only indication found was that when a child she had an attack of "fever," but could give no definite information about it. The later history was that of cough, shortness of breath, dropsy, and otherwise of cardiac insufficiency having a duration of at least seven years before death.

Path. Reports, 31st August, 1896, No. 4756.

II. 106. Adherent Pericardium with Calcareous Impregnation. Contraction of Conus Arteriosus. (Dr. Dun.)

The pulmonary artery and part of right ventricle and also part of left ventricle have been laid open. In doing so it was necessary to crush through dense calcareous plates which almost covered the anterior aspect of the heart near the base. Spicules of calcareous matter are visible in the section. The pulmonary and aortic valves were normal, but beneath the pulmonary valve a transverse ridge is visible which greatly constricted the conus arteriosus. The right ventricle was markedly hypertrophied. The pericardium was completely adherent.

Alex B. (aet. 42), a gasfitter, had inflammation of lungs with pleurisy, five years before death. General symptoms of cardiac insufficiency developed about a year before death.

Path. Reports, 31st August, 1893, No. 3428.

II. 107. Tubercular Pericarditis with Shaggy Fibrinous Exudation. (Sir Wm. T. Gairdner.)

The pericardium, which was greatly distended, is seen to be covered both on the visceral and parietal surfaces by a shaggy

fibrinous layer, sometimes showing the honey-combed appearance of acute pericarditis. With the naked eye a translucent layer was visible beneath the exudation, and this suggested tuberculosis, which microscopic examination fully confirmed. The pericardium is considerably thickened. There was also a tubercular pleurisy on the left side with great thickening, deposition of a tough fibrine, and exudation of a turbid fluid.

Robert S. (aet. 40) presented the symptoms mainly of acute pleurisy, which began about four months before death.

Path. Reports, 10th October, 1888, No. 1941.

II. 108. Tubercular Pericarditis. Adherent Pericardium. (Sir Wm. T. Gairdner.)

The pericardial sac was completely obliterated, and the adhesions could not be separated. In the piece of heart preserved (the apex portion) a section has been made through the adherent layers of pericardium and wall of heart. The pericardium is seen to be very greatly thickened, and in the section two layers of an opaque yellow material are visible, these being caseated tubercles, one layer belonging to the visceral and the other to the parietal layer of the pericardium. Besides this lesion there was tuberculosis of the mesenteric glands and right lung.

The case was that of a girl aged nine years, who suffered from general dropsy, &c. *Path. Reports*, 20th July, 1878, No. 350.

II. 109. Tubercular Pericarditis with Adhesion and Great Thickening. (Prof. Samson Gemmell.)

The preparation is a slice through the basal parts of the ventricles, and it exhibits a great enlargement of the outline of the heart, the transverse measurement of which reached 15 cm. This enlargement is altogether due to a great thickening of the pericardium, which over the ventricles attained a diameter of 2·5 cm. The thickening is due to tubercular new formation, and on the cut surface it was possible in the fresh state to distinguish generally the portions belonging to the visceral and to the parietal layers respectively. In the newly formed tissue there are considerable caseating masses. The tuberculosis has not affected the muscle, there being an apparently normal layer of subpericardial fat on the surface. There was great adhesion of the thickened and bulky pericardium to the

parts around. There were many enlarged and caseous glands in the mediastinum, some of them cretaceous. There were also a tubercular pleurisy and a traction diverticulum of the œsophagus.

John M. (aged 44), a mason, dated his illness about four months back from the date of his death and ascribed it to "catching cold." The symptoms were chiefly shortness of breath and palpitation with some pain over the region of the heart. There was marked pleural effusion, repeatedly relieved by paracentesis. The pulse throughout presented the characters of the pulsus paradoxus. See also Gemmell, *Glas. Med. Journal*, 1895, p. 81.

Path. Reports, 29th Nov., 1894, No. 3954.

II. 110. Rupture of Aorta into Pericardium. (Sir Wm. T. Gairdner.)

Only the heart and great vessels were sent for examination, but the pericardium was found full of blood. The heart as a whole was enlarged, and there was an excess of external fat, especially over the right ventricle. The fat even penetrated through the muscular wall and presented itself at places beneath the endocardium. Both ventricles were considerably dilated. The aortic curtains are slightly thickened and two of them partially coalesced. The arch of the aorta is considerably dilated and bulges toward the right auricle. On viewing the vessel internally a distinct rent of the internal and middle coats is discovered at the posterior aspect of the arch. The general direction of the rent is from below upwards, beginning 1·5 cm. above the insertion of the curtains, and measuring about 4·5 cm. in length. The course of the rent is rather zig-zag. The internal and middle coats have torn together except at the upper end, where the middle coat has given way for about half an inch beyond the internal. The external coat covers the rent for the most part, forming the sole wall of the vessel, but it is perforated in two places by pinhole orifices, one of them rather larger than the other.

The patient was a man of robust constitution and generally healthy appearance, actively engaged in professional business, but addicted to bouts of intemperance, from one of which he was emerging when he took ill. Symptoms were—severe thoracic pain with collapse nearly proving fatal, but so far recovered from as to allow him to pass two quiet nights. Seen in consultation by Dr. Gairdner on 8th February, thirty-four hours before death, the heart's sounds were without murmur, but rather indistinct. Next day the heart's

sounds improved and so did the general condition, but after another night's sleep he died suddenly on 10th February, 7.30 a.m., with convulsions and coma.

Path. Reports, 12th February, 1877. No. 197. Private case.

[The following extracts from letters written before this patient's death may prove interesting, as showing the uncertainty to the last as regards the diagnosis. Dr. Gairdner's letter on 9th February contains the following: "Pulse a little shaky, without irregularity of rhythm, about 100-120. Heart's sound not abnormal in quality, but the second sound almost absent at many points in the precordial area, and everywhere very feeble. First sound not over distinct. No obvious hypertrophy or dilatation (the examination, however, had to be very rapid). The lung sounds good, liver a little large, . . . Of course it would be premature to speak of prognosis. It may be either a fatty heart with angina, or just possibly an aneurism which has been diffusing itself without absolutely hæmorrhagic rupture. (Both conditions were, in fact, present.) On the latter view, or indeed as a precautionary measure in either case, we agreed to give iodide of potassium in 20 gr. doses as an experiment to-day."

Dr. Macfarlane's letter, written to Dr. Gairdner on 10th February and announcing the patient's sudden death as above, furnishes the following additional facts: On 9th February at 11 a.m. (after a fairly quiet and refreshing sleep) pulse 88, compressible, but regular. Heart's sounds muffled. 2 p.m., no change. 5 p.m., pulse 80, feels stronger. 8 p.m., pulse 80, and regular. 10th February, 12.30 a.m., has slept since 10 p.m., says he is "getting on all right now." Pulse 80, regular and fairly strong. Heart's sounds clearer and more distinct, though feeble. This condition continued (so far as known) up to the convulsive attack at 7.30 a.m., when he was found "cold and pulseless, his heart beating only at intervals, cold perspiration over his body" (in fact, moribund). Dr. Macfarlane adds: "My feeling yesterday was against the idea of aneurism after repeated examinations, and in fact I gave the iodide with fear, in case it should lead to the formation of any clot. . . . I am still inclined to think it may be a thrombus. It has been a most anxious case. The seizure was not like angina pectoris, even depending on fatty degeneration."]

II. 111. Atheroma of Aorta with Calcareous Infiltration.

The patches are numerous, and the calcareous plates are often bare.

Path. Reports, 13th August, 1879, No. 462.

II. 112. Atheroma of Aorta with Calcareous Plates and occasional Thrombosis.

Path. Reports, 13th August, 1879, No. 462.

II. 113. Atheroma of Aorta with Calcareous Plates. (Sir Wm. T. Gairdner.)

The portion of the aorta preserved is continuously affected, its internal coat presenting generally a somewhat cicatricial appearance, except where calcareous plates are present. These are very numerous, and some are still covered with internal coat while others are partially free. The former present flat surfaces of a yellowish colour, the latter project as semi-transparent plates with irregular margins. In this case one of the coronary arteries was obstructed. There was considerable dilatation and hypertrophy of the heart (which weighed 20 oz.), but without definite valvular disease.

During life there were the general symptoms of heart disease, chiefly dropsy and dyspnœa, with large pleural effusion, but without any cardiac murmur.

Path. Reports, 22nd November, 1882, No. 875.

II. 114. Atheroma of Aorta with Calcareous Plates. (Sir Wm. T. Gairdner.)

The specimen is a portion of the aorta immediately above the valve. It has been dried and mounted in turpentine. There was almost continuous atheroma with occasional infiltration of the patches. In the dried specimen the calcareous patches are brought out as dried white opaque areas. There was also calcareous infiltration of the middle coat of some of the larger arteries.

Path. Reports, 12th January, 1887, No. 1657.

II. 115. Atheromatous Ulcer of Aorta.

There is an elongated gap in the aorta, communicating with a cavity behind of considerable area, the internal layers of the aortic wall being undermined considerably. *Path. Reports*, No. 858.

II. 116. Atheroma of Aorta with Thrombosis. (Dr. Tennent.)

A portion of the thoracic aorta is preserved and it is seen to be highly atheromatous, with frequent calcareous plates, and

occasional atheromatous thrombi, partly white and partly red, are adherent to the surface. Atheroma existed throughout the aorta, and the smaller arteries were rigid and calcareous. The coronary arteries were highly atheromatous, and there was considerable fibrous transformation of the muscular substance of the heart. An embolic infarction existed in the left kidney.

The case was that of a man who suffered from symptoms of heart disease with angina pectoris, etc.

Path. Reports, 25th May, 1885, No. 1371.

II. 117. Atheroma and Dilatation of Aortic Arch; Incompetence of Valve. (Dr. Jas. Finlayson.)

The first part of the arch is highly atheromatous with frequent calcareous plates. It is distinctly dilated, measuring 10 cm. in internal circumference. There is even something of a pouching, especially opposite the curtains of the valve. Two of these curtains are normal, while the third is somewhat thickened and contracted as if by extension of the atheroma. The valve was found incompetent on testing. There was considerable enlargement of the left ventricle.

The patient was a man, aged 50, who had suffered for three years from attacks of dyspnœa and angina. There was no history of rheumatism or of syphilis. There were murmurs of aortic obstruction and regurgitation. Considerable benefit was obtained from large doses of iodide of potassium.

Path. Reports, 18th January, 1882, No. 760.

II. 118. Dilatation of the Aorta, with Calcareous Infiltration. Aneurism; Erosion of Vertebrae. (Dr. Jas. Finlayson.)

The arch of the aorta and the thoracic portion are markedly dilated, there being a narrower part just beyond the giving off of the great vessels. The dilatation of the arch is general, with no definite pouching, while in the thoracic aorta there are, besides the dilatation, one or two pouches, and, in the case of one of these, the greater part of the wall is absent. This part had impinged against the vertebrae, whose bodies were eroded, and it was found necessary to dissect off the aneurism from the surface of the bone. The aorta is atheromatous

throughout, and there are numerous calcareous plates, sometimes presenting angles internally. The heart was very greatly enlarged, weighing about 27 oz., and the hypertrophy was mainly of the left ventricle.

The patient was a man aged 54, a sailor. There was a history of rheumatic fever thirty years before death, and for some time back cardiac symptoms existed. He sustained an injury to the chest two and a half months before death, and dyspnœa increased from that time up till death.

Path. Reports, 31st January, 1881, No. 621.

II. 119. Dilatation of Aortic Arch or Fusiform Aneurism, with Calcareous Infiltration. Incompetence of Valve. (Sir Wm. T. Gairdner.)

The first part of the aortic arch shows great dilatation, reaching a diameter of 10 cm. The dilatation is about half within the pericardium and half without. It has taken place chiefly to the right and anteriorly, and in these parts the wall has a thin parchment-like character. The dilatation starts immediately above the insertions of the aortic curtains, their ring being retained and the valve, as tested with water, perfectly competent. The dilatation is bounded above by a ridge visible on the posterior wall and situated about an inch proximal to the greatest concavity of the arch. Beyond this ridge the vessel is still dilated, its diameter measuring 5 cm. The dilatation includes the origins of the great vessels, and the innominate takes part in it. A ridge 2 cm. beyond the left subclavian marks the resumption of the normal calibre. The dilated arch shows great calcareous infiltration, sometimes in plates as much as 2 cm. in diameter; and beyond the dilatation the aorta, as far as the bifurcation, presents frequent nodular patches, often with calcareous infiltration. In addition, there are hypertrophy and dilatation of heart, with thrombosis in right auricle, and hæmorrhagic infarctions in lungs.

Wm. H. (aet. 47), seaman, suffered from anginous pain over heart, and from general cardiac symptoms. There was a V.S. murmur at apex and V.S. and V.D. at base. Latterly much spitting of blood occurred, supposed to be from impending rupture of aneurism, but really from the infarctions.

Path. Reports, 7th January, 1891, No. 2551.

II. 120. Commencing Aneurism of Aorta immediately above Valve. Atheroma. (Prof. Gemmell.)

Immediately above the left cusp of the aortic valve there is a small aneurism just sufficient to admit the tip of the little finger. This projected directly against the first part of the pulmonary artery, where there was a bulging visible in a situation corresponding with the sinus of one of the pulmonary cusps. The aortic curtain to which this aneurism is related is defective at the edge just below the aneurism. Its border is thickened and shortened so that it does not meet the proximate border of the neighbouring curtain, and there is an aperture in the curtain just below its edge. The valve was found incompetent. The aortic arch presents numerous patches of atheroma, and in several places there were depressions or the beginnings of aneurisms. Two of these exist in the upper part of the preparation.

Helen G. (aged 53), presented an obscure history of a rheumatic attack twenty years before death and soon after an illness termed "blood poisoning," which was probably syphilitic. The cardiac symptoms had existed for over twelve years, but were aggravated during the last five. *Path. Reports*, 17th Feb., 1893, No. 3265.

II. 121. Aneurism of Aorta in connection with Valvular Lesion, Rupture into Pericardium. (Dr. Jas. Finlayson.)

The aneurism is a small one, elongated laterally so as to measure 5 cm. It projects into the right auricle to the extent of 3·5 and into the pericardium between auricle and aorta to the extent of 1·5 cm. There is a small aperture at the extremity of the pericardial portion by which a fatal hæmorrhage occurred into the pericardium. The aperture of the aneurism is an exceedingly small one; it is related to a marked lesion of the aortic valve. The whole aortic curtains are thickened and shortened and their proximal margins coalesced. The coalescence of the right and anterior curtains is considerably disorganised, and fibrine is adherent to the affected portion. At the posterior limit the aperture, only sufficient to admit a small probe, is found. There is also chronic thickening and stenosis of the mitral valve. There were embolic infarctions in spleen and kidney.

Mary B. (aged 40) complained of cough and pain on the left side, stated to have come on suddenly about three weeks before death.

The first sound was accompanied by a loud blowing murmur. The patient seemed well, when suddenly the nurse heard a sound of gurgling and immediately found the patient dead.

Path Reports, 9th March, 1894, No. 3616.

II. 122. Aneurism of Aorta Perforating Pericardium. (Dr. Jas. Finlayson.)

The aneurism, which is of large dimensions, is situated behind the transverse portion of the arch, with which it communicates by a large rounded aperture 4·5 cm. in diameter on the upper and posterior wall of the transverse portion of the arch. The bulk of the aneurism being situated behind the arch, it must have pressed somewhat on the trachea and œsophagus, which have been laid open in the preparation. Passing down behind the arch, the lower extremity of the aneurism has projected into the pericardium, and at this point the wall is exceedingly thin, and a small ragged aperture, through which a piece of whalebone has been passed, forms a communication between the aneurism and the pericardium. The pericardium contained a bulky clot, which surrounded the heart, and was found to weigh 10 oz.

The patient was a painter aged 39, who suffered from bronchitis, latterly with attacks of so-called asthma, which had the characters, however, of laryngeal spasm. There was dulness on percussion at the upper part of the sternum, and the sounds of the heart were quite free of any murmur; they were heard very distinctly over the area of aneurismal impulse. For one day there was dysphagia. Death occurred during a fit of coughing.

Path. Reports, 31st December, 1882, No. 905.

II. 123. Aneurism of Aorta Perforating Pericardium. (Dr. Christie.)

The aneurism has a very large aperture in the posterior and right wall of the aorta, its lower edge being about 2·5 cm. above the valve and the aperture having a diameter of 4·5 cm. The aneurism is situated chiefly behind the arch. Near its anterior part there is a rounded aperture in the aneurism about 1·25 cm. in diameter which communicates with a large cavity in the pericardium, but which is separated somewhat from this cavity by a bulging diaphragm formed

of blood clot. The cavity in the pericardium is to the right of the heart, and measures 7·5 cm. from above downwards and 4 cm. from side to side. The cavity apparently represents a portion of the sac of the pericardium, which is everywhere else obliterated by adhesion. The cavity was found filled with brown juice and partly disintegrated clot.

J. S. (aet. 49), engine-keeper, had been subject to acute bronchitis, and nothing suggesting aneurism was observed, death being due apparently to acute bronchitis, accompanied by great dyspnoea.

Path. Reports, 2nd February, 1886, No. 1480.

II. 124. Aneurism of Aorta Projecting into Pericardium and Pulmonary Artery. (Sir Wm. T. Gairdner.)

The aneurism arises immediately above the valve, two adjacent cusps being inserted into its ring. The aperture, which is round, measures 3·5 cm., and is situated on the right and anterior wall of the vessel. The aneurism projects against the pulmonary artery and separates the artery to a large extent from the aorta. The sac is a somewhat bulky one, measuring 7 cm. across. It is divided internally into three compartments, one bulging into the pulmonary artery and one passing to either side. The pulmonary artery has been laid open, and it shows a rounded swelling 3 cm. in diameter, and with a projection of 2 cm., almost filling up the calibre of the artery. The swelling is so situated that its lower part corresponds with the valve, two cusps of which are adherent by their extremities to the sac whilst the remaining one is lost on its surface beneath; and to the right of this swelling there is another 4 cm. in diameter, which projects partly into the conus arteriosus of the pulmonary artery, and partly into the pericardium between pulmonary artery and aorta behind the wall of the ventricle, almost crossing the middle of its summit. A third sac lies immediately to the left of the pulmonary artery, and is slightly higher than the others. It has a diameter of about 2 cm.

There was in this case another aneurism near the summit of the arch. It had an orifice about 4 cm. in diameter. There was marked dilatation of the right ventricle, and the tricuspid orifice admitted 6 or 7 fingers. The muscular tissue of this ventricle was markedly fatty, especially where the aneurism projected into it.

John M. (aged 41), a sailor, was admitted complaining of breathlessness on the least exertion. The cardiac dulness was enlarged in

all directions and there were V.S. and V.D. murmurs, heard best over the base and pulmonic area. He latterly developed orthopnoea, cyanosis, and great anxiety of expression, with a jaundice-like pigmentation of the skin.

Path. Reports, 13th July, 1892, No. 3062.

II. 125. Small Aneurism of Aorta Projecting into the Infundibulum of the Right Ventricle—Chronic Aortic Endocarditis, with Partial Destruction of the Cusps of the Valve. (Sir Wm. T. Gairdner.)

As shown in the specimen, there is a well-marked lesion of the aortic valve. There is thickening and shortening of all the cusps, particularly of the two posterior ones. These last are in large part calcified, especially towards their free margins.

About 4 mm. below the junction of the anterior and the left posterior cusps, and bounded superiorly by the thickened adjacent portions of these, is a somewhat triangular aperture, measuring 8 mm. vertically by 5 mm. in maximum transverse extent. The edges of the aperture are exceedingly firm and resistant, in part smooth and rounded, in part, however, overlaid by calcareous masses which, by their projection beyond the rounded edge, tend to lessen the diameter of the aperture. This triangular aperture communicates with a well-defined, more or less rounded aneurismal sac, measuring 2 cm. in greatest vertical extent by 1·5 cm. in other directions. The main projection of the sac is forwards and to the right, into the infundibulum or conus arteriosus of the right ventricle. The ventricular wall is projected in the form of a smooth rounded swelling into the cavity of the ventricle to the extent of 1 cm. The point of maximum projection corresponds with a point 1·3 cm. below the junction of the posterior and right anterior cusps of the pulmonary valve.

Microscopically examined, the wall proper of the aneurism consists essentially of fibrous tissue, in which considerable collections of granules of brownish-yellow pigment are found. In the immediate vicinity of the neck of the sac muscular tissue is recognised. There is very marked flattening and thinning of the muscle of the right ventricle at the point of maximum projection.

The aneurismal protrusion has not apparently interfered with the closure of the pulmonary valve. It may, however, have interfered with the passage of blood through that vessel. The almost entire

absence of atheroma in any part of the aorta and in its branches was specially commented on at the post-mortem examination. The origin of the aneurism is probably to be referred mainly to an involvement by the chronic inflammatory process of a portion of the aortic wall near the point of junction of the anterior and left posterior cusps, and a subsequent, probably sudden, giving way of the wall at this point.

The heart was greatly enlarged, weighing 630 grammes, or twice its normal weight, the enlargement resulting from hypertrophy and dilatation affecting both sides almost equally. The aortic valve was incompetent. The mitral and tricuspid orifices were considerably dilated, and there was corresponding dilatation of the auricular cavities, associated in the case of the right appendix with thrombosis.

The patient was a man (aet. 26), and the disease, as far as the onset of the existing symptoms were concerned, arose from a strain. Eight weeks before admission, while at work, he strained himself in the back; and this was followed immediately by an uncomfortable beating of the heart. No history of rheumatism or syphilis, no constitutional predisposition, could be ascertained. Tendency to attacks of angina, aggravated by exertion and by alcohol; slight oedema. Tachycardia most marked; pulse remained hyperdicrotic all through illness, and was thought to be slightly different on the two sides, though not positively so. There was great difficulty in defining the murmurs, these being rather more to the left and lower down than the usual aortic murmurs. Urine contained slight amount of albumen. Temperature normal.

Professor Gairdner in commenting on the case said that the specimen belonged to a class of case not very uncommon but usually obscure. The aneurism was of small size, and implicated the heart by engaging the aortic valve. The physical signs were those mainly of the valve disease. There was, however, a well-defined suspicion of aneurism, embodied in the clinical abstract used for lecture purposes, and stated in advance at the post-mortem. This suspicion arose from certain clinical peculiarities of detail: (*a*) Anomalies of murmur and sound; (*b*) suspected abnormal dulness at base, doubtful, however, and even contradicted in a second report; (*c*) marked tachycardia in excess of what is to be expected in a lesion of aortic valve. The incompetency of the valve explained the double murmur, but there was this something in the case which vaguely suggested more. *Path. Reports*, 19th October, 1897, No. 5192.

II. 126. Aneurism of the Aorta Projecting into and Perforating Pulmonary Artery. (Dr. D. C. M'Vail.)

Just above the insertion of the aortic cusps there is an aneurism about the size of a large chestnut, with an orifice nearly circular in shape and about 2·5 cm. in diameter. The aneurism projects directly against, and pushes before it the first part of the pulmonary artery, which is rendered convex by it. The aneurism communicates with the pulmonary artery near its lower part by an oval aperture, 1 cm. in diameter, and with rounded margin. The edge of the posterior semilunar curtain of the pulmonary artery crosses this orifice at its middle.

The patient was a blacksmith, aged 42, and was admitted 30th August, 1876, complaining of cough, shortness of breath, swelling of the abdomen and legs, of four months' duration.

Family history is satisfactory.

Personal history: Twenty-six years ago patient had an attack of rheumatic fever of an acute character. Previous to that period his health was very good.

His *present illness* began four months ago. He attributes it to exposure to cold and damp in the workshop in which he was engaged. The swelling came on gradually and with it the cough and shortness of breath of which he complains. Another symptom marked at the beginning and still present, though less severe, is a pain extending from the left hypochondrium to the epigastrium. Patient's appetite is good; his bowels are regular. He describes himself as having been temperate in his habits.

Heart: Apex beat is diffused, and its exact locality cannot be determined. It appears to be situated about an inch and a half below the nipple, and an inch to its left. Following the first sound of the heart is a loud, blowing murmur, heard in its greatest intensity at the apex.

9*th September*: Dr. M'Vail made the following note.—"Over the surface of right ventricle the second sound is completely merged into a soft blowing murmur, this murmur shading away towards the margin of the heart, being only doubtfully present with the second sound at the second left cartilage, and quite distinctly absent from it at the second right cartilage.

This sound is most distinctly audible midway between the left nipple and the sternum."

18*th September*: To-day on examination of the heart the murmur

accompanying the first sound is found to be less distinctly marked, whilst occasionally the first sound itself has a more accentuated character. Patient is weak. The dropsy does not appear to be materially lessening.

Patient died 22nd Sept., 1876.

Path. Reports, 23rd Sept., 1876, No. 136.

II. 127. Aneurism of the Aorta Projecting into and Perforating Pulmonary Artery. (Sir Wm. T. Gairdner.)

An aneurism, as large as the fist, occupies the base of the heart, originating, by an aperture large enough to admit two fingers, just above the aortic valve. The aneurism is insinuated forward, pushing aside and pressing on the pulmonary artery on the one hand, and the left auricle and auricular appendage on the other. The pulmonary artery is stretched over the aneurism, being much flattened thereby, and its posterior wall markedly thinned. In this posterior wall there is an oval aperture with rounded margins, about 1 cm. in length, and about 2·5 cm. above the pulmonary valve. It forms a communication between the aneurism and the pulmonary artery. There was no stratified clot in the aneurism, the aortic valve was nearly, if not quite, competent, and there was no thickening of the curtains. The heart was much enlarged, weighing 23½ oz.

The case, which was that of a labourer (aged 31), was characterised by great angina pectoris and dyspnœa, with lividity, lasting more than a year, and without any history of rheumatism. The aorta was found to be dilated: V.S. and V.D. murmurs heard very distinctly at first, were interpreted as being aortic in origin, but in the progress of the case became very soft, and almost or quite suppressed, giving way to V.S. murmur, regarded as mitral or tricuspid. Great hypertrophy and dilatation of both ventricles, with venous pulse, became apparent in the course of observation. The liver also became enlarged; the urine scanty, of high sp. gr., and albuminous. The pulse was one of low tension, almost hyperdicrotous, with an occasional irregularity, but not complete intermission; the low arterial tension increased as the case proceeded. Anasarca became extreme, with pervigilium and orthopnœa. Death was at the last sudden, but only after a very lengthened agony. For details see Journal of Ward I (K. p. 11).

Path. Reports, 23rd January, 1878, No. 290.

II. 128. Aneurism of the Aorta Adherent to Heart and Projecting into Right Ventricle. (Sir Wm. T. Gairdner.)

The aneurism is a very bulky one, and is so situated at the base of the heart as to form with the heart a single structure, the two being completely incorporated. The pericardium, while slightly adherent over the whole heart, is firmly adherent to the aneurism, and, in fact, loses itself in the wall of the aneurism, which technically is altogether intrapericardial. The aneurism arises by a very large aperture from the ascending aorta, which is also dilated, and it comes off so immediately above the valve that the right semilunar curtain has no aortic wall above it, the edge of the curtain forming a part of the orifice of the aneurism. The sac of the aneurism lies entirely to the right of the aorta, and is projected between the pulmonary artery on the one hand, and the right auricle with the venæ cavæ on the other. On looking into the right ventricle whose anterior wall has been removed, the aneurism is seen to bulge into its upper part, pushing down the conus arteriosus, and pressing backwards the tricuspid orifice. The sac of the aneurism measures 10 to 13 cm. in diameter.

The patient was a man (aet. 38) in whom an aneurism had been detected more than four years before death. He was a railway porter, and was able, with certain precautions, to pursue his occupation in the intervals of hospital treatment. Angina pectoris was well marked, with palpitation and sleeplessness, relieved by hydrate of chloral. Iodide of potassium was given in large doses with apparently good results. See Journals of Ward I, A, p. 100, and L, p. 21, for numerous and interesting details. There was a ventricular-diastolic murmur, as of aortic incompetency. Dulness on percussion, with heaving pulsation, and a shock which went along with the 2nd sound of the heart, corresponded with the situation of the aneurism.

Path. Reports, 11th March, 1878, No. 308.

II. 129. Aneurism of Aorta Causing Thrombosis of Superior Cava, Jugulars, etc. (Sir Wm. T. Gairdner.)

The large sac, which measures 14 cm. transversely, consists mainly of a dilatation of the first part of the aorta. It extends specially to the right, where there is a more sacculated portion, lined with dense coagulum. The large vessels come off freely from the summit of the sac. The sup. cava was here pressed on by the aneurism and near

its upper extremity it is completely occluded by a smooth pale plug, which looks like a part of the wall of the vessel. The right jugular vein is distended with thrombus and in its upper part greatly dilated, so that its diameter is nearly an inch. The left jugular is occluded but not dilated. Thrombi were also present in both the brachial veins.

Samuel Wick (aged 56), a bricklayer, was affected with mediastinal tumour causing pressure on right bronchus, symptoms being of about three months' duration and consisting chiefly of dyspnœa and cyanosis. There was great œdema with induration of the right upper thorax and right side of neck and arm. No aneurismal murmur was heard and the case was regarded rather as one of malignant tumour. *Path. Reports*, 30th November, 1888, No. 1985.

II. 130. Aneurism of Aorta Perforating Superior Cava.

(Sir Wm. T. Gairdner.)

The parts are viewed from behind. There is an aneurism occupying the transverse arch of the aorta, but with two secondary sacculated dilatations at the left and right extremities of the transverse arch. The former of these projects backwards and the latter forwards. The latter impinges against the superior cava, producing a marked convexity of it. On the summit of this convexity and about 4·5 cm. beneath the origin of the innominate veins, there is an oval aperture ·75 cm. in diameter which forms a communication between aneurism and vein. The wall of the aorta is very atheromatous.

D. W. (aged 44), a labourer, had symptoms of pulsation, referred to right sterno-clavicular region and neighbourhood, of two years' standing. On January 9th, 1888, he detected a swelling of face and right arm, probably with some anasarca of upper part of body. The swelling was preceded by a feeling as if something had given way on left side (rather to left of cardiac apex). This feeling was not a pain, but attended by faintness and cold sweat. On admission on January 13th there was swelling of face, neck, and upper part of trunk, and considerable development of veins all over the front. Marked lividity of face and head. Loud V.S. and V.D. murmur all over front, but mainly distributed like an aortic double murmur. Abnormal area of dulness over whole manubrial region and for some distance on either side. Died January 21st.

Path. Reports, January 24th, 1888, No. 1816. Reported in detail in *Lancet*, 22nd June, 1889, p. 1233.

II. 131. Aneurism of Aorta Bulging into Right Auricle and Superior Cava. (Dr. Finlayson.)

The aneurism is not definitely sacculated, but forms a one-sided dilatation immediately above the valve, projecting chiefly between the pulmonary artery and the right auricle. It shows two rounded bulgings, the larger protruding against the right auricle, which it bulges inwards, the smaller projecting against the superior cava, which it also bulges inwards. The aortic curtains are slightly thickened, and the valve was found to be scarcely competent; there was marked hypertrophy and dilation, especially of the right ventricle.

J. P. (aet. 41), a seaman, but latterly a quay-labourer, traced his illness to a blow over the upper part of the sternum, about six months before death, which was followed in three days by cough and bloody sputum. During his residence in hospital the symptoms were mainly cardiac, but the pulse was noted as typically "water hammer," and there was marked capillary pulse.

Path. Reports, 16th November, 1885, No. 1440.

II. 132. Aneurism of Aorta Immediately above Valve, Projecting into Right Auricle and Ventricle; Adherent Pericardium. (Sir Wm. T. Gairdner.)

The aneurism consists of two large portions, one forming an expansion of the posterior, and the other of the right wall of the aorta. A semilunar curtain forms part of the border of the orifice of each. The larger one, which is partly occupied by coagulum, has passed to the right, and has pushed against the right auricle and ventricle. The former is pushed backwards, and the aneurism projects downwards into the ventricle. In addition to the coagula visible in the sac, there were also softened clots.

The diagnosis in this case was exceedingly interesting and complicated, but cannot be adequately indicated in a brief summary. (See Journal of Ward 1 D, p. 111.) The symptoms and physical diagnosis were considered to point to a tumour of some kind in the anterior mediastinum, closely approximating to the base and right side of the heart, but without any evidence to show the exact pathological relation of the supposed tumour to the great vessels. Orthopnœa existed on admission; afterwards dropsy, and dulness on percussion progressively increasing on the right side of the chest.

No laryngeal symptoms and no dysphagia. Dull percussion area at upper sternum and to right of heart; sounds muffled over this, almost normal in apex region. The history was obscure: symptoms extremely chronic. Death at last took place from increasing dyspnœa, without any evidence of direct pressure on the air-passages.

Path. Reports, 15th December, 1875, No. 50.

II. 133. Aneurism of Aorta Perforating into Left Auricle.
(Sir Wm. T. Gairdner.)

In the preparation two aneurisms are visible, a larger and a smaller, both having their seats immediately above the aortic valve. The smaller forms a shallow sac just behind the right segment of the valve. The larger is much more definitely sacculated and its aperture is in the posterior wall of the aorta, just behind the posterior segment. This opening is nearly 2·5 cm. in diameter and its edges are rounded. The pouch of the aneurism forms a nearly globular tumour which projects against the left auricle. On examining the left auricle (a flap of which is stitched down in the preparation) the aneurism is seen to form a somewhat pyramidal projection, at the apex of which there is an oval aperture about a quarter of an inch in diameter and with rounded, somewhat prominent margins. Just beside this aperture there is a smaller one which also has distinctly prominent margins.

Besides these aneurisms, there were two other partial ones in the aorta, one partly preserved just above the principal sac, and another on the posterior wall of the aorta just at the level of the giving-off of the great vessels. The internal coat of the aorta had an almost continuous cicatricial appearance and presented frequent longitudinal folds. There were thrombosis of the innominate vein, globular thrombi in the heart, and hæmorrhagic infarction of the lungs. The valves were normal, but the heart was hypertrophied, weighing 16 oz.

The case was that of a woman aged 38, who complained of the general symptoms of heart disease, of a very severe character, the duration of the more severe symptoms being about thirteen weeks. For about four weeks before death the expectoration was persistently hæmorrhagic. There were the physical signs of cardiac hypertrophy, with V.S. and V.D. murmurs heard most distinctly at lower end of sternum, also at pulmonic and aortic cartilages, and, though less distinctly, at apex. The V.S. murmur was conveyed into the neck.

Path. Reports, 17th February, 1882, No. 776.

II. 134. Aneurism of Aorta with Pressure on Recurrent Laryngeal Nerve. (Sir Wm. T. Gairdner.)

The aneurism was situated above the arch, and the aperture is so large that the aneurism may almost be described as a dilatation upwards of the arch. It is of a nearly globular form. The heart was not abnormal. The great vessels proceed from the wall of the aneurism, and their apertures are almost overlaid by clot. The left carotid is extremely narrowed, and the left subclavian entirely obliterated for about an inch from its aperture. The recurrent nerve is stretched over the aneurism and flattened against its posterior wall, whilst the trachea is bulged backwards and its left and anterior aspects are rendered convex. The aorta is highly atheromatous.

During life the patient, a man aged 49, was affected with laryngeal symptoms (not at all of an urgent kind when first observed), and suppression of left radial pulse with feebleness of right. After treatment for several months, with apparent relief, by iodide of potassium, a considerable enlargement of the tumour was detected, and signs of permanent pressure on the trachea became apparent, which led in the end to a fatal result. This preparation considerably resembles II. 135.

Path. Reports, 9th February, 1876, No. 66.

II. 135. Aneurism of the Aorta Involving the Recurrent Laryngeal Nerve and Pressing on Trachea. (Dr. Joseph Coats.)

The aneurism is nearly globular in shape, with an average diameter of 4 to 5 cm., and is situated behind the great vessels and above the transverse arch, with which it communicates. The left recurrent nerve is found adherent to, and partly embedded in, the aneurism, being considerably attenuated and spread out on the surface of the sac. The aneurism is also adherent to the trachea, and bulges considerably into its lower part.

The patient (aged 53), a carpenter, was affected with urgent laryngeal obstruction, for which tracheotomy was performed, but without obvious relief.

Path. Reports, 29th September, 1875, No. 29.

II. 136. Large Aneurism of Aorta, Stretching Recurrent Laryngeal Nerve, Bulging into Trachea, and Obstructing Carotid. (Dr. Finlayson.)

A bulky aneurism which lies above and behind the aortic arch, from which it arises, by an aperture 7·5 cm. in diameter, immediately behind the orifices of the great vessels. The transverse diameter of the aneurism is 11 cm., and that from above downwards 1·5 cm. The upper border is rounded and reaches nearly up to the lower end of the thyroid gland. The left recurrent nerve is traced round the aorta on to the posterior wall of the aneurism, where for a space of about 7 cm. it is lost. It emerges again near the summit, but is here distinctly thinner. The right recurrent, although at its commencement in contact with the aneurism, is scarcely interfered with. The aneurism is in close contact with the trachea for at least 8 cm. and here the left wall of the trachea is markedly bulged inwards and flattened, so as to form an angle with the right wall. (In the preparation it looks as if the posterior wall of trachea had been removed, but it is not so, the parts being merely fixed in a gaping position.) The orifices of the great vessels are immediately in front of the aneurismal aperture. The orifice of the innominate is flattened and slit-like, that of the subclavian is narrowed, while no trace of the orifice of the left carotid is discoverable. This vessel itself is filled with a firm adherent core of connective tissue (organised thrombus).

Wm. B. (aged 36), a sawyer, was well till three years before death, when he got a cold, with sore throat and hoarseness. The hoarseness remained, and in nine months dyspnœa compelled him to give up work. Shortly afterwards, *i.e.* about two years before death, he was treated in the Royal Infirmary, and paralysis of left cord, caused by an aneurism, was diagnosed by Dr. Newman. During residence in the Western Infirmary, the various signs of aneurism were distinguished. He had attacks of orthopnœa, the last of which was followed by unconsciousness and death.

Path. Reports, 29th January, 1892, No. 2879.

II. 137. Aneurism of Aorta Involving Recurrent Laryngeal Nerve and Bursting into Trachea. (Prof. M'Call Anderson.)

The aneurism, which is of a somewhat rounded shape, and 5 cm. in diameter, is situated immediately between the arch of

aorta and trachea. Its aperture is on the posterior wall of aorta, at a point corresponding with the space between the left carotid and the left subclavian, the aperture being just large enough to admit the tip of index finger. The trachea has been laid open, and shows internally a rounded bulging of its anterior and left wall, the bulging having a longitudinal extension of about 4 cm. In the midst of this there is a ragged aperture, in which can be seen the exposed and ruptured cartilage of one of the rings—this aperture is large enough to admit the tip of the index finger. There are two other small apertures. On endeavouring to trace the recurrent laryngeal nerve, it is found to lose itself on the posterior wall of the aneurism, emerging from it at its upper extremity, where it is shown in the preparation. Death occurred from hæmorrhage. The bronchial tubes were filled with dark red frothy material, and the lungs were highly infiltrated with blood, in some parts being almost solidified. The patient was a seaman, aged 49.

Path. Reports, 20th November, 1882, No. 873.

II. 138. Aneurism of Aortic Arch Perforating into Trachea.

(Sir Wm. T. Gairdner.)

The aneurism arises by a nearly round aperture measuring 1·5 cm. and situated almost immediately behind the left carotid artery. This opens into a nearly globular sac, which impinges directly upon the trachea, bulging more especially against its left side. Between aorta and great vessels on the one side, and trachea on the other, there is a rounded swelling chiefly visible on the left. The trachea has been laid open and caused to gape, and a prominent bulging is shown, on the summit of which are two slit-like apertures 5 and 7 mm. in length, corresponding with neighbouring interspaces between cartilages. The lower is 3 mm. from the bifurcation. The aorta is distinctly but not greatly dilated, measuring circumferentially above the valve 10 cm. The innominate artery is even more dilated. The valvular cusps are distinctly thickened, more especially the posterior ones, and their insertions into the aortic wall are slightly apart, so that a space of nearly 5 mm. exists between the respective insertions. Tested by water, the valve was found incompetent, but not highly so. The aorta is highly atheromatous. There was hypertrophy of the left ventricle, the whole heart weighing 530 grms.

Thos. W. (aged 53), a riveter, had to give up work about four months before death owing to dyspnœa, symptoms of which had existed for at least eight months. There were dulness over the manubrium and pain referred to lower sternum. There was evident obstruction to the breathing, but the movements of the glottis were perfect. Systolic and diastolic murmurs of aortic distribution were audible, and there was a history of rheumatic fever long before, this having been apparently well recovered from; 3 or 4 oz. of arterial blood were coughed up 5½ hours before death.

Path. Reports, 23rd November, 1895, No. 4393.

II. 139. Small Aneurism of Aorta Bursting into Trachea. (Dr. Finlayson.)

The aneurism arises from the posterior wall of the aortic arch immediately behind the left carotid and subclavian arteries, the margin of the orifice being about 1 cm. from the origin of these vessels. The aperture is oval in shape, and measures 1·5 cm. The sac is in the form of a flattened sphere, measuring 4 cm. transversely, lying immediately between aorta and trachea. It bulges in the tracheal wall anteriorly, but the bulging is more on the left than on the right side. On the summit of the bulging there are two interspaces between the tracheal rings, which are somewhat protruding, and beneath these two there is a third in which there is a distinct aperture. This is near the lower border of the bulging, and points downwards towards the right bronchus. The aortic wall in the neighbourhood of the aneurism presents a somewhat cicatricial appearance with slightly elevated atheromatous patches. The heart was normal. There was slight atheroma of the first part of aorta.

Heinrich V. (aged 39), a seaman, complained of cough with expectoration of six months' duration. He had three or four attacks of what he called "asthma," after one of which, about two months before death, he coughed up about half-a-pint of pure bright red blood. During residence in hospital his sputum, which was generally purulent, contained streaks and afterwards small clots of blood. There was a sudden hæmorrhage and death followed, evidently by obstruction to the respiratory passages.

Path. Reports, 4th January, 1894, No. 3542.

II. 140. Aneurism of Aorta Pressing on Trachea; Rupture into Trachea. (Sir Wm. T. Gairdner and Prof. Joseph Coats.)

The aneurism, which is about the size of a small apple, springs from the summit of the arch by an oval aperture measuring $3 \times 2{\cdot}5$ cm. The aperture corresponds with the origins of the innominate and left carotid arteries, the former being carried somewhat into the sac so that its mouth is really inside the aneurism. The nearly globular sac passes upwards and backwards from the arch, and forms a bulky mass between the great vessels in front and the trachea behind. It presses against the trachea to which it is adherent, bulging in its anterior wall, especially on the left. Just at the edge of the cartilaginous rings on the left side there is an oval aperture which is in the soft posterior wall of the trachea, and measures about 1 cm. from above downwards. This aperture communicates directly with the interior of the aneurism. The great vessels, especially the innominate, are somewhat flattened over the anterior surface of the aneurism. The left recurrent nerve passes over the surface of the aneurism, but is not adherent and not atrophied. The right nerve, although close to, hardly touches the sac.

Death took place from hæmorrhage into the trachea, and blood was found abundantly in all the air-passages, while the lungs were bulky with blood insufflated into the air-vesicles, especially in the lower lobe.

The patient, an ironmoulder (aged 36), came to the Dispensary complaining of his throat. He had urgent dyspnœa with occasional paroxysms, and his voice was greatly altered. No paralysis of the cords existed. The existence of an aneurism pressing directly on the trachea was inferred from physical signs. He was under treatment for about two months in all, and had suffered from his throat for about five months before applying at the Dispensary. When admitted to the Ward, his sufferings from pressure were extreme, and required the administration of morphia hypodermically. An interval of comparative ease took place, after which he suddenly coughed up a large quantity of blood and died.

Path. Reports, 29th October, 1884, No 1251.

II. 141. Aneurism of Aorta and Innominate, Bulging into Trachea and Involving Right Pneumogastric and Recurrent Laryngeal Nerves. (Dr. Tennent.)

The aneurism is a bulky one lying mainly across the chest above the arch and in front of the trachea. It arises from the upper border of the arch, and involves the entire innominate artery, so that the right carotid springs from the summit of the aneurism, and the right subclavian arises by a narrowed aperture about an inch below the summit. The left carotid comes off from the aneurism close to its left border. The right pneumogastric is somewhat closely applied to the innominate part of the aneurism, and its fibres are visibly dissociated. The right recurrent is also stretched. The left pneumogastric and recurrent are not involved. Posteriorly the aneurism projects against the anterior wall of the trachea, bulging it inwards. At the summit of the bulging there were three rounded projections, the middle one about the size of a pea, consisting of mucous membrane pushed inwards between successive cartilaginous rings. The preparation shows this part in section. The aneurism is largely occupied by dense coagulum. There was a small aneurism in the first part of the arch. The heart was not much affected. The right lung showed bronchitis with dilatation of the tubes, thickening of their walls, and some condensation of the tissue around (probably from stagnation due to pneumogastric paralysis).

James M. (aet. 36), a soldier and afterwards a carter, traced his illness to an injury on the second rib, four years before death. On admission there was slight swelling observed in the episternal notch. He complained of great difficulty in breathing, and mucous râles were detected in the chest with dulness at the right base.

Path. Reports, 21st February, 1890, No. 2288.

II. 142. Aneurism of Aorta Involving Left Recurrent Nerve and Bursting into Bronchus. (Prof. M'Call Anderson.)

The aneurism is a small round one arising by a small aperture from the termination of the arch, and almost filling up its hollow. It bulges against the tracheal bifurcation and communicates with the left main bronchus by an oval aperture 1 cm. in diameter. The aperture is between two rings, and there is a piece of tissue attached along its lower border, as by a hinge, so as to form a flap. This has been

produced by the wall of the aneurism or the mucous membrane being pushed through and then torn along its upper border. As now placed it would direct the gush of blood upwards. The left pneumogastric passes in front of the aneurism, and the recurrent is greatly stretched and lost on the wall of the aneurism, whose widest part it encircles.

John B. (aet. 36), a carter, was affected with hoarseness, cough and spit. The left vocal cord was paralysed, and the left pupil dilated and fixed. There were no direct signs of aneurism, and the diagnosis pointed more to the lungs. Death occurred suddenly by copious hæmorrhage from the mouth.

Path. Reports, 6th November, 1890, No. 2272.

II. 143. Aneurism of the Aorta, Rupturing into Bronchus.
(Prof. M'Call Anderson.)

The aneurism is a very bulky one, situated mainly in the concavity of the arch, but projecting considerably backwards. It somewhat opens out the arch, making it considerably wider and flattening it above. The aperture of the aneurism is a very large one, about 5 cm. in diameter, and it occupies almost the entire concave inferior aspect of the arch, being so large that the superior aspect of the arch virtually forms the roof of the aneurism. The great vessels come off just above the aperture, but in such a way that the current from the ascending arch has been carried directly to the innominate and left carotid, while the left subclavian has arisen at the part where the wall of the artery forms the roof of the aneurism. By its projection backwards, the aneurism impinges on the lower part of the trachea, and especially on the left bronchus, these parts being greatly flattened, and having a marked convexity backwards and downwards. In the left bronchus, at distances of 3 and 4·5 cm. from the bifurcation, there are two oval apertures, whose long diameter (measuring about ·6 cm.) is transverse to the calibre of the tube. These apertures lie between cartilaginous rings, which they partially expose. They communicate directly with the aneurism, which here contains no clot. In the space between the rings immediately above the upper aperture, there is a bulging of the mucous membrane, which is here considerably thinned. There was a bulky clot in this bronchus, and the lung was highly œdematous and of a deep brown colour.

The patient was a sailor, aged 58, who had complained of shortness

of breath, etc., for ten months, and of pains for five months. Aneurism was detected, and the breathing was found to be very feeble over left lung. *Path. Reports*, 18th July, 1882, No. 842.

II. 144. Aneurism of the Aorta which Projected through the Sternum and beneath the Skin. (Sir Wm. T. Gairdner.)

Of the aneurism little more is preserved than the orifice which is situated in the ascending and transverse arch, being 8 cm. in diameter. The aneurism had disintegrated the manubrium sterni, had destroyed both sterno-clavicular articulations, eroded the heads of the clavicles, and exposed both first ribs for some distance. It formed a large tumour under the skin externally at the root of the neck, being about 15 cm. in diameter and nearly globular in shape. At one part the skin was very thin. The trachea was displaced backwards and considerably stretched, and there are several ulcers in its mucous membrane exposing the cartilaginous rings. The recurrent nerve is not at all involved in the aneurism, which terminates before that part of the aorta round which the nerve hooks.

There were no special laryngeal symptoms during life. The patient attributed his disease to great exertions during the Indian Mutiny (1857), 19 years before his death. After his discharge from the army he was a carter. When first admitted, he suffered from severe pains in the head, neck, arms, etc., with a moderate amount of dyspnœa, not spasmodic. There was a previous history of rheumatic fever. Four months' continuous treatment by rest, spare diet, and iodide of potassium, produced great improvement in the symptoms and diminution of the tumour. Soon after his leaving the hospital, a sudden enlargement of the tumour took place, with threatening of external rupture. For this he was readmitted, and electro-puncture—confessedly as a forlorn hope—was employed, without appreciable benefit. Death took place twelve days afterwards, from exhaustion and respiratory distress (still without laryngeal spasm). Dr. Gairdner specially remarks, that the evidence of direct pressure on the lower third of the trachea is such as to give peculiar importance to the absence of laryngeal phenomena; as it was probably only by the luxation of the sterno-clavicular articulations giving room for expansion forwards, that death by suffocation, at a much earlier period, was averted. *Path. Reports*, 26th January, 1876, No. 62.

II. 145. Very Large Aneurism of Aorta, Penetrating through Sternum, Causing Necrosis of Skin, and Rupturing Externally. (Sir Wm. T. Gairdner.)

The preparation includes an aneurism, with a part inside and a part outside the chest, and the greater portion of the anterior chest wall. A piece has been removed from the right side of the chest so as to show the relations. There is one large aneurismal cavity behind and another in front of the sternum. That inside the chest communicates with the aorta, this vessel forming part of the wall of the aneurism for a distance of about 5 cm., and it is as if two vessels communicated with the aneurism. The aneurism begins about 5 cm. above the valve, and ends about the middle of the transverse arch. The bulk of the internal sac is to the right of the arch, but it projects to some extent backwards. It also extends somewhat downwards so as to hang into the pericardium. This sac is almost empty, but at its anterior part there is a firm clot which closes the connection between the internal and external sacs. The external sac forms a bulky tumour, occupying the middle line but extending more to the left than the right side, the left nipple being at its extreme left border. The tumour measured 19 cm. transversely, 13 cm. from above downwards, and 11 cm. from before backwards, *i.e.* from level of sternum to summit. The middle part of the skin over the tumour is in the form of a hard cake, which is nearly black on section. The cake is circular in form, measuring 14 cm. in diameter, and is definitely demarcated from the neighbouring soft skin. At three places towards the edge it was partially separated, and there was soft recent blood here. This sac was mostly filled with soft recent clot, but there are also firm stratified clots, especially in the deeper parts where they close the communication with internal sac. At the place of section the divided cartilaginous ribs are visible, and on looking into the sac these are seen to end in rounded extremities, there being here no sternum. In fact, except the manubrium and extreme lower part, there is no sternum remaining.

The case was that of a blacksmith, aged 38. The apparent duration of symptoms was about two years, these being pain, cough, dyspnœa and shortness of breath. The external swelling was observed about a year before death, and was considerable on admission two months afterwards. The treatment was mainly by iodide of potassium. Latterly galvano-puncture was resorted to on two occasions, three and four months respectively before death. The result was

not satisfactory, increase of the external tumour becoming apparent after each operation; and ultimately, notwithstanding the application of cold and hydrostatic pressure, pointing took place towards the surface, with a glazed and manifestly necrotic condition of the external tissues, and with exudation of a thin serous fluid. There was leakage of blood externally on several occasions during the last few weeks, and more considerably just before death.

Path. Reports, 10th April, 1882, No. 799.

II. 146. Aneurism of Aorta; Erosion of Sternum; Occlusion of Carotid; Pressure on Pneumogastric; Gangrene of Lung. (Sir Wm. T. Gairdner.)

The arch of the aorta is greatly dilated, but in addition to this a sacculated aneurism, which is nearly filled with stratified clot, projects anteriorly. It has eroded the sternum and disorganised the left sterno-clavicular articulation. The left carotid artery is completely occluded at its origin, being here only represented by a dimple in the internal surface of the aorta. Above its origin a brown grumous material fills it. The left pneumogastric nerve is stretched over the dilated arch and is adherent to the aneurism, although not very intimately. There were large cavities in the left lung, which had the aspect of gangrenous cavities rather than of phthisical ones, one apparently forming by necrosis, but there was no gangrenous odour. There were several small areas of softening in the brain, but confined to the convolutions.

In this case, which was that of an engineer, aged 53, during life a very marked subsidence of the aneurism occurred under treatment, this corresponding with the fact that the aneurism is now full of solid clot. In one sense, it would hardly be an exaggeration to speak of the aneurism as "cured," inasmuch as all the active symptoms, and many of the physical signs attributable to a tumour of the mediastinum, were in abeyance long before death, which took place under circumstances exactly resembling a chronic case of phthisis with hectic fever and gradual disorganisation of the left lung. At the earlier period the pressure on left carotid and pneumogastric must have been very considerable.

Path. Reports, 10th June, 1884, No. 1202.

II. 147. Aneurism of Aorta Penetrating Manubrium Sterni. (Prof. Gemmell.)

The aneurism, of which only the summit is preserved, arose from the anterior and upper aspect of a dilated aorta by a large aperture. The sac has a diameter of about 12 cm. Where it encounters the sternum there is a well-defined edge, and the aperture in the sternum has a diameter of about 4·5 cm. The proper wall of the aneurism seems to end here, and the eroded bone is exposed. The aneurism projects in front of the sternum as a rounded bulging 4·5 cm. in diameter, which is almost entirely to the right of the middle line. The sac is very thin, and was found to be formed largely of the stretched fibres of the pectoralis muscle. The gap in the sternum involved almost the entire left side of the manubrium, the gap projecting, however, slightly to the left of the middle line. The sternal end of the first costal cartilage projects partially in the sac, with an acute angle, and that of the second is represented by an irregular bulging. There were two other aneurisms, one being represented by a small part of its sac. The left pneumogastric was found adherent to the sac of the aneurism, and the somewhat thickened recurrent passed off from the affected portion.

Terence L. (aged 63) attributed his illness to injury while lifting a heavy weight four years before death. Two months after injury he began to feel pain in the chest, referred to the right sterno-clavicular articulation. About eight months after the injury he noticed a swelling above second rib, near the sternum. Alteration of the voice was noticed about three years before death.

Path. Reports, 30th October, 1893, No. 3479.

II. 148. Aneurism of Aorta Penetrating Chest. (Sir Wm. T. Gairdner.)

The aneurism has arisen from the left side of the aortic arch by a large aperture, and it has pushed the arch very much to the right. The aneurism has projected against the chest wall somewhat to the left of the middle line, and has extended through the wall eroding the ribs, the second rib being entirely destroyed for a distance of 2·5 cm., and the third thinned, so that at one part it measures only ·6 cm. from above downwards. Outside the chest and between the clavicle and the nipple a bulging tumour is formed, part of which has been preserved. This tumour had no proper sac, but, as shown in the

preparation, strata of clot were accumulated under the skin, and the blood had diffused itself as far down as the lower edge of the chest and outwards to the axilla, and even slightly to the inner aspect of the arm. The clot has also partly insinuated itself under the periosteum of the second and third ribs, dissecting it up from the bone. The left lung was greatly compressed by the sac.

The case was that of a woman, aged 42. The aneurism was attributed to a strain. Galvano-puncture was performed on three occasions, at intervals of less than a month, the last occasion being seven weeks before death. It was apparently followed at first by diminution, but afterwards by increase in the swelling. A fortnight after the last operation, suppuration took place in the course of one of the needle punctures, but this afterwards subsided. Increase in the size of the tumour, however, was followed by pointing externally at the same spot. Collodion was painted to avoid bursting, but a slight oozing ultimately occurred.

Path. Reports, 1st May, 1879, No. 438.

II. 149. Two Aneurisms of Aorta, one of which Penetrated Chest. (Prof. M'Call Anderson.)

The greater part of the first aneurism has been removed, but its origin by an oval aperture 7 cm. in diameter from the right and anterior aspect of the first part of the arch is preserved. The upper border of the aperture is close to the origin of the innominate. The sac was a very large one, and was divisible into two portions, one projecting downwards and along the side of the vertebral column, and the other projecting forwards through the chest wall, eroding the second, third, and fourth ribs on the right side, and protruding from the upper part of the right side of the chest in the form of a tumour measuring about 14 cm. in diameter. The bulk of the tumour was situated between the clavicle and the nipple, and it just came up to the middle line. The skin over it was discoloured. The antero-posterior diameter of the sac was about 18 cm.

The other aneurism is a fusiform one 10 cm. in length and 5 cm. in breadth. It is situated in the thoracic aorta, about 7 cm. from the origin of the subclavian, and was in close apposition to the œsophagus. The sac is quite entire, showing scarcely any appearance of thinning. The aorta generally showed numerous large patches of atheroma with calcareous infiltration.

John M. (aged 51) had complained for nearly two years of severe pain in the chest, dyspnœa, brassy cough, and dysphagia. Galvano-puncture was performed several times, producing some coagulation. Latterly there was intense and almost uncontrollable pain with constant sleeplessness. *Path. Reports*, 18th February, 1890, No. 2284.

II. 150. Aneurism of the Aorta, stretching Recurrent Laryngeal Nerve; Gap in Wall from Impingement on Vertebræ. (Sir Wm. T. Gairdner.)

The aneurism passes off from the posterior aspect of the junction of the arch and the thoracic aorta, the entire calibre of the vessel forming for a distance of 7·5 cm. part of the aneurism. The aneurism projected directly against the dorsal vertebræ, three or four of which were eroded, and the gap shown in the wall of the aneurism corresponds with these vertebræ, the proper wall of the aneurism being awanting here. The recurrent nerve is somewhat stretched over the upper part of the aneurism and flattened, but it can be easily traced quite round.

The case was that of a man, aged 51, who was long affected with laryngeal symptoms, chiefly loud cough with unclosed glottis. The principal other symptom was pain on left side. The illness was referred to an accident twelve years before death, when he fell between a vessel and the quay, and received a crush of his chest.

Path. Reports, 15th March, 1883, No. 953.

II. 151. Aneurism of the Thoracic Aorta, causing Erosion of the Bodies of the Vertebræ. (Dr. G. P. Tennent.)

The aneurism is a tolerably sacculated one, springing from the posterior wall of the aorta by a rounded aperture about one inch in diameter. It projects directly against the bodies of the vertebræ, whose eroded surface is seen exposed in the aneurism.

There were two other aneurisms of the aorta, a globular sacculated one of the arch, and a small one in the abdominal aorta at the origin of and partly involving the superior mesenteric artery. The internal coat of the aorta was everywhere in an advanced state of sclerosis. The heart was large and dilated, and the patient suffered chiefly from cardiac symptoms. The patient was a plasterer, aged 34. *Path. Reports*, 27th February, 1882, No. 782.

II. 152. Aneurism of Thoracic Aorta, Eroding Vertebræ. (Dr. Finlayson.)

There are really two aneurisms here seen protruding from the posterior aspect of the thoracic aorta. One arises immediately beyond the arch and has a longitudinal diameter of 6·5 cm., the other, which is separated by a prominent narrow partition, measures 3 cm. from above downwards. The upper and larger has caused erosion of the bodies of the sixth and seventh dorsal vertebræ, whilst the lower insinuates itself somewhat deeply, eroding the bodies of the two following. The wall of the aorta is in a high degree atheromatous.

There was a history of double popliteal aneurism cured by digital compression twenty years before, and the popliteal arteries were found reduced to the condition of a cord.

Robert W. (aged 46) complained chiefly of pain in the left side and in epigastrium, which lasted for about seven years. At the outset aneurism was suspected, but no signs were discovered. Latterly there was difficulty in swallowing, which became extreme; the voice became husky and he had a rasping cough.

Path. Reports, 13th April, 1896, No. 4577.

II. 153. Large Aneurism of Thoracic Aorta, Eroding Bodies of Vertebræ. (Dr. Finlayson.)

The aperture of the aneurism occupies about the upper half of the thoracic aorta, measuring 5·5 cm. in longitudinal diameter, and constituting a large gap in the posterior wall of the vessel. From this the aneurism bulges backwards and extends downwards so as to attain a total length from above downwards of 14 cm. It extends from the lower edge of the orifice downwards about 8 cm., and in the greater part of this portion it is in direct contact with the aorta, whose wall, to the extent of 5·5 cm., forms part of the anterior wall of the aneurism. The posterior wall of the aneurism is largely formed of the bodies of the vertebræ and these are exposod inside the sac from the eighth to the eleventh inclusive. The bodies are markedly eroded, more especially that of the eleventh. A firm stratified coagulum occupies the posterior wall in its upper part and partially conceals eighth and ninth vertebræ.

Arthur L. (aged 53), a joiner, was affected chiefly with dyspnœa and lividity. He was given to alcoholic excess. Heart was found flabby and the lungs highly œdematous.

Path. Reports, 25th April, 1891, No. 2643.

II. 154. Aneurism of Thoracic Aorta, which had produced Erosion of the Vertebræ.

The aneurism is represented almost entirely by a nearly circular gap in the posterior wall of the aorta, the gap being about an inch and a half in diameter. The aneurism is situated about the middle of the thoracic aorta, and it formed a small nearly globular sac, which projected directly against the vertebræ, eroding one of the bodies considerably. This preparation and the next illustrate the fact that when an aneurism of the aorta springs from its posterior aspect so as to impinge against the vertebræ, the proper wall of the aneurism readily undergoes atrophy, and there is therefore considerable danger of rupture.

II. 155. Aneurism of Thoracic Aorta, Rupturing into Pleural Cavity. (Sir Wm. T. Gairdner and Prof. Macewen.)

The aneurism is situated towards the lower end of the thoracic aorta and communicates with that vessel by an aperture 3·5 cm. in length, which involves the entire posterior wall of the aorta. The lower extremity of this aperture is from 1 to 2 cm. above the crossing of the diaphragm. Looked at from the front the vessel wall is seen to be bulged on either side, whilst looked at from behind the internal coat of the artery can be traced for a distance of about 12 mm. lining the aneurism. The sac of the aneurism projected directly back against the vertebræ, to which its edges were adherent. The bodies of the vertebræ, somewhat eroded, formed the greater part of the posterior wall of the aneurism; the vertebræ affected were the eleventh and twelfth dorsal and first lumbar. The articulation of the last rib on the left side was greatly loosened and the head of the rib was bare in the aneurism. The aneurism had burst into the left pleural early; but as the structures around were greatly infiltrated with blood, the actual seat of the rupture was not discovered. The amount of blood was three or four pints, and it consisted partly of older brown and partly stratified coagula and partly of recent gelatinous clots.

Patrick S. (aged 29), a slater, presented a history of lumbar pain for two years before admission. The general symptoms during residence, viz.: cough and mucopurulent expectoration with highly febrile temperatures, pointed to pulmonary and pleural disease. Eight days after admission signs of pleural effusion were discovered which increased gradually for eight days, the febrile temperatures

continuing. Four days later resection of a rib was performed, and the pleural cavity opened and blood clots cleared from it. For two days there was some improvement, but on the third day there was sudden collapse and death. *Path. Reports*, 18 Nov., 1892, No. 3185.

II. 156. Large Aneurism of Thoracic Aorta Pushing down Diaphragm and Rupturing into Pleura and Sub-peritoneal Tissue; Erosion of Vertebræ. (Sir Wm. T. Gairdner.)

Portions of the diaphragm have been kept, so as to indicate locality. The aorta, which is exposed by removal of its anterior wall, is stretched over the bulky tumour. It communicates with the aneurism by a large oval aperture measuring 6 cm. in diameter. This aperture is altogether above the diaphragm. The primary aneurism has been a nearly globular cavity about 11 cm. in diameter, which projected against the vertebræ, and has markedly eroded the bodies of four, viz., tenth dorsal to first lumbar inclusive. A secondary or false aneurism has passed off from the left side of the primary one, and has greatly distended and pushed downwards the diaphragm. There is a bulging projection through the diaphragm close to the bodies of the vertebræ, which has a diameter of 5 cm. This tunnelled into the psoas muscle. Blood had escaped from this portion, and had accumulated in the retroperitoneal tissue, chiefly in the left lateral wall, but crossing the middle line above the pubes. There was also a bulky clot, weighing 475 grms., in the left pleural cavity. The aorta is highly atheromatous.

William G. (aged 46), a riveter, and more recently a labourer, was in the Infirmary eighteen months before death with vague abdominal pains. These continued, and latterly passed down the lower limbs. In his subsequent residence in hospital there was deep epigastric pulsation, which, however, was never marked. Death was sudden.

Path Reports, 6th March, 1896, No. 4519.

II. 157. Multiple Aneurisms of First Part of Aortic Arch; Rupture into Lung Substance. (Dr. Finlayson.)

The portion of the vessel preserved is the ascending arch entirely proximal to the great vessels. There are four aneurisms, the

apertures of three of which are close together and of nearly equal size, and the fourth is a small pouch below and to the left of the three. Of the three larger ones, the one furthest to the right is a small sac, which admits about half of the distal phalanx. The other two are considerable sacs ; they have oval apertures, 2 cm. in diameter, separated only by a thin partition. The aneurisms themselves also impinge against each other, and over a considerable area the partition is only paper-thick. The largest aneurism, which measures 6 cm. in diameter, projects backwards and to the right. The wall of the sac is in great part formed by the tissue of the right lung, and at one part there is an aperture closed with soft clot leading directly into the adherent lung substance. The lung tissue around this aperture was much infiltrated with blood. The other aneurism, which lay almost directly in front, is nearly globular in shape, and measures about 4 cm. in diameter. It projects almost directly upwards and forwards. The aorta generally was highly atheromatous.

Thos. M'M. (aged 49), an engineer, referred his illness to a fall into a hole, about 14 months before death. Hæmoptysis occurred a month or two later. During residence in hospital, which lasted for three months, there was a succession of 17 hæmorrhages from the lung, the quantities of blood varying from 1 to 28 oz. There were no symptoms but the hæmorrhage, but the physical signs of aneurism were sufficient to establish a diagnosis.

Path. Reports, 2nd April, 1896, No. 4554.

II. 158. Multiple Aneurisms of Aorta. (Dr. Christie.)

There are two obvious aneurisms of the thoracic aorta. The first, having a somewhat quadrilateral form with a diameter of about 3 cm., projects from the left side of the vessel just beyond the arch. It has an aperture of 2·5 cm. The second is about 4 cm. below the other, and projects from the posterior aspect of the vessel. It has a somewhat circular outline, measuring 4 cm. in diameter, and its posterior wall was incomplete, being formed by the fifth, sixth, and seventh dorsal vertebræ (as shown in prepar., Ser. I., No. 65). This aneurism has a comparatively narrow neck, measuring 1·5 cm., and is filled with firm laminated coagula. The vessel presents the beginnings of several other aneurisms, the most definite being a rounded bulging 2 cm. in diameter just below the aneurism last

described. There is also a very definite small one in the concavity of the arch. The others are dimples of various sizes. The vessel otherwise is in a high degree atheromatous.

William W. (aged 63). No history of the case was obtainable.

II. 159. Aneurism of Thoracic and Abdominal Aorta. Narrow Isthmus in Aorta. Malformation of Aortic Valve. (Dr. S. J. Moore.)

The principal lesion here is a bulky hourglass-shaped aneurism, consisting of an upper sac about 6 cm. in diameter and a lower about 10 cm. in diameter. The constriction corresponds in general with the diaphragm, which, however, is considerably stretched over the lower sac, as if it had at least partially a thoracic origin. The aneurism communicates abruptly with the aorta above and below, and the large sac somewhat overhangs the abdominal aorta. The inferior opening of the sac lies between the coeliac axis and the superior mesenteric artery, the former arising within the sac. The sac is altogether an expansion of the posterior wall of the aorta, the anterior wall being preserved, but atheromatous. The posterior wall of the sac is largely awanting, and this corresponds with an erosion of the bodies of the 10th, 11th, and 12th dorsal and 1st lumbar vertebræ. On the left side of the upper part of the aneurism there is a ragged aperture, the seat of rupture. The parts above the aneurism show the following malformations:

1. The aortic valve consists of two curtains—a posterior and an anterior; the posterior one being much the larger.

2. The aorta at the termination of the arch has a somewhat sudden bend, which is manifested internally by a projecting fold. (Unfortunately a portion of the wall has been removed here.)

3. The ductus arteriosus is unusually thick, forming a cord nearly 6 mm. in diameter. At its insertion into the aorta a distinct dimple is visible internally.

4. Immediately beyond the insertion of the ductus arteriosus there is an extreme narrowing of the aorta, so that the lumen does not exceed 6 mm. in diameter. The aperture is in the midst of a diaphragm, but there is also a distinct groove externally, the whole appearance giving the impression that the ductus arteriosus is related to, and has been continuous with, the descending arch, and that the latter has been imperfectly adapted to the thoracic portion of the aorta. Immediately beyond this narrow isthmus the

aorta is much dilated, and in addition there is anteriorly a pouch about the size of half a walnut.

A large quantity of blood, partly coagulated, which had escaped through the rent in the aneurism, was found in the left pleural cavity.

A man (aged about 40) had been ill more or less with somewhat indefinite symptoms for above four years. (For an account of the case see *Glasgow Med. Jour.*, vol. 33, page 87.)

II. 160. Large Aneurism of Abdominal Aorta, Erosion of Vertebræ—Rupture. (Dr. G. P. Tennent.)

The aneurism is exposed by removal of its right wall. It extends from the diaphragm above to the fifth lumbar vertebra, but it is considerably wider in its upper part, where it extends to both sides of the middle line, than below where it is confined to the left side. On its upper surface the pleura is visible, and the aneurism pushes it upwards, causing a convexity into the pleural cavity. In the broader part of the aneurism the last dorsal and first and second lumbar vertebræ are exposed, and the bodies are very markedly eroded, especially that of the first lumbar. The aorta is seen to pass over the anterior surface of the aneurism, and its wall is apparently intact in front. Its posterior wall presents a very wide gap, the appearance being very much as if the posterior wall were destroyed or turned outwards. This gap corresponds with the first lumbar vertebra and communicates directly with the wide part of the aneurism. Hæmorrhage occurred from the lower part of the aneurism, and the sub-peritoneal tissue was greatly distended with blood, the mesentery with the bowels, the pancreas, etc., being carried forward greatly. The patient was a porter, aged 43.

Path. Reports, 26th March, 1884, No. 1166.

II. 161. Aneurism of Abdominal Aorta, Rupturing behind Peritoneum; Blood Extending into Peritoneal Sac. (Dr. G. P. Tennent.)

The aneurism is a bulky one, which has its origin from the aorta, beginning about 5 cm. beneath the diaphragm, and extending for about 9 cm. To this extent the aorta forms part of the wall of the aneurism, the latter being to some extent an expansion of the

vessel. The aneurism extends chiefly backwards and to the left, but it also forms a considerable bulging forwards, and a portion of the pancreas remains attached to its anterior surface. Immediately beneath the pancreas the cœliac axis projects from the aneurism, and is completely plugged with old stratified clot. The renal arteries, coming off from the aneurism at its lower end, are pervious. The aneurism, in pressing against the vertebræ, caused slight erosion of the first lumbar. The retro-peritoneal tissue of the left side was filled out with an enormous infiltration of clot, so that the descending colon was carried forward. Blood also infiltrated the great omentum, and there was a large accumulation, weighing 24 oz., in the peritoneal cavity, and a smaller clot, weighing $4\frac{3}{4}$ oz., in the lesser peritoneal sac.

The aorta, in all its course, was highly atheromatous, and presented several small pouches.

The case was that of a man who had been a soldier. He complained of pain in the back and legs, and a tumour in the abdomen. The pain was very severe.

Path. Reports, 13th April, 1883, No. 971.

II. 162. Aneurism of Abdominal Aorta Projecting Anteriorly. (Prof. M'Call Anderson.)

The aneurism projected just about the level of the diaphragm, portions of which remain adherent to its wall. The sac measures 7·5 cm. from above downwards, and has a projection of 5 cm. The orifice, which is limited to the anterior wall of the aorta, measures 5 cm. from above downwards. Firm stratified thrombus occupies the internal surface of the sac to a thickness of from ·5 to 1 cm. The sac itself is formed of dense connective tissue. The cœliac axis comes off at the lower extremity of the sac, and its orifice would correspond nearly with the neck of the sac. The orifice, however, was found completely obstructed. The superior mesenteric has its orifice nearly 2 cm. below the neck, but this part of the aorta is considerably pouched, and the orifice of the artery is narrowed. There is considerable pouching of the aorta also above the neck of the sac. The aorta in all its regions was highly atheromatous, with very marked calcification.

Chas. D. (aged 56), a hammerman. There were no symptoms observed during life pointing to the aneurism.

Path. Reports, 29th August, 1893, No 3426.

II. 163. Aneurism of Innominate Artery Rupturing into Trachea. (Dr. Finlayson.)

The aneurism forms a considerable sac about 8 cm. in diameter. It is situated on the summit of the aortic arch, with which it communicates by an aperture 1·5 cm. in diameter, which represents the orifice of the innominate artery. The aneurism is thus an expansion of the first part of the innominate. The right subclavian artery comes off freely from the posterior parts of the sac and it is adherent to the wall of the aneurism for about a distance of 2 cm. from its origin. The common carotid artery, on the other hand, is entirely occluded, and forms a prominent solid projection on the internal surface of the sac. There are bulky laminated coagula chiefly on the left and posterior aspects. Above the sac the wall of the artery is preserved, but the calibre is greatly narrowed and occupied by a solid plug apparently of organised tissue. The sac impinges directly upon the trachea by its left border, and there is an oval aperture in the trachea situated 3·5 cm. above the bifurcation which communicates directly with the lower part of the sac. This aperture is between two rings, and in the next interspace below them is a distinct bulging. The left carotid artery runs along the border of the aneurism, but it is unobstructed, although the orifice is slightly distorted. The left subclavian is unaffected. The aorta is markedly atheromatous.

Peter M'G. (aged 47) had a history of chronic bronchitis; a sudden, profuse hæmoptysis resulted in death in about five minutes. Blood had extended into the stomach and first portion of intestine.

Path. Reports, 10th Jan., 1881, No. 611.

II. 164. Huge False Aneurism of Ulnar Artery. (Prof M'Call Anderson.)

A large cavity is exposed by removal of portion of its wall which extends from the level of the elbow to near the wrist, having a measurement of 20 cm. The cavity has no distinct sac, but the muscles and tendons are flattened over it, and the radius is exposed without much erosion in its posterior and external wall. The sac was found filled with coagula of various appearances, dark and pale brown and sometimes stratified, the stratification being more particularly in the deeper parts. Removal of the coagula displayed a rounded mass, shown in preparation, which

measures 4·5 cm. This mass is found to be connected with the ulnar artery, with whose sheath an irregular connective tissue wall is connected, being adherent for a distance of 3 cm. This wall, however, does not complete the sac, whose distal parts are essentially formed of firm coagula. The artery communicates with the sac by a small aperture only sufficient to admit a probe, and the position of the aperture is 4·5 cm. below the division of the brachial. There were in addition aortic and mitral endocarditis (see Ser. II., No. 50), hypertrophy of the left ventricle, atheroma of the larger arteries, and granular kidneys.

Wm. D. (aged 68) observed a painful swelling below the elbow which came on suddenly five and a half months before death. It quickly spread down the arm and was accompanied with marked œdema of the hand and arm. On admission the forearm was much swollen and discoloured. It was fluctuant, but there was no pulsation or tenderness. Both radial pulses were synchronous.

Path. Reports, 25th Jan., 1896, No. 4456.

II. 165. Aneurism of Popliteal Artery. (Sir Geo. Macleod and Sir Hector C. Cameron.)

The aneurism, which is shown in section, is irregularly oval in shape. It is a definite expansion of the artery, whose coats can be traced into it. The length is 6 cm. and its greatest breadth 4 cm. It has a thin but firm layer of coagulum lining it. The artery above and below shows atheroma and calcification of the middle coat. The aneurism lay rather below the popliteal space, its upper border nearly corresponding with the upper border of the tibia. It was partly covered with the gastrocnemius.

Mr. F. (aet. 58) had the femoral tied in Scarpa's triangle, delirium (probably due to alcoholism) followed the operation, and he died on the third day. *Path. Reports*, 25th March, 1892, No. 2941.

II. 166. Aneurism of Renal Artery. (Dr. Tennent.)

The aneurism is oval in shape and about the size of a large marble. It is connected by a somewhat narrow neck with one of the branches of the main renal artery, and at a point where this branch is bifurcating. It is thus close in to the hilum of the kidney. The aneurism is laid open, and it is seen that while there is a small cavity close to the arterial orifice, the greater part is filled up with dense

coagulum. The wall of the aneurism is, except near the orifice, calcified, so that it is difficult to penetrate it with a knife.

David J. (aged 70) died of cardiac disease in the form of dilatation of the cavities without valvular disease.

Path. Reports, 21st March, 1891, No. 2613.

II. 167. Dissecting and Sacculated Aneurisms. (Dr. Jas. Finlayson.)

The preparation shows aortic arch and aorta down to the lower extremity of thoracic portion, divided longitudinally. There are two distinct aneurisms—an ordinary sacculated one filled with clot, filling up the hollow of the arch of the aorta, and a dissecting one. The latter communicates with the aorta by a transverse aperture immediately distal to the origin of the left subclavian and on the superior aspect of the wall of the aorta. At this point the clot in the sacculated aneurism projects so as considerably to narrow the calibre of the vessel. The dissecting aneurism is continued down the entire subsequent course of the aorta, and, as shown in a transverse section hung separately, it nearly surrounds the vessel, much reducing its calibre. A tolerably bulky clot occupies the aneurism. The abdominal aorta is not preserved, but it was found that the aneurism was continued down to the bifurcation, at which level it formed another communication with the aorta by a crescentic aperture, 1 cm. in diameter, and just opposite the left common iliac, which must have received blood from the aneurism. There was another very small aperture 5 cm. above the bifurcation. The large vessels springing from the arch on the proximal side of the dissecting aneurism are not interfered with.

The pneumogastric nerve passes directly on to the surface of the large true aneurism, and the recurrent was traced emerging from its posterior aspect, but the parts between are so involved in the wall of the aneurism that the connection could not be made out. There was considerable enlargement of the left ventricle, the heart weighing 20 oz.

The patient was a woman, aged 37, who had been delivered of a child three days before admission. She was supposed to have heart disease, but died soon after admission, and no examination could be made. Before death there was great dyspnœa, and the urine was highly albuminous.

Path. Reports, 4th January, 1883, No. 908.

II. 168. Dissecting Aneurisms. (Prof. M'Call Anderson.)

These are three in number—two in the aorta and one in a branch of the abdominal aorta, probably the renal artery. The first is in the arch of the aorta, and is embedded in the wall: it is about the size of a small apple, but forms about half of a sphere, a flat surface corresponding with the inside of the vessel, while the outer surface is convex. The external coat of the aorta is perfectly continuous over the aneurism, and on microscopic examination it is found that the aneurism actually lies between layers of the middle coat. At the borders of the aneurism, the split in the middle coat is partially filled up with connective tissue, and throughout the aneurism a thin layer of new-formed connective tissue presents the characters of an internal coat. The aneurism communicates with the aorta by an aperture situated 4 cm. above the aortic valve, and this aperture is continuous with a tear in the internal coat, which occupies the right side of the aorta and extends a considerable distance longitudinally; this rent gapes widely, so that a considerable surface is exposed which is devoid of internal coat. The upper part of the aneurism is packed with dense clot.

The second aneurism is in the thoracic and abdominal portions of the aorta; the aperture of this aneurism is in the form of an oval opening of small size, situated in the abdominal aorta. The aneurism is continued far above as well as below this aperture; above, it reaches as high as the left subclavian, the upper 4 inches being packed with dense clot; below, it is continued into both common iliacs, which are bagged out as far as their bifurcations. Besides the aperture just mentioned, there is another and smaller one just above the bifurcation of the aorta, and it seems probable that the circulation has been partly carried on through the aneurism in preference to the aorta, which is greatly narrowed just beneath the upper aperture. In this aneurism there is the same new formation of an internal coat as in the other, and at parts this presents abundant spindle cells.

The third aneurism forms a bulbous thickening of the first part of what is probably the renal artery, and is filled with firm clot.

The vessels generally were found rigid, with calcareous infiltration of the middle coat.

Path Reports, 24th November, 1879, No. 490.

II. 169. Embolism of Superior Mesenteric Artery; Hæmorrhage, etc., in Small Intestine. (Prof. M'Call Anderson.)

The superior mesenteric artery is plugged just where the colica dextra is being given off, a portion of the plug passing into and distending this branch for a short distance. The portions of intestine supplied by the plugged arteries are ascending colon (probably a part of tranverse), ileum, and possibly the lower part of jejunum.

On opening the abdomen, the state of the intestines at once attracted attention, as they presented a general dark red appearance, and were at places glued together by soft recent fibrine. The parts affected were chiefly the ascending colon and ileum, but to some extent also the jejunum and first part of tranverse colon. On opening the intestine, a dark brown pultaceous material was found in the colon and ileum, and the mucous membrane of these parts was soft and in many places pulpy—sometimes suggesting gangrene. The mucous membrane and, to a certain extent, the other coats, as well as the mesentery at places, were very greatly infiltrated with blood.

There was also embolism of the spleen and kidney.

During life there had been symptoms of heart disease for a long period; for the last 48 hours there were violent colicky pains and bloody fæces. *Path. Reports*, 30th January, 1880, No. 519.

II. 170. Embolism of Splenic Artery. (Sir Wm. T. Gairdner.)

One of the principal branches at the hilum of the spleen is seen to be distended with clot. The spleen was the seat of several infarctions, the largest of which had its apex at this obstructed artery. The spleen was much enlarged, weighing 10 oz. The left ventricle of the heart was much enlarged, apparently as a result of chronic Bright's disease, and at the apex of the ventricle there was a large softened globular vegetation.

The patient, a woman 31 years of age, presented the usual symptoms of chronic Bright's disease, which was traced carefully for four years. It assumed in the main the dropsical form, and was connected in the first instance with two successive pregnancies. The urine was at one time in excess, but latterly diminished, and the dropsy was uncontrollable. The terminal symptoms, and the splenic lesion, were probably due to the formation of the vegetation in the heart. *Path. Reports*, 26th Sept., 1875, No. 28.

II. 171. Embolism and Thrombosis of Popliteal and Tibial Arteries. (Dr. Tennent.)

The popliteal artery about its middle is distended by a plug, which is continued with diminished bulk downwards and passes into the anterior and posterior tibials; the plug is chiefly from thrombosis, but had its origin in embolism traceable to globular thrombi of the left ventricle; there was also extensive embolism of both kidneys. The case was one of advanced phthisis, affecting both lungs somewhat extensively. *Path. Reports*, 18th Jan., 1886.

II. 172. Complete Occlusion of Femoral Artery (old Embolism); Thrombosis of Femoral Vein, beginning at Valves.
Disease of Aortic and Mitral Valves, with Thrombosis.
Embolic Infarction of Spleen. Adhesion of Diaphragm. (Dr. Tennent.)

The three preparations are mutually illustrative.

Both aortic and mitral valves are much thickened and contracted, and they are also the seat of calcareous infiltration. In addition irregular thrombi are present, especially on one curtain of the aortic, where there is a bulky, shaggy projection. There is a small globular thrombus in the left auricle.

The spleen, a section of which is shown, shows a large infarction, over which the diaphragm was firmly adherent.

The femoral artery is converted into a fibrous cord, the result of an old embolism. This condition begins below the giving off of the deep femoral, and is continued for several inches.

The femoral vein is the seat of thrombi occupying the pouches of the valves; two of these are displayed.

Ann K. was affected with cardiac disease, and presented a mitral murmur. There was a history of embolism of the left calf and dorsum of the foot; the latter had ulcerated, but healed before death, except a small portion. *Path. Reports*, 13th Sept., 1889, No. 2167.

II. 173. Thrombosis of Left Common Carotid Artery. (Sir Wm. T. Gairdner.)

The carotid artery was completely plugged by a firm grey thrombus, from its origin at the aorta up to the emergence of the

internal carotid inside of the skull. At the aortic end the artery was considerably thickened, with slight cicatricial contraction which extended slightly into the innominate. In this neighbourhood the thrombus was very firmly adherent, although elsewhere (as in preparation) it was somewhat loosely attached to the wall.

Inside the skull the end of the thrombus projected slightly from the cut end of the internal carotid, which was empty from this point to its division. The anterior cerebral and the first part of the middle cerebral were also empty, but about half-an-inch from its origin the latter was filled with a plug, which, at first pale, became red as it passed into the branches of the artery. A very extensive softening of the middle parts of the corona radiata was found, the convolutions being undermined. In the neighbourhood of the fissure of Sylvius a yellow exudation existed in the sulci.

The lungs presented the usual characters of phthisis pulmonalis with cavities.

The patient was a man (aged 32) who was suddenly attacked with right hemiplegia and aphasia 29 days before death. After admission there were a gradually increasing lethargy and advancing rigidity of right arm, but no change as regards the aphasia. Two days before death pain on movement was observed in *left* lower limb, and afterwards a degree of rigidity in *left* arm. About a fortnight before death, temperature, previously normal or subnormal, suddenly rose to 104°, with very distinct rigor, contrasting strongly with the previous non-febrile state, but without any very obvious change in the cerebral symptoms; temperatures were upwards of 104° on three successive days, and thereafter continued febrile till the end.

Path. Reports, 30th June, 1884, No. 1209.

II. 174. Atheroma of Arteries of Leg. Senile Gangrene.

The peroneal artery is seen to be completely obliterated in the first inch of its course. The lumen of the posterior tibial in the lower part of its course (specimen to the left in the preparation) is seen to be diminished to an extreme degree. Calcareous deposit has taken place both in the middle coat and in the atheromatous patches.

Mrs. C. (aged 62) was admitted with gangrene of right foot, which came on after an injury in paring a corn. The gangrene extended considerably while under observation.

Path. Reports, 1st March, 1888, No. 1849.

II. 175. Thrombosis of Left Innominate, Subclavian, and Jugular Veins. (Dr. G. P. Tennent.)

At the lower extremity of the preparation is the superior vena cava laid open. The rounded bulbous extremity of a thrombus projects from the left innominate into the cava. The left innominate is itself completely plugged, and so are the subclavian and jugular veins on the same side. The innominate has been cut through near its termination, and the coagulum, partially softened in the centre, is visible. There was very great œdema of the left arm, while the right was emaciated. For state of heart see II. 28.

II. 176. Thrombi Originating in Pouches of Valves of Vein. (Sir George Macleod.)

There are two thrombi, the lower one is of small size and confined to the pouch; the other, about 3 cm. in length, has grown out of the pouch. The case was one of marasmus, following on abscess of the thigh, and there was thrombosis in the veins of both legs extending to inferior vena cava. *Path. Reports*, March 18th, 1887, No. 1688.

II. 177. Thrombosis of Veins of Leg and of Vena Cava after Amputation. (Dr. Patterson.)

The veins displayed are the left femoral greatly distended with solid thrombus, both iliacs, vena cava, etc. These are all occupied by thrombus, as is also the right renal vein, while the left renal is unaffected. The coagulum in the vena cava was found partially softened. In the right leg the veins were plugged as far down as the stump.

Wm. J. T. was run over by a tram car. The left leg was almost severed and amputation was performed. There was suppuration in the wound and subsequently œdema of the unaffected leg.

Path. Reports, May 16th, 1885, No. 1363.

II. 178. Thrombosis of Veins of Leg. (Sir Wm. T. Gairdner.)

Transverse and longitudinal sections of the affected veins are shown, and they are seen to be distended by somewhat dark adherent clot. In one of the longitudinal sections a rounded varicosity is shown. These are pieces from the veins of the legs which, on both sides, appeared to be completely plugged.

There was enlargement of both ventricles of the heart with thrombi in them, and embolism with infarction of the lungs.

The patient was a woman (aged 60) whose illness had lasted five or six weeks, although she had been subject to palpitation for years before. The symptoms were, great dropsy of the lower limbs, and a corded condition of the left saphena vein throughout, with a completely consolidated varicose swelling near the knee; to this she attributed a date of thirty-five years back, affirming it to have been solid all that time. The more recent illness was chiefly determined by the pulmonary hæmorrhages resulting from the embolisms; and she insisted upon their not being of more than five or six weeks' duration, previously to which she affirmed that she was "the hardest working woman in Glasgow, and had not had occasion to spend a shilling in medicine for fourteen years."

Path. Reports, 2nd Jan., 1882, No. 754.

II. 179. Obstruction of Thoracic Duct and Thrombosis of Veins of Neck. (Dr. G. P. Tennent.)

The preparation shows the left innominate vein laid open, and the left subclavian and internal jugular. At the point of junction of these veins, and for a short distance in all three, there is, in addition to thrombosis, a considerable contraction of the calibre, and here the thrombus is evidently old, from its pale colour and the fact that it has begun to soften in the central parts. In the case of the internal jugular, the contraction gives place to a considerable dilatation about half an inch above the junction, where it is filled with clot which, being much redder, is evidently more recent. The thrombosis terminates inferiorly about the middle of the innominate vein.

The thoracic duct, as it enters the vein where it is occluded, is completely obstructed. A considerable portion of the duct is preserved, injected with red material, and it shows considerable dilatation.

The cavities of the heart were considerably dilated, and there were many globular thrombi in the right auricle. The peritoneal cavity contained a small quantity of somewhat milky fluid.

The case was that of a boy (aged 10) who suffered from severe cardiac symptoms. He recovered considerably till a week before death, when it was noted that ascites had rapidly developed. Paracentesis was performed three times, 23 oz. of distinctly chylous fluid having been removed on each occasion.

Path. Reports, 27th December, 1882, No. 940.

II. 180. Obstruction of Thoracic Duct and Internal Jugular Vein. Chylous Ascites. (Dr. G. P. Tennent.)

The parts preserved are the left innominate, internal jugular, and subclavian veins. The internal jugular was found pervious about the angle of the jaw, but from this level it became (as shown in the preparation), rapidly narrowed, and for a distance of about 4 cm. before its junction with the innominate, it forms a solid cord around which the tissues are considerably condensed. At its junction with the innominate there is merely a cicatrix and no communication. The thoracic duct, which has been injected with wax coloured with vermilion, is inserted into the obliterated jugular vein. It was found considerably dilated, and as it approaches its termination it bifurcates, and again unites just at its insertion.

There was a large quantity of milky fluid in the abdominal cavity, and vessels filled with an opaque white material were observed in various places, forming considerable plexuses near the tail of the pancreas.

In addition, the heart was greatly dilated and hypertrophied, and there were partial adhesion of the pericardium, fatty degeneration of the muscular fibre, and warty vegetations on the aortic and mitral valves. *Path. Reports*, 14th November, 1882, No. 871.

II. 181. Varicose Vein of Leg.

The left internal saphena vein is extremely varicose. The portion removed extended from the middle of the thigh to the lower part of the leg. The vein is much twisted in parts and presents numerous pouch-like projections (the largest were situated on the inner side of the knee). From one of the pouches is seen a secondary projection which appears much more translucent than other parts owing to the thinness of its walls. The pouches generally will be seen to be of a more translucent character than the narrower less dilated portions of the vein. The vein was readily distended from above, thus indicating the complete inefficiency of the valves.

Path. Reports, 13th December, 1884, No. 1272.

II. 182. Varicose Veins removed by Operation. (Dr. Dalziel.)

The two varices were removed from internal saphenous vein, the smaller one from the leg and the larger from the thigh. They form considerable pouches, that from the thigh being more isolated and

projecting further than the other. In both, the convexity of the pouch was downwards, and in both the principal dilatation was immediately beyond the junction of two tributary veins, as displayed in the preparation. The sacs were distended with blood.

John C. (aet. 27) was affected with varicose veins for six years.

Path. Reports, 18th August, 1892, No. 3091.

II. 183. Varicose Vein of Leg. (Removed and injected by Dr. Kennedy.)

The vein shows an extreme degree of dilatation, tortuosity, and pouching. This is most manifest in the upper three-fourths of the specimen. The dilatation suddenly ends at a point where the injection ceased to run on account of the interposition of a competent valve. The lower part of the specimen, which is much less dilated, had to be injected from below. The vein is the internal saphenous. It is injected with paraffin-wax and indigo.

Mrs. S. (aged 28), a weaver till seven months ago, was admitted to Ward XII., 19th January, 1894, with varicose veins of right leg of four years' standing. She ascribed her condition to pressure or leaning on the right leg while at work. She married seven months ago, and is now four months pregnant. About six weeks ago the condition became distinctly worse, the veins reaching double the former size. She is unable to walk from pain in the leg. The other leg is normal.

II. 184. Varicose Vein (Internal Saphenous) with a Pouch-like Dilatation. (Dr. Kennedy.)

The vein, which is filled with coagulum, shows a marked distension in a considerable portion of its course, but towards the lower extremity there is a hemispherical dilatation projecting from one side, and measuring 4 cm. from above downwards and 2·5 cm. from side to side. The wall of the vein and of the sac is formed of dense connective tissue.

John W. (aged 53) had noticed a swollen vein for eight years on the inner side of the left leg below the knee. It had latterly become hard and painful. The vein was removed by operation, and a perfect recovery ensued. *Path. Reports*, 3rd March, 1897, No. 4966.

SERIES III.

RESPIRATORY SYSTEM.

III. 1. Fracture of Thyroid and Cricoid Cartilages, Inflammation and Oedema of Mucous Membrane. (Dr. Hislop.)

The thyroid and cricoid cartilages are fractured in the middle line in front, where there is a considerable cavity in the soft parts in front of the larynx, communicating with the interior of the latter. The left wing of the thyroid is perfectly loose and is easily flapped backwards and forwards, and outside it the soft parts are torn so as to form a cavity continuous with that in front. The mucous membrane of the larynx is also torn at the ventricle of Morgagni, so as to form a free communication by a ragged aperture with the cavity of the larynx. The inferior cornu is bare, and the corresponding portion of the pharynx is torn, so that the cornu projects into it; there is also a considerable tear in the opposite wall of the pharynx. The cricoid cartilage is loose on the left side, so as to bulge inward at, and especially under, the glottis. This bulging is added to by inflammatory and oedematous swelling of the mucous membrane. [Death had occurred either from a dislocation of the fractured cartilages or a sudden increase of the oedematous swelling of the mucous membrane.]

A young man, about 23, was running on the pavement and fell against an iron rod, striking it with his neck. A large amount of blood (about a pint and a half) was discharged from the larnyx. He got on fairly well for a few days, but was suddenly seized during the night with a suffocative attack, the breathing being loud and crowing. He died soon afterwards.

Path. Reports, 6th December, 1884, No. 1267.

III. 2. A Piece of a Tin Spoon extracted from the Larynx of a Child. (Mr. Maylard.)

The child was admitted with croupy symptoms. As nothing could be detected by the mouth, tracheotomy was performed, and the foreign body, which was found impacted just below the vocal cords, extracted.

III. 3. Necrosis of Superior Cornu of Thyroid Cartilage. (Sir Hector C. Cameron.)

The patient (a man aet. 47) was admitted for cellulitis of the neck. Eight days previously he was seized with headache and shiverings, with pain in the back. The neck was found greatly swollen, red, and oedematous. A slight crepitation was felt on pressure. There was difficulty in swallowing and speaking, great cough subsequently set in, with a considerable muco-purulent expectoration. He died of a septic pneumonia.

At the post-mortem, extensive necrosis of the cellular tissue of the neck was found, and this could be traced backwards and downwards on the right side to the fourth dorsal vertebra. On removing the oesophagus, pharynx, trachea, and larynx, a bare necrosed piece of bone was found connected with the superior cornu of the thyroid cartilage and forming part of the floor of the abscess. The *cartilago triticea* in the posterior thyro-hyoid ligament was much enlarged, indurated, and inseparably connected with the superior cornu. This enlargement of the parts is well seen by comparing the two sides in the specimen. No communication could be traced from this sloughy cavity into the pharynx, but they were only separated by an excessively thin membrane. The minute piece of necrosed bone, which was both felt and seen projecting into the abscess cavity, is shown in the specimen at the posterior part of the cornu just at its junction with the body of the cartilage.

Path. Reports, 7th December, 1887, No. 1785.

III. 4. Diphtheria, with Exudation in Nares and Fauces. (Dr. G. P. Tennent.)

The preparation includes fauces, soft palate, and larynx, but the parts chiefly displayed are upper aspect of soft palate and naso-pharynx. The upper surface of soft palate is coated with a white

fibrinous exudation, which extends continuously to fauces and pharynx, forming a tubular cast of these parts. The exudation also extended to the larynx and trachea, and also into the bronchial tubes, even into comparatively fine ones. The case was that of a boy aged one year. Tracheotomy was performed.

Path. Reports, 7th October, 1884, No. 1241.

III. 5. Diphtheritic Exudation on Tonsils, Pharynx, Larynx, Trachea. (Dr. A. Patterson.)

Path. Reports, 18th April, 1878, No. 318.

III. 6. Fauces and Larynx in Diphtheria. (Dr. Beatson.)

The parts, which are those of a child, are shown in longitudinal section. There is marked exudation of a yellow membrane on the nasal surface of uvula and soft palate, but scarcely any on the buccal surface. The surfaces of the epiglottis and the larynx generally are occupied by exudation, which almost obstructed the passage. No exudation is visible in the trachea, but it is noted that both main bronchi were lined with yellow membrane. Tracheotomy was performed, but the wound is not shown in the preparation.

Jessie R. (aged 3) was admitted with great lividity and dyspnoea, which were temporarily relieved by tracheotomy. The symptoms, however, recurred on the day after, and she coughed up pieces of membrane through the tube. She died on the second day.

Path. Reports, 2nd May, 1887, No. 1709.

III. 7. Exudation in Diphtheria Limited to Larynx and Trachea—Tracheotomy. (Dr. Jas. Finlayson.)

In the upper part of the trachea there is a soft grey membrane almost filling the tube, and extending from the inferior aspect of the vocal cords about half-way down the trachea. It is comparatively loose, but adheres somewhat about the level of a longitudinal wound which has been made in performing tracheotomy. There was no exudation or obvious change in any part above the larynx.

The patient was a boy aged seven, who had complained of cough and hoarseness for a week, the cough becoming croupy after three days. On his admission the voice and cough were very hoarse, and

with a croupy character, but without much obstruction, except during sleep. There was a sudden failure of breathing, and tracheotomy was performed, but without effect, although artificial respiration was used. *Path. Reports*, 3rd March, 1881, No. 635.

III. 8. Larynx and Trachea in Diphtheria. (Dr. James Finlayson.)

The mucous membrane of the larynx is much thickened, and it is covered by a somewhat adherent exudation of yellow colour, which is present especially on the posterior surface of the epiglottis and in the larynx, although by no means filling it up. The exudation extends to the trachea in patches, which are present even down to the main bronchial tubes.

There were several condensed patches in the lungs. The liver and spleen were considerably enlarged.

The patient was a man aged 20, whose illness began about a fortnight before death with feebleness, followed by cough, loss of voice, and difficulty in swallowing; there was a very copious muco-purulent expectoration. Laryngoscopic examination showed great swelling of the mucous membrane and a whitish exudation. Death occurred in connection with his being raised in bed, with some appearance of a suffocative seizure. Tracheotomy and artificial respiration were tried in vain.

Path. Reports, 5th July, 1881, No. 687.

III. 9. Diphtheritic Exudation in Larynx. (Dr. Ebenezer Duncan.)

The larynx is seen to be almost occluded by an exudation. In this case tracheotomy was performed during life with considerable temporary relief.

III. 10. Larynx of Child in Diphtheria. (Sir Geo. H. B. Macleod.)

The parts have been split in the middle line, and it is seen that the larynx from the tip of the epiglottis downwards, and the trachea for a short distance below the cricoid cartilage are occupied fully by a somewhat flaky false membrane. There is also considerable swelling of tonsils, fauces and epiglottis. The

exudation extended to the main bronchi, but was everywhere comparatively loose.

Mary B. (aet. 5) was admitted after three days' illness, very cyanotic and in a state of collapse. Tracheotomy was at once performed with considerable relief, but the symptoms recurred next day and she died. *Path. Reports*, 24th November, 1890, No. 2518.

III. 11. Cast of Trachea, Expectorated. (From the same case as the preceding.)

III. 12. Membrane Removed from the Trachea through a Tracheotomy Wound. (Sir Hector C. Cameron.)

The specimen shows a complete cast of the trachea, right and left bronchi and smaller bronchial tubes. The case was one of diphtheria in which the child was very much relieved by the extraction of the membrane, although the illness ultimately proved fatal. The membrane was grasped and withdrawn by inserting a pair of dressing forceps through the wound into the lower part of the trachea.

III. 13. Membrane Expectorated from Trachea, and Casts of Bronchi obtained *post mortem.* (Dr. G. S. Middleton.)

The latter are seen to be branching like the bronchial tree. The pieces expectorated are at the bottom of the jar. The case, that of Charles M. (aet. 9½), was a typical one of diphtheria with membranous patches on pharynx and tonsils. Tracheotomy was performed after examination had shown that the respiratory murmur was present all over both lungs, except in a small area in interscapular space. Death occurred in seven hours. Post-mortem examination revealed a large cast in trachea and in the bronchial tubes, extending into even the smaller ones. A patch of condensed lung was found at the seat where consolidation had been detected during life.

III. 14. Tuberculosis of Larynx. (Dr. Finlayson.)

The aryteno-epiglottidean folds are thickened and infiltrated, and superficial ulceration is visible. The left vocal cord is much altered

by ulceration, presenting an irregular edge with projections. In the lungs there were evidences of an old tuberculosis with bronchiectatic cavities, and also a recent extensive infiltration with small cavities.

Jas. P. (aet. 30). Illness dates back more than a year, with ordinary history of phthisis pulmonalis. Hoarseness and pain in throat were prominent symptoms.

Path. Reports, 16th May, 1887, No. 1712.

III. 15. Tubercular Ulceration of Larynx. (Sir Wm. T. Gairdner.)

There is irregular ulceration with considerable prominence of parts, involving the greater part of the epiglottis, the mucous membrane over the smaller cartilages and the ventricular bands, but only to a small extent the true cords.

James M'D. (aet. 44) was affected with phthisis pulmonalis of a year's duration. There were intestinal ulcers, one of which had perforated and caused fatal peritonitis.

Path. Reports, 13th July, 1890, No. 2277.

III. 16. Tubercular Ulcer of Larynx, with great thickening of the mucous membrane of epiglottis, etc.

III. 17. Tubercular Ulceration of Larynx, Necrosis of Cartilage. (Sir Wm. T. Gairdner.)

The ulceration is very extensive, involving the mucous membrane of the entire larynx and epiglottis, and extending even below the vocal cords. The ulceration has for the most part simply destroyed the mucous membrane; but at the posterior part on the right side it has passed much deeper, and a considerable piece of necrosed cartilage (in situation corresponding with the arytenoid cartilage) is exposed in the ulcer. This piece of cartilage is discoloured and loose. In the trachea the mucous membrane generally is highly infiltrated, and there were three or four deep ulcers. One of these, the size of a threepenny piece, is seen in the preparation, and a portion of the cartilaginous ring is exposed in the floor of the ulcer.

In the lungs there were numerous condensations but no cavities. The liver and spleen were amyloid.

The patient was a man aged 42. He complained of cough with

expectoration for eighteen months, and hoarseness for eight months. Occasional slight haemoptysis. He was unable to swallow solid food, and even liquids were latterly rejected through the nose. Respiration embarrassed, but not so much so as to raise question of tracheotomy. Emaciation extreme. Death by asthenia.

Path. Reports, 9th March, 1878, No. 307.

III. 18. Tubercular Ulceration of Larynx and Trachea. (Dr. Jas. Finlayson.)

The lower part of the trachea presents comparatively slight ulceration, but this is very marked in the middle parts, the cartilages being frequently exposed; towards the larynx it again diminishes, but it even extends to the base of the epiglottis. Where the ulceration is not continuous it is seen to assume frequently a circular or crater-shaped form.

The case was one of phthisis pulmonalis, in a man (aet. 29), with tubercular ulceration in the bronchi and small intestine. There was also pneumothorax.

Path. Reports, 10th March, 1879, No. 432.

III. 19. Tubercular Ulceration of Bronchial Mucous Membrane. (Sir Wm. T. Gairdner.)

The case was one of advanced phthisis pulmonalis, and in the part preserved the bronchial mucous membrane is the seat of superficial ulcers and miliary tubercles.

Path. Reports, 14th April, 1876, No. 89.

III. 20. Tubercular Ulceration of Larynx, possibly Syphilitic. (Dr. Dalziel.)

There is extensive ulceration associated with intervening thickenings, in some places very prominent, the parts affected being chiefly the epiglottis and upper part of the larynx, along with the neighbourhood of its vocal cords. Both vocal cords are virtually destroyed and on the left side necrosed cartilage is exposed in the position of the ventricle. There is a tracheotomy wound in the trachea and alongside it a considerable ulcer is visible on the right side. There was advanced phthisis pulmonalis with tuberculosis of intestine, etc., and amyloid disease.

Allan F. (aet. 36) had an attack of aphonia five years before death;

eight months before death he was again attacked by aphonia and dyspnoea, and at that time ulceration and stenosis of larynx were discovered. The dyspnoea became threatening, and tracheotomy was performed 19 days before death.

There was a distinct history of syphilis seven years before death.

Path. Reports, 22nd Aug., 1895, No. 4284.

III. 21. Syphilitic and Tubercular Ulceration of Trachea. (Dr. Gemmell.)

There is the combination here of an extensive ulceration of the trachea, at one time associated with ulceration of the palate and presumably syphilitic, with a caseous enlargement of the lymphatic glands, and a lesion of the lungs having the characters of fibroid phthisis, with possibly gummatous nodules, but in which the tubercle bacillus was abundantly present. There were also gummata in the liver and a sub-diaphragmatic gumma.

Flora M'L. (aet. 31) was in the Infirmary in January, 1891, with ulceration and necrosis of palate and a hard painful swelling over the ulna. On re-admission in Feb., 1893, there were greatly enlarged glands in neck, etc. On her third admission, March, 1894, there was complaint chiefly of cough and expectoration.

Path. Reports, 19th April, 1894, No. 3670. See full account in *Glas. Med. Journal*, Vol. XLII. 1894, p. 107.

III. 22. Syphilitic Ulceration of Pharynx and Larynx. Necrosis of Cartilage, etc. (Prof. Geo. Buchanan.)

The pharynx and larynx are exposed from behind. The former presents such deep ulceration that its posterior wall is nearly destroyed. The larynx also is much ulcerated, the right arytenoid cartilage protruding bare and rough, and the right half of the epiglottis being destroyed. The lower opening of the aesophagus was much contracted, in its whole circumference measuring 1·5 cm., whilst the wall was adherent and non-yielding.

Alexina M. dated her illness to eight months before death, when she had a miscarriage. Since then her throat has been sore and her voice hoarse. She was admitted suffering from acute laryngeal dyspnoea and tracheotomy was performed. She did well for a week, but afterwards swallowing became difficult, and the food appeared to get into the larynx. A purulent broncho-pneumonia followed.

Path. Reports, 1st April, 1889, No. 2072.

III. 23. Syphilitic Laryngitis, Oedema Glottidis. (Sir Wm. T. Gairdner.)

The parts have considerably shrunk, but even yet it can be seen that the tissue around the epiglottis and in the aryteno-epiglottidean folds is greatly thickened. The oedematous thickening was so great in the fresh state as to conceal the interior of the larynx. The larynx is seen to be greatly contracted and considerably ulcerated.

The patient died from suffocation a few hours after admission and no history was obtained. *Path. Reports*, 1st October, 1875, No. 30.

III. 24. Syphilitic Ulceration of Trachea, with Necrosis in Cricoid Cartilage. (Sir Geo. H. B. Macleod.)

The preparation shows the left side of larynx and upper part of trachea. On the posterior wall immediately beneath the glottis there is a deep ulcer which is in immediate contact with a cavity, in which the probe at once detects bare and loose pieces of ossified cricoid. The parts around are somewhat thickened, and there was oedematous swelling of the aryteno-epiglottidean folds, especially on the left side.

Alexander G. (aet. 28) had been affected with syphilis beginning two or three years before. On admission there was great obstruction of larynx, but the condition improved considerably on the same evening. Early next morning, however, the patient died.

Path. Reports, 22nd May, 1889, No. 2109.

III. 25. Syphilitic Ulceration of Trachea and Bronchi. (Sir Wm. T. Gairdner.)

There is an excavated ulcer occupying the lower part of the trachea, and extending into both main bronchi. It is primarily on the anterior surface, and at the upper part limited to this surface, but at the bifurcation it almost surrounds the calibre. The ulcer begins 9 cm. above the bifurcation, and extends downwards for about 1·5 cm. into either main bronchus. Over this extent the mucous membrane is almost entirely destroyed, there being only occasional bridges remaining. All the edges are undermined, but there is in some places considerable excavation, especially at the right main bronchus. As a general rule the ulcer does not penetrate the entire thickness of the wall, but at the extreme lower part of the trachea, on the left side, it has done so, and the black pigment of a

lymphatic gland appears inside. There were gummata in the liver, chiefly in the left lobe, which was greatly shrunken by cicatricial contraction.

Mary P. (aet. 38) presented peculiar paroxysmal dyspnoea, suggestive of pressure on the air passages or respiratory nerves, sometimes very severe. Apparent duration of illness 4-6 months, but with great aggravation two or three months before death. Physical signs almost nil. *Path. Reports*, 22nd November, 1889, No. 2215.

III. 26. Congenital Syphilis; Ulceration and Cicatrisation of Larynx and Trachea. (Dr. Walker Downie and Dr. W. F. Gibb, Paisley.)

The specimen, which has been very imperfectly preserved, is divided slightly to the right of the middle line, so as to show the left half of the parts, and the incision is also through a ragged tracheotomy wound. The wound opening into the larynx enters a ragged contracted cavity with ulcerated walls. Above it the epiglottis and vocal cords are contracted and scarcely recognisable, and below it the trachea is contracted and ulcerated for a distance of 3 cm. The narrowing is extreme, and the contracted portion contrasts with the wider normal trachea below.

A girl (aged 17) had suffered from huskiness and increasing dyspnoea for a few months. Tracheotomy was performed three months before death, as suffocation was threatened, and a tube was worn for some time. Symptoms ensued pointing to intra-laryngeal and intra-tracheal cicatrisation. To relieve this the larynx was opened up, and its interior, which was occupied by a gristle-like tissue, was pared and treated with chromic acid. Subsequently Macewen's dilator was used, and respiration was quite free for some days, but a sudden and fatal attack of dyspnoea ensued.

III. 27. Epithelioma of Larynx. (Prof. Geo. Buchanan.)

The larynx is laid open from behind, and the tumour and a tracheotomy wound are displayed. The tumour occupies the glottis and parts immediately above and below. On the right side it is in the form of an ulcer with prominent irregular edges, the lesion entirely replacing the cord and in large part obscuring the ventricle. On the left side the cord and subjacent parts are undermined by

tumour, which is not ulcerated, but projects considerably. The ventricle on this side is pushed upwards and partly occluded. In the middle line there are two or three prominent nodules extending below the level of the tumour on either side. The tumour extended upwards and laterally so as to present slightly in the pyriform sinuses on both sides, and also to incorporate a portion of the thyroid gland.

The microscopic characters are those of a flat-celled epithelioma, but without laminated capsules.

John M'N. (aged 46), a fisherman, began to suffer from hoarseness four years before death. Breathlessness on exertion developed about four months before death, and this advanced till urgent dyspnoea supervened about two months later. There was also some difficulty in deglutition. Laryngeal examination revealed an extensive infiltration with ulceration.

Path Reports, 31st March, 1896, No. 4552.

III. 28. Congenital Atelectasis of Left Lung—Hypertrophy of Right Lung. (Prof. M'Call Anderson.)

The left lung forms an elongated generally fleshy structure, measuring 19 cm. from apex to base. On section it is seen that no crepitant lung tissue exists, except in the middle part of the lung where there is a very limited amount of it, which is pigmented in the usual way. The upper lobe of the lung is entirely unpigmented, and is converted into a series of cavities having a diameter of from 1 cm. to 2·5 cm., and with tolerably thick, well-defined walls. These cavities communicate freely with the main bronchus, and are in fact dilated bronchial tubes. The lower part of the lower lobe is also unpigmented, and contains two or three cavities; but although it is otherwise mostly fleshy, there is some appearance of lung tissue in it. There are two sacculated cavities in the crepitant pigmented middle part of the lung.

The right lung is greatly enlarged, and its anterior part especially projects forward in a very unusual fashion, the edge reaching, at the time of the examination, 5 cm. beyond the left nipple. This piece of lung is, in a certain way, distinguishable from the normal lung, forming a kind of enlarged portion of it, and demarcated by a groove at the upper and lower extremities. There is no special emphysema of the anterior margins, but the air vesicles throughout the lung are larger than normal. This projecting piece of lung,

along with the enlarged heart, largely filled the left side of the chest.

The main bronchi of the two lungs are nearly equal in diameter, but the blood-vessels are about half the usual size on the left side, the pulmonary artery and vein being 1 cm. in diameter on the left side, and nearly 2 cm. on the right. For condition of heart see next preparation.

The case was that of a man aged 46, and no observation of the conditions above described was made during life. He had a slight cough and spit since boyhood, and considerable haemoptysis 14 years before death. Six months before death he was in the Royal Infirmary with swelling of the abdomen and legs, which disappeared, but returned four weeks before admission. Latterly he complained of cough and dyspnoea.

Path. Reports, 24th November, 1882, No. 878.

III. 29. Enlargement of Right Ventricle and Pulmonary Artery. (From preceding case.)

The heart is greatly enlarged and was found considerably displaced towards the left. The enlargement is entirely of the right ventricle, the left being probably smaller than normal, and very remarkably removed upwards from the apex, which is formed entirely by the right ventricle. The pulmonary artery is thickened, being at least two-thirds as thick as the aorta. The tricuspid orifice admits six fingers, and the mitral three.

III. 30. Remains of Congenital Atelectasis in Adult Lung.

The specimen shows in section the greater part of the middle lobe, which was found reduced to a strip of solid tissue from which the ordinary carbonaceous pigment is entirely absent. Dilated bronchi are visible, and at one of the cut surfaces a congeries of these is seen occupied with a white secretion. The microscope reveals dilated bronchi and large blood-vessels, the arteries presenting endarteritis obliterans, sometimes in an extreme degree. The air vesicles are represented by gland-like structures, often in groups and sometimes containing a yellow material.

Mrs. M'K. (aged 32) died from valvular disease of the heart.

Path. Reports, 12th July, 1895, No. 4237.

III. 31. Atelectasis and Bronchiectasis of one Lung; Hypertrophy of the other. (Dr. Finlayson.)

The organs are those of a boy aged three. The left lung was firmly adherent throughout and markedly contracted. It is shown in section, and it is seen that there are many dilated bronchi, and that, except at the apex, the tissue between is fleshy. The right lung presents a great contrast in size and shape; more particularly it is to be noted that at the apex there is the beginning of the normal anterior edge, but that immediately below there is a great projection forwards, forming a large flap of lung about two-thirds of the diameter of the normal lung. This portion of lung projected into the other side of the chest.

The collapsed lung showed to the naked eye redness of the mucous membrane of the bronchi with pus in their lumen, and microscopic examination shows an acute inflammatory condition of the bronchial wall. The bronchi are much dilated and the alveoli collapsed.

The boy had been delicate from infancy, and was in a state of great emaciation when admitted to the Children's Hospital. He died from acute lepto-meningitis.

Path. Reports, 25th October, 1893, No. 3474.

III. 32. Deformity of the Lung from Collapse of Lower Lobe, due to Pleural Effusion. (Dr. Jas. Finlayson.)

The right lung, which is preserved, was found greatly compressed and floated up by a large pleural effusion. The lower lobe is completely collapsed and forms but a comparatively small appendage to the lung. The middle lobe is also collapsed and firmly adherent to the upper lobe, which latter is emphysematous. There were great hypertrophy and dilation of the heart and passive hyperaemia of the liver, kidneys, etc.

There was a history of pulmonary symptoms for six months before death. The man was 55 years old.

Path. Reports, 30th March, 1880, No. 541.

III. 33. Anthracosis of Lung in a Manufacturer of Boot-Blacking. (Prof. Gemmell.)

The lung from apex to base is deeply coloured of a greenish-black colour. At the apex there is some emphysema, and a considerable portion of the lower lobe is occupied by a haemorrhagic infarction,

the arteries connected with which are plugged with coagulum. Microscopic examination shows an enormous excess of black pigment, which is present not only in the regular connective tissue of the lung, but also in the alveolar walls. The particles have not the usual oval or rounded form of those in the coal miner's lung, but many of them are angular, and it is not uncommon to meet with elongated spicules or needle-shaped particles. According to Walls's *Scientific Industries Explained*, the pigment of blacking is bone-black, also called ivory-black.

John O'N. (aged 41) manufacturer of blacking for boots, was twice in hospital suffering from extreme breathlessness, with pain over the praecordium. The heart was dilated and thrombi were found in both ventricles and in right auricle.

Path. Reports, 22nd March, 1898, No. 5383.

III. 34. Pieces of Emphysematous Lung, dried and cut through so as to show the Internal Structure.

The air spaces are seen to be very greatly enlarged, in some places to such an extent as almost to be in the form of bullae.

III. 35. Emphysema of Lung. (Sir Wm. T. Gairdner.)

The part preserved is the anterior margin of the right lung. The margin is bulky and irregular, presenting rounded bulgings. In all of these the air spaces are much enlarged, but this is especially manifest in one towards the lower part of the preparation, which has been partly laid open. This swelling is little more than a rounded cavity divided by thin partitions.

During life there were the usual symptoms and signs of bronchitis and emphysema—barrel-shaped chest, lividity, depression of liver, etc. The patient suffered from bronchitis from six years of age till death at age of 27. *Path. Reports*, 5th December, 1884, No. 1266.

III. 36. Emphysema of Lung. (Dr. Finlayson.)

The lower part of the upper lobe of the right lung is preserved as well as sections of neighbouring parts. There are irregular bulgings, consisting largely of thin-walled bullae. Section shows a general spongy condition of the lung with occasional large bullous cavities.

James M. (aet. 55), a deaf-mute, was for many years the subject of bronchitis. *Path. Reports*, 23rd October, 1890, No. 2487.

III. 37. Emphysema of Lung. (Dr. Tennent.)

The base and anterior margin show well-marked emphysema, the affected portions of the lung being prominent and almost devoid of the normal bluish pigmentation of the lung. At the anterior margin of the lower lobe there is a prominent thin-walled bulla, and this edge is somewhat elongated forwards.

Edward S. (aged 19). The emphysema was a minor feature in this case, a glandular affection resembling Hodgkin's disease and tuberculosis of the vertebrae being the pronounced features.

Path. Reports, 19th May, 1893, No. 3346.

III. 38. Thrombi in Pulmonary Arteries. (Sir Wm. T. Gairdner.)

Both lungs were small in size (senile atrophy) and both pulmonary arteries were completely occluded by thrombi, which were partially adherent to the wall, and traceable into arteries of the size of a crow quill or smaller. The section of the thrombus on the left side, and to a less extent on the right, is seen to be divided into four, indicating a peripheral origin. The thrombi in the two lungs met and coalesced (the coalesced portion is hung separate) but did not extend beyond the bifurcation. The weights of the lungs were, right, 13 oz.; left, 9½ oz. The heart was dilated, especially the right ventricle, and loaded with fat externally.

The symptoms during life were mainly those of Bright's disease.

Path. Reports, 25th October, 1875, No. 34.

III. 39. Embolism of Pulmonary Artery in Pneumonia. Necrosis of Wedge-shaped Area. (Prof. M'Call Anderson.)

The preparation shows a thrombus which is situated at a bifurcation of the artery. The lung as a whole was hepatised, though resolution was in progress, but the wedge-shaped area supplied by the plugged artery was found in the fresh state to be firmer and more bulky as well as paler than the rest, this portion having a perfectly definite edge. Microscopic examination of a section, including both of the areas, showed in the part unaffected by the embolism, the alveoli occupied by cells which are highly fatty: these cells and the alveolar wall show regular nuclear staining. In the other area, the alveoli are much more filled, but the section is much more homogeneous, and nuclear staining is almost absent.

It is as if the plugging of the artery had stereotyped the stage of complete hepatisation, and had produced necrosis of the affected tissue. On the border line, between the two areas, there is an excessive exudation of leucocytes.

Andrew B. (aet. 45), a seaman, was said to have been ill for 27 days, but as he was admitted moribund, little information could be obtained. *Path. Reports*, 16th November, 1891, No. 2807.

III. 40. Haemorrhagic Infarction of Lung.

III. 41. Haemorrhagic Infarction of Lung. Pleurisy.

In this preparation the infarction has been cut into. The pleural surface of the infarction and its neighbourhood is seen to be coated with a veil of fibrine, and the pleural surface generally has a thinner layer.

III. 42. Haemorrhagic Infarction in Lung, with Embolism. (Dr. Jas. Finlayson.)

The specimen shows in section one half of the consolidated portion of the lung, with the vessel leading to it laid open so as to exhibit the plug with which it is filled. The consolidated area is triangular in shape, two of the sides of the triangle being formed by the pleural surface. The cut surface is of a reddish colour, and one of the vessels seen in tranverse section is blocked by a thrombus. The heart was greatly enlarged and thrombi existed in right auricle and ventricle, and in left ventricle. There was an old history of rheumatism and heart disease; latterly haemoptysis was a marked feature in the case. *Path. Reports*, 27th June, 1881, No. 684.

III. 43. Haemorrhagic Infarction in Lung: Embolism by Globular Thrombus from Heart. (Dr. Finlayson.)

There is a bulky infarction of the usual wedge-shape and with its base at the pleura. At the apex, or proximal to the apex of this, there is a bulbous plug in a large branch of the pulmonary artery which sends a long narrow process into a smaller branch passing to the infarction. The source of the embolism was the right auricle, in which there were globular thrombi in considerable numbers.

Jane R. (aged 42) was affected with parenchymatous nephritis and with dilated and slightly hypertrophied heart.

Path. Reports, 8th February, 1892, No. 2879.

III. 44. Gangrenous Cavity of the Lung. (Dr. G. P. Tennent.)

The lower lobe of the lung is occupied in nearly its whole extent by a large irregular cavity, with very ragged walls, there being only in one or two places any definite lining. The cavity contains shreds of slough, and it exhaled a highly gangrenous odour. The rest of this lobe of the lung is in a state of complete grey hepatisation, and the base of the lung was firmly adherent to the diaphragm.

The case was that of a man aged 40, who, after recovery from a fracture of the femur, was attacked with symptoms referable to the abdomen, and indicating intestinal obstruction. These symptoms subsided, and patient was then attacked by an acute pulmonary disease, but no gangrenous odour was perceived till just before death. On post-mortem examination a loop of intestine, two or three feet in length, showed appearances as of comparatively recent constriction, but no hernia or other cause of obstruction was found.

Path. Reports, 9th February, 1882, No. 770.

III. 45. Gangrenous Cavities in Lung, Referred to an Injury. (Sir Wm. T. Gairdner.)

The portion of lung preserved shows an elongated cavity of comparatively small dimensions, and a larger rounded one. The former is in direct communication with a bronchus. At its further extremity it is close to the pleura, which here contained decomposing pus, and there had probably been communication. Both cavities have irregular walls, and there is no appearance of tubercular or other infiltration around them.

Andrew M. (aged 47) dated his illness from an injury to his back, received by falling eighteen feet and striking his right shoulder against a beam. This occurred about four months before death. Eight weeks after this injury he began to complain of pain in the chest, followed by cough and spit. During residence there were frequent febrile temperatures and one or two typical rigors. There were signs of limited pleurisy or empyema detected, with suspicion of pneumothorax. *Path. Reports*, 13th August, 1891, No. 2734.

III. 46. Gangrenous Cavities of Lung due to Perforation from Oesophagus into Bronchus. (Dr. Jas. Finlayson.)

The portion of lung preserved is from the apex region, where the cavities were more numerous, although they were present in other parts. In addition to the cavities, there was a condition approaching grey hepatisation, but this was mainly present in the upper lobe, and especially towards the apex. The cavities were filled with a thickish material which exhaled a highly foetid odour. See *Glasgow Medical Journal*, Vol. 19, p. 313.

Path. Reports, 28th November, 1882, No. 882.

III. 47. Foreign Body in Right Bronchus; Gangrenous Cavities in Lung. (Dr. A. Napier.)

The lung (shown in longitudinal section) is that of a child four years of age; the main bronchus is also laid open and extended by a piece of whalebone. Behind the whalebone is a piece of elder pith (determined to be so by microscopic examination) which was found in the bronchus as shown. It is about 12 mm. in length and 7 mm. in diameter, forming a short cylinder with irregularly cut extremities. The wall of the bronchus is considerably ulcerated where it lies, so that a considerably depressed bed has been formed. The lower lobe of the lung shows numerous irregular ragged cavities, which at the time of the post-mortem were filled with very foetid pus. The cavities have no proper lining membrane and the tissue of the lung is condensed throughout, the colour in the fresh state being red in the upper and greyish-green in the lower lobe, which latter exhaled a very foetid odour. The pleura is coated with a somewhat thick fibrinous layer, which is seen hanging from the surface. On the posterior surface of the lung there is a shallow wound.

The date at which the foreign body passed into the bronchus is not known, but the acute symptoms began between three and four weeks before death. These symptoms consisted, in the first place, in a "stomach attack" with acute fever (temperature of 103° and 104° F.) and a peculiar cough accompanied by a suppressed sneeze. There were soon evidences of acute pleurisy, followed in about ten days from onset by expectoration of a foetid thin fluid pus, which afterwards became very abundant. Under the impression that the pleural exudation had become foetid, an aspirator needle was inserted; an incison was afterwards made and part of the seventh rib was

resected, but no pus was found in the pleura. The patient survived the operation for seven days.

See paper by Dr. Napier in *Glasgow Medical Journal* for January, 1885.

III. 48. Piece of Metal Tube found in Bronchus. (Sir Wm. T. Gairdner.)

This foreign body consists of the barrel part of a crow-quill pen. It was found *post mortem* in the lung in a case in which there was extreme fibrous induration associated with cavities and an abscess.

John R. (aet. 11) presented great contraction of the left side of chest, with a history of lung symptoms for at least four years. There were many of the signs of chronic phthisis. An operation was performed with the view of draining the cavities, but it was not successful. The pleura was not adherent over the lower part of the lung.

This case is fully described by Professor Gairdner in the *Glasgow Medical Journal* for January, 1886, p. 40, and by Dr. Coats in *Lectures to Practitioners*, by Gairdner and Coats, 1888.

Path. Reports, 7th April, 1885, No. 1340.

III. 49. Chronic Induration of Lung with Cavities. (From preceding case.)

The lower lobe is in a state of fibrous induration, with dilated bronchial tubes in the midst. In the upper part of this lobe there is a large irregular cavity, in which the drainage tube was found. The pleura is non-adherent over the lower lobe, and an aperture is displayed in the parietal layer, corresponding with an aperture in the lung. A large cavity is shown in the upper lobe.

III. 50. Chronic Induration of Lung, with great Contraction—Thrombosis of Pulmonary Artery. (Dr. Jas. Finlayson.)

As seen in the preparation, the left pleura is greatly thickened, and the lung converted into a tough deeply pigmented fibrous-looking structure. The pericardium and heart were carried considerably to the left and upwards. In this lung the pulmonary artery contained, as shown in the specimen, a large stratified thrombus, which presented some softening in its central parts. The thrombus com-

pletely fills the main pulmonary artery, but does not extend farther than its first branches.

There were globular thrombi in right auricle, great dilatation of right ventricle, and granular kidney.

The case was that of a man aged 57, a brass-moulder, who had been very intemperate. The illness was dated back obscurely for two years, and referred to the heart. There had been no rheumatism, and latterly the symptoms were mainly those of pain in the left side and general feebleness. The urine was highly albuminous, and there was extreme dropsy. A systolic murmur was heard at the apex. *Path. Reports*, 23rd November, 1882, No. 876.

III. 51. Iron-Grey Condensation of the Lung (Chronic Pneumonia). (Sir Wm. T. Gairdner.)

An elongated section of the lung is preserved, and the whole lung was in a somewhat similar condition. It was bulky, solid, and entirely non-crepitant, except in the anterior part of the upper lobe. On section, the cut surface was remarkably smooth, and the colour iron-grey. Under the microscope there is great increase of the connective tissue of the lung at the expense of the lung alveoli. The left kidney was much atrophied and granular, and contained cysts.

The patient was a man aged 62, who, during a residence of six weeks in hospital, presented signs of pneumonia of the upper lobe, gradually extending to lower. The disease appeared to have arisen insidiously out of "a bad cold," and had taken on a typhoid character on admission, with temperature 104·2°, afterwards declining to slightly over normal. The urine was albuminous from the tenth day after admission, previously to which day chlorides had been deficient. The physical signs persisted, and death was from semi-asphyxia.

Path. Reports, 6th February, 1882, No. 768.

III. 52. Interstitial Pneumonia, Bronchiectatic Cavity. Emphysema. (Sir Wm. T. Gairdner.)

The preparation shows two bronchial tubes with ampullar dilatations, and a distinctly sacculated cavity communicating with one. The tissue around was pigmented and condensed, having the characters of iron-grey condensation, and there is considerable thickening of the pleura. Microscopic examination shows great increase of connective tissue without any nodular or tubercular

arrangement. The fine bronchi are occupied by cells which partly infiltrate their walls. The affected part of the lung is the upper lobe, which was found considerably shrunken. Both lungs were generally emphysematous.

William B. (aet. 54), feather-dresser, was first admitted seven days after the onset of an acute pulmonary attack, and condensation was found in the right upper lobe. There was herpes on the lower lips. He was in hospital on two subsequent occasions, improving each time. His death was sudden and unexpected.

Path. Reports, 5th November, 1888, No. 1963.

III. 53. Interstitial Condensation of Lung—Potter's Phthisis.

(Sir Wm. T. Gairdner.)

The surfaces of both lungs, as seen in the preparation, are exceedingly irregular, being contorted by deep cicatrices and occasional intervening emphysema. The emphysema is very well marked in the left lung, there being in some places distinct bullae. In both lungs there is a very marked condensation, involving about the lower half of upper lobe and the upper fourth or sixth of lower lobe. The condensed part is dense and heavy, and of a deep slaty colour, bronchi and vessels being invisible in the homogeneous mass. There are no cavities.

Patient was a potter (aet. 40) who had suffered for at least a year from symptoms attributed, in the first instance, to exposure when under the influence of drink, but also, in all probability, to dust inhaled in his occupation. The expectoration was appreciably carbonaceous (though he had never worked underground); there had been no haemoptysis. The temperatures when he was under observation were mostly normal or sub-normal (once only 101·5°). A notable feature in the case was the extreme feebleness of the radial pulse, and the permanent acceleration of its rate out of proportion to the other symptoms. The patient was cyanotic; and albuminuria, with dropsy, was present throughout the period of observation. But although breathlessness was a leading symptom, orthopnoea was by no means constantly present, nor were the physical signs very appreciably different from those of very advanced bronchitis and emphysema, with dilatation of the right side of the heart, but with dull percussion in the inter-scapular regions.

Path. Reports, 7th February, 1877, No. 185.

III. 54. Cavities in Lung and Dilatation of Bronchi. (Prof. M'Call Anderson.)

Both lungs were beset with large cavities, and one lung is preserved. All the large cavities are wedge-shaped and directly continuous with large bronchi, whose mucous membrane is continued a certain distance into the cavities. On cutting up the bronchial tubes apart from the cavities, they are found to be in nearly every case widened, often with bulbous dilatations at the ends. The cavities were filled with creamy pus. Between the cavities the lung tissue is beset with small, hard pigmented bodies. Amyloid degeneration existed in the liver, kidneys, spleen, and intestine.

Path. Reports, 2nd February, 1877, No. 182.

III. 55. Bronchiectatic Cavities in Lung. (Dr. Finlayson.)

The upper lobe of the lung presents a congeries of cavities having the characters of bronchiectasis. The largest of these is of an elongated form, but with various curves. It is partially divided by transverse ridges so that a number of loculi are produced. Towards its central part there are several rounded apertures which are in free communication with bronchial tubes. In other parts of the same lung there are also cavities having even a more direct and visible origin from dilated bronchi.

The lung tissue which remains is generally crepitant, and in some places emphysematous. The part of the lung concerned was adherent, but there was no great thickening of the pleura, and there is no appearance of tubercular condensation. It is possible in this case that a congenital atelectasis may have been the cause, and this is rendered more probable because behind the principal cavity there is a wedge-shaped piece of tissue, containing slightly dilated bronchi closely aggregated together and with unpigmented tissue between.

The other lung was affected with acute pneumonia, but without any chronic lesion. There was amyloid disease chiefly in the kidney, which was in a state of cirrhosis, and also in spleen and liver, the part of the spleen affected being the pulp.

William P. (aged 48) was admitted with acute pneumonia, and died in two days—on the eighth day of his illness.

Path. Reports, 25th November, 1890, No. 2159.

III. 56. Apex of Lung showing Caseation and Formation of Cavities. (Sir Wm. T. Gairdner.)

There are here many caseating areas, most of them with softening and some with actual cavities. On the other side there was a pneumothorax from slough of pleura over a cavity. There were tuberculosis of larynx and intestine, and amyloid disease.

Robert R. had all the signs of acute phthisis with an onset dating back about seven months before death.

Path. Reports, 12th January, 1888, No. 1805.

III. 57. Cavity in Lung with Penetration of Visceral and Parietal Pleurae. (Sir Wm. T. Gairdner.)

A portion of the wall of the cavity is preserved with both layers of pleura adherent. There is an oval aperture through both layers, and this caused a communication with the heads of the 3rd and 4th ribs. The cavity is part of that preserved in the next preparation.

III. 58. Large Pulmonary Cavity in Phthisis.

The cavity replaced almost the entire upper lobe. It shows the irregular interior with trabeculated appearance common in caseating phthisis. It comes close to the surface, so that the two layers of pleura form merely a thin covering.

Path. Reports, 7th April, 1885, No. 1342.

III. 59. Large Cavities in Lung, which simulated Pneumothorax. (Dr. Finlayson.)

The entire upper lobe of the lung is occupied by a cavity having everywhere an irregular ulcerated surface, with curdy material often adhering; in upper part of lower lobe there is a smaller cavity, still more irregular, and with signs of softening in its walls; the rest of lower lobe showed caseating condensations frequently softening, and many cavities. The other lung showed a much less advanced stage of phthisis, without any considerable cavity.

Jane C. (aged 38), was ill for 13 months. The left side showed signs resembling pneumothorax, namely, amphoric breathing, bell sound on percussion, etc., but without any succussion phenomena.

Path. Reports, 21st January, 1891, No. 2565.

III. 60. Cavity in Lung, simulating Pneumothorax. (Sir Wm. T. Gairdner.)

The whole lung is preserved, and it is seen that a cavity occupies its entire extent, from apex to base, with the exception of a small portion at the lower part in front, where there is some condensed tissue. The immense cavity is seen to be partially divided by partitions and trabeculae, which, as well as the general wall, are frequently pigmented. The other lung showed a large cavity at the apex, with condensed tissue around.

Wm. B. (aged 39). During life there were signs construed as due to pneumothorax, but specially noted as being without evidence of distension, and without history of a sudden attack of pneumothorax. The case is recorded with every available detail as observed during more than four months (November to March 1875-6), in Journal A of Ward 6, p. 58, where also a summary of the details, too long for insertion here, will be found. The following extract from a clinical lecture on 14th December, taken from the notes of Mr. D. M'Vail, will show that while the case passed generally for one of pneumothorax, the alternative diagnosis of a very large intra-pulmonary excavation was duly considered and presented at that date:—"Signs now are—marked cavernous phenomena; strong (metallic) after-tone with breath-sound, cough and râles; with the breath-sound it follows expiration, and is best heard behind. The ringing sound after the cough and râles proves the presence of cavity, but does not indicate whether it is in the lung or not. Signs are distributed largely over the side, and indicate a cavity so large as not likely to be in the lung. The bell-sound, too, is completely conveyed from front to back. The evidence otherwise of pneumothorax is incomplete. All these signs might be due to an excavation in the lung; but so large a cavity, continuous and smooth-walled, is not likely. The absence of symptoms of the onset of a pneumothorax, the absence also of signs of displacement of the heart, and the absence of distension or bulging of the intercostal spaces, would bear out the idea of excavation." See Journal, p. 98.

Path. Reports, 18th March, 1876, No. 79.

III. 61. Healed Tuberculosis of Lung. Cavities, Cretaceous Matter, and Cicatrices. (Dr. Finlayson.)

A small portion of the apex is preserved which shows two contracted and nearly obliterated cavities, as well as a small cretaceous

mass, all of them surrounded by dense pigmented cicatricial tissue. There were in both lungs numerous cretaceous nodules surrounded by cicatricial tissue.

Mary C. (aet. 24) was affected with symptoms of bulbar paralysis, and there is no note of any pulmonary symptoms.

Path. Reports, 14th October, 1891, No. 2780.

III. 62. Healed Tuberculosis, with Cavity and Cretaceous Contents. (Dr. Tennent.)

The piece of lung preserved is from apex of right lung. There was slight adhesion (indicated by a tag in the preparation). The apical portion was considerably contorted by a pigmented cicatrix, in the midst of which, as shown in the preparation, there was a cavity about 12 mm. in diameter filled with cretaceous matter.

Mrs. M'A. (aged 46) died from a scirrhous cancer of the stomach. There was no history of disease of the lung obtained, but it was stated that her father, mother, sister, and husband, all died from phthisis pulmonalis. *Path. Reports*, 28th October, 1892, No. 3160.

III. 63. Inactive or Obsolete Cavity in Lung. (Prof. Coats.)

The cavity is generally globular, and about 4 cm. in diameter. Its wall is formed chiefly of dense connective tissue, which in some places attains considerable thickness, and in others shows distinct vascularity. The cavity was found to communicate with a small bronchus, but a larger tube stopped short close to the cavity. In the rest of this lung, and in the other, there were a few solid nodules, but no active tuberculosis. The pericardium showed a typical tuberculosis with adhesion.

Henry S. (aet. 45) had had several attacks of haemoptysis. He was admitted with symptoms of acute bronchitis, and died after a day's residence. Death was sudden, and apparently from failure of the heart. *Path. Reports*, 10th April, 1885, No. 1344.

III. 64. Obsolete Cavity in Lung. (Prof. M'Call Anderson.)

There is a large cavity, 5 cm. in diameter, which comes very close to the surface of the lung, but is almost altogether surrounded by crepitant tissue, there being no active tuberculosis near it. A

large bronchus enters its lower extremity. In front, it is very close to the pleura, and there was here a limited adhesion; there was also bulging of the chest wall visible during life at this point. In addition there was another smooth-walled cavity and also a pigmented cicatrix containing cretaceous matter. The other lung also showed old cretaceous masses. Contrasting with these conditions, a recent tuberculosis, in the form of small scattered condensations, was visible in both lobes of both lungs, and there was tubercular ulceration of the larynx.

Robert P. (aet. 42) was ill two years before death, with cough, spit, and haemoptysis. The illness was not regarded as serious, but it was accompanied by a bulging of chest in left front. He appeared to recover from this illness, and was well till six months before death, when laryngeal symptoms occurred, and the bulging in left side recurred. *Path. Reports*, 8th March, 1889, No. 2055.

III. 65. Large Inactive or Obsolete Cavities in Lung. (Prof. Coats.)

There is one great cavity occupying the anterior parts of the lung and extending from apex to base, there being merely a partial partition, showing the division of the lobes. In communication with this cavity are three others of considerable dimensions, and behind there is another cavity, so that the lung is excavated almost in its entire substance. The cavities show partial partitions and bridges; they are everywhere lined by a smooth, well-formed connective tissue, and there is not a trace of ulceration or active tuberculosis anywhere. The cavities communicate with bronchial tubes by comparatively small apertures. The lung was firmly adherent. The other lung showed a healed tuberculosis at the apex in the form of cicatrices and calcareous matter. It also showed a general oedema with lobular pneumonia (fibrinous exudation in alveoli and bronchi).

Lawrence Y. (aged 30), four years and a half ago, was affected with acute phthisis, for which he was treated in the Royal and Western Infirmaries. After dismissal he remained ill for eighteen months and then began to recover. He improved greatly and was able to go to work. On re-admission he professed himself much better than during previous residence, but latterly had febrile attacks with rigor. He expectorated large quantities of gruel-like matter, in which no tubercle bacilli were found. Physical signs of a large cavity on

right side existed. The lobular pneumonia which was the immediate cause of death is probably traceable to insufflation of matter from the cavities, which was expectorated in such large quantities.

Path. Reports, 12th January, 1891, No. 2554.

III. 66. Healed Tuberculosis of Lung. Cretaceous Mass.

A calcareous mass embedded in pigmented cicatricial tissue is shown. The lung tissue around is somewhat emphysematous, and the pleural surface shows considerable contraction. The two specimens are from the same nodule, which was situated in the upper part of the lower lobe. The bronchial glands were cretaceous, there being a mass measuring 2·5 cm. The lesion was found in a man who died from an injury which ruptured the intestine.

Path. Reports, 15th October, 1895, No. 4361.

III. 67. Large Stony Mass in Lung; Healed Tuberculosis. Emphysema.

The apex of the lung is preserved and shown in section. A hard stony mass 2 cm. in diameter is present, which required to be sawn through. It is embedded in the lung tissue and surrounded by connective tissue, and the lung is considerably puckered around it. There is considerable emphysema in its neighbourhood, but not immediately around.

William M. (aged 56) was subject to winter cough for years; he was comparatively well in summer. He died from an attack of bronchitis with lobular pneumonia.

Path. Reports, 15th December, 1891, No. 2835.

III. 68. Pneumothorax in Phthisis Pulmonalis. (Sir Wm. T. Gairdner.)

The preparation shows parietal and pulmonary pleurae, the latter with three apertures communicating with cavities in the lung. The borders of these apertures are rounded, and they present the appearance as if a portion of the pleura had been punched out (slough of pleura). The pleural cavity in its lower part was found filled with air, while above, the lung was adherent.

The case was one of great interest, and is fully recorded in

Journals of Ward I, at two different dates, B. 152, and J. 1. In the latter the pulmonary symptoms and physical signs will be found in detail; but it is impossible to give any adequate account of them here. *Path. Reports*, 16th April, 1878, No. 315.

III. 69. Pneumothorax. Cavities in Lung. Slough of Pleura.
(Dr. Jas. Finlayson.)

This preparation illustrates the mode of occurrence of pneumothorax. The lung tissue is seen to be largely occupied by cavities, and at one part the pleura, over an area as large as a shilling, is necrosed. In the fresh state it presented a dead white colour, which contrasted with the surrounding hue. At one edge the slough has begun to separate, and a communication is shown between the pleural cavity and the lung. The pleura was covered by a fibrinous exudation, and it contained gas and pus.

Thirteen days before death there was a sudden occurrence of pain in the side corresponding to the lesion, with great breathlessness, etc. Simultaneously there occurred amphoric respiration, metallic tinkling, etc., with a subsequent development of splashing sounds on succussion. The patient was a girl, 23 years old, and her phthisical history went back a year.

Path. Reports, 17th December, 1876, No. 170.

III. 70. Pyo-pneumothorax: Large Intra-pulmonary Cavity.
(Profs. Gemmell and Cameron.)

The preparation shows the pulmonary and part of the parietal pleura, as well as a section of the left lung from apex to base. The pleura is much thickened, and was coated with a thick pus. The cavity contained gas. At the upper part of the pleural surface there is the exposed internal wall of a phthisical cavity with partitions and recesses, the superficial or pleural aspect of the cavity being entirely awanting. There is besides a large irregular cavity at the apex of the lung, and what remains of lung tissue is greatly shrunken, but with tubercular condensations visible in its substance.

Christopher H. (aged 16). After a history of cough for ten months he suddenly experienced severe pain in the left side while breaking coals. This was followed by shortness of breath.

On admission there were pronounced signs of pyopneumothorax, and the chest was opened by operation and drained. Patient survived the operation nearly four months.

Path. Reports, 7th May, 1894, No. 3687.

III. 71. Aneurism Springing from Wall of Pulmonary Cavity. (Dr. Jas. Finlayson.)

This cavity existed in the posterior part of the lower lobe of left lung. Its internal wall was smooth, and presented at one point a soft brown projecting mass, on removing which a white sessile aneurism was discovered. The aneurism is seen in the specimen as a small white body, about the size of a split pea, springing from the wall of the cavity. A bristle inserted at the rupture in the coat of the aneurism is seen to issue from the pulmonary artery at the upper and back part of the specimen.

The patient was a man 21 years old, and the illness dated back 18 months. *Path. Reports*, 27th June, 1881, No. 683.

III. 72. Aneurism of the Pulmonary Artery in a Phthisical Cavity. (Sir Wm. T. Gairdner.)

The cavity is a large one, with rather rough walls; the aneurism is globular in shape, and about 1·5 cm. in diameter. On one of its surfaces there is a small aperture. Its wall is very brittle, and it was traced into communication with a branch of the pulmonary artery.

There had been frequent haemorrhages, and death occurred from a renewal of the bleeding. *Path. Reports*, 4th January, 1876, No. 57.

III. 73. Aneurism in a Cavity in Caseating Phthisis. (Dr. Tennent.)

The aneurism is situated in the lower part of a large and rather complex cavity. It is irregularly oval in shape, with a diameter of 2·5 cm. It has soft walls and a wide gaping tear which partially separates the greater part of the aneurism. The arterial aperture is thus exposed, and a probe can be introduced and passed in either direction. The cavity, of which only a small portion is preserved, was largely occupied by blood; the lung contained many cavities as well as caseating condensations.

John H. (aet. 28) began to complain of cough and spit four months before death. From the first there was haemoptysis. Otherwise the symptoms were generally those of phthisis. For a month before death there were repeated severe attacks of haemoptysis. *Path. Reports*, 18th October, 1887, No. 1753.

III. 74. Aneurism in Small Pulmonary Cavity. Haemoptysis. (Sir Wm. T. Gairdner.)

The aneurism is a nearly globular one, 2 cm. in diameter. It has a considerable layer of coagulum along one side (shown in section in preparation), and on the other side it is thin-walled and brittle, the proper wall of the aneurism being everywhere a thin white membrane. The aneurism is attached by a narrow pedicle, and a glass rod has been passed from the pulmonary artery into the aneurism. The aneurism completely fills one compartment of a complex cavity which was situated at the apex of the lung. It is surrounded by dense cicatricial tissue, and the pleura over it is greatly thickened. The lesion, in fact, is almost obsolete, there being calcareous matter present at places. The aneurism had ruptured, but there was little infiltration of blood in this lung, the other lung being the seat of considerable infiltration of a lobular distribution. The latter was free from adhesion, except at the apex, where there was an obsolete lesion; the former was adherent throughout.

Malcolm M'A. (aet. 38) had a severe haemoptysis in 1882 when serving in the army. From that date there was no recurrence of pulmonary symptoms and his lungs were regarded as healthy till a month before death, when a severe haemoptysis occurred. This was repeated, and death occurred from asphyxia in July, 1892.

Path. Reports, 9th July, 1892, No. 3057.

III. 75. Cavities in the Lung, with Aneurisms. (Dr. Jas. Finlayson.)

There were several cavities in this lung, mostly of moderate size. In the one preserved there are two aneurisms—one of the size of a filbert and the other of a hazel nut. They are attached to a bridge which spans the cavity, and they almost fill the cavity.

For four months before death there were frequent attacks of

haemoptysis—sometimes as much as 20 or 30 oz. of blood. Death occurred during a violent vomiting of blood (44 oz.). See *British Medical Journal*, 28th April, 1877.

Path. Reports, 28th September, 1876, No. 138.

III. 76. Cavity in the Lung, with an Aneurism in its Wall. (Sir Wm. T. Gairdner.)

There were many cavities in this lung, and that preserved is one of the smaller. In its wall is seen a pretty large vessel to which is attached a nearly globular aneurism about the size of a small hazel nut. There is a large rent in the aneurism, part of its wall being apparently torn away. A piece of whalebone introduced into one of the primary branches of the pulmonary artery passes into the aneurism.

During life there was repeated and increasing haemoptysis for four days before death, only slight traces having been previously observed. All the other symptoms and signs were those of chronic phthisis, at first laryngeal, afterwards with much intestinal complication. *Path. Reports*, 23rd October, 1876, No. 147.

III. 77. Fibroid Phthisis, with Great Thickening of Pleura and Cavities. (Prof. M'Call Anderson.)

The thickening of the pleura at places attains to 6 mm., and it forms a complete cap at the apex of the lung. There were numerous cavities, one of which, at the extreme apex, is preserved. These cavities were found to be, in many cases, bulbous dilatations of the bronchial tubes, and their walls showed, under the microscope, an imperfect lining of ciliated epithelium. Outside the cavities there is a dense fibrous pigmented tissue.

Path. Reports, 12th January, 1882, No. 612.

III. 78. Fibroid Phthisis with Contraction of Upper Lobe of Lung. Bronchiectatic and Ulcerative Cavities. (Prof. Gemmell.)

The upper lobe is represented by a fibrous pigmented tissue in which there are occasional caseous areas and areas of softening. The pleura is much thickened over the entire upper lobe, and it was formerly

adherent. There are, especially towards the apex, obvious saccular dilatations of the bronchi with distinct mucous membrane considerably injected. In addition to these bronchiectatic cavities there are, towards the outer and lower part of the lobe, irregular excavations without proper lining. The middle lobe is represented by a wedge-shaped area, pale in colour, and markedly emphysematous. It contains tubercles, and there were also many tubercles in the upper part of the lower lobe, sometimes caseating. The other lung contained large cavities with trabeculae traversing them. The small intestine presented isolated tubercles in its lower part. The vermiform appendage also showed a tubercular lesion.

John A. (aged 42) was ill for seven years with cough, weakness, and shortness of breath. He became greatly emaciated before death. The sputum consisted of large quantities of purulent material in which numerous tubercle bacilli were found.

Path. Reports, 14th July, 1897, No. 5128.

III. 79. Cavities in Lung, partly Bronchiectatic: Emphysema with Great Shrinking of the Lung Tissue. (Dr. Tennent.)

The apical parts of the left lung, as shown in the preparation, consist essentially of a congeries of cavities, and the volume of the part is very much reduced, as shown by the position of the main bronchus, which enters the lung about 6 cm. from the apex, and by the position of the bronchial glands. The cavities are lined with distinct membranes, and they communicate with bronchial tubes by wider or narrower apertures. There is also some cylindrical dilatation of the tubes. The tissue between the cavities is a dense solid structure with no remains of lung alveoli. No appearance of recent tubercle is visible in this tissue. The lower parts of the upper lobe and a great part of the lower lobe are highly emphysematous, as shown in the preparation. Microscopically no appearance of recent tuberculosis was discoverable, but the aspects are those of an old fibroid phthisis which had healed.

There was a high degree of amyloid disease affecting the kidneys intensely, and slightly involving the spleen (diffuse form), intestine, and liver.

Mrs. F. (aged 28) had a winter cough for five or six years, but not accompanied with expectoration. There were frequent micturition for three or four years, and dropsy of the feet and legs; dropsy

of the peritoneal cavity supervened nine months before death. The symptoms during residence were very much those of cardiac disease, but no lesion of the heart was found *post mortem*.

Path. Reports, 21st May, 1895, No. 4162.

III. 80. Fibroid Phthisis with Emphysema, Bronchiectatic Cavities, and Cystic Cavities of Pleura. (Prof. M'Call Anderson.)

The pieces of lung preserved are from the upper lobe. This lobe was much contracted and adherent to the chest wall, while the pleura, as shown in the preparation, is greatly thickened. In the midst of the fibrous tissue, which largely replaced that of the lung, there are highly emphysematous portions, the emphysema going on in some cases to the formation of considerable cavities, which, however, are not at the margins, but in the midst of the lung. In addition, there are various cavities which are all lined with distinct membranes, in which microscopic examination detected ciliated epithelium. Several of the cavities were traced into open connection with bronchial tubes, of which they formed bulbous dilatations. One of the pieces of lung shows a peculiar condition of the pleura in the form of a row of small cysts separated by thin partitions, these also being the result, apparently, of contraction of the lung tissue. *Path. Reports*, 12th January, 1881, No. 612.

III. 81. Fibroid Tuberculosis of Lung in a Cretin. (Dr. Jas. Finlayson.)

The preparation shows a section of the right lung from apex to base. There are the appearances of adhesions all over, including diaphragm, and there is also abundant fibrinous exudation. The lung tissue is grey in colour, and markedly firm in texture. It shows on microscopic section numerous tubercles, giant cells being very prominent, and along with these a remarkable fibrous development in the general stroma of the lung. The pleura is greatly thickened as well as coated with fibrine.

III. 82. Tuberculosis of Lung from Perforation of Caseous Gland into Bronchus. (Sir Wm. T. Gairdner.)

The specimen shows an extensive, almost continuous area of caseous condensation occupying the lower part of the upper lobe.

The area is about 4 cm. in breadth, and extends from the root to the surface. There is almost no condensation apart from this, and there was only one small patch in the other lung. The appearance of the whole condensation is nearly homogeneous, as if of simultaneous occurrence. The glands at the root of the lung are considerably enlarged, and one unusually large one is adherent to the main bronchus. The bronchus having been opened up, a small ulcer was found which communicated chiefly with the caseous substance of this gland. In this preparation a piece of whalebone indicates this communication, which is almost directly opposite a bronchus leading to the condensed area. In this case the primary lesion seems to have been tubercular peritonitis and tubercular ulceration of the intestine. Tuberculosis affected the diaphragm and extended to the pleural surface on the right side where several white nodules were visible. The affection of the bronchial glands may be probably referred to this.

James A. E. S. (aged 9) complained chiefly of abdominal pain and loss of health dating a year back; there was partial recovery followed by relapse. There was latterly slight cough.

Path. Reports, 19th June, 1886, No. 1561.

III. 83. Acute Pneumonia in a case of Phthisis. Exudation on Pleura and in Cavity. (Dr. G. P. Tennent.)

A large cavity at the apex of the lung is visible, and a portion of the lung beneath it. This part is in a state of grey hepatisation, as was also the rest of the lung. The surface of the lung is coated with a thick fibrinous exudation, except where previous adhesion has existed. In the cavity there is also a yellow fibrinous exudation of considerable thickness, lining about half its extent.

Path. Reports, 8th October, 1882, No. 856.

III. 84. Tuberculosis of Lung; Cavity; Acute Inflammation. (Sir Wm. T. Gairdner.)

The preparation shows the lung in section from apex to base. There is a large cavity in upper lobe with irregular walls. The rest of the lung has an almost uniform condensation, but in the fresh state an arborescent appearance was visible as if from dissemination by the bronchioles. Microscopic examination shows that the condensation is partly caseous, partly catarrhal, and also in great part due to

a fibrinous exudation. The other lung showed a less advanced and less continuous condensation.

Alex. S. (aet. 23), cabman, had been healthy all his life till three months before death, when he caught a cold. He thought little of it at first, and did not give up work till exactly a month before death. Tubercle bacilli were found in the sputum, which, towards the end, was very profuse. (Patient's mother died when he was a child. There were fourteen of a family, of whom he was the last survivor.) *Path. Reports*, 27th April, 1891, No. 2644.

III. 85. Miliary Tuberculosis of the Lung in an Adult. (Sir Wm. T. Gairdner.)

The miliary tubercles were present as white specks in every region of the lung from apex to base. At the apex there is evidence of an old but comparatively slight phthisis with cretaceous matter. Tubercles were present in liver, kidneys, and pia mater (tubercular meningitis), and there were tubercular ulcers of the intestine.

The case was that of a man aged 26, admitted to the hospital in a state of lethargy, passing into coma, with typhomania, but without paralysis. There were signs of tubercular changes in the upper part of both lungs, corresponding with the history afterwards obtained, that the patient had been suffering from chronic phthisis, but had sought admission to hospital in consequence of a dangerous aggravation of the original disease. No further details were available for diagnosis, till at a late period a history was obtained from his wife of pain in the head and vomiting, extending over a period of six months, and afterwards a severe cough, which appeared to aggravate the head symptoms. No delirium or paralysis was observed, however, up to admission, and no suspicion, apparently, was entertained of danger from the head symptoms. After admission, on the other hand, the chest symptoms were entirely in abeyance, and the death was from pure coma.

Path. Reports, 8th January, 1878, No. 282.

III. 86. Miliary Tuberculosis of the Lungs. (Dr. Jas. Finlayson.)

The tubercles are of small size, and scattered throughout every part of the lung. At the roots of the lungs there are groups of large pigmented glands. There were tubercles also in the kidneys, liver, spleen, and possibly in the pia mater.

Patient was a boy aged 10. The history points to a period only two or three months before death as the commencement of his illness. *Path. Reports*, 19th March, 1880, No. 538.

III. 87. Lungs of Sheep, containing Glanders Nodules.

These nodules are mostly of small size, composed of a grey tissue, with a tendency to caseous degeneration. Under the microscope they present a granulation tissue with degeneration. Glanders was prevalent in the district where these animals lived.

III. 88. Cancer of Bronchus. Collapse of Lung, etc. (Sir Wm. T. Gairdner.)

The trachea and main bronchi are shown opened up behind, and the left bronchus is seen to be interrupted about 3 cm. from its origin by a prominent fungating tumour. The wall of the bronchus is entirely lost in the tumour and its lumen obstructed. The corresponding lung was entirely collapsed or condensed, and the bronchi generally were dilated and contained a tenacious mucus. The branches of the pulmonary artery almost throughout the lung were plugged by thrombus, and there was considerable haemorrhage in the lung. The glands were considerably infiltrated with tumour tissue, and the proximate portion of the lung was similarly involved. The tumour also penetrated through the pericardium so as to present inside, and through the wall of the left auricle.

Under the microscope the tumour is seen to be very cellular, the cells being contained in alveoli which have no special arrangement. In a lymphatic gland the infiltrating structure of a cancer is visible.

Catherine F. (aged 55) presented a history of uterine myomata for thirty years (see Series VII., No. 180). At a comparatively late period chest symptoms appeared, aggravated by a distinctly painful disorder, probably left pleurisy. Cardiac symptoms also developed, the chief being great irregularity of heart's action. Signs of condensation of the lung and pleurisy were observed several months before death.

Path. Reports, 6th June, 1889, No. 2114.

III. 89. Cancer of Root of Lung—Enlarged Glands involving Pneumogastric and Recurrent. (Sir Wm. T. Gairdner.)

The right lung was collapsed and adherent to the thoracic wall. At its root there is a tumour which completely obstructs the main

bronchus, filling its lumen and extending into the lung parenchyma along the bronchus. The obstruction of the bronchus is of considerable extent, existing onwards to near the middle of the lung, and involving the principal branches. There were enormous masses of rounded tumours in the neck, and buried in these the right pneumogastric and recurrent nerves were traced, being apparently to a great extent incorporated. There were isolated secondary tumours in the left wall of the thorax, and on the right side of the frontal bone. Under the microscope the tissue is seen to be cancerous—cells of comparatively small size in a distinct stroma.

The patient was an unmarried woman (aet. 60). The whole of the facts are recorded in great detail in Journal I. of Ward 9, under date 22nd June, 1878, the patient remaining under observation for about six weeks. There was no difficulty in the diagnosis, except to determine how far the glandular enlargements in the neck and thorax, displacing the trachea towards the left and involving the right lung in disease, might have been connected with the right lobe of the thyroid (decided negatively), or so placed as to implicate the nerves. There was obstruction both of laryngeal and tracheal respiration, and of deglutition, the latter perhaps being the more prominent symptom, and of about six weeks' duration on admission. There had been cough for a somewhat longer period (about six months), but it had been of gradual accession and not severe. The cough revealed imperfect closure of the glottis, but was not convulsive or brassy in character, and there had been no stridulous inspiration, and no very obvious aphonia. The right lung was extensively invaded, and the liver depressed. The patient died without any extreme or paroxysmal dyspnoea, but complaining of great agony from the throat for a few days before death.

Path. Reports, 5th August, 1878, No. 353.

III. 90. Cancer at Root of Left Lung. Secondary Growth in Neck, etc. (Dr. R. S. Thomson.)

The preparation shows in section trachea with tumour mass, chiefly behind it, and upper part of lung with its main bronchus, both lung and bronchus being involved in the tumour mass. The bronchus, which is continuous with the trachea, is, as shown in the section, completely occluded and its wall replaced by tumour tissue. The upper third of the lung was also replaced by tumour tissue, and in the section tumour tissue and lung tissue are seen to

shade into each other; the rest of the lung contained many purulent cavities. The tumour tissue also points into the pericardium, a portion of which is preserved. The great mass of the tumour above is evidently from its lobulated arrangement lymphatic glands.

Microscopically the tumour has the structure of cancer, abundantly cellular, but with a distinct stroma. At the edge where it encroaches on the lung the cancerous masses frequently occupy the lung alveoli.

Maria M. (aged 39) traced her illness to a chill got two years before death, since which time she has had cough and expectoration, with pain in the left side. On admission a consolidation of the left lung was detected, and there was a tumour in the neck which had existed for seven months. The left vocal cord was paralysed. The veins of the left side of the chest were very prominent.

Path. Reports, 11th August, 1891, No. 2733.

III. 91. Cancer at the Root of Lung, Involving Bronchi. (Sir Wm. T. Gairdner.)

The tumour has its centre at the root of the left lung, and the main bronchus, through which a piece of whalebone has been passed, is almost occluded, its walls being incorporated in the tissue of the growth. This narrowing of the lumen involves also some of the primary and secondary branches. In addition, the growth has extended into the lung tissue in some parts even to the periphery. The lung, as a whole, was almost entirely collapsed. There were isolated secondary tumours in the other lung, in the bodies of the vertebrae, in the ribs and in the liver and kidneys.

The physical signs throughout were those of condensation without increase of volume of left lung, with perhaps some retraction indicated by slight displacemeut of the other viscera. Expectoration was insignificant, and the other symptoms not at all characteristic.

Path. Reports, 23rd October, 1875, No. 33.

III. 92. Cancer of Upper Lobe of Left Lung, Forming a Large Cavity and Protruding Anteriorly through Second Rib like an Aneurism. (Prof. M'Call Anderson.)

A great part of the lung as shown is replaced by a white friable tissue, and in the posterior and inner parts a cavity was formed which measures 8 cm. from above downwards and 6 cm. from

side to side. The tumour tissue has grown out anteriorly, and the preparation shows its relation to the first, second, and third ribs, which are cut across along with the tumour, from 3 to 5 cm. from the junction of their cartilaginous and osseous portions. The first rib is unaffected, although its lower part is in contact with the tumour. From the lower edge of this rib there is a somewhat abrupt rounded bulging which reaches a maximum of 1·5 cm. from the level of the rib and gradually falls away to the upper margin of the third rib. The second rib is only represented by some spicules towards the lower extremity of the bulging. There was a fracture or virtual disappearance of the rib in one part. There are some remains of lung tissue, but it is studded with tumour masses for a distance of 1 to 2 cm. from the margin of the cavity. The aorta was closely in contact with the tumour along its anterior wall, and the bodies of the vertebrae were distinctly bulged to the right.

Microscopic examination shows at places very irregular and large masses of epithelial cells, rarely showing any approach to glandular arrangement, in a highly cellular and evidently very friable stroma. There were small glandular tumours in the kidney and stomach, and a myoma in the rectum, but there was no secondary cancerous formation.

Wm. M'K. (aged 66), a joiner, had been a healthy man up till lately and was at work till seven weeks before death. At that date, when lifting a heavy plank, he felt as if something gave way inside in the left mammary region. It was only three days afterwards that pain supervened, but from the first some bulging with tenderness presented itself. On admission three weeks before death a bulging pulsating tumour was disclosed. There was a ventricular systolic murmur heard under the left clavicle.

Path. Reports, 12th December, 1895, No. 4422.

III. 93. Cancer of Lung Extending into Pericardium. Secondary Tumours in Brain and Ribs. (Prof. Gemmell.)

The specimen shows on section the central portion of left lung. This is occupied by a necrosed and friable mass measuring on cut surface 7·5 cm. from above downwards and 4·5 cm. transversely. There is not much fresh tumour tissue visible except towards the pericardial surface. The pericardium is quite incorporated with the pleura, and these two are greatly thickened by tumour tissue, which is con-

tinuous with the necrosed mass mentioned above. The piece of pericardium retained shows the pouting of the tumour tissue into the sac.

The tumour in the brain is also shown in section. It was situated in the upper part of the left occipital lobe close to the middle line. The dura mater was adherent over the surface of the tumour which occupied a nearly quadrilateral area about 3 cm. in diameter. The section shows the dura mater to be firmly incorporated with the tumour and the soft membranes to be similarly involved. The tumour penetrates inwards in a somewhat wedge-shaped form, reaching a depth of 4 cm. The surrounding brain substance is exceedingly soft and the tumour almost shells out from it.

There is also shown in section a portion of the right fourth rib. A tumour, measuring about 1·5 cm., distends the rib. The tumour is situated just outside the junction of osseous and cartilaginous rib, there being a distinct piece of osseous rib between tumour and cartilage. The osseous rib is fractured by the growth of the tumour, but on the surface of the latter there are spicules of bone. The appearances indicate an origin in the centre of the rib.

The only other organ in which there were tumours was the right kidney.

Microscopic examination shows in lung and brain the characters of a large-celled cancer without definite glandular characters.

John M'N. (aet. 39) complained chiefly of general weakness and sickness after food. He was greatly emaciated and presented clubbing of the ends of the fingers. Marked dulness over the left lung was detected. Headache was very persistent, but no other nervous symptom is recorded. *Path. Reports*, 31st July, 1894, No. 3811.

III. 94. Cancer of Lung, with Cavity. Secondary Tumours in Bones (Femur and Phalanx). (Dr. Beatson.)

The parts preserved are a slice of the upper lobe of the right lung, and the last phalanx of the little finger divided longitudinally. The upper lobe of the lung was represented by a large cavity, whose walls consisted of lung tissue in a state of iron-grey condensation. Deeply in the cavity and towards the root of the lung some white flocculent matter was visible, and this, as seen in section, was in immediate connection with a white cancerous tissue which surrounded the main bronchus and completely involved the bronchus of the upper lobe. In fact, the neck of the cavity, as shown in the preparation, is this bronchus transformed into an irregular channel

through the white cancerous tissue. The main bronchus is partly incorporated and its internal surface partly ulcerated. The white tissue of the tumour also surrounds and impinges on the pulmonary artery and some of the bronchial glands. The last phalanx of the little finger is expanded like a filbert and the nail is curved over it. On section it is seen that the whole phalanx is expanded into a soft white mass, only the articular cartilage remaining. The right femur was the seat of a cancerous infiltration with fracture about the junction of the upper and middle thirds. The microscopic structure is that of a cancer with large epithelial cells.

Path. Reports, 12th January, 1891, No. 2555.

III. 95. Cancer of Lung. Secondary Tumours in Spleen, Liver, and Cerebellum. (Sir Wm. T. Gairdner.)

The cancer in the lung is in the form of a massive tumour 9·5 cm. in diameter, occupying the lower lobe. Its tissue has a grey colour, and there is extensive softening so as to form a large ragged cavity. The spleen, liver, and cerebellum each contained a single tumour, those of the spleen and liver being shown in the preparation. There were also single tumours in each supra-renal capsule. The structure of all the tumours is that of large epithelial cells in spaces of various sizes and shapes, many of them elongated. The arteries generally were calcareous, and those of the brain highly atheromatous.

William M. (aged 59) complained of pain in left side of chest, cough, spit, and breathlessness, of eight months' duration. During residence in hospital he had an abundant expectoration with an almost constant trace of blood. The left side showed extensive dulness, especially at the lower part.

Path. Reports, 4th April, 1888, No. 1867.

III. 96. Primary Cancer of Lung; Extension to Lymphatic Glands, Liver, and Kidney. (Dr. Finlayson.)

The specimen is a portion of the lower lobe of the right lung. It shows tumour tissue originating deeply in connection with a bronchus of the second or third order, whose wall, with the exception of the cartilages, is replaced by tumour tissue. From this position there is a continuous extension towards the surface, apparently along the course of bronchi, and also a less continuous involvement of the lung parenchyma in the form of rounded masses mixed with pigment.

There was much interference with the calibre of the bronchus and its branches by involvement in the tumour, and consequently considerable bronchiectasis with accumulation of muco-pus, these changes being limited to a portion of the lower lobe. The lymphatic glands at the root of the lung were mostly dense and cicatricial and partly calcified. There was great enlargement of the abdominal glands, especially in the neighbourhood of the porta of the liver, and secondary tumours were abundant in the liver (see next specimen). In the right kidney there were several small white tumours of cancerous structure.

Microscopic examination of the lung tumour shows definite cancerous structure, its cells being small and with a tendency to cylindrical arrangement.

III. 97. Secondary Cancer of Liver. (From preceding case.)

The specimen is a portion of the right lobe of the liver in section. The organ was greatly enlarged, the lower border of both lobes reaching below the umbilicus. It weighed 9 kilograms (20 lbs.). As seen on section the tumours are mostly small, only a few reaching a diameter of 2·5 cm. and none exceeding 3 cm. There were also many of microscopic size.

Under the microscope, in the smaller tumours, many of which were of minute size, the cellular growth was evidently in the capillaries between hepatic cells, but occasionally a portal branch was found distended by epithelial cells. The cells, as in the lung, were small in size, and where they formed distinct tumours showed a tendency to cylindrical form and arrangement.

James R. (aged 55), quarryman. The history pointed to abdominal swelling and loss of flesh, but there was also cough; dulness was detected over the right lung at the base behind, and there was some tenderness on percussion of this part. The whole duration of the illness is stated at four months.

Path. Reports, 4th November, 1895, No. 4373.

III. 98. Primary Cancer of Lung: Secondary Tumours in Liver and Bones. Angioma of Liver. (Prof. Geo. Buchanan.)

The specimens in this jar show sections of the upper lobe of the right lung. On the inner aspect there is a thickening of the pleura,

forming a white dense tissue 1 cm. in diameter. Related to this as a centre there is tumour tissue, which in the central parts shows a considerable degree of carbonaceous pigmentation. The tumour tissue extends into the lung tissue for a distance of about 5 cm. from the pleural surface, the distal margin having the form of defined rounded edges. The pleura is somewhat thickened over this part of the lung generally. The microscopic structure of the tumour is typically that of a cancer with very large epithelial cells and a well-formed stroma. The alveoli correspond nearly in size with the lung alveoli, but at the margin there is no appearance of direct involvement or transformation.

The liver, a small portion of which is preserved, showed somewhat sparsely distributed nodules of small size which were most abundant in the left lobe.

III. 99. Bulky Cancer of Scapula, Secondary to Cancer of Lung. (Prof. Geo. Buchanan.)

The tumour consists of a solid mass measuring 20 cm. from above downwards and about 18 cm. in a transverse direction. It involves and obscures the upper part of the scapula, more especially the parts in the outer region. The acromion is involved in the tumour, and also apparently the head of the clavicle. The tip of the coracoid is unaffected, but its base floats, as it were, in the soft tissue of the tumour. The tumour extends downwards, involving about two-thirds of the posterior surface and a smaller area of the anterior, the two parts being continuous through the scapula. The head of the humerus is not directly involved, but it is in contact with the tumour mass, which entirely replaces the glenoid cavity. The tumour tissue is generally soft, but on making a section deeply abundant spicules of bone are encountered. On microscopic examination, the bone does not form a true stroma to the cancer, but consists of narrow trabeculae with an ordinary marrow.

Wm. J. (aged 44). Although the primary tumour was in the lung the history scarcely pointed to that organ, but rather to the shoulder region. There was, however, shortly before death cough with some spit.

The whole illness dates from eight months before death, and the first symptoms seem to have been pain and swelling in several joints. These passed off, and were absent for about three months. There then occurred a painful swelling ef the right shoulder, followed six

weeks later by a similar swelling of anterior superior iliac spine. (See next preparation.) The shoulder was cut into and necrosed tissue removed, and there was subsequently considerable haemorrhage difficult to control. The tumours increased in size, and the patient died extremely emaciated. (*N.B.*—This report applies also to preceding and following preparation.)

III. 100. Bulky Cancer of Iliac Bone, Secondary to Cancer of Lung.

A somewhat globular tumour about the size of a child's head, and measuring about 12 cm. in diameter, projects from and involves the anterior parts of the great wing of the iliac bone. Its upper margin corresponds with the anterior superior spine, and it extends down so as to overhang but not to involve the acetabulum. It extends backwards on both sides of the ilium, and a needle passes right through the bone except near the margins of the tumour. The tumour tissue is soft, almost fluctuant. (For account of case, see preceding preparation.)

III. 101. Cancer of Lung Originating in Left Bronchus. Extension to Oesophagus, etc. (Dr. Tennent.)

The lung, which is shown in section from apex to base, is extensively occupied by tumour tissue, which extends from the deeper parts, in the form of white masses, towards the periphery. The tumour tissue follows generally the distribution of bronchi and blood-vessels, but in the upper lobe there is a bulkier mass which extends to the apex. The main bronchus of this lung is involved in the more central extension, and outside the lung it is surrounded by and embedded in a bulky tumour mass, consisting of enlarged glands. The oesophagus is adherent to the mass, and being laid open it is seen that tumour tissue pouts into its calibre involving its anterior wall. The lung apart from the tumour showed considerable bronchiectasis.

There were two bulky secondary tumours in the liver and two in the suprarenal capsule. (See next preparation.)

Microscopic examination shows a highly cellular cancer. The spaces are large, but there are in parts traces of cylindrical form and gland-like arrangement of the cells. At the extending margin in the lung the epithelium sometimes occupies the lung alveoli.

Janet M'N. (aged 57) complained chiefly of pain in the side and shortness of breath, which had existed for eight or nine months. During the earlier period of her illness severe dyspnoea, especially on exertion, was prominent. Some months before death she suddenly experienced a severe pain in the left axillary region, and shortly afterwards difficulty in swallowing ensued; dysphagia was in the later periods a prominent symptom. During her residence in hospital the left lung was known to be consolidated, and the respiratory murmur was weak. *Path Reports*, 30th Nov., 1895, No. 4400.

III. 102. Secondary Tumours in Liver and Suprarenal Capsule. (From preceding case.)

The piece of liver presents a bulky white tumour, which was one of two found in the liver substance. The right suprarenal body also presents two tumours, one at either extremity. They have a flattened globular form, and they measure 2·5 and 1·8 cm. respectively.

III. 103. Secondary Cancer Involving Lymphatics of Lung. (Dr. Finlayson.)

The pleural surface of the lung everywhere presents a marbled or reticulated appearance from the presence of small whitish areas or bands. Similar whitish structures were traceable in the fresh state in the lung substance, especially around the vessels. Microscopic examination shows a filling-out of the lymphatics, both those accompanying the vessels and those under the pleura, with cancerous epithelium, the appearances being similar to those described and figured in Dr. Coats's *Manual of Pathology*.

The case was one of cancer of the stomach with extension to peritoneum, lymphatic glands, etc.

Path. Reports, 10th October, 1891, No. 2774.

III. 104. Great Thickening and Calcification of Pleura. (Dr. Finlayson.)

The lung (right) is encased in a dense cuirass of considerable thickness and occupied by calcareous masses, so that it is only with great difficulty that it can be cut through. The lung is somewhat loosely attached to this case, and can be separated from it without much

difficulty. This is seen at anterior edge in preparation. In this lung there are frequent pigmented nodules and other signs of fibroid phthisis. In the other lung this was more manifest, the apex being greatly shrunken and several bronchiectatic cavities being present.

Archibald M'C., a brass finisher, had congestion of lung in 1872 and inflammation in 1875. In beginning of 1887 had pleurisy, which kept him off work for two months. There were marked dulness on percussion and feeble respiration on the right side.

Path. Reports, 6th December, 1887, No. 1784.

III. 105. Old Empyema with Calcareous Masses. (Prof. M'Call Anderson.)

The lower part of the left lung and pleura are preserved. A cavity about 10 cm. in diameter is shown, which has its seat in the lower part of the pleura, the lining of it being the pleura greatly thickened. Lying in the cavity were found calcareous plates of various sizes of which some are preserved, the largest measuring 6 by 10 cm. Elsewhere the lung was firmly adherent, and dense calcareous masses were found embedded in the adhesions, so that it was difficult to make a section through the lung and pleura.

These calcareous masses reached as high as 9 cm. from the apex. Both lungs showed at the apex old and partially calcified tubercular lesions. The kidneys were amyloid and contracted, and the spleen presented amyloid disease of the pulp.

John M. (aged 57) had a history of chest complaint for five years. Urine loaded with albumen.

Path. Reports, 20th June, 1892, No. 3038.

III. 106. Empyema with Calcareous Masses in Pleural Cavity. (Sir Wm. T. Gairdner.)

The left lung and pleural cavity are here preserved. The lung is completely collapsed, and what represents the pleural cavity contained pus, and still shows a number of solid calcareous masses, some of them of large size, and others broken up into small pieces. One of the larger is adherent near the anterior part of the cavity. The cavity mentioned here only represents a portion of the true pleural cavity, the upper part being obliterated. The parietal layer of the pleura was found firmly incorporated with the wall of the

chest, and especially with the periosteum of the ribs. In addition, there were scattered areas of condensation of the other lung, and amyloid disease of various organs.

The symptoms and history could not be fully reported owing to patient's extreme exhaustion from diarrhœa; but extensive condensation of left lung was detected with constantly purulent and sometimes bloody expectoration. Urine highly albuminous, sp. gr., 1011; no reduction in quantity. Diarrhœa at last quite uncontrollable, with some blood in the discharges.

Path. Reports, 29th February, 1879, No. 426.

III. 107. Calcareous Mass from Pleura in Empyema. (Dr. Jas. Paton, Greenock.)

The preparation is a calcareous mass of an elongated shape, 4·5 cm. long, and resembling a sequestrum of bone. It was removed along with other similar pieces from the pleural cavity of a man.

G. M'G., aged 70. The chest walls had the appearance of having contracted, and there was a fluctuating swelling on left side, in fifth intercostal space. This swelling was aspirated and afterwards opened antiseptically, but with little relief. Finally a portion of the rib was resected and the pleural cavity opened. In it were found a number of calcareous masses like that preserved, and these, being loose, were readily removed. The man died from exhaustion some days after the operation.

III. 108. Bovine Tuberculosis of Pleura.

The preparation shows the lower part of the lung and a portion of the upper surface of the diaphragm. The lower edge of the lung presents a series of prominent nodules, and the surface of the lung above this edge is dotted over with similar nodules. An exudation of fibrin is also present. On the diaphragm there is a much more bulky compact mass, obviously composed of aggregated nodules; the unaffected surface here also presents an exudation.

III. 109. Primary Cancer of Right Pleura. (Dr. Tennent.)

The specimen shows a portion of parietal pleura and greatly collapsed lung. The parietal pleura is the seat of innumerable pale

tumours, which form irregular thickenings and rounded projections. These are frequently coalesced into larger masses, more especially on the diaphragmatic surface, and between the lobes of the lung. The lung is entirely collapsed, forming two small pigmented bodies, which lay in the posterior parts of the chest. There are occasional tumours on the surface, but they are generally small, and do not occupy the lung substance. There is in some places the appearance as if these tumours were in the lung substance (though still in connection with the pleura), but microscopic examination shows they are entirely superficial to the lung and only pushed inwards, apparently by the pressure of the fluid. A thin layer of fibrin covers the visceral pleura. There were no tumours in the substance of either lung, or in any other organ. The pleural cavity was enormously distended with a haemorrhagic fluid which deposited a considerable brown coagulum. The fluid amounted to at least 140 oz., and the diaphragm was displaced, pushing the liver downwards and to the left, so that the lower edge of the latter was below the level of the umbilicus and the suspensory ligament to the left of the middle line.

A portion of costal pleura is preserved as next specimen.

R. M'K. (aet. 64) was seized with pain and palpitation in cardiac region, while pulling a load up a hill nine weeks before death. Two days later, cough, without spit, but with pain on right side began. On admission, there was great dyspnoea, and the chest was absolutely dull on right side, the liver and heart being greatly displaced. Paracentesis was twice performed, and a large quantity of bloody fluid removed.

Path. Reports, 17th January, 1888, No. 1809.

III. 110. Costal Pleura. (From preceding case.)

The costal pleura could be easily stripped, and the outer surface was smooth. The inner surface presents tumours, sometimes aggregated into masses, sometimes forming merely warty projections.

On microscopic examination, the tumours are found to be superficial, seldom involving the whole thickness of the membrane. They have a typical cancerous structure.

SERIES IV.

ALIMENTARY SYSTEM.

IV. 1. Purpura Haemorrhagica. Ulceration of Tongue and Palate. Cicatrix on Left Cord, presumably Syphilitic. (Sir Wm. T. Gairdner.)

The specimen is a water-colour drawing of the right foot, the hands, the tongue and palate, and the larynx, made by Dr. Alex. Macphail. The foot and hands show large purpuric blotches, and there were similar areas over the back and the posterior and outer aspects of the left thigh. The initial lesion is, as indicated in the painting, in the form of small red papules, which by coalescence form the blotches. There was a healing ulcer measuring 2·5 cm. on the inside of the right forearm and a similar one over the left external malleolus. There were also ulcers over the trochanters and sacrum. The tongue presents on its left lateral aspect a well-defined but superficial ulcer about 1 cm. in diameter, and the soft palate showed superficial ulcers, giving a somewhat worm-eaten appearance. The left vocal cord is cicatricial, as represented in the drawing.

IV. 2. Adenoid Tumour of Palate. (Dr. A. Patterson.)

The tumour is about the size of an orange, and more or less globular in shape. The internal parts are broken and partly torn out; the material, which was soft, had a greyish, somewhat transparent appearance. The tumour itself had a distinct capsule, and consists mainly of transparent somewhat gelatinous-looking tissue.

In addition, there are some harder parts apparently composed of condensed connective tissue. Under the microscope the main mass of the tumour is seen to be glandular, the gland tissue being irregular, but with well-developed epithelium. In some parts the cells have undergone a mucous or colloid degeneration, so that the glandular spaces are filled with transparent gelatinous material.

Path. Reports, 14th January, 1880, No. 511.

IV. 3. Atheromatous Cyst from below the Tongue. (Dr. J. G. Lyon.)

The cyst was enucleated after an incison had been made over it. It is about the size of a small apple, and contained a thick atheromatous material. *Dispensary*, 2nd August, 1880.

IV. 4. Myxo-Sarcoma of Soft Palate. (Sir Hector C. Cameron.)

The tumour, half of which is shown, was a bulky one measuring 7·5 by 4·5 by 3 cm. Its surface shows a marked irregularity from outstanding lobules. The cut surface shows a somewhat dense homogeneous white tissue, which on microscopic examination is seen to be composed mainly of spindle-cells. There is a transparent basis substance which gives the reactions of mucin with alcohol, acetic acid, and toluidin blue. There are a few small calcified centres in the midst of the tumour.

Mrs. C. (aged 46) had noticed a swelling for about two months, her attention being drawn to it by a thickness in her speech. The tumour was in the right side of the mouth and obscured the tonsil. In its removal it was necessary to remove the greater part of the ramus of the lower jaw.

Path. Reports, 19th December, 1894, No. 3989.

IV. 5. Epithelioma of Tongue. (Sir Geo. H. B. Macleod.)

The preparation shows half the tongue removed by operation. The affected part is on the right lateral aspect, and for the most part on the under surface. It consists of a superficial ulcer of an oval shape, and about the size of a shilling. It is slightly excavated,

and has a somewhat warty or villous surface. The margins are not distinctly elevated, but they had, in the fresh state, a feeling of induration. Under the microscope epithelial masses were found, penetrating deeply and at places with a somewhat glandular appearance.

IV. 6. Epithelioma of the Tongue (two cases). (Sir Geo. H. B. Macleod.)

In the one case the tongue has been divided longitudinally, and in the other transversely, in order to show the penetration of the epithelioma. In the one divided longitudinally, the external surface shows an ulcer about the size of a shilling, with its anterior margin about 1 cm. from the tip of the tongue. The ulcer is slightly excavated and has a somewhat warty surface. On the cut surface it is seen that a white tissue interrupts the muscular substance to an extent corresponding with that of the ulcer, there being muscular tissue in front as well as behind. A small recent haemorrhage is visible in front of the infiltrated part. The case was that of a man aged 58, a gardener. The lesion was stated to be of eight weeks' duration, and began as a small lump on the side of the tongue. There was sharp stinging pain experienced, which extended to the ear on the affected side. The surface bled on pressure. He had always smoked a short pipe. Patient made a good recovery from the operation. *Path. Reports*, 7th December, 1882, No. 887.

In the other case there is a much larger ulcer, extending from the inferior surface to the dorsum, where there is a considerable prominence. The anterior margin of the tumour is about 3·5 cm. from the tip of the tongue. On section it is seen that the white epithelial tissue penetrates deeply into the substance of the tongue, almost reaching the middle line, where the organ has been divided at the operation. The patient was a man aged 50. He noticed a blister on the side of his tongue eight months before admission; this broke and allowed a raw surface to be fretted by a short pipe which he smoked. It was burned with caustic in England, but it only grew worse. He complained of severe pain in the tongue, extending to the ear and back of head. This case also recovered well after amputation.

Path. Reports, 7th December, 1882, No. 886.

IV. 7. Epitheliomatous Ulcer of Tongue. (Sir Hector C. Cameron).

The left half of the tongue, except its base, is shown as removed by operation. On the external aspect inferiorly there is an ulcer roughly circular and measuring about 1·5 cm. The surface is granular, and there is in the lower part considerable depression. The submaxillary lymphatic glands were also removed, and microscopic examination showed an extensive infiltration with columns of flat-celled epithelioma.

Malcolm M'D. (aged 64), farmer, stated that the ulcer was only of two months' duration. *Path. Reports*, 8th July, 1898, No. 5534.

IV. 8. Ulcerating Cancer in Position of Fraenum Linguae. (Sir Hector C. Cameron.)

The specimen shows the amputated tongue in longitudinal section. Below and posteriorly there is the sublingual gland, immediately in front of which is an ulcer measuring 1·5 cm. from before backwards and 2·5 cm. transversely. The floor of this ulcer is composed of a pale tissue, which in section has a thickness of 7 mm. It impinges on the under surface of the tongue, evidently eating into its substance. The anterior edge of the ulcer is about 13 mm. from the tip of the tongue.

Under the microscope large collections of epithelium, mostly flat-celled, are visible, but without any tendency to form cylinders or laminated capsules.

James C. (aged 67) was aware of the tumour for only three months. The edges of the ulcer were hard and everted, and there were little pain and no haemorrhage, and no indication of glandular involvement. The anterior two-thirds of the tongue, with a segment of the body of the jaw and the adjacent part of the floor of the mouth, were removed.

Path. Reports, 27th October, 1895, No. 4368.

IV. 9. Epithelioma of Floor of Mouth. (Sir Hector C. Cameron.)

The parts removed by operation and shown divided in the middle line are a portion of lower jaw extending 5·5 cm. from the sym-

physis, the division being on either side behind the first molars, along with the parts forming the floor of the mouth. A portion of the skin and lower lip, to the extent of about 3 cm. in breadth, is also removed. A somewhat bulky ulcerated tumour occupies the floor of the mouth anteriorly. It occupies the place of the four incisor teeth and corresponding portion of the alveolar process. Both canines were present, but on the right side the canine (which is not preserved) was entirely embedded, except its crown, in cancerous tissue, its portion of the alveolar process being also destroyed. The tumour is in contact anteriorly with the mucous membrane of the lower lip, and posteriorly with the sublingual gland on either side. It has a diameter from before backwards of 3 cm. and from above downwards of 2·5 cm. It has the structure of the squamous-celled epithelioma with considerable round-celled infiltration.

John S. (aged 72), a crofter. The disease was said to have begun three months ago with swelling inside the gum. The lower teeth loosened and fell out. The appearance was that of a discharging ulcer beneath the tongue. The man was in good general health.

Path. Reports, 7th November, 1892, No. 3173.

IV. 10. Epithelioma of Floor of Mouth Involving Sublingual Gland. Groove on Dorsum of Tongue. (Sir Hector C. Cameron.)

As seen on median section there is an irregular ulcer which involved the parts in the neighbourhood of the fraenum, and extended outwards especially on the left side, where it extends a distance of 3 cm. from the middle line. In this extension, involving the sublingual gland as seen on section, the ulcer has a thick wall of cancerous tissue extending all round for a distance of nearly 1 cm. On the lingual aspect this extends deeply into the substance of the tongue, almost reaching the dorsum, there being a corresponding depression on the under surface. The opposite aspect impinges directly upon the bone, there being no appearance of periosteum free from cancer.

Microscopic examination shows infiltrating processes of flat epithelium and a somewhat abundant and rather cellular stroma.

IV. 11. Cancer of Floor of Mouth Involving Tongue and Sublingual Gland. Fissure on Dorsum of Tongue. (Sir Hector C. Cameron.)

There is a small ulcer occupying the position of the fraenum and extending thence chiefly to the left. As seen on median section, a layer of cancerous tissue about 6 mm. in thickness surrounds the ulcer extending into the substance of the tongue and into the sublingual gland. In the tongue it is seen at its periphery to be in partially isolated nodules. In its furthest extension it is still 5 mm. from the dorsum; but there is, corresponding with its position, a deep fissure on the upper surface of the tongue, beginning about 5 mm. from its tip and extending nearly 2 cm. backwards.

The specimen is mounted so as to show the fissure. The section somewhat resembles the previous case (IV. 10).

Microscopic examination shows a cancerous structure consisting of masses of cells in a somewhat cellular stroma, to some extent resembling the rodent ulcer.

The tongue was removed along with the greater part of the body of the lower jaw. *Path. Reports*, 8th March, 1896, No. 4522.

IV. 12. Sublingual Carcinoma Removed along with Portion of Jaw. (Sir Hector C. Cameron.)

The specimen consists of the anterior 5 cm. of the left lower jaw to the inside of which lies an oval, well-defined tumour measuring 4 cm. from before backwards. It is separated from the bone by loose fibrous tissue, and is distinctly encapsuled throughout. It bulges markedly upwards in the floor of the mouth. Under the microscope the tissue closely resembles that of a salivary gland. The teeth, of which four are preserved, viz., an incisor, a canine, and two premolars, are much worn, the molars being flat, appearing almost as if cut across.

John Haggarty (aet. 48) noticed a profuse secretion of clear fluid from his mouth about five months ago. A month later he accidentally discovered a lump in his mouth which gave him no trouble until six weeks ago, when it began to interfere with deglutition. Patient has always been a heavy smoker, using a clay pipe, which, until he discovered the tumour, he always carried in the left angle of the mouth. *Path. Reports*, 15th May, 1894, No. 3696.

IV. 13. Cancer Involving Alveolar Margin of Upper Jaw and Palate. (Sir Hector C. Cameron.)

There is a firm warty growth 2·5 cm. in diameter and with some ulceration of the surface, which extends from the outer border of the alveolar margin across the latter on to the hard palate. It was found microscopically to have the typical characters of cancer.

The left upper jaw was removed from a man aged 50. The cancer centred in the molar region.

Path. Reports, 30th June, 1896, No. 4689.

IV. 14. Oesophagus Showing Post-mortem Digestion.

The lower part of the oesphagus, to the extent of 13 cm., shows a dark brown coloration, and the mucous membrane, especially in the lower parts, is replaced by a structureless soft material, the result of post-mortem digestion. Microscopically this altered membrane was found to be without differentiated structure.

Path. Reports, 1st April, 1898, No. 5401.

IV. 15. Impaction of a Metal Button in the Oesophagus. (Sir Hector C. Cameron.)

The oesophagus is laid open and a metal button is shown impacted in it with its upper edge about 2 cm. below the opening of the glottis. The button is a somewhat peculiar one; its flat surface measures 1·5 cm. in diameter, and it has a rigid cylindrical neck about 1 cm. in length. This neck is imbedded in an ulcerated cavity so that the surface of the button is nearly flush with that of the mucous membrane, this surface facing backwards. The lower and right edge of the button has also produced ulceration; and both of these ulcers have a punched-out appearance, without apparent suppuration. The neck of the button, projecting against the posterior non-cartilaginous wall of the trachea, has caused a distinct internal swelling without ulceration. The trachea shows a partially healed tracheotomy wound. The patient was a girl three years of age.

Path. Reports, 21st July, 1883, No. 1012.

IV. 16. Cicatrisation and Pouching of Oesophagus from Lodgment of Foreign Body. (Dr. Patterson.)

The oesophagus, which is exposed from behind, shows chiefly on the left side a thinning and cicatricial condition of its wall with a marked pouching, the dilatation extending about 4 cm. in the length of the tube. Its upper border is about 2 cm. from the level of the cricoid. Above this and to the right there is a deep pit, which was found to penetrate about 13 mm. towards the trachea but without actually perforating. Its situation is immediately below the level of the cricoid. There were gangrenous cavities in both lungs and pleural exudation.

Matilda H. (aged 38) swallowed an upper set of artificial teeth whilst taking food. For nearly 13 weeks she experienced almost no discomfort, but she then began to have attacks of breathlessness, for which she consulted a doctor. He passed an instrument and succeeded in dislodging the foreign body from its situation at the cricoid, some distance down. On admission a week later, the foreign body was detected behind the upper part of the sternum, and all attempts to dislodge it were futile. Oesophagotomy was performed. She lived for more than two months after the operation, but all along there were high evening temperatures. Pulmonary symptoms soon became marked, and the sputum had a foetid odour. Paralysis of the left vocal cord was present before admission.

Path. Reports, 26th May, 1892, No. 3009.

IV. 17. Ulceration and Stricture of Oesophagus and Abscess in Neck, from Molten Steel Projected into Mouth. (Drs. Patterson and Finlayson.)

The oesophagus is laid open from behind. It is considerably narrowed in its first part, and a gap is visible on the anterior wall, measuring about 2 cm. from above downwards. This communicates with a cavity which passes round the cricoid cartilage, which is partly exposed and destroyed, but without any perforation of the trachea. Loose cartilage was found in this cavity, and during life a portion was discharged. Beside this aperture there is a small one on the left side of the oesophagus which communicates with a large and complicated abscess cavity, whose anterior wall is displayed in the preparation. This cavity extended from the level of the superior cornu of the thyroid cartilage downwards so as to

nearly reach the root of the lung. Its inner wall is very irregular, and presented a dark green shreddy coating. In the wall the left common carotid artery was exposed and partly dissected. The abscess contained offensive greenish pus.

James B. (aged 42), a steel worker, had received a quantity of molten metal into his mouth eight weeks before death. On admission there was a stricture so tight as barely to admit a No. 3 gum elastic catheter, and the attempt to pass a No. 5 was followed by bleeding and surgical emphysema.

Path. Reports, 2nd November, 1893, No. 3482.

IV. 18. Perforation of Oesophagus and Penetration of Aorta by Fish-Bone; Fatal Haemorrhage. (Sir Wm. T. Gairdner.)

The preparation shows oesophagus and aorta laid open. In the oesophagus are two oval apertures measuring respectively 1·2 cm. and 2 cm. in long diameter. They penetrate the entire thickness of the oesophagus, and at the upper and lower extremities the mucous membrane is divided somewhat farther than the other coats, the division tapering off to a sharp point as if the lesion had been made by a cutting instrument. Each aperture communicates with a cavity, that on the right lying between oesophagus and root of lung; that on the left between oesophagus and aorta. The former cavity measures 6 cm. and the latter 9 cm., extending upwards to the level of the arch of the aorta. These cavities were filled with blood and decomposing matter. The aorta presents a ragged aperture 1 cm. in length; the internal coat has been partly displaced from the margin of the aperture. This aperture communicates with the cavity between oesophagus and aorta, and is directly in a line drawn through the middle of the two apertures in the oesophagus. The stomach was greatly distended with blood, to a large extent coagulated, which weighed over 2 kilos. Blood was also present in the intestine, its distribution being as follows: abundant in duodenum, very little in jejunum, more abundant in ileum, and most abundant in the large intestine, which was considerably distended right down to the anus, where some blood projected externally. The blood in the large intestine was tarry in character.

The patient was a man (aet. 63) who had swallowed a fish-bone eight days before admission. It had produced pain and discomfort

ever since. On the morning of his death he complained of great pain in front of chest and abdomen after a "faint." He had another similar attack at 11 am., and he died somewhat suddenly at 4.20 p.m., after having spat up two or three mouthfuls of blood. Consciousness remained till the end.

N.B.—Diligent search for fish-bone in stomach, etc., was unsuccessful. *Path. Reports*, 26th November, 1886, No. 1627.

IV. 19. Traumatic Stricture of Oesophagus, with Pouch. (Sir Hector C. Cameron.)

The preparation shows a small portion of the oesophagus whose lumen is laid open. There is a narrow stricture situated about 6 cm. above the level of the bifurcation of the trachea and about 5 cm. from the level of the glottis. To the left of the stricture a rounded pouch is laid open, which is partly lined with mucous membrane. This pouch is continued downwards beneath the mucous membrane as a tubular prolongation for about an inch.

Ellen M'C. (aged 18), a servant, was sick, and her mistress gave her an emetic of mustard and *boiling* water: this was about nine months before death. Eight hours later she vomited a large quantity of dark brown thick fluid, like porter. The vomiting lasted nine days. If the patient tried to swallow fluid, it regurgitated by the nose, and for twenty-two days after the accident she was fed by enemata. After this an abscess formed, and she vomited about half a pint of purulent matter. About two months after the accident a stricture was detected, and a tube was passed daily for a time. She was admitted to the Infirmary four months before death, greatly emaciated, and had to be fed per rectum. Although a bougie was passed with difficulty, the patient ultimately was unable to swallow anything. Gastrostomy was then performed, but she never rallied. *Path. Reports*, 5th February, 1890, No. 2271.

IV. 20. Fauces, Oesophagus, Larynx, and Trachea in Carbolic Acid Poisoning. (Dr. A. Patterson.)

This and the following two preparations are from a case of suicide, the person having swallowed a quantity of carbolic acid and then thrown himself from a window. The mucous membrane of the fauces is comparatively little altered, although somewhat grey,

opaque, and rigid. The mucous membrane of the oesophagus, on the other hand, is rigid and opaque, its whole thickness being altered. The mucous membrane of the larynx and upper part of the trachea shows merely a slight degree of opacity. The condition of stomach and intestines is shown in next two preparations.

The lungs presented considerable subpleural and parenchymatous haemorrhage. The larynx and trachea contained a bloody frothy material.

The spleen was ruptured in two places, and there was a trivial rupture of the left kidney, these injuries being apparently due to the fall. *Path. Reports*, 16th May, 1882, No. 820.

IV. 21. Stomach in Carbolic Acid Poisoning. (From same case as preceding.)

The stomach, before being opened, felt stiff and hard to the touch, its wall remaining convex instead of collapsing. A similar hardness was felt in the duodenum and upper part of jejunum, where it ended rather abruptly about the junction of upper and middle thirds. Around the stomach and upper part of intestine the tissue was also hard, as if partly coagulated, the upper part of the spleen, for instance, being of dense consistence, and having the pale and pinkish appearance of a clot of blood acted on by carbolic acid. The stomach was found to contain about a pint of nearly clear fluid, which smelt very strongly of carbolic acid, and affected the hands like a concentrated watery solution of that substance. In the preparation the stomach has been laid open along the lesser curvature, and turned outside in. The mucous membrance has an opaque coagulated appearance, all the various folds and irregularities of the surface being fixed by the hardening of the tissue. The hardening and coagulation affected the mucous coat in its entire thickness, the muscular coat to some extent, and the serous coat very little. At the fundus there is an erosion, and the surface is covered with blood.

IV. 22. Part of Duodenum and Jejunum in Carbolic Acid Poisoning. (From same case as preceding.)

The valvulae conniventes are rendered opaque, rigid, and prominent, and it was found that the tube of the intestine did not collapse even when cut into.

IV. 23. Traction Diverticulum of Oesophagus. Perforation. Penetration of Bronchus. Gangrene of Lung. (Prof. M'Call Anderson.)

A portion of the wall of oesophagus is preserved and shows a small but deep pit, at the bottom of which is an aperture communicating with a cavity which is situated in the fork between the two main bronchi, but more to the right than to the left. This cavity communicates by a ragged aperture with a bronchus of the second order. A piece of whalebone has been passed from oesophagus through the cavity into the bronchus. The right lung showed a large gangrenous cavity in the lower lobe, and there were elsewhere in the lung many centres of recent inflammation. The cavity at the root of the lung, between oesophagus and bronchus, contained pus and a dark semi-solid mass, apparently of gangrenous lymphatic glands.

Mrs. M. had suffered from winter cough for nine years. A week before death she suffered from pain on right side, and signs of pneumonia developed at the base.

Path. Reports, March 18th, 1885, No. 1322.

IV. 24. Traction Diverticulum of Oesophagus. Perforation. Penetration of Bronchus. (Sir Wm. T. Gairdner.)

The oesophagus presents a perforation into which a piece of whalebone has been inserted, and which is about 2·5 cm. in diameter. This perforation communicates with an abscess cavity which contained a foetid, gangrenous matter. It is situated in the fork of the trachea between the two main bronchi, and presents the remains of an enlarged and deeply pigmented lymphatic gland. The cavity has undermined the mucous membrane of the right bronchus for a considerable distance, and in the midst of the undermined part there are two apertures, into one of which a piece of whalebone is inserted. The bronchial glands generally are enlarged, pigmented, and in many places cretaceous. The lungs presented the characters of fibroid phthisis, with one small cavity. The larynx showed ulceration.

Alex. M. (aet. 53). Had been a stonemason for 39 years. Cough began two years before death. During life there were no symptoms specially pointing to the conditions shown in preparation, except that latterly there was considerable fever, that the sputum

became purulent, and foetid or almost gangrenous in odour, and that dulness on percussion manifested itself in the right back.

Path. Reports, 11th November, 1887, No. 1769.

IV. 25. Traction Diverticulum of Oesophagus.

A mass of enlarged and pigmented glands is adherent to the anterior wall of the oesophagus, the position being just below the bifurcation of the trachea. Corresponding with this there is a pouch in the anterior wall of oesophagus, sufficient to admit the tip of the little finger. There were no symptoms during life, so far as is known. The case was one of pulmonary and laryngeal phthisis, with tuberculosis of bronchial and other glands.

IV. 26. Perforating Ulcer of the Oesophagus, Penetrating into Bronchus. (Dr. Jas. Finlayson.)

The ulcer, which is oval in shape and measures 1 cm. transversly, has the general characters of a perforating ulcer of the stomach, the edges being abrupt and the mucous membrane unaltered around. The ulcer opens directly into the left main bronchus and, as the preparation shows, this aperture is almost exactly of the size of the ulcer. The bronchus is considerably narrowed, there being thickening of its mucous membrane and a good deal of contraction, so that its diameter is only about 6 mm., as compared with 1·5 cm. in the bronchus of other side; the mucous membrane of the trachea is also considerably thickened. There was gangrene of the left lung from introduction of foreign matter, resulting in numerous cavities of small size filled with grumous stinking material. See Series III., No. 30. The other lung was oedematous, with occasional patches of condensation.

The case was that of J. M. (aged 22), labourer. Family and personal history did not indicate any tendency to phthisis. Three months before admission he vomited food without any apparent cause, and this was frequently repeated nearly every day. There was no blood at that time. For the last two or two and a half months cough was a prominent symptom, whilst cough and vomiting were induced by taking food. Of late blood came up in the expectorated or vomited matter. It was noticed that he vomited up about half of what he swallowed, the vomited matters and expectoration

from lung being intimately mixed together. These matters were very foetid, and had a gangrenous smell. Physical examination revealed condensation and excavation in left lung, little abnormal in right; temperature was high. See *Glasgow Medical Journal*, Vol. XIX., p. 313. *Path. Reports*, 28th November, 1882, No 882.

IV. 27. Syphilitic Stenosis of Fauces. (Dr. Walker Downie.)

The preparation includes tongue, soft palate, fauces, pharynx, larynx, and trachea. The fauces are completely occluded, with the exception of a small round aperture about 3 mm. in diameter. In the general adhesion of parts the uvula, pillars of fauces, and tonsils are enveloped. The nasal surface of soft palate is seen above, and the buccal surface also is visible, terminating posteriorly in the adhesions. The preparation has been opened up so as to show the interior of the larynx, pharynx, etc. The larynx seems normal, except that the mucous membrane of the epiglottis is irregular. The pharynx presents great irregularity of its mucous membrane, and becomes gradually narrowed on passing upwards so as to form a funnel at the end of which is the small aperture mentioned above.

M. M'D., steam-loom weaver, aged 22 years. In August of 1881, when she was four months pregnant, her throat became painful and red in appearance, but she complained of no difficulty in swallowing. At this time she had the usual symptoms of syphilis, including falling-out of hair, spots on arms and chest, etc. Towards full time her throat was seen by a doctor, and from that date until the child was about a year old she had been having occasional treatment for her throat; she was then taken to the Royal Infirmary. The doctor there indicated to her the specific nature of the disease, and sent a note to the medical man then in attendance recommending certain lines of treatment, which on being adopted seemed to cause the throat to heal up quickly. From that time contraction of the fauces seemed to set in, as difficulty in swallowing increased rapidly, and the pharyngeal opening, through which she breathed, steadily became smaller and smaller. About twelve months before death it was stated that the opening appeared to be about 6 mm. in diameter, and when first seen at the Dispensary, three weeks before death, it was little over 3 mm., and a No. 6 gum elastic catheter was firmly caught when introduced through the orifice on 28th February, 1885. At this time she was able to take

sufficient food to nourish her, but she swallowed it very slowly. There was considerable dyspnoea on exertion, but she was able to go about quietly without difficulty of breathing. She was admitted to the Wards about a fortnight before death, and while she was there great difficulty of breathing supervened, and she died apparently from suffocation.

IV. 28. Ulcerating Epithelioma of Pharynx and Oesophagus. (Sir Hector C. Cameron.)

The pharynx and oesophagus have been laid open along their left lateral border, and turned round so as to show the posterior wall lying alongside the larynx and trachea, to which the anterior wall remains attached. The pharynx shows a large ulcerating cancer whose upper border, marked by a prominent overhanging edge, is at the level of the base of the epiglottis. In this upper part the tumour has a breadth of 5·5 cm. It extends downwards, almost limited to the posterior wall, into the oesophagus, the lower end being 8·5 cm. from the upper, and also marked by a prominent ridge. In the lower half there is a deep excavation which communicated with a cavity outside. The tumour when in position impinged on the larynx, and there was a putrid bronchitis. There is considerable enlargement of glands immediately around the tumour. The microscopic characters are mainly those of a flat-celled epithelioma, but without definite laminated capsules.

Wm. R. (aged 70) suffered from symptoms referred to the oesophagus, for four months before death. When he was admitted there was great difficulty in swallowing. Gastrostomy was performed, but the patient died, apparently from the pulmonary affection.

Path. Reports, 4th February, 1892, No. 2877.

IV. 29. Cancer of Oesophagus: Stricture. (Dr. Finlayson.)

The oesophagus is laid open along its left lateral aspect, in continuity with the first part of the stomach. A part of the aorta behind is also laid open. The oesophagus is occupied to the extent of about 4 cm. by a prominent, irregular, fungating, and ulcerating tumour, which projects into its lumen, so as to leave merely a narrow sinuous passage through which a catheter was with difficulty

passed. The tumour tissue in the centre of the affected part replaces the proper tissue of the oesophagus. At the upper and lower extremities the muscular coat is seen to pass a certain distance into the tumour, becoming infiltrated and lost by degrees. The lower extremity of the cancer is 2·5 cm. from the cardiac orifice. Under the microscope the cancer consists of large-celled epithelium arranged generally in processes frequently branching. It infiltrates to a large extent the muscular coat, indications of which are found some distance beyond its apparent termination to the naked eye. The body was extremely emaciated, and the small intestine greatly reduced in calibre.

Mrs. L. (aet. 50) suffered from persistent vomiting, which came on a few minutes after taking food. The duration is stated to be about three months. Constipation was a marked symptom. A bougie was passed, and was arrested after passing 30 cm. Strength gradually failed and emaciation became extreme.

Path. Reports, 4th November, 1885, No. 1433.

IV. 30. Cancer of Oesophagus. Stricture. Involvement of Recurrent Nerve. [Secondary Tumour in Vertebra.]
(Dr. Finlayson.)

The oesophagus, which is laid open, shows, at a level corresponding with the bifurcation of the trachea, a tumour 3 cm. in length which projects considerably into the lumen and also somewhat narrows the external configuration of the tube. The tumour is ulcerated on the surface. The oesophagus is here firmly adherent to the parts immediately in front, more especially the trachea and aorta, and there is a somewhat bulky mass outside the oesophagus involved in these adhesions. The left pnuemogastric passes into this matted tissue, and the recurrent being involved in it cannot be traced round, but is found emerging as a flattened band. The larynx was found to present atrophy of the intrinsic muscles of the left side. The twelfth dorsal vertebra was the seat of a tumour which almost entirely replaced its body. The body was greatly crushed, and the tumour tissue pushed outwards all round. The spinal canal was narrowed so as at one point to have a diameter of ·5 cm. Under the microscope the tumour showed masses of large epithelial cells infiltrating the wall of the oesophagus. There were no laminated capsules.

Henry J. (aet. 56) complained chiefly of aphonia, difficulty of

swallowing, cough and spit, and pain in the abdomen. The aphonia was observed to be due to paralysis of the left cord. He could only swallow fluids and that with difficulty. The pain in the abdomen was during life inexplicable, but was afterwards explained by the tumour in the twelfth dorsal vertebra. The aphonia and difficulty of swallowing dated four months back, but cough and spit had existed for nine months.

Path. Reports, 28th March, 1890, No. 2323. Also *Glasgow Medical Journal*, vol. 34, page 161.

IV. 31. Section of Twelfth Dorsal Vertebra, with Secondary Cancerous Growth. (From preceding case.)

IV. 32. Cancer of Oesophagus. (Prof. Macewen.)

The wall of the oesophagus is replaced by tumour tissue to the extent of from 7 to 9 cm., the upper border corresponding nearly to the bifurcation of the trachea and the lower border being 6·5 cm. above the cardiac orifice. The thickened wall protrudes internally, and there was an obstruction of the oesophagus, such as only to admit a fine sized catheter. Adherent to the oesophagus from the level of the tumour down to the cardiac orifice, there are enlarged glands which contain carbonaceous pigment in parts, but which are also the seat of tumour growth. The lungs were the seat of a pronounced tuberculosis with cavities.

Arch. M. (aged 44), a gardener, was admitted with stricture of the oesophagus and signs of phthisis pulmonalis.

Path. Reports, 1st April, 1896, No. 4553.

IV. 33. Cancer of Oesophagus: Perforation into Lung: Gangrene. (Dr. Finlayson.)

The tumour shows a generally oval outline occupying the anterior wall of the oesophagus and measuring 6·5 cm. from above downwards. The ulcer has the raised edges of a cancerous lesion, more especially at its upper border. There are four apertures visible in the floor and these communicate with a common cavity which undermines and burrows considerably. The oesophagus is here closely adherent to the bronchial glands and to the border of the lower

lobe of the right lung. In the latter there is shown in section a portion of a large cavity which measured 11 cm. from above downwards and had the usual characters of a gangrenous cavity. A communication was found between the cavity beneath the oesophageal lesion and the gangrenous cavity in the lung.

There were two aneurisms of the ascending aorta, one partly within the pericardium, and the other protruding forward against sternum and second rib.

Joseph B. (aged 55) was affected with cough and breathlessness which had lasted about six months. There was great difficulty in swallowing, and latterly only a small quantity of fluid food could be taken at a time. The aneurism which bulged forwards was observed as a prominent tumour. *Path. Reports*, 2nd July, 1895, No. 4219.

IV. 34. Cancer of Oesophagus: Communication with Gangrenous Cavity in Lung. (Dr. Finlayson.)

A bulky cancerous outgrowth, involving the tube in its entire circumference for about 10 cm. of its length, is shewn. It presents abrupt edges above and below, and its surface shows irregular projections having almost a cauliflower appearance. A band of persisting mucous membrane, infiltrated and undermined, extends the whole length of the tumour. Above the tumour there are three small pouches, the uppermost of which extends through the muscular coat. The lower edge of the tumour was 3 cm. above the cardiac orifice. The right lung contained a gangrenous cavity in its lower lobe, and this communicated by a narrow passage with the interior of the oesophagus. The other lung contained a tubercular cavity and tubercular condensations.

James G. (aged 40) was affected with grave obstruction of oesophagus about 3 cm. above the stomach. He recovered from this so as to be able to swallow. A week before death he was affected with high fever and signs of pneumonia (apparently from the gangrene of the lung). *Path. Reports*, 17th June, 1891, No. 2693.

IV. 35. Epithelioma of Oesophagus. Perforation. Gangrene of Lung. Pre-vertebral Abscess. (Sir Hector C. Cameron.)

The oesophagus and trachea are divided longitudinally in the middle line. The oesophagus is occupied by a tumour which

anteriorly is somewhat well defined. The upper border of the tumour is 5·5 cm. from the level of the upper border of cricoid, and it has an entire length at its most extensive part of 8·5 cm. It is much more extensive behind and on the left side; its narrowest part, measuring 3 cm., is to the right of the middle line in front. The edge is abrupt, especially at the upper border on the anterior wall. The posterior wall is much altered and ulcerated, and there were communications with a gangrenous cavity in the right lung, part of which is shown on the other side of the specimen, and with a large pre-vertebral abscess, which had eroded the bodies of the last cervical and first dorsal vertebrae. Under the microscope the cancerous tissue consists of rounded and elongated masses of generally flat epithelium, with laminated capsules at rare intervals.

Angus M'W. (aged 54). His illness began six months before death with symptoms of indigestion, followed by difficulty in swallowing, with pain between the shoulders extending to the left arm. When he was admitted, distinct stricture of the oesophagus was demonstrated. He afterwards developed marked pyrexia. There was also a purulent expectoration, occasionally with blood, and distinct dulness developed in upper part of right lung. He died suddenly with vomiting of blood.

Path. Reports, 3rd July, 1893, No. 3388.

IV. 36. Cancer of the Oesophagus with Perforation, Resulting in Gangrene of the Lung. (Sir Wm. T. Gairdner.)

The lower part of the oesophagus for the distance of about 11 cm. is occupied by a flat fungating tumour. Above, the margin is quite abrupt, considerably overhanging the normal mucous membrane. From this downwards, the wall of the oesophagus is completely involved in tumour which, at the lower part on the left side, forms a bulky mass in which the outline of the oesophagus is lost, and which may be partly cancerous glands. This mass presses down against the wall of the stomach, but the latter is not at all involved; the oesophageal tumour ends at the cardiac orifice, which is indicated in the preparation by a ring of whalebone. The tissue of the tumour is exceedingly soft, and the surface has a ragged, somewhat warty, appearance. At one part a small perforation exists, through which a piece of whalebone has been passed. At the base of the right lung there was a large

gangrenous cavity which was probably connected with this perforation. Under the microscope the tissue was composed mainly of epithelial cells of very various shapes.

The case was that of a woman aged 40. There had been stricture of the oesophagus, regarded at first as possibly spasmodic, but amounting at times to absolute obstruction. Duration of severe symptoms about four months. Four years before, there had been a copious haematemesis, supposed at the time to have been a vicarious menstruation. There had been for many years gastric irritability, with neurotic peculiarities, and "fits" suggestive of hysteria. Pulmonary symptoms, with abundant foetid expectoration, occurred in the later stages. *Path. Reports*, 23rd February, 1882, No. 783.

IV. 37. Cancer of Oseophagus, Involving Trachea, etc. (Dr. M'Vail.)

A median section of oesophagus, larynx, and trachea, shows the parts involved. There is an extensive cancerous infiltration of the wall of the oesophagus, which is greatest on the posterior aspect, where it attains considerable thickness and prominence, especially above. The cancer begins above at the upper extremity of the oesophagus and extends downwards about 16 cm. It involves almost the entire circumference of the tube, but towards the lower end it tapers off, forming a more defined elevation in the mucous membrane. There is some ulceration of the more prominent upper part, but the tumour is generally in the substance of the wall. The trachea is infiltrated in its posterior wall from the first ring downwards to its bifurcation, the infiltration extending to both main bronchi. The glands at the root of the lung are greatly enlarged and cancerous, so that the bifurcation is enclosed in a bulky mass, and the growth had extended into the innominate vein in the form of a nodular prominence. There were small secondary tumours in the lungs, and a very large one in the liver (see next specimen).

Under the microscope, the structure consists of somewhat large groups of cells, with little protoplasm and large oval nuclei. The stroma is not abundant. The same structure obtains in the tumours in liver and lungs.

A man (aet. 56) had dysphagia for nine months. The trachea was pushed forwards, and the supra-sternal notch filled up. Latterly there was loss of voice. *Path. Reports*, 18th Sept., 1888, No. 1927.

IV. 38. Large Cancer in Liver. (From preceding case.)

The specimen is a slice of the liver including right and left lobes. The former is occupied by an oval tumour measuring 13 cm. from right to left and 10 cm. from above downwards. It extends to the surface of the liver, at its upper border. The tumour is whitish in colour and soft, and in its centre there is a cyst 2 cm. in diameter. There were one or two small tumours in the liver, and one, 4 cm. diameter, in the left lobe. The liver weighed 2·6 kilos.

IV. 39. Epithelioma of Lower End of Oseophagus Extending to the Cardiac Orifice. (Sir Wm. T. Gairdner.)

The lower part of the oesophagus, to the extent of 4 cm. from cardiac orifice, is occupied by a tumour which involves its wall almost uniformly, so that the tube is converted into a thick-walled cylinder with a narrow calibre. At its upper extremity the tumour ends somewhat abruptly. At its lower extremity it extends in the form of somewhat rounded masses to the wall of the stomach, especially anteriorly, but these masses are almost entirely subserous, the mucous membrane of the stomach being nearly intact. The tumour tissue is generally white in colour and the surface is generally ulcerated; the average thickness is about 12 mm. Above the seat of tumour the oesophagus is dilated for a distance of about 10 cm., the circumference reaching about 8 cm. In structure the tumour presents the characters of a flat-celled epithelioma. The body was greatly emaciated and the small intestine, reduced to a calibre of 12 mm., was mostly in the pelvis. The transverse colon was also carried to the brim of the pelvis, and the lesser omentum, stretched over the vertebrae, aorta, and iliacs, formed with the mesentery a thin veil over these.

Alex. M. (aet 49) complained for six months of vomiting, burning sensation in chest, and pain in stomach region. The pain was at first round the umbilicus and latterly about the ensiform cartilage, and was increased on pressure. There was latterly great retraction of the abdomen with tenderness. With the stomach tube an obstruction was detected near the lower extremity of the oesophagus.

Path. Reports, December 17th, 1886, No. 1641.

IV. 40. Epithelioma of Oseophagus and Stomach: Great Enlargement of Glands, and Multiple Tumours in Liver. (Prof. Geo. Buchanan.)

The lower part of the oesophagus, to the extent of 5 cm., is occupied by a tumour which has infiltrated its walls and caused great contraction of its lumen. Externally, the wall of the oesophagus presents a nodulated appearance and is unduly rigid. Internally, the surface is irregular and ulcerated. From the end of the oesophagus the tumour extends, but only for a short distance, into the stomach, forming a flat elevation of its mucous membrane, with some ulceration. Outside the stomach, the lesser curvature is filled up with a matted mass, apparently of enlarged lymphatic glands, which is adherent on the one hand to the liver and pancreas, and on the other hand to the wall of the stomach along the lesser curvature, especially towards the pylorus. The pyloric portion of the stomach is considerably contracted, this contraction occurring suddenly, and contrasting with the dilated cardiac portion, but there is no obvious tumour in this region, although small circular ulcers are present along the lesser curvature. The tumour is a flat-celled epithelioma. *Path. Reports*, 17th October, 1881, No. 717.

IV. 41. Secondary Cancer (Epithelioma) of Liver. (From preceding case.)

The liver, a portion of which is shown, was the seat of numerous rounded tumours, having the usual characters of secondary cancers. They form rounded projections, many of which were towards the margin, and some of them umbilicated. Under the microscope, these tumours in the liver have the structure of an epithelioma, showing very characteristic laminated capsules.

IV. 42. Exudation in Oesophagus Penetrated by Thrush Fungus—Mycosis Oesophagi. (Prof. M'Call Anderson.)

A portion of the oesophagus is preserved, and it is seen that the mucous membrane is coated with a yellow exudation, which presents longitudinal ridges corresponding with folds of the mucous membrane. This yellow membrane was firmly adherent, and it extended from near the upper extremity to within an inch of the lower.

Under the microscope, the yellow layer is seen to be largely com-

posed of the felted mycelium of a fungus, which has the general appearance of the thrush fungus (*oidium albicans*), but presents no spore formation. The mycelium tubes have a general direction downwards, and impinge directly on the mucous membrane, which is here much infiltrated with leucocytes. The lungs presented a condensation, and in the right there was a fibrinous cast in main bronchus and its branches.

Agnes M'W. (aged 17) was regarded as the subject of pernicious anaemia, from which there was an apparent recovery. There supervened an acute affection, during which she died.

Path. Reports, 20th October, 1892, No. 3153.

IV. 43. Cysts in Oesophagus, due to Filaria Immitis. (Dr. T. B. Adam, Foo Chow.)

A portion of the oesophagus of a dog, removed about 5 cm. above the cardiac end of stomach, and laid open anteriorly in its longitudinal axis. Protruding from the internal surface, at the posterior aspect, are seen two tumours formed by, and packed full of, "filariae immites." The tumours are cystic, completely separable from the coats of the oesophagus, between which they are placed, and present orifices through which numerous mature filariae are seen depending into the oesophagus. The dog from which the specimen was obtained was a pointer, English born, but resident in Foo Chow, China, for some years. It had been noticed to be falling off in flesh for two or three months previous to death. The animal was seen by Dr. Adam two days before death, and found in a state of extreme exhaustion, suffering also from frequently recurring attacks of general convulsions. No rise of temperature. Breathing was laboured and very rapid. All solid food was refused. Towards the end convulsions became more and more frequent in occurrence.

On examination after death, the right ventricle was found occupied by a large clot, on breaking up which some ten mature filariae immites were found, dead, and of a colour peculiarly white, when contrasted with the worms occupying the oesophageal tumours. (The filariae found in the right ventricle are to be seen lying in the bottom of the jar.) In the oesophagus the worms were also quite dead. Post-mortem examination was not made till several hours after dog's death. From the appearance presented one might fairly conjecture that a general escape of the inhabitants of the tumours was being attempted just before or after their host's death.

IV. 44. Cyst in Oesophagus due to Filaria Immitis. (Dr. T. B. Adam, Foo Chow.)

A portion of oesophagus obtained from a dog. The filaria cyst is seen protruding from the outer wall, not interfering in the least with calibre of tube. The orifice of the cyst communicated with the interior of the oesophagus, and, as in the former case, a large clot occupied the right ventricle, in which several mature filariae were found. (See *Glasgow Medical Journal*, 1886, Vol. XXVI., p. 131.)

IV. 45. Congenital Stenosis of Pylorus in an Infant. (Dr. Peden.)

The stomach and first part of duodenum are shown in section, the anterior wall being preserved. The pyloric portion of the stomach is converted into a thick rigid funnel 2·5 cm. in length, which ends abruptly and bulges into the duodenum. The appearance strongly confirms Meyer's comparison of the altered parts to the cervix uteri in its relation to the vagina. The thickening is about equally due to the muscular and submucous coats. There is also considerable dilatation of the stomach generally with thickening of the muscular coat.

The case was one of persistent vomiting, beginning three days after birth in a healthy, well-developed child, and terminating fatally at the end of the third month. For a full account of the case, see *Glasgow Medical Journal*, Vol. XLI., p. 416; also *Transactions of Glas. Path. Society*, Vol. III., p. 193.

IV. 46. Diverticulum at Great Curvature of Stomach near Cardia. (Dr. Joshua Ferguson.)

The diverticulum, which has a projection of 3·5 cm., is situated 4 cm. from the oesophageal opening, and abutted on the spleen, lying practically within the gastro-splenic omentum. It has a comparatively narrow communication with the stomach, measuring 1·5 cm. in diameter. The sac is very thin, and microscopic examination showed a progressive thinning of mucous membrane to the apex, whilst the outer muscular coat extended no further than the orifice, and the inner one about 2 mm. inwards.

The case was from a man aged 34, who died from exhaustion during acute mania. He had been a glutton and a drunkard, and the stomach as a whole was found dilated and with its wall thinned,

especially the posterior wall. For complete account of the case, see *Glas. Med. Journal*, Vol. XLIX., p. 171.

IV. 47. Stomach in Carbolic Acid Poisoning: Extensive Sloughing. (Sir Wm. T. Gairdner.)

The posterior wall of the stomach is preserved, and it is seen to present over a considerable portion, especially towards the fundus, a crumpled, irregular slough, in great part separated. The wall otherwise was grey in colour and hardened. There was a pale hard membrane coating the pharynx and oesophagus, but chiefly at the lower end of the oesophagus. The lesion did not extend beyond the stomach, the pylorus being firmly closed. The neighbouring parts of liver and pancreas showed a pale hardened surface which extended about 2 mm. inwards.

James H. (aged 58) was reported as having taken one or two ounces of crude carbolic acid about 10½ hours before death. On admission 2½ hours after having taken the acid he was quite unconscious, the pupils small and fixed, conjunctival reflex gone, breathing stertorous, the pulse full and moderate in rate, and the skin cool and moist. Some whitening of the lips and nostrils was noted, and the mucous membrane of the tongue was friable. The stomach tube was introduced with difficulty and the stomach washed out. The urine drawn off before death was almost black in colour. *Path. Reports*, 9th December, 1896, No. 4853.

IV. 48. Stomach in Purpura Haemorrhagica. (Dr. James Finlayson.)

It shows numerous haemorrhages into the mucous membrane, and also beneath the peritoneum. For kidney in same case, see Series VII., No. 50.

IV. 49. Peculiar Haemorrhagic Ulcers of Stomach. (Prof. Coats.)

The lesser curvature of stomach from cardia to pylorus is shown. It is occupied by a series of ulcers (about 20), and varying in size from the diameter of a split pea to 2 cm. Each has a definite outline, but does not penetrate beyond the mucous membrane. The ulcers are

occupied by a brown matter, apparently altered blood, and the stomach contained about a pint of brown turbid fluid. The liver presented passive hyperaemia, and there was a thrombus in the portal vein. The lungs were emphysematous and the right ventricle of the heart greatly enlarged.

Charles M'M. was affected with the general symptoms of a severe bronchitis. *Path. Reports*, June 4th, 1885, No. 1374.

IV. 50. Haemorrhagic Erosions of Stomach. (Dr. Finlayson.)

In the portion of stomach preserved there are a number of erosions mostly circular in shape and varying in diameter up to 2 cm. The erosions are superficial, and on microscopic examination it is seen that they involve about one-third to one-half of the thickness of the mucous membrane, opening up the glands, which show signs of inflammation in their deeper parts. There is slight inflammatory change in the submucous and muscular layers.

Arthur O. (aged 21) was affected with aortic and mitral disease and adherent pericardium. There was a history of rheumatic fever two years before death. Soon after this the cardiac symptoms developed. *Path. Reports*, 12th February, 1891, No. 2582.

IV. 51. Perforating Ulcer of Stomach. (Dr. Renton.)

This ulcer was situated on the anterior wall of the stomach, 2·5 cm. from the lesser curvature, and about 6 cm. from the cardiac orifice. The ulcer has a general diameter of 2·5 cm., and it is almost as if the whole wall of the stomach to this extent were "punched out," the peritoneal aperture being nearly of the same size as that of the mucous membrane. The ulcer was somewhat concealed by the left lobe of the liver, and there was considerable exudation gluing the parts in this neighbourhood. The mucous membrane of the stomach generally was thickened and irregular.

Annie M. (aged 20) suffered from pain after food, with vomiting, for a month. She was suddenly, about 1 a.m., seized with severe pain. On admission next morning she had a temperature of 102·4°, and complained much of pain and thirst. Next day she had a rigor, followed by high temperatures, and she died about 48 hours after the first onset. *Path. Reports*, 28th May, 1894, No. 3723.

IV. 52. Perforating Ulcer of Stomach. (Dr. Crawford Hamilton.)

There is a small round ulcer, which was situated on the anterior wall close to the lesser curvature. On the peritoneal surface the aperture is clean-cut and nearly circular. On the mucous surface there is some irregularity, but the ulcer is very slightly larger than the peritoneal aperture. The abdominal cavity was found to contain 4 or 5 quarts of flocculent fluid.

M. H. (aged 19), a barmaid, was in good health with the exception of suffering from indigestion. She took ill one evening and next morning was found in a state of collapse, with pain and swelling of the abdomen; she died after an illness of less than 24 hours.

Path. Reports, 6th Nov., 1894, No. 3926.

IV. 53. Double Perforating Ulcer of Stomach—Peritonitis. (Prof. Macewen.)

The specimen shows two perforating ulcers, situated almost directly opposite each other, one on the anterior, the other on the posterior wall of the stomach. Both have the typical characters of the perforating ulcer, the floor being formed by a thin membrane in which perforation has occurred. The anterior ulcer, which was situated 9·5 cm. from the pylorus, and 2·5 from the lesser curvature, is ovoid in form, with its long axis vertical. On its mucous aspect it measures 1·7 cm. in greatest diameter; on its serous aspect it measures only 5 mm., and the edges of the apex of the cone are necrosed. The posterior ulcer, situated opposite the anterior, is circular in outline, measuring on its mucous surface 1·5 cm., and on its serous 1 cm. The stomach was in great part concealed by liver, the left lobe of which was unduly elongated and thinned. On reflecting the lobe, brownish fluid was seen escaping from the anterior perforation. The peritoneum around the aperture was covered with recent fibrin; there was acute general peritonitis with exudation in the lesser sac.

Agnes M. (aged 17) was suddenly seized one evening with intense pain in the abdomen, followed by stercoraceous vomiting. During the afternoon of the same day she had been engaged carrying large quantities of coal. She was admitted to hospital two days later, almost pulseless. The abdomen was distended, tympanitic, and there was great pain on palpation, especially in the iliac regions. Abdominal section was performed, and the abdominal cavity, which was free of sero-purulent fluid, was irrigated. The patient died on

the following morning, eighteen hours after admission, and about three days after the onset of her symptoms.

Path. Reports, 30th Oct., 1897, No. 5208.

IV. 54. Perforating Ulcers of Stomach; One penetrating into Peritoneal Cavity—Acute Peritonitis. (Sir Wm. T. Gairdner and Prof. Macewen.)

Before opening the stomach a small round opening in the anterior wall was revealed, measuring 8 mm. The stomach in this region was glued to the liver by recent fibrinous exudation, some of which is still visible in the preparation. There was also extensive general peritonitis, and the abdominal cavity contained over 40 oz. of a yellowish-brown opaque fluid having a sour odour.

Viewed from within, the ulcer is seen to be about 5 cm. from the lesser curvature and 3 cm. from the greater. The internal size is very slightly larger than the external. A second ulcer of still smaller size is revealed on the posterior wall 3 cm. from the lesser curvature. It has a somewhat irregular outline. It is backed by pancreatic tissue, that organ being adherent in this situation.

Maggie B. (aged 20), housemaid, had complained of pain in abdomen lasting for some time. It had been almost constant for six weeks, and aggravated by food.

IV. 55. Perforating Ulcer of Stomach, Rupturing into and Causing Suppurative Inflammation of the Lesser Peritoneal Sac. Healed Ulcers of Stomach. (Prof. Geo. Buchanan.)

The ulcer displayed, which measures 3·5 by 2·5 cm., was situated on the posterior wall of the stomach, its upper edge being about 4 cm. from the lesser curvature, and rather nearer the cardiac than the pyloric orifice. It has the usual features of the perforating ulcer, and its floor is mainly formed of pancreatic tissue. A perforation has occurred at the lower part of the ulcer just beyond the lower edge of the pancreas. This perforation led into the cavity of the lesser peritoneal sac, which is partly displayed in the specimen; it contained a considerable quantity of creamy pus. There had also been a slight leakage into the general abdominal cavity, with consequent slight general peritonitis. The stomach presented several other ulcers, most of them healed or partly so. Some of them are dis-

played in the part hung separately. There are many small ulcers, and there is one of large size measuring 4 cm. by 2·5 cm. It presents only a slight flat depression, with well defined and rounded margins. There is no puckering around. This ulcer was situated on the anterior wall, with its edge slightly removed from the lesser curvature.

Elizabeth C. (aet. 17). The case was interesting, as the symptoms pointed to an obscure abdominal suppuration. Ten days before death she was suddenly seized with violent abdominal symptoms,—great pain and distention, with subnormal temperatures. She improved slightly and then became worse and died. She had suffered for about four years from dyspeptic symptoms, especially pain after food.

Path. Reports, 6th March, 1893, No. 3281.

IV. 56. Perforating Ulcers of Stomach, Exposing Pancreas, and Penetrating Peritoneum and Gall-Bladder. (Dr. Tennent.)

The portion of stomach preserved is the lesser curvature and neighbouring parts. Near the pyloric orifice there is a large ulcer 7 cm. in long diameter, which is transverse to the lesser curvature, and 4·5 cm. in the other diameter. Its floor is mainly composed of pancreatic tissue, the ulcer extending more along the posterior than the anterior wall of the stomach. The truncated pancreas is shown in the preparation, projecting below the stomach wall. At its upper extremity, the ulcer has penetrated the anterior wall by a cleft-like aperture, and acute peritonitis was the cause of death. Close to the upper edge of ulcer, but nearer the pylorus, is a small round aperture communicating directly with fundus of gall bladder, which is firmly adherent. There were firm elongated adhesions between the left lobe of the liver and lesser curvature. Besides these two ulcers there is a small typical round one, 12 mm. in diameter, between large ulcer and cardiac orifice, and in line of lesser curvature. The ulceration seems to have been more extensive than the present condition shows, as cicatrices existed round the large ulcer.

Andrew M'V. (aet. 45) was affected with stomach symptoms for many years, and about four years before death had severe attack of vomiting and pain. The vomited matter was black. He had a sudden attack of violent pain over the entire abdomen, and died within twenty-four hours.

Path. Reports, 22nd December, 1886, No. 1654.

IV. 57. Perforating Ulcer of Stomach, Removed by Operation. (Dr. Dalziel.)

The preparation is a diamond-shaped piece of the stomach wall, in which there is a nearly circular opening measuring about 3 mm. in diameter. It comprises the whole thickness of the wall, as if a piece had been punched out. At the lower edge a piece of mucous membrane protrudes, which is really displaced, being a portion of that dissected during the operation.

A woman (aged 24) had suffered from gastric symptoms for six weeks. She was treated for a month in bed for gastric ulcer with great benefit. She remained well for a week, and then complained of pain in abdomen, especially in right iliac fossa and in the right shoulder. The pains were not modified by taking food. Latterly she passed into a state of collapse, and as the diagnosis was that of rupture of appendix or stomach, the abdomen was opened. The appendix was found normal. The aperture shown was found in the stomach about the middle of the anterior surface of the pyloric bend. There was no peritonitis, but a quantity of fluid, estimated at about a pint and regarded as stomach contents, was sponged out from right side of abdomen and pelvis, especially from the pouch of Douglas. Patient made a good recovery.

Path. Reports, 24th September, 1895, No. 4328.

IV. 58. Perforating Ulcers of Stomach and Duodenum (Six), Exposing Liver and Pancreas. (Dr. Tennent.)

The principal ulcer here is a large one, which lies across the greater curvature, its diameter in this direction being 8 cm., whilst its other diameter is 3·5 cm. It lies almost equally on posterior and anterior walls. On the posterior wall the stomach is adherent to the pancreas, and for the greater part of its extent the ulcer exposes pancreatic tissue. On the anterior wall there is a certain amount of stomach wall remaining, but a gap exists 3 cm. in diameter, which was backed by liver whose tissue is exposed and somewhat eroded. Besides this ulcer there is a small one about 6 mm. in diameter close to the pylorus. In the duodenum there are four ulcers of typical characters; one, whose edge is at the pylorus and partially undermines it, is triangular in shape and 2 cm. in diameter. About 6 mm. beyond the apex of this ulcer, there is a somewhat quadrilateral one, 2·5 cm. in diameter, whose floor is chiefly

composed of condensed pancreatic tissue. Immediately beyond the edge of this one there is a smaller one, 6 mm. in diameter. Anteriorly in the same region there is a larger one, 2 cm. in diameter.

Fanny P. (aet. 45) died from acute pneumonia, and no disease of stomach was known to exist.

Path. Reports, 1st April, 1890, No. 2327.

IV. 59. Perforating Ulcers of Stomach and Duodenum: Adhesion to Gall-Bladder and Exposure of Pancreatic Tissue. (Dr. Finlayson.)

There are two ulcers shown in the preparation, a large one measuring 4·5 cm., with its long diameter across the lesser curvature and with its edge about 3 cm. from the pylorus. The ulcer is deeply excavated, and its floor presents nodular projections, due apparently to fat lobules exposed in its floor. The other ulcer is immediately beyond the pylorus. It is nearly circular in form and 2 cm. in diameter. It is deeply excavated, and in its floor is pancreatic tissue. The subjacent parts of stomach and duodenum are firmly adherent to the neck of the gall-bladder. There was great dilatation of the stomach, whose greater curvature reached below the umbilicus into the left lumbar region. The pylorus was fixed by the adhesion already mentioned. The duodenal ulcer was filled with blood, and blood was present in the intestine, chiefly in the large intestine, and extending to the descending colon.

John L. (aged 50) had dyspeptic symptoms for seven years. For the last two years vomiting was a prominent symptom. Sometimes a week or even a month would elapse without vomiting, and then large quantities would be ejected. Localised pain was experienced 4 cm. below the xyphoid. It was much increased on pressure and by taking food, the pain generally coming on five minutes after the latter.

Path. Reports, 18th April, 1885, No. 1345.

IV. 60. Tubercular Ulcers in Stomach. (Prof. Joseph Coats.)

There are frequent ulcers of larger and smaller size, the larger of them very irregular in shape, but generally with sinuous outline. These are much more superficial than the tubercular ulcers of the intestine, not extending beyond the mucous membrane, but they have overhanging edges, and the smaller ones have the crater shape

of the ordinary tubercular ulcer. Along the lesser curvature outside there are numerous white tubercles and enlarged lymphatic glands. There were also tubercular ulcers in the intestine. The tubercle bacillus was detected in the ulcers in the stomach.

D. G. (aged 40) suffered from phthisis pulmonalis of about nine months' duration, going on to extensive excavation, etc. There was very extreme emaciation, with a state approaching to inanition for some time before death.

Path. Reports, 3rd February, 1886, No. 1482.

IV. 61. Mucous Polypus of Stomach. (Dr. Jas. Finlayson.)

There was thickening of the mucous membrane of the stomach generally from chronic catarrh, and the catarrhal thickening had extended to the duodenum and the common bile and pancreatic ducts, causing obstruction with consequent dilatation of gall bladder, hepatic ducts, and pancreatic duct. A small portion of the wall of the stomach has been preserved, and at one part of it a somewhat pear-shaped polypus, about the size of a hazel nut, projects. It has the structure of hypertrophied mucous membrane.

The patient was a man 74 years of age. He had intense jaundice, and several shiverings occurred: he had diarrhœa occasionally, but no vomiting. *Path. Reports*, 29th Nov., 1880, No. 598.

IV. 62. Ulcerating Cancer of Stomach in Cardiac Region. (Dr. Tennent.)

The affected surface is of an irregularly circular outline with a diameter of about 6 cm. It is situated chiefly on the posterior wall but extends slightly beyond the lesser curvature and its edge touches the cardiac orifice, here indicated by whalebone. The pyloric orifice of the stomach is unaffected, the edge of the cancer being 5 cm. from the pylorus. The cancer is greatly ulcerated in the central parts and has prominent edges, the edge towards the fundus being particularly raised and somewhat shaggy. The tissue around the stomach was very much matted and it presented several enlarged and cancerous glands. There was also a mass of infected glands in front of the vertebrae. The liver contained many small tumours and there were also some beneath the pleura.

The patient was a woman who complained of weakness and

bilious attacks. The injudicious use of ham, etc., brought in by her friends, brought on vomiting and violent pains suggesting peritonitis, and she died in two days.

Path. Reports, 7th Dec., 1885, No. 1453.

IV. 63. Soft Ulcerating Cancer of Stomach. (Dr. Jas. Finlayson.)

The part preserved is the lesser curvature of the stomach with the two orifices and neighbouring parts. Midway between the two orifices there is a flat tumour 5 cm. in diameter occupying the lesser curvature and the posterior wall of the stomach. The surface is generally raised above the mucous membrane, and it presents a dark, irregular, almost sloughing appearance. This sloughing appearance extends in some places quite to the edge of the tumour, where the mucous membrane is sharply demarcated. At other places there is an infiltrated edge somewhat raised above the general level, and having a pale colour. Behind the tumour there is a mass of tissue consisting of cancerous glands, with neighbouring structures matted together.

There were numerous secondary tumours present in the liver, diaphragm and pleura, besides those in the lymphathic glands; the liver weighed 3 kilograms.

The patient was a man aged 40, who had been troubled for five months with uneasiness following food, but except at the very beginning there was no vomiting; a distinct tumour was felt during life.

Latterly a great enlargement of the liver was detected, with jaundice and ascites. *Path. Reports*, 10th January, 1882, No. 755.

IV. 64. Ulcerating Cancer of Stomach. (Dr. G. P. Tennent.)

The tumour is a somewhat bulky and extensive one, having its centre at the lesser curvature, but extending 9 cm. on the anterior wall, and 6 cm. on the posterior. Its entire length on the lesser curvature is 5 cm. It surrounds the pylorus, and projects to some extent into the duodenum—the pyloric orifice being narrowed so as to admit only a small probe. It extends to about 1 cm. from the cardiac orifice, which is free. The surface is greatly ulcerated one piece of the tissue being almost separated; the marginal parts

of the tumour, however, are prominent. Under the microscope the structure is that of scirrhus, there being an excess of connective tissue with large cells and spaces.

Path. Reports, 8th July, 1881, No. 690.

IV. 65. Ulcerating Cancer of Stomach: Extension to Lymphatic Glands and Liver. (Prof. M'Call Anderson.)

The part of the stomach preserved is a portion of the greater curvature and posterior wall. Along the greater curvature there is a deeply excavated ulcer 5·5 cm. in diameter, with prominent walls, which are abruptly demarcated from the mucous membrane. Continuous with the floor of this ulcer, there is outside the stomach a mass of enlarged glands, which again is continuous with a still larger mass projecting downwards. The liver was the seat of innumerable secondary tumours and was greatly enlarged. On section both lymphatic glands and liver show a very soft tissue with haemorrhage.

George C. (aged 47). There is no note of stomach symptoms, the condition of the liver having chiefly attracted attention.

Path. Reports, 21st April, 1892, No. 2966.

IV. 66. Cancer of Stomach with Additional Isolated Tumour. (Dr. Tennent.)

The stomach was the seat of a massive ulcerating tumour, the half of which is preserved. It extended from 2 cm. inside the pylorus along the lesser curvature for 11 cm. It occupied chiefly the posterior wall and lesser curvature. Its edges are prominent and abrupt, and to some extent rolled back so as to overhang the normal mucous membrane, and they have at places a projection of 2·5 cm. Besides the main mass, there is an isolated tumour on the anterior wall almost 4 cm. in diameter. This tumour would frequently be in direct contact with the larger one. There were secondary growths in lymphatic glands, and two small ones in the liver.

Angus M'C. presented a history lasting over six months, suggestive of pernicious anaemia, with indigestion, great oedema of legs and of the skin generally, the general aspect being that of extreme anaemia. The liver did not give the iron reaction as in pernicious anaemia. *Path. Reports*, 19th November, 1889, No. 2212.

IV. 67. Cancer of Pylorus; Distortion; Obstruction. (Dr. Newman.)

The preparation shows the parts in section. The cancer is mainly at the pylorus, and produces here a narrowing for 2 cm. The narrowed part has thick dense walls which leave a funnel-shaped passage having a diameter of about 12 mm. at its proximal extremity, and scarcely 3 mm. at the distal. The cancer has drawn in the lesser curvature which applies itself to the duodenum, and accordingly the greater curvature has comparatively little of a bellying out from the pylorus, and the lesser curvature makes a sudden bend where it passes into the narrowed part. Microscopic examination of the narrowed part shows great hypertrophy of the muscular substance along with cancerous infiltration, the epithelium occasionally presenting the cylindrical form.

Mr. David S. complained of stomach symptoms for several months, and for a considerable time there was almost absolute obstruction of the pylorus.

Path. Reports, 25th January, 1892, No. 2868.

IV. 68. Cancer of Stomach. (Prof. M'Call Anderson.)

The tumour is situated at and near the pylorus. At the pylorus it forms a ring, but within the pylorus it occupies the lesser curvature, and part of the anterior and posterior walls for a distance of about 5 cm. Its central part is ulcerated, and the margins prominent and somewhat abrupt. The structure is that of ordinary cancer. There was a single secondary growth in the liver.

Path. Reports, 24th October, 1877, No. 257.

IV. 69. Ulcerating Cancer of the Stomach. (Dr. R. S. Thomson.)

The tumour, which is in the form of an ulcer with highly prominent edges, is situated along the lesser curvature, having a measurement of about 9·5 cm. Its edges are about 4 cm. distant from cardiac and pyloric orifices respectively. It extends on to the anterior and posterior walls almost equally, and when stretched out in the fresh state, at right angles to lesser curvature, measured about 9 cm. The edges show in general a projection of nearly 2 cm., but at one part of the anterior wall they fall away considerably. A striking feature is

the presence of numerous small tumours in the mucous membrane outside the main tumour; these measure from about 1 cm. downwards. There are similar small tumours on the peritoneal surface. A group of enlarged glands almost fills up the lesser curvature, and there are some also near the cardiac orifice. The glands and the stomach itself were adherent to the under surface of the left lobe of the liver over a considerable area. There were no secondary tumours apart from the lymphatic glands. The body was considerably emaciated and there were thrombi in iliac and femoral veins, and embolic infarction of lung. The heart muscle was fatty.

Microscopic examination shows the cancer to be highly glandular in its character, consisting of a congeries of comparatively narrow spaces lined with epithelium.

Wm. L. (aet. 54), a miner, complained of pain in the epigastrium and great weakness. The pain began about nine months before death. There was no vomiting till about a month before death, and latterly blood was vomited. A tumour was detected midway between umbilicus and ensiform cartilage.

Path. Reports, 16th August, 1894, No. 3828.

IV. 70. Cylinder-celled Cancer of Pyloric Region with Distortion of Stomach. (Prof. M'Call Anderson.)

A small portion of duodenum and the pyloric end of the stomach have been preserved. The tumour is accurately bounded by the pylorus, and it forms a tunnel with thick walls extending 5 cm. along the greater curvature and 3·5 cm. along the lesser. Its inner boundary forms an abrupt margin, with an elevation of about 1·5 cm. from the general wall of the stomach. The section shows that the coats of the stomach are greatly infiltrated, but this is more particularly the case along the lesser curvature, where there has been considerable contraction, such as to drag in the wall of the stomach and produce, as it were, a kinking, the lesser curvature forming an acute angle. Microscopic examination showed the typical structure of the cylinder-celled cancer.

Jas. D. (aged 63), an iron-driller, was under observation for a year, and his symptoms had lasted nearly two years at the time of death. The symptoms consisted chiefly in severe pain in the epigastrium, occasional vomiting of sour matter, and progressive emaciation. No tumour was detected till about seven months before death.

Path. Reports, 28th December, 1897, No. 5281.

IV. 71. Cancer Involving Pylorus and Adjoining Parts of Duodenum and Stomach. (Dr. Patterson.)

There is presented a somewhat prominent and slightly ulcerated tumour. This tumour is mainly duodenal, the most projecting part and the bulk of the tumour being beyond the pylorus. From the middle of the tumour there extends into the stomach a flat infiltration with a definite prominent edge, in the form of a semicircle which measures 3·5 cm. transversely and 2 cm. from the pylorus inwards. The centre of this extension is at the lesser curvature. The microscopic structure is that of a cylinder-celled cancer. There was no glandular enlargement.

Daniel M'L. (aged 72) was affected with enlarged prostate and died ultimately with suppurative nephritis. There is no reference in the clinical history to the stomach.

Path. Reports, 7th Sept., 1895, No. 4304.

IV. 72. Cancer of Stomach Projecting into Duodenum. (Dr. Tennent.)

A rather bulky growth is represented by an ulcer extending along the lesser curvature with bulky overhanging margins, more especially on the posterior surface. The tumour pouts into the duodenum in the form of rounded lip-like projections. It does not involve the duodenum, but in the fresh state there were small scattered nodules in the first 4 cm. A row of cancerous glands is visible below, being situated outside along the greater curvature. There were secondary tumours in the peritoneum, more especially over the diaphragm and left pleura, and thrombosis of the vena cava, which, however, had originated in the uterine veins.

Eliza M. had been ill for a year, especially with sickness. The case was complicated by the fact that she became pregnant soon after the onset of gastric symptoms. Delivery was followed by phlegmasia dolens, etc.

Path. Reports, 8th November, 1887, No. 1766.

IV. 73. Cancer of Pyloric Region of Stomach, with Extension to Duodenum and Sloughing. (Sir Wm. T. Gairdner.)

The pyloric region is markedly thickened and ulcerated and inside of that the stomach wall, chiefly on the posterior aspect,

shows a somewhat deep ulceration, with a prominent ridge beyond. The first part of the duodenum is converted into a considerable cavity, with rough and sloughing walls. Microscopic examination shows in the duodenum a cancerous infiltration affecting chiefly the muscular and submucous layers, whilst the superficial layers present indications of necrosis. The mucous membrane may be said to be awanting. There were secondary tumours in the liver, chiefly on its under surface.

Elizabeth M'D. (aged 38) had weak digestion for many years. For the past three months the stomach symptoms have been much aggravated, and some blood was vomited about eight weeks before admission. On admission she was found thin, pale, and sallow, and a tumour was detected in the lower epigastric region. Her mother died of some stomach trouble at the age of 64.

Path. Reports, 9th April, 1897, No. 5013.

IV. 74. Cancerous Ulcer of Stomach Perforating Liver and Producing Abscess there. (Prof. Samson Gemmell.)

The pyloric region of the stomach is shown, and an ulcer is displayed close to the pylorus, and occupying the posterior aspect of the stomach wall. It measures 3 cm. in the long axis of the stomach and about 4·5 cm. in the transverse direction. The floor of the ulcer is comparatively smooth. The edges are distinctly thickened, but not greatly so, and they were felt to be remarkably hard. At the point of division inferiorly it can be seen that tumour tissue of considerable thickness occupies the mucous membrane and penetrates through the wall of the stomach to a glandular mass outside. A large lymphatic gland from this neighbourhood is hung separately. The portion of stomach corresponding with the ulcer of the posterior wall, and for some distance beyond it, is firmly adherent to the left lobe of the liver. This lobe is mostly excavated into an irregular cavity, which contained an ordinary yellow pus. The ulcer shows in its midst a deep pit, and through this pus appeared on pressing the liver abscess; the communication, however, was a small one.

Microscopic examination shows a cancer having a somewhat scirrhous character. It penetrates considerably under the intact mucous membrane. Several lymphatic glands in the neighbourhood, as shown in the preparation, showed cancerous tissue almost replacing the proper structure.

Jeremiah H. (aged 52) began to be affected with vomiting about eight months before death. Pain in the stomach succeeded in two months. For a month before death there was breathlessness. Latterly extreme emaciation occurred.

Path. Reports, 6th January, 1897, No. 4879.

IV. 75. Cancer of Stomach with Dragging-in of Wall and Great Omentum. (Dr. Finlayson.)

The cancer is a somewhat bulky one with abrupt margins, overhanging edges, and marked general prominence. It was situated almost midway between pylorus and cardia, and it occupied chiefly the anterior wall, passing, however, across the lesser curvature slightly to the posterior wall. Its extent transverse to the lesser curvature is 12·5 cm., whilst in the opposite direction it measures 6 cm. It is deeply ulcerated in the central parts. Viewed from without the stomach wall is markedly dragged inwards so as to produce a deep depression, the sides of which are comparatively close together. This cleft, which involves anterior wall, lesser curvature, and greater curvature slightly, is largely occupied by the great omentum, which is dragged inwards.

Microscopic examination shows the structure to be characteristically that of a cylinder-celled cancer.

Jas. J. complained chiefly of shortness of breath and a burning pain beneath the right scapula. There were no symptoms referred to the stomach. The post-mortem revealed chronic bronchitis and some pleural exudation. There were no secondary tumours except in the lymphatic glands around.

Path. Reports, 5th May, 1894, No. 3686.

IV. 76. Carcinoma of Pylorus. (Profs. M'Call Anderson and Geo. Buchanan.)

The specimen shows in section the pyloric part of the stomach. There is a cancerous infiltration replacing the mucous membrane and impinging on the muscle. The surface is somewhat warty in appearance.

IV. 77. Cancerous Stricture of Pylorus : Gastro-enterostomy.
(Dr. Dalziel.)

The preparation shows the pylorus in section viewed from before, and also a portion of anterior wall of stomach. There is a prominent tumour at the pylorus which greatly narrows the aperture. A loop of intestine has a free artificial communication with the stomach and is adherent externally almost all round, the adhesions being partly fibrous. Another piece of intestine, partly continuous with the other, is also united to the stomach wall, but only communicates by a narrow channel connected with the other piece. The operation consisted in uniting a portion of the jejunum, afterwards found to be 28 cm. from the pylorus, to the anterior wall of the stomach near the greater curvature.

Felix M'C (aet. 58), a dealer, complained of vomiting after food and pain in the stomach, the symptoms having lasted a year. Patient was greatly emaciated. He died four days after the operation. *Path. Reports*, 8th September, 1894, No. 3864.

IV. 78. Cancerous Ulcer of Stomach. Acute Peritonitis.
(Sir Hector C. Cameron.)

The preparation shows lower end of oesophagus and neighbouring parts of stomach. There is a considerable ulcer, whose edges are for the most part only slightly raised, but towards the lower part of the preparation are more prominent. The ulcer just reaches the border of the cardiac orifice. The ulcer has an entire breadth of about 7 cm., and in general it is situated at the lesser curvature, and above it. Towards the upper border of the ulcer, and distinctly on the anterior wall, there is a rounded aperture with somewhat clean-cut edges, measuring about 1 cm. in diameter. A mass of tumour tissue is visible outside the stomach and close behind the aperture. The contents of the stomach had escaped through this aperture, and an acute peritonitis resulted. The aperture was plainly visible before opening the stomach, but it was overlaid by the left lobe of the liver, whose under surface was stained by the stomach contents.

Microscopic examination shows in this case a penetrating cancer in the form of elongated epithelial processes which have comparatively little of the glandular character.

Wm. S. (aged 50) was admitted in a collapsed condition with the general symptoms of acute peritonitis, which had come on suddenly

two or three days before. He lived only a few hours. For some months previously patient had symptoms which somewhat indefinitely pointed to the stomach.

Path. Reports, 9th April, 1894, No. 3652.

IV. 79. Cancer of Stomach, with Large Ulcerated Cavity Communicating with Duodenum and Transverse Colon. (Dr. Tennent.)

The preparation is the middle portion of the affected structures. It shows a part of the inside of the stomach, the cardiac orifice being preserved at the upper border to the observer's right. About 5 cm. below this there is the prominent edge of a cancerous tumour, and on following this down, the stomach wall shows a large gap which communicates with a ragged cavity whose walls are everywhere infiltrated with cancerous tissue. This cavity was partly bounded anteriorly by the abdominal wall, and it communicated not only with the stomach, but with the duodenum and transverse colon. In the preparation the duodenum is displayed behind, and there is seen to be a large ragged gap which communicates with the cavity. The transverse colon was adherent to the lower border of the cavity, and there were several gaps forming communications. In addition the peritoneum showed everywhere numerous pale nodules, and the liver contained a large number of small tumours.

Christina K. (aged 41) dated her illness from an abortion ten months before death. A swelling was first noticed in the abdomen five or six months before death, and about this time the appetite failed and vomiting set in, the latter becoming very severe. Loss of weight was very rapid, and there were progressive anaemia and weakness up till death. About a week before death blood was vomited in considerable quantity. The vomited matter had a faecal character for about a fortnight before death.

Path. Reports, 30th October, 1890, No. 2495.

IV. 80. Cancer of the Stomach, Perforating Transverse Colon and Surface of Skin. (Sir Geo. H. B. Macleod.)

The stomach is the seat of two tumours—a smaller isolated one in the posterior wall, near the cardiac orifice, and a much larger one near the pylorus, and occupying chiefly the anterior wall of the stomach, though at some parts nearly surrounding it. The margins

of both are markedly abrupt and prominent, and the surface very granular, in some parts appearing as if covered with papillae. The central parts of the larger tumour are deeply ulcerated, and a communication exists with a large irregular cavity, situated chiefly among adhesions formed between stomach, transverse colon, and anterior abdominal wall. This cavity has two pretty wide communications with the transverse colon, and at these apertures a mass which is obviously a continuation of the tumour in the stomach projects, having the same abrupt margin and granular surface. The cavity also communicates with the surface of the body by two apertures which were situated, one in the immediate neighbourhood of the umbilicus, and the other about an inch above and to the left.

It appears that about four months before death the patient, a woman aged 45, received a severe blow on the abdomen from a fall. Abscesses subsequently formed in the abdominal wall, and these bursting gave rise to the apertures in the skin described above.

Path. Reports, 22nd May, 1877, No. 224.

IV. 81. Cancer of Stomach. Secondary Tumours in Liver (also Ovaries, etc.). (Dr. Tennent.)

A portion of the pyloric region of the stomach is preserved, a section being made in the longitudinal direction of the stomach. There is a massive cancerous new-formation in the wall of the stomach, ceasing abruptly at the pylorus and extending along the stomach wall. The preparation shows at one place a ridge indicating the border of the cancerous infiltration, the normal mucous membrane presenting a puckered appearance. The pyloric orifice is much narrowed, and there is a mass of cancerous glands outside the pylorus at the greater curvature. A portion of the liver is preserved, showing two considerable umbilicated tumours at the anterior border, and there were others in the liver generally. The omentum, mesentery, diaphragm, and other peritoneal structures were infiltrated with the cancerous growth, which had also extended slightly to the pleura. The ovaries also were affected.

IV. 82. Cancer with Colloid Change, in Lesser Curvature and Anterior Wall of Stomach. (Dr. Finlayson.)

The preparation shows the stomach divided longitudinally, the anterior half being preserved. There is a bulky tumour dependent

mainly from the lesser curvature, but also attached to the neighbouring part of the anterior wall. The lesser curvature, as shown in section, is infiltrated with the tumour and markedly contracted, so that the cardiac and pyloric orifices are brought unduly close. The infiltration affects mainly the middle parts of the lesser curvature, penetrating about 2·5 cm. from the cardiac orifice and 3 cm. from the pyloric. The anterior wall of the stomach, as viewed from without, is infiltrated with tumour, and there is great enlargement of glands around. The great omentum is the seat of numerous rounded tumours, some being of considerable size. It thus forms a transverse somewhat solid layer, generally 6·5 cm. in diameter from above downwards. Under the microscope the more recent structures have the characters of a cylinder-celled cancer, but there is a general tendency to colloid transformation; even where the colloid condition is very marked, however, the alveoli present a layer of epithelium round their walls.

Peter C. (aged 49) for twelve months had suffered from dyspeptic symptoms, loss of weight, and discomfort after food. There was considerable ascites with oedema of the abdominal walls. A tumour was detected in the epigastrium to the left of the middle line. There was no pain, vomiting, or diarrhoea, but progressive loss of weight, increasing anaemia, and great oedema of the body and limbs were present. There was no albumen in the urine.

Path. Reports, 5th May, 1890, No. 2355.

IV. 83. Cylinder-celled Cancer of Stomach, partly Colloid, around Cardiac Orifice and Extending to Oesophagus and General Wall of the Stomach. (Dr. J. L. Steven.)

There is a bulky tumour surrounding the cardiac orifice and projecting into the cavity of the stomach. It involves the lower end of the oesophagus, partly incorporating its wall, and above this replacing the mucous membrane for a distance of over 3 cm. There are also a few isolated small tumours visible. The tumour has extended along the lesser curvature till it just reaches the pylorus, and there has been here considerable contraction so that the two orifices are abnormally close. The tumour formation has extended also round to the greater curvature, the only free parts of the stomach being the extreme fundus and the neighbourhood of the pylorus, both margins of the tumour being marked by an abrupt

prominent ridge, but especially that next the pylorus. The tissue of the tumour generally has the glistening character of colloid cancer, and has also the microscopic appearances, but in more recent parts the cylinder-celled arrangement was visible. There were secondary tumours in the lungs, on the under surface of the diaphragm, and a few on peritoneum generally.

The patient was a stonemason (aged 33), but for some years he had worked at a lathe for turning sandstone, which required him to keep a long iron chisel with its blunt end resting heavily against the left hypochondriac region. Definite stomach symptoms first presented themselves seven or eight months before death. He experienced considerable pain on swallowing food and afterwards, and oesophageal bougies were used. For a full account of the case, see *Glasgow Medical Journal*, Vol. XXX., No. 457.

IV. 84. Scirrhus of Pylorus. (Prof. Joseph Coats and Mr. Ernest Maylard.)

Excised by operation from a man (aet. 47) who had suffered from the usual symptoms of pyloric obstruction. He died four days after the operation from exhaustion. In the fresh state the specimen measured 7·5 cm. along its lesser curvature and 10 cm. along the greater. As shown in section there is seen a massive infiltration of the pyloric region with narrowing of the calibre, almost amounting to closure. Microscopically it was found to be a richly cellular scirrhous carcinoma. The case is fully reported in the *British Medical Journal* for 24th July, 1886.

IV. 85. Scirrhous Cancer of Stomach: Great Contraction. (Sir Geo. H. B. Macleod.)

The entire extent of the stomach is shown in section. The cancer involves the pyloric portion and the lesser curvature, extending in that region to the cardiac orifice. The organ is greatly contracted, especially in the pyloric region, but the lesser curvature is also drawn together, so as to have an acute bend. In the affected regions the surface is somewhat irregular, presenting many projections, and almost polypoid. The mucous membrane and submucous tissue are thickened and dense from infiltration, and the muscular coat is also greatly thickened. The exact boundaries of the tumour are not easy to define, and the only region that is unequivocally free is the fundus.

The tissues were greatly matted around the stomach, and there were enlarged and cancerous glands, especially along the lesser curvature. The patient died from acute peritonitis, the result of perforation of the caecum, the cause of which was unknown.

Mrs. S. (aet. 51) suffered for 2½ years from dyspeptic symptoms, chiefly pain and vomiting coming on immediately after food, especially solid food.

Path. Reports, 16th Dec., 1889, No. 2235.

IV. 86. Scirrhous Cancer of Stomach. (Dr. Finlayson.)

One half of the stomach is shown, including the posterior wall. The organ as a whole is much diminished in size, and this is especially the case in the pyloric region. There is a great thickening with rigidity of the wall, which condition ends abruptly at the pylorus. In the other direction it extends, gradually shading off, to at least half the area of the stomach. The internal surface in the affected portion has an irregular folded appearance. On the cut surface three distinct layers are distinguishable, viz. mucous membrane and submucous tissue much thickened and hardened, muscular coat also thickened and with white trabeculae interrupting it, and serous coat also greatly thickened.

The cancerous infiltration had extended to the peritoneum and lungs (see Series III., No. 103.)

Margaret M. (aged 35) complained of vomiting after food, of eight months' duration. There was swelling of the abdomen and of the legs for the last month or six weeks. The first stomach symptoms were 18 months before death.

Path. Reports, 10th October, 1891, No. 2774.

IV. 87. Scirrhous Cancer of Stomach: Great Contraction. (Dr. Wm. M'Lennan.)

The stomach, which is preserved entire laid open, is reduced to an exceedingly small size, measuring along the line of the lesser curvature from cardiac orifice to pylorus 8 cm. The greater part of the surface is occupied by an irregular prominent thickening, leaving normal mucous membrane only near the pylorus and towards the fundus. The growth slightly involves the lower end of the oesophagus. The muscular coat of the stomach is generally thickened. The growth involved the pancreas by direct extension,

and there were secondary tumours in the liver, peritoneum, and mesenteric glands. Microscopic examination showed the typical scirrhous appearance.

John M. (aged 70) had been generally a healthy man. He complained of dyspeptic symptoms for about a year, and during the latter months lost weight markedly. Pain was especially marked when the patient lay on his back, and was relieved by the ventral position. Vomiting was never copious, and the vomited matter was alkaline or neutral. *Path. Reports*, 22nd May, 1896, No. 4638.

IV. 88. Scirrhous Cancer of Stomach: Contraction: Perforation. (Dr. Finlayson.)

The stomach is shown in longitudinal section, the anterior half being preserved. It is seen to be much contracted and its wall thickened, but this is the case mainly in the fundus and along the lesser curvature. The section shows that the mucous membrane and the muscular coat are almost equally thick. Along the lesser curvature outside the stomach, there is a somewhat thick mass of enlarged and indurated glands. The internal surface of this portion of the stomach is rough and irregular and was partly sloughing. There are two perforations, one of which was in close contact, although at the time of the post-mortem not in communication with an abscess cavity outside. The tumour extends to the lower end of the oesophagus which is greatly narrowed. It completely surrounds the tube at the orifice, but is prolonged upwards along prominent longitudinal folds, at the edges of which are small isolated, superficial tumours. The entire extension in the oesophagus is for about 7 cm. There were two large tumours in the liver, and a number of small ones. The prevertebral glands were enlarged, and one large gland was found in the left side of the neck.

Microscopic examination shows an infiltrating scirrhous cancer in the form of elongated cellular processes with fibrous tissue between, sometimes in large quantity. The growth infiltrates the thickened muscular coat.

John M. (aet. 35) complained of pain after food, flatulence, etc., which had only lasted about four months before death. Stricture of the oesophagus existed for about a month before death.

Path. Reports, 28th Sept., 1891, No. 2761.

IV. 89. Scirrhous Cancer of Stomach, Extending to Lesser Omentum. (Sir Wm. T. Gairdner.)

The preparation shows a longitudinal section of the parts in two places, one being through the oesophagus and the other about 6 cm. to the right. There is also a piece of stomach wall hung separately. The stomach is seen to be greatly contracted, whilst its wall is thickened and its surface thrown into stiff folds. This condition involved the greater part of the stomach, but shaded off towards the pylorus. The lower part of the oesophagus was similarly infiltrated for a distance of 5 cm. from its lower extremity, and there were some isolated submucous nodules above the more general infiltration. Immediately below the stomach there is a thick heavy mass measuring 7·5 cm. in thickness by 4 cm. from above downwards. At the lower extremity of this a portion of transverse colon is visible. The small intestine was matted together, and there were numerous small rounded tumours amongst the adhesions which covered the loops. There were also nodules on the general surface of the peritoneum, and the ovaries were converted into tumours measuring 4·5 and 5 cm. in diameter. Under the microscope the stomach wall shows much more the appearance of cellular proliferation and new-formation than of proper cancerous growth, but there are epithelial processes which are readily distinguished in the more isolated tumour mass of the omentum.

Mrs. H. (aged 47) when admitted presented solid masses in an ascitic abdomen. Vomiting was the most urgent symptom, and there was also an ill-defined sense of difficulty in swallowing. There was no haematemesis or melaena.

Path. Reports, 22nd Feb., 1887, No. 1675.

IV. 90. Small Cancer of Stomach, with Numerous Large Secondary Tumours in Liver. (Dr. Finlayson.)

This preparation shows a portion of the tumour in the stomach, while the next is a part of the liver. The preparation is suspended by a portion of the duodenum. Immediately below this there is pylorus, and then succeeds a portion of a rounded tumour about 4 cm. in diameter. In its middle part it attains a thickness, as shown in preparation, of 6 mm.; and at its margins it shades off gradually into the surrounding mucous membrane. The surface is not ulcerated, but the tissue is soft, and in the central part there is slight haemorrhage.

The lymphathic glands around the pylorus and duodenum, and down in front of the vertebrae, were much enlarged and of a soft medullary character. There was also a mass of enlarged glands at the porta of the liver.

The case was that of a woman aged 30. Pain in abdomen began two months before death, with occasional sickness, latterly becoming very frequent. Great emaciation with pallor and very slight jaundice ensued. *Path. Reports*, 10th August, 1883, No. 1027.

IV. 91. Secondary Cancerous Tumours in Liver. (From same case as preceding.)

The preparation shows a slice of the liver which was much enlarged, weighing 2·5 kilos. (90 oz.). Its tissue was, for the most part, replaced by a soft whitish structure which to a large extent was continuous, but in other places, as shown in the section, had the form of rounded tumours.

IV. 92. Small Cancer of Stomach: Numerous Secondary Tumours in Muscle, etc. (Prof. M'Call Anderson.)

A portion of the left scapula is preserved and the supraspinatus muscle is displayed. The muscular substance is interrupted by numerous small rounded tumours which seem in general to replace an equal portion of muscle. There was a similar infiltration of most of the muscles forming the left shoulder girdle, and the tissues on the left side of the neck were also greatly infiltrated, the left vagus being considerably pressed on. The cancer was otherwise widely disseminated, there being tumours of the pancreas, gall-bladder, liver, mesenteric glands, kidneys, adrenals, and left psoas muscle. In all cases the tumours were small. The primary tumour is the insignificant-looking ulcer of the stomach shown in preparation. It was situated on the posterior wall, its upper border corresponding with the lesser curvature. It measures 3·5 cm. in diameter and has an abrupt edge, but with comparatively small projection. The central parts are ulcerated.

Henry B. (aet. 58), a labourer. The symptoms observed during life had apparently little connection with the cancerous disease. There was slight facial paralysis on the right side and indistinct utterance; latterly swelling of left side of neck was observed. He died suddenly, apparently from suffocation.

Path. Reports, 17th July, 1894, No. 3794.

IV. 93. Colloid Cancer of Stomach, Extending to Great Omentum and Peritoneum generally. (Sir Wm. T. Gairdner.)

The specimen consists of a section through stomach, great omentum, etc. The stomach is considerably contracted, and its lesser curvature is infiltrated with new-formed tissue, which replaces the mucous membrane and partly also the muscular coat, but without causing any ulceration. Outside the lesser curvature and occupying the lesser omentum there is a massive tumour. There is also tumour tissue, but less in amount, on the anterior aspect of the stomach, while the great omentum is converted into a dense solid mass, which measures 12 cm. from above downwards and 5 cm. in thickness. It has a breadth of 35 cm. The transverse colon is adherent to the posterior aspect of the omentum, but the meso-colon is free from tumour formation. The tumours in both omenta are composed of rounded nodules, which, however, are firmly compacted.

Under the miscroscope the typical structure of colloid cancer is shown. [For peritoneum see next preparation.]

Cath. F. (aged 52) was subject to biliousness, and began to feel weak eighteen months before death. Had ascites during the last six months. During residence in hospital there were ascites and oedema of feet and legs. A large solid mass was felt in abdomen and latterly a thickening of the abdominal wall. Vomiting was not a prominent feature. See *Lectures to Practitioners*, by Gairdner and Coats, 1888, p. 13.

Path. Reports, 11th December, 1884, No. 1269.

IV. 94. Colloid Cancer Affecting Peritoneum of Pelvis.

This is from the same case as the preceding one. There were many tumours in the peritoneum, but these were much more abundant in the pelvis. The preparation shows the peritoneum so involved as to form a solid cast of the pelvis. The uterus is pushed forwards and firmly embedded in the tumour tissue. The rectum lies behind, and Douglas's pouch is somewhat enlarged and lined with tumour tissue. A portion of the anterior abdominal wall is preserved, showing tumours on its surface.

Path. Reports, as above.

IV. 95. Colloid Cancer of Stomach: Great Contraction: Secondary Tumours in Liver, Non-Colloid. (Dr. Alexander.)

The stomach, which has been divided longitudinally, is greatly shrunken, measuring only about 14 cm. from pylorus to fundus and scarcely 5 cm. from above downwards. Its wall is considerably thickened and infiltrated, especially along the lesser curvature; the freest part is in the pyloric region. The stomach was much adherent to the tranverse colon, liver, and spleen, the lesser curvature especially and related glands impinging directly on the left lobe of the liver. There was considerable ulceration of the mucous membrane, especially on the posterior surface. The liver, a portion of which is preserved, contained a number of nodules in its left lobe but none in the right. The posterior wall of the rectum was thickened by a dense tissue, which does not extend to the mucous membrane.

Microscopic examination shows the stomach to be the seat of colloid cancer, which in many places is not well developed, remaining unusually cellular. The liver tumours are not colloid, but present the usual epithelial structure. The rectum shows merely dense fibrous tissue.

Francis B. (aged 59) began to complain of pain in the stomach about eight months before death. Throughout the course, pain after food was the most pronounced symptom, along with gradual emaciation. Vomiting was never a marked feature. On admission he was greatly emaciated, and the feet and scrotum were oedematous. A hard, painful swelling was detected in the left hypochondrium.

Path. Reports, 25th August, 1891, No. 2741.

IV. 96. Colloid Cancer of Stomach in Pyloric Region: Great Dilatation of Stomach. (Sir Wm. T. Gairdner.)

The tumour forms a complete ring at the pylorus, and extends inwards for from 6 cm. to 9 cm.; the surface is very irregular, but without marked ulceration. On section the tumour is seen to occupy mainly the mucous membrane, but extends also among the muscular trabeculae. Its tissue has a remarkably glistening appearance. There was considerable matting and enlargement of the prevertebral glands, the lower aorta and common iliacs being buried in them. On section drops of pus appeared at places in

these glands, and also little nodules of colloid tissue. The tumour nearly obstructed the pylorus, and the stomach was greatly dilated.

The patient, during life, complained of gastric symptoms, chiefly distension of the stomach and vomiting. The physical signs of pyloric tumour were very distinct, but although the sense of fermentation was present to a great degree, no sarcinae were detected in the vomited matters.

Path. Reports, 17th December, 1878, No. 403.

IV. 97. Colloid Cancer of Stomach and Duodendum. Tuberculosis of Lymphatic Glands and Peritoneal Surface. (Prof. Gemmell.)

The cancer is a somewhat bulky one, measuring in the axis of the alimentary canal 8 cm., and projecting inwards so as almost to obliterate the lumen. The pylorus, whose muscle is much hypertrophied, divides the tumour unequally, there being 5·5 cm. on the stomach side and 2·5 cm. on the duodenal side. There is considerable ulceration, especially of the stomach portion. The tissue itself on section has a somewhat granular appearance, but in the fresh state had the semi-translucent aspect of colloid cancer.

Microscopically the tissue is typically that of colloid cancer.

There was great enlargement of the bronchial, abdominal, axillary, and other lymphatic glands, and the preparation shows a series of glands along the lesser curvature of the stomach, and again a congeries of pre-vertebral glands shown in section with the abdominal aorta. In every case the glands are largely caseous and tubercular in appearance. The microscope confirms, and shows no trace of cancerous structure even in those immediately related to the stomach.

There were also innumerable nodules, proved microscopically to be tubercular, in the peritoneum, and a portion of the diaphragm exhibiting these is presented. There was a healed tuberculosis of the lungs.

Wm. M. (aged 51) complained of vomiting after food and pain in the epigastrium, the former for two years and the latter for six months. Dyspeptic symptoms however preceded the vomiting by a year. There was extreme emaciation, and the face was of earthy pallor.

Path. Reports, 17th April, 1896, No. 4580.

IV. 98. Bulky Cylinder-Celled Cancer from Neighbourhood of Stomach. (Sir Geo. H. B. Macleod.)

The tumour, with spleen adherent, was removed at a post-mortem and sent as preserved. The tumour is about the size of both closed fists, and presents imperfect lobulation. It is adherent to the spleen at its hilus. In the fresh state the tissue was somewhat soft. On microscopic examination the structure is typically that of the cylinder-celled cancer; there is a well-formed stroma separating spaces generally elongated, and sometimes very much so. These spaces contain characteristic cylinder-cells.

Path. Reports, 15th March, 1883, No. 954.

IV. 99. Saccular Dilatation of Duodenum and Closure of its Lower Extremity, in New-Born Infant. (Dr. Jas. Watson.)

The preparation consists of two sacs; one is a normal stomach with cardiac and pyloric orifices; the other is a greatly dilated duodenum. The latter is attached to the stomach by a neck about 12 mm. in diameter, and lies nearly at right angles to the stomach, having a nearly straight border, which was directed towards the left and to which portions of pancreas still adhere. From this straight attached border the sac bellies out. The dimensions of the sac are 6·5 cm. by 4·5 cm., whilst those of the stomach are 8 cm. by 2·5 cm.

Attached to the lower extremity of the duodenal sac is a thin tube which has a somewhat trumpet-shaped upper extremity, but without any communication with the sac. The intestines, both small and large, had almost the same characters as the narrow tube.

A female child, about a month premature, lived only three days. It swallowed some biscuit during this period, and starch and sarcinae were found in the stomach. A camera lucida sketch of the parts when fresh is preserved in the *Reports*.

Path. Reports, March, 1886, No. 1502.

IV. 100. Valvulae Conniventes in the Form of Irregular Fringes.

IV. 101. Meckel's Diverticulum of Small Intestine.

The diverticulum had the usual situation, about one metre above the ileo-caecal valve. It is in the form of an elongated pouch, about

4·5 cm. in length, and of about the same calibre as the intestine. It projects from the intestine just to one side of the mesenteric attachment, and it was also attached to the mesentery. The result of this is that the extremity is somewhat drawn towards the mesenteric attachment of the intestine, and a slightly bulbous appearance is given to the extremity.

IV. 102. Meckel's Diverticulum of Small Intestine.

The diverticulum was found about one metre above the ileo-caecal valve. It arises from the free border of the gut, but a narrow mesentery containing fat proceeds from the mesenteric attachment of the intestine to the diverticulum, extending nearly to its tip. The diverticulum is 7 cm. in length and 3 cm. in diameter, the latter being virtually the same as that of the intestine.

IV. 103. Meckel's Diverticulum of Small Intestine.

The diverticulum is a somewhat long one measuring about 8 cm. from base to apex. Near the apex there is narrowing of the calibre, with thickening of the wall and a sudden alteration in direction. The immediate apex, however, is wider and thinner, and there is a trace of smaller bulgings. At the base of this apical portion there is a small solid projection like an appendix epiploica measuring 7 mm. It is found to be mainly composed of adipose tissue, but there are small arteries and a nerve embedded in a more condensed connective tissue. The vessels are in connection with the arteries which run down in the wall of the diverticulum, but are quite separate from a small mesentery which is situated on the opposite side. The interior of the diverticulum shows many closed lymphatic follicles, but not more than in the neighbouring intestine. The diverticulum was situated about one metre above the ileo-caecal valve.

Jane B. (aged 50) died from bronchitis with failure of heart.

Path. Reports, 19th June, 1891, No. 2698.

IV. 104. Unusual Form of Meckel's Diverticulum (Hammer-Shaped Diverticulum). (Sir Wm. T. Gairdner.)

Projecting from the unattached border of the intestine is a diverticulum 3·5 cm. in length. It arises by a well-defined circular

aperture 1·4 cm. in diameter, and, after narrowing somewhat, ends distally in a hammer-head like expansion 2 cm. in length. From the poles of this expansion, as well as from its general surface, project a number—about a dozen—of thin-walled saccules of the size of barley-corns and larger. These are arranged in groups at the poles. There are a few strands of fibrous tissue running along the inferior border of the diverticulum, and a few fibres could be traced in the fresh state up towards the tip, but there is no proper mesentery nor can any obliterated vessels be made out.

The diverticulum was situated 79 cm. above the ileo-caecal valve, and projected free into the abdominal cavity. It was filled with semi-solid faeces. No other abnormality was found in the body.

Barbara C. (aged 9) died from tuberculosis of the cervical and dorsal vertebrae with involvement of the spinal theca.

Path. Reports, March 4th, 1897, No. 4969.

IV. 105. Duodenal Pouches (or False Diverticula) at the Opening of the Bile-Duct. (Dr. Tennent.)

In the portion of duodenum preserved the main duodenal papilla with the opening of the conjoined common bile-duct and pancreatic duct is shown, a piece of whalebone being inserted into the latter. At a point 2·5 cm. above this, and to the left, is a smaller papilla with the opening of the duct of Santorini.

On each side of the main papilla is an aperture about 7 mm. in diameter. These are seen to be the openings of thin-walled pouch-like protrusions. On the right side the pouch has a maximum diameter of 1·4 cm., and on the left side of almost 1 cm. Both pouches were found embedded in the substance of the pancreas, and contained a small amount of bile-stained mucus.

Nowhere is there evidence of ulceration in this portion of the bowel, and the diverticula seem to consist of mucous membrane alone. A few small tubercular ulcers were present in the lower part of the ileum and in the colon, and the intestine throughout was markedly amyloid.

Alex. M'G. (aged 45) died of advanced phthisis pulmonalis. Diarrhoea was not a prominent symptom. The patient had suffered from haemorrhoids for two years before death.

Path. Reports, 27th March, 1897, No. 5000.

IV. 106. Duodenal Pouches (False Diverticula) at the Opening of the Bile-Duct.

This specimen may be regarded as illustrating a more advanced stage of the condition shown in Series IV., No. 105.

Pieces of whalebone have been passed through the common bile duct and the pancreatic duct, and emerge at the main duodenal papilla. Above and to the left is a smaller papilla with the duct of Santorini. This may be seen entering the wall of the intestine from behind.

On each side of the main papilla is an aperture leading into a thin-walled sac. On the left side the aperture has a diameter of 2·2 cm., and the ovoid sac a maximum measurement of 4·5 cm. On the right side the diameter of the aperture is rather less than 1 cm., and the rounded sac has a maximum measurement of 1·5 cm. The conjoined duct is thus seen to divide the two pouches, and to form part of the margin of both apertures. Both pouches were in great part enveloped in pancreatic tissue, and contained a quantity of bile-stained mucus. Nowhere in the vicinity is there evidence of ulceration.

Isabella P. (aged 50) presented symptoms during life of Addison's disease. Tuberculosis of both suprarenal capsules and of the lungs was found *post mortem*. There was slight ulceration of the intestine in the parts below the diverticula. There was no jaundice.

Path. Reports, 8th May, 1896, No. 4604.

IV. 107. False Diverticulum of Duodenum.

A diverticulum of the size of a marble is situated just above the papilla, the latter being indicated by a probe. The sac is mostly about as thin as tissue paper, and it projected against the pancreas, whose duct, dissected out, is shown lying against the sac behind.

John M. (aged 48) died from aneurism perforating the trachea.

Path. Reports, 27th August, 1896, No. 4749.

IV. 108. False Diverticula of Duodenum and Caecum.

The upper of these was situated in the duodenum, 3 cm. above the papilla on the posterior wall. The aperture measures about 2 cm., and is a nearly circular gap in the wall of the intestine. The sac itself measures about 3 cm., and is formed of a thin layer of

fibrous tissue with pancreatic tissue spread over about a half of it. This sac contained a small quantity of turbid mucus.

The second sac is in the colon just above the ileo-caecal valve. It has an aperture measuring 3·5 cm. in diameter, and the sac itself is of similar dimensions.

The aperture has a ring of firm tissue, whilst the sac itself is exceedingly thin-walled. It projected between the layers of the meso-colon, and its total projection is about 3·5 cm. It was filled with a mass of blackish-brown exceedingly dry faeces which were with difficulty removed.

Agnes P. (aged 50 to 60) died an hour after admission from cerebral haemorrhage involving the pons, etc.

Path. Reports, 7th October, 1895, No. 4353.

IV. 109. Single False Diverticulum of Small Intestine.

The diverticulum arises by an ovoid aperture 1·7 cm. in diameter from the attached border of the gut. The thin-walled sac, 4 cm. in diameter, is seen to project into the mesentery.

The specimen was removed from the body of a woman aged 65.

IV. 110. False Diverticulum of Caecum. (Dr. Finlayson.)

A small portion of the caecum with vermiform appendix is preserved. A diverticulum, 8 mm. in diameter, projects near the orifice of the appendix. Its wall is thin, and does not appear to contain muscular coat. It was occupied by firm pale faeces.

James H. (aged 52) presented no condition to account for the lesion shown. *Path. Reports*, 16th January, 1895, No. 4007.

IV. 111. Multiple False Diverticula of Sigmoid Flexure.

The specimen is a portion of the sigmoid flexure which has been divided longitudinally. There are transverse ridges with intervening saccules from unequal contraction of the circular muscular coat. The longitudinal muscular bands are also well seen externally. A number of diverticula, varying in size from a pea to a small hazel-nut, are seen protruding both from the free and attached borders of the gut. These were found to contain masses of hardened faeces. Most of the diverticula pass into appendices epiploicae; one is seen

passing into the meso-colon. About two dozen diverticula were found in this case occupying the sigmoid flexure, and the transverse and ascending colon.

In addition to the actual diverticula, there are seen at intervals slight depressions of the mucous membrane, with thinning of the underlying muscular coat. These are probably diverticula in process of formation.

Alex. D. (aged 59) presented symptoms mainly referable to cardiac dilatation. *Path. Reports*, 26th May, 1894, No. 3720.

IV. 112. False Diverticula of Large Intestine.

Viewed from the inside there is a row of small apertures, which at one end becomes double, and at two places treble. The diverticula are of various sizes, and in large part project into the adipose tissue, where they present a distinct wall. Some of the diverticula are within appendices epiploicae as shown by the pieces of whalebone inserted. In this case over 45 were counted, occupying the transverse and descending colon.

Hugh M'F. (aged 78) died after an operation for strangulated hernia. *Path. Reports*, 4th June, 1896, No. 4658.

IV. 113. Umbilical Cyst. (Sir Hector C. Cameron.)

The umbilicus and its neighbourhood have been removed and cut longitudinally. A somewhat complicated cyst occupies the entire thickness of the abdominal wall, viz., 3·2 cm. The general abdominal wall is loaded with fat so as to make its thickness similar. The cyst is multilocular, there being one large compartment measuring 3·5 cm. from above downwards and three smaller ones in its floor, one of which projects considerably downwards. There is no communication with the abdominal cavity. The cyst contained a slightly syrup-like fluid.

The structures were removed during operation for the removal of a double ovarian cystoma.

Path. Reports, 24th July, 1890, No. 2429.

IV. 114. Umbilical Hernia. (Sir Wm. T. Gairdner.)

There is a rounded sac about 2·5 cm. in diameter in the position of the umbilicus. It has a smooth lining membrane and communicates with the peritoneum by a small aperture. Another small sac was

found immediately above this one, but contained within the wall of the abdomen.

Wm. K. (aet. 52) was affected with cirrhosis of the liver and ascites. Death resulted from poisoning with laudanum.

Path. Reports, 25th March, 1890, No. 2318.

IV. 115. Umbilical Hernia with Adherent Intestine. Omentum in Separate Sac. (Dr. Patterson.)

The parts are seen in longitudinal section near the middle line. The gut is seen entering and leaving the sac, and in the sac itself coils are seen in section and incorporated with each other and with the wall of the sac. The great omentum is also partly preserved, and it is seen that it does not enter the sac with the intestine, but passes through a narrow neck, which penetrates the muscle of the abdomen to enter another sac, which can be partly delineated, but is in part also merged in the subcutaneous fat. This omental sac is immediately above the other. The proper umbilical sac projects markedly and overhangs its base, especially below. The adipose tissue, both subcutaneous and mesenteric, is excessive in amount.

Wm. K. (aged 59), a confectioner, was admitted with a large inflamed umbilical hernia about the size of a child's head. It is stated that till a fortnight before his admission it was reducible, but this probably applies only to the excess over the present condition, the protrusion being now only a third of what it was on admission. It is said that suppuration occurred from two points. Latterly vomiting developed and was almost constant for twelve days, but the bowels were free. *Path. Reports*, 18th February, 1891, No. 2587.

IV. 116. Umbilical Hernia. (Dr. Patterson.)

This is a very prominent tumour projecting 11·5 cm. from the general surface of the skin, and having a diameter of 12·5 cm. There is a wide ring measuring 6 cm. in diameter. The structures protruded are loops of small intestine with accompanying mesentery, the latter much loaded with fat, and a portion of great omentum. The loops of small intestine reach the summit of the protrusion, the sac being here lobulated, and the intestine is somewhat adherent at the apices of the two principal lobules. The interior of the sac is partly displayed by the removal of one or two loops. The

part of great omentum protruded is adherent inside the sac. The wall of the abdomen, as seen in section, presents a great thickness of subcutaneous fat, reaching to 3 cm., but the sac has no layer of fat, and in the most prominent part both skin and intestine are rather thin.

Helen C. (aged 48) had an irreducible umbilical hernia for 16 years. *Path. Reports*, 30th June, 1891, No. 2703.

IV. 117. Congestion and Gangrene of Intestine from Strangulation in an Umbilical Hernia. (Prof. Macewen.)

The portion of intestine preserved was attached to a wound in the abdomen, and the aperture shown was the result of operation. There is a deep congestion with haemorrhage, varying in intensity, but extending to about 18 cm. of the bowel. The congestion extends through the wall to the fatty tissue outside. The upper part of the affected portion is less extremely involved and is wider in diameter. The lower part shows an exceedingly irregular surface, and the valvulae conniventes are greatly obscured, and there is even now a trace of greyish or greenish colour. The irregularity and greyish colour are visible on the peritoneal surface, which also presents an irregular fibrinous deposit.

Margaret G. (aged 40), a very obese woman, first noticed a swelling in the umbilical region after lifting a heavy weight, during which something gave way in the abdomen. This occurred a month before admission. The swelling was easily reducible till three days before admission, when she was suddenly seized with intense pain and vomiting. The pain was at first chiefly umbilical, but soon became general, and vomiting of dark material persisted. On admission the umbilical depression was found to be abolished, a smooth soft tissue, tender to the touch, replacing the proper umbilicus. At the operation the gut was found gangrenous, as shown, and was stitched to the abdominal wall.

Path. Reports, 1st February, 1898, No. 5321.

IV. 118. Congenital Patency of Inguinal Canal without Hernia. (Dr. A. Patterson.)

The tunica vaginalis is continued upwards, and at the point where the parts have been divided the canal has a width of about 2 cm.; the canal was probably continued up into the abdomen, although, as

the parts were removed by operation, this was not determined. There were no signs of hernia.

The structures were removed on account of tubercular disease of the testicle and epididymis: the former was converted into a solid mass consisting largely of caseous material with softening internally, and a dense grey tissue outside. There were also several caseous masses in the epididymis.

The patient, a man aged 28, had a stricture of the urethra, with a urinary fistula and a sinus of the testicle.

Path. Reports, 15th February, 1883, No. 936.

IV. 119. Congenital Inguinal Hernia with Double Neck.
(Dr. A. Patterson.)

The sac is laid open, and is seen to be formed by the tunica vaginalis, the testicle lying behind as usual. Towards the upper part there is a constriction forming a kind of half diaphragm; above that the sac is again dilated for about 2·5 cm., and then comes the aperture into the peritoneal cavity, which is very small, admitting only the tip of the finger.

The case was operated on, and the double constriction formed an element of confusion. *Path. Reports*, 22nd March, 1879, No. 433.

IV. 120. Congenital Inguinal Hernia with Peculiar Relations.
(Dr. Patterson.)

The conditions here are very peculiar and somewhat difficult of interpretation. The tunica vaginalis, whose sac is exposed with the testicle projecting into it, is widely open above, but instead of communicating, as is usual in congenital inguinal hernia, with the peritoneal cavity, it opens into a sac which measures 6·5 cm. both longitudinally and transversely. This sac was found inside the abdomen just over and to the outside of the sigmoid flexure. It has a gaping, somewhat ragged aperture and there projected through this aperture a great part of the great omentum and a portion of the small intestine. The aperture measures about 4 cm. by 2·5 cm. The communication with the sac of the tunica vaginalis is by a wide aperture measuring about 3 cm., and the lining membrane is carried smoothly from the one to the other. The tunica vaginalis had been opened by operation.

The suggested explanation of the conditions here is: First, that a sac of peritoneum had been projected into the open tunica vaginalis; second, that this sac had been opened along with the tunica vaginalis at the operation; third, that the sac thus opened was returned into the abdomen; and fourth, that the omentum and small intestine afterwards passed through the aperture made by the operation into the sac, as they were found at the post-mortem examination.

Alex. S. (aged 19) was admitted with symptoms of intestinal obstruction of two days' duration. An inguinal hernia was discovered on the left side, which was operated on and returned. No bowel was found in it. The vomiting continued for some hours, but ceased at night. He was then seized with acute pain in the abdomen, and on the following day vomiting recommenced. He died in the evening. *Path. Reports*, 22nd May, 1895, No. 4167.

IV. 121. Congenital Inguinal Hernia with Undescended Testicle: Sac in Groin. (Prof. Macewen.)

The sac, which is a bulky one, extends from near the symphysis pubis upwards and outwards for a distance of 15 cm. In its lower part lies quite loosely the testicle, which is rudimentary, only measuring 2·5 cm. from above downwards. It is attached by a somewhat firm, elongated, and prominent tissue to the sac a short distance above the aperture. Below the testicle is the epididymis, which curves round its posterior aspect, and from it proceeds vas deferens, which passes beneath the peritoneum through the lower part of the ring. The ring is a wide channel large enough to admit the thumb, being 2·5 cm. in diameter. It is freely in communication with the sac in front and with the peritoneal cavity behind. The external iliac vessels are shown in the preparation, and, arising from them, the deep epigastric artery and vein which are immediately below the ring. The vas deferens is seen here emerging from below the ring and immediately in front of the external iliac vessels. The wall of the sac is composed from within outwards of, *first*, peritoneum, which shows in its upper part peculiar bulgings between the vessels. This is loosely adherent to the *second* layer, which in front consists of the aponeurosis of the external oblique, whilst this posteriorly and internally becomes joined to and incorporated with the aponeurosis of internal oblique and sheath of rectus muscle.

Wm. T. (aged 34) was admitted with a strangulated hernia of the left side. The hernia was laid open, but the bowel was found

perforated. A portion of the bowel was removed and the two ends were stitched together.

Path. Reports, 14th November, 1893, No. 3492.

IV. 122. Double Inguinal Hernia in Child of Seven Months. (Sir Hector C. Cameron.)

In this case there was a double hernia, both being of precisely the same characters, viz., the sac communicated with the peritoneal cavity, but not with the tunica vaginalis. This is shown in the preparation, which is from the left side, where the testicle is seen lying in tunica vaginalis, the latter being separated from the wide hernial sac by a septum. The right hernia was strangulated and operated on, the patient dying from peritonitis.

Path. Reports, 29th February, 1884, No. 1148.

IV. 123. Double Inguinal Hernia.

Two very large sacs are preserved, one measuring 20 cm. from neck to fundus, and the other 17·5 cm. In both of them the testicle and tunica vaginalis occupy the posterior part of the fundus.

IV. 124. Inguinal Hernia, probably in part Congenital.

The preparation shows a sac laid open which has above a narrow neck formed by a diaphragm with a rounded aperture 1 cm. in diameter. The sac is almost cylindrical and has thickened walls due to sarcomatous infiltration, especially at the bottom of the sac. Beneath the sac, and almost continuous with its bottom, is the testicle. The only indication of tunica vaginalis is a small space between the bottom of the sac and the testicle. The spermatic cord and vessels are adherent to the wall of the sac.

IV. 125. Inguinal Hernia. (Sir Wm. T. Gairdner.)

The scrotum and contents are preserved. The sac forms a large pear-shaped tumour of the scrotum, and it was only with some difficulty that the contents were withdrawn through the comparatively narrow neck. Those contents are composed of a considerable number of folds of small intestine firmly united by fibrous bands, and with some thickening of the peritoneal coat, but without any adhesion to the sac.

Path. Reports, 25th January, 1876, No. 62.

IV. 126. Inguinal Hernia Containing Sigmoid Flexure.

There is a large sac measuring about 13 cm. in long diameter shown in section. In the one half the intestine remains in position, in the other half it has been removed. Loops of intestine with the mesenteric fat are shown. The sac as seen empty has a smooth internal surface with a few prominent ridges. The testicle lies below the extreme limits of the sac, and is somewhat flattened. No proper tunica vaginalis is discovered.

Thomas P. (about 65) died of cerebral haemorrhage. The history of the hernia is unknown.

Path. Reports, 21st October, 1889, No. 2187.

IV. 127. Inguinal Hernia containing Sigmoid Flexure: Irreducible. (Sir Hector C. Cameron.)

There is a large sac occupied by sigmoid flexure, from which hang bulky appendices epiploicae, with lobulated masses of fat. The mesentery of the sigmoid flexure is inserted into the posterior wall of the sac, so that it is irreducible. A loop of small intestine had also passed into the sac, and it had become strangulated. The strangulation was relieved by operation, but not till the patient was moribund. *Path. Reports*, 31st October, 1889, No. 2194.

IV. 128. Contents of a Reducible Inguinal Hernia.

These consist of several loops of small intestine united together by fibrous tissue along with the sigmoid flexure, which is also united to the coils of small intestine. These structures were found in the abdomen in a case where there was a double inguinal hernia. That on the left side was of large size, and the ring large enough to admit the tips of all the fingers.

The case was one of dropsy, and the sacs were filled with fluid.

Path. Reports, 8th March, 1892, No. 2921.

IV. 129. Strangulated Femoral Hernia. (Sir G. H. B. Macleod and Dr. Beatson.)

The sac and part of the abdominal peritoneum from a case of right strangulated femoral hernia. The sac when removed was about the size of a walnut with a very thick hyperaemic wall. It communicated with the peritoneal cavity by a narrow neck.

Path. Reports, 17th May, 1886, No. 1529.

IV. 130. Stricture of Intestine after Strangulated Femoral Hernia: Perforation: Acute Peritonitis. (Dr. Patterson.)

The preparation shows part of small intestine with a cicatricial constriction, the intestine here having a total circumference of 4 cm. Above the constriction there is a general dilatation, the part in the neighbourhood giving a circumference of 12 cm., while immediately below it is 10·5 cm. Immediately above the stricture, there are several pouches with considerable thinning of the wall. In the midst of one of these there are two small apertures of the size of pins' heads. These apertures were visible before opening the intestine, and faeces were seen to issue from them. In the pouches mentioned above, the remains of beans were found, chiefly their brown skins. The peritoneum showed a general fibrinous exudation, in some places abundant. The exudation is seen on the surface of the part preserved. There was a small right femoral hernia, 4 cm. in diameter, which contained fibrinous exudation.

Alexander G. (aet. 50), a farm labourer, was in the Infirmary in July, 1888, for strangulated hernia. This was relieved by operation, and although there was slight fever, the patient made a good recovery. He was re-admitted on the 13th March, 1889, with the symptoms of acute peritonitis. Pain had begun on the morning of the 11th, and was ascribed to eating beans on the day before. He died 12 hours after admission.

Path. Reports, 14th March, 1889, No. 2062.

IV. 131. Extensive Fibrous Adhesions of Coils of Small Intestine in Connection with Old Hernia. (Dr. Beatson.)

The patient, a male (aet. 83), was admitted to the Infirmary for a strangulated inguinal hernia. He was operated upon and died three days later. The intestines were found, as seen in the specimen, all firmly held together by well-organised tissue.

Path. Reports, No. 1620.

IV. 132. Rupture of Small Intestine from a Kick.

The rupture is on the anterior aspect of the ileum about 123 cm. above the ileo-caecal valve. It is a nearly circular aperture over

1 cm. in diameter. There is some haemorrhagic infiltration of the wall with some adherent coagulum. The abdominal cavity contained faeculent fluid, and the peritoneum was much infected. The coils of intestine were distended and glued by recent fibrin. There was an old hernial sac in the right groin. There was no evidence of bruising or injury of the abdominal wall.

James D. (aged 56) received a kick on the abdomen and died in 10 hours.

IV. 133. Two Ruptures of Intestine, from Fall into Hold of Ship. (Sir Hector C. Cameron.)

The larger of the ruptures, which was situated 60 cm. from the pylorus, shows a ragged aperture surrounded by blood-clot. It was situated on the anterior aspect of the intestine.

The second rupture, which is a very small one, was 5 cm. farther down. There are some remains of coagulum around it, and its lips are everted. Gas, faeces, blood and blood-stained fibrin were present in the abdominal cavity. There was also a rupture of the isthmus of a horse-shoe kidney.

Peter D. (aged 33) fell down a ship's hold a distance of 14 feet. He lived about two days.

Path. Reports, 16th April, 1898, No. 5416.

IV. 134. Traumatic Rupture of Intestine. Acute Peritonitis. (Prof. Geo. Buchanan.)

The seat of rupture is the upper part of the jejunum about 30 cm. from pylorus. The aperture is somewhat kidney-shaped, with a long diameter of 2 cm., and viewed from the inside the edges are distinctly turned outwards, whilst on the peritoneal aspect the rolled-over edges are displayed. There was considerable haemorrhage in the tissues around. The peritoneal cavity contained about 750 c.c. of blood-stained fluid. There was extensive fibrinous and semi-purulent exudation. There was also fracture of five ribs.

Alexander E. (aged 36) sustained an injury by the falling of an "upright" (a long wooden support) in a shipyard. He lived 24 hours after the injury.

Path. Reports, 15th October, 1895, No. 4361.

IV. 135. Rupture of Small Intestine from Fall Across a Bar. (Prof. Geo. Buchanan.)

The preparation is the first part of the jejunum. About 15 cm. from the commencement of the jejunum the gut has been torn across completely, so that there is a wide gaping aperture. The peritoneal coat has retracted somewhat from the orifice, and the mucous membrane pouts out on either side. There was a quantity of turbid brownish fluid in the peritoneal cavity, and evidences of acute peritonitis were present in the form of flakes of fibrin here and there.

A. R. (aged 46), a seaman, fell from a height of about six feet into the hold of a vessel, alighting on his abdomen across a bar of iron, which doubled him up. He was admitted about two hours afterwards, complaining of pain over the abdomen, which, however, was not very severe, and he was quite conscious and able to walk. The abdomen was not distended, and he permitted palpation. Collapse set in about twelve hours after the accident, the chief symptoms being sweating, clammy skin, and almost imperceptible pulse. He remained conscious up till the time of death, which took place in about five hours, or seventeen hours after the accident.

Path. Reports, 31st January, 1885, No. 1298.

IV. 136. Rupture of Intestine from Fall Across a Bar. (Dr. Beatson.)

In the intestine, at a point about 70 cm. from the duodenum, there is a wide aperture measuring 15 mm. by 12 mm. with everted edges. Acute peritonitis was manifest in the form of fibrin, which was abundant near the preparation, and was there somewhat purulent; there were even two small abscesses behind the bowel. Some of the fibrin is seen adhering to the part preserved.

James A. (aged 15) was standing on a steel shaft about 50 cm. in diameter, when his feet slipped and he pitched on to the shaft on his abdomen. He was admitted with extreme pain and very much collapsed, but he lived three days.

Path. Reports, 31st March, 1891, No. 2622.

IV. 137. Rupture of Small Intestine in Two Places: Cause Unknown. (Dr. Dalziel.)

A portion of small intestine with part of mesentery is preserved. About 2 cm. from the attached border there is a minute aperture

visible from the peritoneal surface, and internally a much larger split in the mucous membrane, at the bottom of which there are some traces of necrosed tissue. Another aperture exists at the attached border, and communication with the peritoneum is established through a thick layer of fat which has sustained a considerable transverse rupture.

Mrs. W. was admitted with symptoms of intestinal obstruction and peritonitis of four days' duration. There was no history of injury or other cause of the condition. The abdominal cavity was opened and found to contain faeces, which issued from the two perforations shown. The part was removed and sutures applied.

Path. Reports, 5th June, 1896, No. 4659.

IV. 138. Artificial Anus with Loop of Small Intestine. (Dr. Beatson.)

The parts were removed from a woman who had been operated on six weeks previously for a strangulated femoral hernia. The specimen shows above the artificial anus with surrounding skin. Into the opening are passed two whalebone directors, the larger of which continues into the upper portion of the bowel, the smaller into the lower; the former is much enlarged, while the latter is much diminished in calibre. A septum existed at the anus which is shown in the specimen by a small director passed through it transversely. On the aspect of the bowel opposite to that which has been opened up, the upper and lower sections of the intestine are seen intimately united together. An endeavour at separation has caused laceration of the wall of the upper dilated part.

Path. Reports, 2nd March, 1886, No. 1494.

IV. 139. United Wound of Intestine. (Prof. Macewen.)

The portion of the intestine was the ileum about 15 cm. above the valve. There is a stitched incision measuring 5 cm. in length which is completely united on the serous surface and nearly so on the mucous.

James A. (aged 30) was affected with cancer of caecum and ileum, for which an operation was performed. The ileum was loaded with faeces, and the incison shown in preparation was made to empty it. The operation was eleven days before death.

Path. Reports, 1st December, 1892, No. 3195.

IV. 140. Twisting of the Sigmoid Flexure.

The specimen shows a very definite twist of the sigmoid flexure—the flexure being turned half round twice over in the usual way. The neck shows some thickening of the peritoneum indicating a considerable duration, but the flexure is not greatly distended.

Mrs. E. (aged 56) was only four days in the Infirmary. She was affected with extensive cerebral softening due to atheroma and thrombosis of arteries.

Path. Reports, 16th November, 1881, No. 731.

IV. 141. Large Intussusception of Small Intestine. (Sir Hector C. Cameron.)

The intussusception, which is sickle-shaped, lay in the left iliac and lumbar regions, the convexity being in the iliac fossa. The length of the intussusception is 30 cm. As displayed, the outer tube is packed with dense folds of small intestine. The lower end tapers off, and an irregular piece projects at the apex as if there was a partial double involution. At the upper extremity there is also a very small double involution. The structure is displayed by section in a portion in the midst of the lesion, and it is seen here that there is a much narrowed but simple tube whose whole external diameter is only 1·3 cm., and whose lumen is virtually abolished. The mesentery of this portion is shown separated from it and turned up. The outer or returning layer of intestine, on the other hand, is crushed together, showing innumerable prominent folds. This is partly shown by a portion of the intestine having been removed and stretched out, but as this was done after hardening it is impossible to expand it to its true extent. The packing of intestine in this layer is estimated as follows. The total normal length of the small intestine being 700 cm., the intussusception began 120 cm. from the pylorus and ended 225 cm. from the ileo-caecal valve, giving 345 cm. of free intestine and 355 cm. in the lesion. As the outer and inner tubes are simple, and as the length of the intussusception was 30 cm., there remain 295 cm. for the middle tube which is packed into about 30 cm., or into a tenth part of its proper length.

The intestine below the intussusception was much contracted, while that above was distended and contained pale fluid having a faecal colour and smell.

Charles G. (aged 16) was affected with urgent intestinal obstruc-

tion which had begun ten days before death. There was severe pain occurring in exacerbations. A hard mass was found in the left iliac fossa and hypochondrium, and it was felt to become harder during the paroxysms of pain, which seemed to have occurred about once in five minutes. He improved for a time, but on the seventh day of the attack faecal vomiting began and he got gradually worse. There was a history for the past two years of recurrent attacks of intestinal obstruction. These were very urgent and lasted some days, and there was occasional passage of blood from the rectum.

Path. Reports, 10th October, 1896, No. 4794.

IV. 142. Intussusception of Small Intestine into Last Part of Ileum and Caput Caecum. Gangrene of Bowel. Ruptures from Over-Distension. (Professor Geo. Buchanan.)

The intussusception begins a short distance above the ileo-caecal valve, where there is an abrupt narrowing of the small intestine as it passes into a succeeding portion of the same. The edge of the enclosing portion is thickened, and gives the impression of containing accumulated folds of intestine. The enclosing piece forms a loop, the end of which passes in a natural manner on to the caput caecum, and it can be seen both without and within that the ileo-caecal valve is not involved in the intrusion. On the other hand, loops of small intestine are protruded through the valve and lie free in the somewhat distended caecum. These are almost totally gangrenous, and there is some appearance of separation of a portion as a brown slough. A window made in the small intestine immediately above the valve shows that even here the intruded intestine is brown and gangrenous. Above the intussusception the small intestine is considerably distended, and there are several obvious apertures having the appearance of tears. There were many such in the course of the small intestine, and it is particularly observed, and is shown even in the part continuous with the intussusception, that the split is sometimes of the serous coat alone, sometimes of the other coats alone, and sometimes of both. Two separate pieces of intestine are preserved showing tears in the portions higher up. There were altogether five distinct perforations and from these faeces had escaped, and there was a distinct peritonitis.

John D. (aged 22) was seized eleven days before death with a sharp pain round umbilical region which woke him from sleep. Half an

hour later he vomited some greenish material. On the same evening pain became generalised and continued so after his admission. Four days after the onset there was marked tenderness in the right iliac region with slight distension, and the symptoms generally were those of acute peritonitis. Two days after the onset he had taken a doze of jalap, and a few hours afterwards he had a ribbon-like motion on which he noticed some dark clotted blood. On two other occasions after admission he had, in response to enemata, thin motions mixed with dark clotted blood.

Path. Reports, 7th December, 1895, No. 4416.

IV. 143. Intussusception of Small Intestine into Ileum and Caecum. Gangrene. (Sir Wm. T. Gairdner.)

The preparation shows the caecum opened up and the last part of the ileum. On the proximal side of the ileo-caecal valve there is an involution of the small intestine which begins about 8 cm. above the valve. There is thus a cylinder of small intestine, about 8 cm. in length, which is densely packed with involuted and adherent intestine. Inside the caput caecum there is a mass of small intestine consisting of two loops; one which is next the valve is solid, evidently containing impacted intestine; the other is soft, and has no solid contents. Both are brown in colour, but the distal one is shreddy. On injecting water from above the intususception, it was found to pass through the involution, and to escape through an aperture in the distal shreddy loop.

Mary M. (aet. 42) began to complain of pain in the abdomen and vomiting three days before death. The vomiting soon became stercoraceous. There was costiveness, but not complete constipation, the bowels having been moved twice after the attack, a blackish fluid being passed. Collapse ensued, and she died.

Path. Reports, 4th June, 1891, No. 2683.

IV. 144. Water-Colour Drawing of Intussusception (from preceding specimen). (Dr. Alexander Macphail.)

IV. 145. Intussusception of Descending Colon. (Dr. Finlayson.)

The parts have been divided so as to show the condition in section. The upper end of the bowel is much distended. It

becomes suddenly narrowed on entering the intususception, and its collapsed lumen can be traced to the apex of the lesion, a distance of 9 cm. Thence it curves outwards and returns along the outer surface of this cylinder till near the neck of the sac. Where the tube turns over to pass into the outer tube there is a partial gap through which the muscular coat, visible elsewhere, is not traceable. The surface of the return or middle tube is brown in colour and the mucous membrane much thickened. The serous surfaces of the inner and middle tubes are almost completely adherent, scarcely any cleft being left, the appearance being that of a continuous layer of tissue. On the other hand, the applied mucous membranes of the middle and outer tubes are absolutely non-adherent. The part of intestine involved was the descending colon, which was invaginated into the rectum.

Hannah B. (aet. 2) took ill five weeks before death with diarrhoea and pain, the stools being copious and loose. After three weeks the stools became slimy and blood-stained. During a residence of two days in hospital there was sharp diarrhoea, and the stools consisted of faecal matter and mucus with slight traces of blood. On the day of death the distension of the abdomen increased greatly, and a tumour could be felt by the finger in the rectum, which retreated on pressure. Vomiting also supervened, and the child gradually sank. There was some faecal matter found in the abdomen, which had escaped from a small aperture at the upper part of lesion.

See *Journal of Children's Hospital*, No. IV., p. 189.

IV. 146. Intussusception: Slough of Intestine Passed during Life. (Drs. Wylie and Finlayson.)

The preparation is a slough in which microscopically various indications of tissue, such as bundles of smooth muscle, tubular glands, and blood-vessels are discoverable, but without any trace of nuclear staining. The slough was passed per anum under the following circumstances:

Mrs. J. H. was seized with severe pains in the abdomen on 1st October, 1887. The woman was pregnant in the seventh month. Examination of the abdomen revealed tenderness in the region of the caecum, and there was found in this region an abnormal prominence "just as if a cricket ball was being pushed up beneath the integuments." The bowels were confined for four days, and on the fifth day blood appeared in the motions. From this onward to the

11th, the motions contained an increasing quantity of blood streaked with pus, and they had a very offensive smell. On the 12th, a very large quantity of blood was passed, partly in large clots; amongst these the slough preserved, was found. For the next three days a great amount of blood was passed, but matters gradually improved. The patient made a good recovery, and was delivered normally of a healthy child on the 12th December.

See *Glasgow Medical Journal*, Vol. 29, p. 336.

IV. 147. Large Aperture in Mesentery into which the Small Intestine was Twisted and Packed. (Sir Wm. T. Gairdner.)

The aperture, which corresponds in situation with the mesentery of the middle part of the jejunum, is of a rounded outline, and measures 9 cm. in diameter. Its edges are smooth and rounded, presenting no appearance of a recent tear.

At the time of the post-mortem the small intestine, with the exception of 90 cm. at its upper end, was twisted and impacted into this aperture in such a manner as to render it very difficult of removal, this being only effected by partially emptying the intestines. The whole small intestine was greatly distended, and presented a deep red colour. There was also a red fluid in the peritoneum, but without any inflammatory appearance. The contents of the intestines were a bloody grumous material, and the mucous membrane was very red.

The patient was a sailor (aged 36) who, previous to admission, had been greatly reduced by six months' diarrhoea, contracted while in the Chinese seas. Twelve hours before death he was suddenly seized with excruciating abdominal pain and stoppage of the bowels; these symptoms continued till death.

Path. Reports, 20th December, 1882, No. 899.

IV. 148. Gangrenous Inflammation of Small Intestine. (Sir Wm. T. Gairdner.)

The small intestine, two pieces of which have been preserved, presents an extensive ulceration and sloughing, so that in parts the wall is greatly thinned. There are two apertures which, however, are of artificial production. The inflammation and sloughing began about 1 metre from the pylorus, and it was most intense about the

middle of the small intestine, diminishing towards the caecum. The large intestine was unaffected.

Archibald E. (aged 28), an ironmonger, was admitted into Ward 1 with phagedaenic sores at various points (limbs, sacrum, etc.), and deep ulcerations of palate, fauces, and tongue, suggestive of advanced syphilis, of which, however, no positive evidence could be obtained in the history. (See also Ser. IV., No. 1.) A cutaneous eruption, at first in part roseolar but tending to be purpuric, and at last in large patches of well-developed purpura, was also apparent. Alleged duration of symptoms, five weeks; no fever. Six years before, an eruption alleged to be similar had easily yielded to treatment. After admission there was at first improvement, but then rapid decline, with diarrhoea and fresh purpuric eruption.—*Trans. Path. and Clinical Soc.*, 1893. Vol. IV., p. 213.

Path. Reports, 4th June, 1893, No. 3224.

IV. 149. Gangrenous Inflammation of Intestine. Water-Colour Drawing by Dr. Alex. Macphail. (From preceding case.)

IV. 150. Varicose Vein of Small Intestine.

In the jejunum 160 cm. from the pylorus was found the lesion shown. It consists of two prominences filled with blood-clot and distinctly defined. They project about 7 mm., and the lower one has a distinctly convoluted form. They are continuous, but by a narrow isthmus. Above the upper one a much smaller dilated vein is visible. There were numerous haemorrhages beneath the mucous membrane of the small intestine, chiefly of small size.

Janet C. (aged 70) died from an extensive cerebral haemorrhage.

Path. Reports, 4th October, 1897, No. 5179.

IV. 151. Internal Haemorrhoids.

The rectum has been divided longitudinally and spread out. Below is seen the skin around the anus, while above is the mucous membrane of the bowel. The mucous membrane is wrinkled at the upper part of the specimen, but towards the anus it is thrown into a number of variously-sized, elongated, pouch-like projections. They appear to be situated well within the sphincter.

IV. 152. Haemorrhoids Projecting at Anus.

Numerous rounded and irregular masses project from the mucous membrane of the rectum, many of them passing beyond the anus.

IV. 153. Intestine in Diabetes with Lipaemia. (Dr. Finlayson.)

In this case the blood in general was greatly altered, yielding a milky or creamy material which often visibly occupied the vessels instead of blood. The veins of the mesentery showed this very strikingly in the fresh state, and in the piece of intestine preserved the smaller veins passing to the mesentery, as well as those on the surface of the intestine, were to a large extent completely occupied by white matter.

Maggie J. (aet. 13) had the usual symptoms of diabetes, which had lasted 16 months. She was apparently doing well when pain occurred in the left side and coma somewhat rapidly supervened. She died within 24 hours.

Path. Reports, March 13th, 1888, No. 1857.

IV. 154. Perforating Ulcer of Duodenum. (Prof. Macewen.)

The ulcer is situated immediately beyond the pylorus. It is semicircular in shape and measures in general about 7 mm., being slightly larger at the mucous surface. There was great exudation in the peritoneum in the neighbourhood of the gall-bladder, and the ulcer was somewhat concealed by it.

James J. (aged 54) was admitted with acute intestinal obstruction. There was a history of heavy drinking two days before admission. Then sudden, sharp pain in epigastric region occurred extending over the abdomen. Abdominal section was performed, and a volvulus of the small intestine was found and rectified. The patient died about 12 hours after the operation, or about 24 hours from the seizure. *Path. Reports*, 8th June, 1894, No. 3736.

IV. 155. Perforating Ulcer of Anterior Wall of Duodenum. (Prof. Gemmell and Sir Hector C. Cameron.)

The ulcer measures 1·5 cm. and the peritoneal aperture is nearly of the same size as the mucous. The ulcer is situated within 1 cm. from the pylorus. At the post-mortem examination, on raising the right lobe of the liver, the round, sharply-demarcated aperture was

revealed. There was considerable fibrinous exudation, some of which still adheres to the peritoneal surface.

Arch. B. (aged 30) felt a sudden pain in the abdomen located about the umbilicus, six days before death. This was followed by vomiting, which continued till admission four days after. The abdomen was distended and tympanitic, and there were redness and pitting on pressure in the right iliac region. Abdominal section was performed, and a large quantity of foetid pus removed from the abdomen. *Path. Reports*, 26th June, 1894, No. 3769.

IV. 156. Perforating Ulcer of Duodenum. (Dr. Jas. Finlayson.)

This ulcer is situated about 2·5 cm. beyond the pylorus; it is round in shape, and 8 mm. in diameter. It has eaten through the entire coats of the intestine, its base being now formed of connective tissue. No open-mouthed vessel is discovered in the floor, but immediately behind it there is a comparatively large artery.

The case was mainly one of aortic valvular disease from chronic endocarditis, with calcareous deposition. There was a small amount of blood in the stomach and small intestine, but no haematemesis or other indication of this lesion was noted during life.

Path. Reports, 21st April, 1879, No. 437.

IV. 157. Perforating Ulcer of Duodenum Opening into Artery. Fatal Haemorrhage. (Prof. Joseph Coats.)

The specimen shows a deeply excavated ulcer of a quadrilateral shape, situated just beyond the pylorus, and partly involving its border. It measures 2·5 cm. in the direction of the axis of the gut and 2 cm. across. The edges of the ulcer are absolutely abrupt, and its floor is formed partly of cicatricial tissue, but also of pancreatic tissue. In the floor an artery is exposed, the superficial portion of its wall being completely dissolved away so as to leave only a shallow gutter for a distance of about 2 cm. A piece of whalebone is passed from the artery above, through the floor of the ulcer into the other aperture, and out at the artery below. The artery is made out as the gastro-epiploic. There was a large quantity of altered blood in the large intestine and a smaller amount in the small intestine.

A. C. (aged 27), a clerk, was subject for two years to occasional

attacks of sickness, pain and vomiting. The fatal attack lasted about six months. There was general tenderness but no limited pain. On July 16th an attack of syncope was followed by great prostration, and a similar attack occurred on next day. After this altered blood passed by bowel, and state of anaemia developed, with V.S. murmur, etc. He improved greatly and the cardiac murmur disappeared. About beginning of September he got worse, pain and vomiting becoming more considerable. On 19th September collapse, palor, etc., and a return of V.S. murmur. This continued, and he gradually sank and died on 25th.

Path. Reports, 26th September, 1887, No. 1745.

IV. 158. Perforating Ulcer of Duodenum, Opening into Artery. Fatal Haemorrhage. (Sir Wm. T. Gairdner.)

This preparation is very like the preceding, an artery being exposed and open in the floor. At the post-mortem there was great matting of the parts and contraction of the pylorus, the ulcer touching the pylorus, so that at first it was taken for a cancer of the pylorus. The stomach was much dilated and its muscular coat hypertrophied.

Wm. C. (aged 36). Illness began three years ago with indigestion. This recurred at intervals, and was accompanied with pain and vomiting. On admission there were evidences of dilatation of the stomach. About two months before death vomiting of blood began, and recurred at intervals till death, the patient gradually becoming weaker. *Path. Reports*, April 16th, 1887, No. 1703.

IV. 159. Perforating Ulcer of Duodenum, Penetrating into Liver. (Prof. Gemmell.)

Equal portions of stomach and duodenum are preserved, the pyloric ring being indicated by a transverse ridge. A somewhat quadrilateral ulcer is present in the duodenum but involving the sphincter. In its full diameter of 15 mm. it involves the whole thickness of the wall of the stomach and penetrates to a depth of fully half a centimetre, but beyond that and occupying a smaller area there is a deeper penetration exposing the liver tissue, which was readily recognised in the fresh state by its brown colour. The part of the liver involved is the under surface of the left lobe, near

the anterior border, and immediately adjoining the suspensory ligament.

John G. (aged 46) had been for five years affected with dyspeptic symptoms and for two had discomfort and swelling of the stomach after food. The pain came on 5-7 minutes after food and lasted 10-15 minutes. Patient was also affected with tuberculosis of vertebrae, lungs, spleen, kidneys, testicle, etc.

Path. Reports, 22nd March, 1893, No. 3297.

IV. 160. Perforating Ulcer of Duodenum. Penetration of Liver. Multiple Hepatic Abscesses. Suppuration in Mesenteric Glands. (Dr. A. Patterson.)

The specimen consists of a portion of the liver, including gall-bladder, adherent to which are portions of the pyloric end of the stomach and duodenum. At the upper and posterior part of the duodenum, immediately abutting on the pyloric ring, and indeed, to some extent overhung by this, is a circular ulcer, 1·2 cm. in diameter, having the characters of a perforating ulcer. The edges have been made rather ragged by handling. Through the perforation a probe may be passed into the liver in several directions into abscess cavities filled with peculiarly tenacious muco-purulent matter. Abscesses were present throughout the entire hepatic substance, and projected from the surface of the enlarged liver at various points. In the portion preserved, they are seen to be fairly demarcated, and they vary in size from a pea to a hen's egg or larger. The glands in the mesentery and in the neighbourhood of the head of the pancreas were greatly enlarged, soft, and fluctuant, and contained purulent material. The pus in the hepatic abscesses contained streptococci, and the bacillus coli also was present.

David C. (aged 36) for ten months before death suffered from recurring attacks of acute pain, lasting for two or three days, and localised to a spot 5 cm. to the right of the umbilicus.

Path. Reports, 4th November, 1897, No. 5214.

IV. 161. Stricture of Small Intestine in connection with a Simple Ulcer. (Dr. Patterson.)

The piece of intestine was excised during life. It presents a great narrowing of the lumen along with a marked thinning of the wall, the latter chiefly from atrophy of the mucous membrane. Viewed

from within there is an ulcer which surrounds the gut and has a general measurement in the direction of the axis of the gut of about 1 cm. Microscopically the ulcer shows a simple granulation tissue wall without any appearance of tubercular character.

Annie G. (aged 56) was admitted with obstruction of the intestine, which was incomplete, but for ten days had been associated with vomiting. There was an inguinal hernia which was operated on twice, but without relief. Enterectomy was then performed, and the piece of gut removed as shown. It is suggested that the lesion may have arisen from strangulation at a former period with partial gangrene. Otherwise the lesion might possibly be from a foreign body. *Path. Reports*, 5th January, 1897, No. 4931.

IV. 162. Mucous Cast of Intestine passed per Rectum. (Dr. Wm. Watson.)

The specimen is a somewhat flaky mass of a generally elongated form, and composed of a soft material of about the consistence of loose fibrin. It was very soft and friable, and of a white colour slightly tinged with blood. Under the microscope long spirally-twisted filmy bands were disclosed, amongst which were a few distorted epithelial cells. The case was treated in Belvidere Fever Hospital, having been sent in as one of enteric fever. On admission the symptoms pointed to contracted kidney. An enema brought away the mass preserved, which at first looked like a piece of rope, and was 22 cm. long. There had been some pain on pressure between the left anterior superior spine and the umbilicus, which disappeared on the passage of the mucus.

Path. Reports, 18th September, 1893, No. 3442.

IV. 163. Pyaemic Abscesses in Small Intestine. (Dr. Nicoll.)

The pieces of the small intestine preserved, which are from the ileum, show numerous small yellow elevations generally rather larger than a grain of barley. They are often arranged in lines like rows of beads, and show a distinct relation to the vessels, especially to their finer twigs. They were present chiefly in the lower 70 cm. of the small intestine, but there were a few similar groups in the upper part of jejunum and lower part of duodenum. There was very marked hyperaemia in the affected portion of the ileum. The

suppurative areas bear no relation to the Peyers' patches and solitary glands.

Under the microscope the appearance presented is that of abscesses in the submucous tissue, and in one instance the section was fortunate enough to encounter an artery with a definite plug. The abscesses contain large colonies of micrococci, and it was determined by cultivation from the periosteum that the microbe was the staphylococcus pyogenes aureus. There were suppurative lesions in the heart (II. 51), kidneys, lungs, mesenteric glands, and skin.

Maggie G. (aged 11) suffered from periostitis of the femur referred to a fall. *Path. Reports*, 21st August, 1893, No. 3419.

IV. 164. Ulceration and Cicatricial Contraction of Descending Colon. See also water-colour drawing. (Dr. Renton.)

In the portion of bowel preserved there is at the lower part a marked ulceration ending above in a narrowing of the lumen. This is succeeded by a pouch ending above in another narrowing. In this pouch, which measures 11 cm., and even for a distance of 7 cm. above it, there are no folds of the mucous membrane, and only three or four small ulcers. Flat ulcers are resumed above this smooth area. In addition there were numerous ulcers of a similar flat character in various parts both of the small and large intestine, with occasional cicatricial contraction. About the middle of the ascending colon there was a marked constriction to which was attached a broad band of omentum, and in the caecum, which was greatly distended and extensively ulcerated, there was a pin-hole perforation. An ordinary perforating ulcer existed in the duodenum about 8 cm. from the pylorus. The ulcer was 2 cm. in diameter and communicated with a cavity which ramified under the adhesions connected with the ascending colon.

Rose Ann M. was affected with pain and distension of the abdomen which were considered to be due to tubercular peritonitis. There was complete stoppage of the bowel for six days with severe faeculent vomiting; this, however, diminished before death.

Path. Reports, 5th January, 1893, No. 3225.

IV. 165. Ulceration and Cicatricial Contraction of Descending Colon. Water-colour drawing by Dr. Alex. Macphail. (From preceding case.)

IV. 166. Great Contraction of Sigmoid Flexure: Perforation: Peritonitis. (Sir Wm. T. Gairdner.)

The condition of the sigmoid flexure is that of extreme narrowing of its calibre, with corrugation of the mucous membrane. There are many pouches produced by the folding of the mucous membrane; one of these has penetrated the intestinal wall, as indicated by a piece of whalebone, and there is an abscess cavity at this point. The abscess had communicated with the peritoneum, and produced acute peritonitis.

Andrew J. (aet. 36) had been affected with irregularity of the bowels for some years. About a week before death, sudden pain developed in the abdomen, followed by signs of peritonitis.

Path. Reports, 10th October, 1887, No. 1749.

IV. 167. Two Pieces of Intestine with Cicatrices and Contraction. (Dr. Jas. Finlayson.)

These cicatrices are flat, and they had their seat along with a third one in the upper part of the intestine.

The parts were removed from a man, aged 28, who had a syphilitic history, and died of Bright's disease.

Path. Reports, 9th March, 1882, No. 788.

IV. 168. Ulceration and Softening of Large Intestine ascribed to Medicine. (Dr. Tennent.)

Portions of the descending and of the ascending colon are preserved. The former presents innumerable transverse ulcers, which leave prominent folds of mucous membrane, almost like valvulae conniventes, but more closely set. In one place the mucous membrane is undermined, and there is a kind of perforated bridge. In the ascending colon the ulcers are larger and the folds broader. In addition, the intestinal wall was thickened and exceedingly brittle. These conditions extended throughout the large intestine, and there were two or three flat ulcers in the small intestine. Microscopic examination shows the mucous membrane in the ulcerated parts replaced by multitudes of round cells, which extend downwards amongst the muscular tissue and the sub-peritoneal adipose tissue.

In some places the mucous membrane, comparatively unaffected, is undermined as if by a kind of abscess cavity.

Mrs. M'K. was affected with severe diarrhoea with blood. It was ascribed to her taking five powders (nature unknown, but probably purgative). These were to have been taken separately, but the husband gave them all at once. The diarrhoea persisted in spite of treatment, and there was at times very severe pain. The evening temperature was febrile. She lived about two and a half months after the onset. *Path. Reports*, 22nd October, 1888, No. 1948.

IV. 169. Enlargement of Peyer's Patches and Solitary Follicles in Scarlet Fever. (Dr. John W. Nicol, Belvidere.)

Two pieces of small intestine are shown in which the Peyer's patches show swelling, but without ulceration. The solitary follicles are visible as minute elevations scattered throughout the mucous membrane. It is to be noted that in children these structures are normally more distinct than in adults, but they are here very markedly exaggerated.

The case was that of a child (aged 4 years) who died on the fourth or fifth day of illness. There was severe diarrhoea.

IV. 170. Enlargement and Ulceration of Peyer's Patches in Typhoid Fever. (Sir Wm. T. Gairdner.)

The preparation shows various stages. In one or two instances there is little more than enlargement of the patches which have well-defined margins, but even in these there is slight ulceration. In one almost the entire patch is destroyed by ulceration, but the ulcer has prominent margins. There are no sloughs remaining on the ulcers.

The liver and spleen were enlarged, especially the latter, which weighed 12½ ounces. The symptoms were the usual ones in enteric fever, except that there was no considerable diarrhoea, and rose spots were detected with some difficulty. Maximum temperature 105·8° a fortnight before death, which was rather sudden, probably in the fourth or fifth week of the disease. See Journal of Ward IX., O, p. 294. *Path. Reports*, 9th July, 1881, No. 691.

IV. 171. Enlargement and Sloughing of Peyer's Patches in Typhoid Fever. (Dr. G. P. Tennent.)

The sloughs have a deep brown colour, and they occupy the greater part of the surface of much enlarged patches. On another piece of intestine there are enlarged patches without sloughing.

Path. Reports, 20th March, 1884, No. 1160.

IV. 172. Ulceration and Sloughing of Peyer's Patches in Typhoid Fever. Perforation. Peritonitis. (Prof. M'Call Anderson.)

Two pieces of intestine have been preserved, on one of which there are two small ulcers, each with a slough on it. In the other piece there is a large ulcer also containing a slough; all these sloughs had originally a brownish colour. The peritoneum opposite the large ulcer is also necrosed, forming a slough 2 cm. in length, and at the lower edge of this slough there is a perforation (shown by a piece of whalebone). The peritoneum generally presented on its surface a fibrino-purulent exudation, which was nowhere very abundant, but largest in quantity towards the right iliac fossa. *Path. Reports*, 22nd November, 1880, No. 596.

IV. 173. Ulceration and Perforation of Small Intestine in Typhoid Fever. Peritonitis. (Dr. Finlayson.)

A portion of the ileum is preserved and two ulcers are shown. In the upper one a piece of slough remains adherent. The lower one is clear of slough, but in its floor there is a small aperture through which a piece of whalebone has been passed. On the peritoneal surface of the piece of intestine there is a somewhat irregular fibrinous deposit, the result of acute peritonitis, which was general over the entire peritoneum. In other parts of the intestine there were ulcers or enlargements of the Peyer's patches, but the latter were not very marked as the disease was in an advanced stage.

The patient was a girl aged 10, who died on the 25th—27th day of the fever with symptoms of perforation and acute peritonitis.

Path. Reports of Children's Hospital, November, 1883.

IV. 174. Ulceration and Perforation of Intestine in Typhoid Fever. (Dr. Tennent.)

Two pieces of intestine are preserved. One, which corresponds with a part of intestine 13 cm. above the valve, presents a large flat, somewhat complex ulcer 5·5 cm. in long diameter, which leaves little except the peritoneal coat. In the midst of it there are two apertures as if cut out, one measuring 5 mm. and the other 3 mm. in diameter. The other piece of intestine was near the upper part of the ileum. In it there are three ulcers, two of them superficial and one of these with a brownish slough; the middle one is larger and deeper, measuring nearly 2 cm. in diameter, and in its midst there is an oval aperture 5 mm. in diameter. In both pieces the peritoneal surface shows remains of fibrinous exudation. There was an acute general peritonitis and a marked enlargement of the spleen. There were thirteen other ulcers showing various stages of development.

Mrs. W. (aged 45) was admitted complaining of cough and spit, but there was a history of shiverings for ten days. This, with a residence of sixteen days, makes a duration of twenty-six days, and accounts for the generally clean state of the ulcers.

Path. Reports, 4th April, 1896, No. 4556.

IV. 175. Tubercular Ulcer of the Intestine. Tubercles on Serous Surface. Enlargement of Mesenteric Glands. (Prof. Coats.)

This is from the same case as the example of tubercular ulceration of the stomach (Ser. IV., No. 61). There is an ulcer within, and the serous coat presents an excessive aggregation of rather large tubercles; these extend in diminished numbers to the mesentery, where there are enlarged caseating glands.

Path. Reports, Feb. 3rd, 1886, No. 1482.

IV. 176. Extensive Tubercular Ulceration of Intestine. (Sir Wm. T. Gairdner.)

The ulceration here is so frequent and extensive as to leave little mucous membrane. The ulcers also, although showing distinct overhanging edges, have a more shaggy, irregular floor than is usual, giving the impression of an acute occurrence. There was also amyloid degeneration of stomach and intestine. The case was one of phthisis pulmonalis of seven years' duration. Diarrhoea was latterly pronounced.

Path. Reports, May 16th, 1889, No. 2107.

IV. 177. Tubercular Ulcers of Intestine.

IV. 178. Tubercular Ulcers. Perforation. Peritonitis. (Sir Wm. T. Gairdner.)

Of the three pieces of intestine preserved one shows two gaps, one of them of considerable size. These perforations were buried in adhesions and did not cause penetration to peritoneal cavity. The second shows a gap about 1 cm. long, occupying one end of a typical tubercular ulcer. From this aperture brown faeces were seen at the post-mortem exuding into the peritoneum. The third piece shows an irregular ulcer with a very thin floor and two minute perforations. The peritoneum showed considerable layers of fibrin along with numerous small white nodules.

James M'D. (aet. 44) was affected with phthisis, referred to a pleurisy two years before death. The date of the perforation was difficult to determine. There was a rigor six weeks before admission, with pain in back, sides, and abdomen; an aggravation of the illness a fortnight before admission. There were also evidences of ulceration of the larynx. (See III. 15.)

Path. Reports, 13th July, 1890, No. 2277.

IV. 179. Tubercular Ulcer of Intestine. Perforation. Peritonitis. (Sir Wm. T. Gairdner.)

The ulcer is a comparatively small one, measuring 1·5 cm. transversely by ·75 cm. in the long direction of the gut. It has overhanging edges, and was associated with numerous other tubercular ulcers. It was situated in the upper part of the jejunum, the ulcers in this case being much more numerous in the upper than in the lower part of the intestine. The floor of the ulcer shows a perforation of an oval form, ·75 cm. in diameter. Around the aperture fibrin is visible, covering the peritoneal surface, and there was abundant soft fibrin in the abdomen generally.

Chas. H. (aet 34), a coal-miner, was affected with phthisis pulmonalis of a year's duration. Death occurred with the symptoms of acute peritonitis. *Path. Reports*, 24th February, 1891, No. 2594.

IV. 180. Tuberculosis of Intestine with Necrosis and Perforation. (Dr. Finlayson.)

The ulcers, which are shown in four separate portions of the intestime, have the usual transverse arrangement and prominent edges.

None of the ulcers come quite up to the mesenteric attachment, which is represented by the edges of the pieces of intestine. In all the ulcers shown a brown slough is present on the floor, and in one of the pieces, which contains two ulcers, there is a perforation. Tubercles are visible under the peritoneum opposite all the ulcers. Faecal matter had escaped into the peritoneal cavity.

There was also tubercular ulceration of the ileo-caecal valve.

Anthony G. (aet. 37) was affected with phthisis pulmonalis, and the post-mortem examination revealed extensive tuberculosis of both lungs. *Path. Reports*, 16th September, 1895, No. 4315.

IV. 181. Three Cicatricial Contractions of Intestine, probably Syphilitic. Penetration of Abdominal Wall. (Sir G. H. B. Macleod.)

Two pieces of small and one of large intestine are preserved. There is, first, a piece of jejunum with marked contraction at one point and considerable dilatation above. In the dilated part, for about 7·5 cm., the mucous membrane is infiltrated, and the valvulae conniventes are obliterated so as to give a smooth surface, in the midst of which are two small apertures. There is a second constriction having similar characters, but with less extensive infiltration, which was situated about 60 cm. below the first. A third partial constriction was found (not preserved) in the form of an ulcer with infiltrated wall and indication of cicatrisation. The transverse colon, as shown in preparation, presented a well-marked stricture with great infiltration of the wall. Immediately in front of the stricture there is a rounded aperture in the wall, which communicated with the cutaneous surface. The latter presented an unhealthy ulcer just below the costal arch in the left nipple line.

Microscopical examination of the jejunal lesion shows at the marginal part a great infiltration of round cells in the mucous membrane, impinging on the muscular coat and partly destroying it. The round-celled area is not very extended, and is succeeded by spindle-celled and cicatricial tissue.

Christina N. (aged 9). Eleven weeks before death an abscess formed on the abdominal wall, and burst four weeks later. There remained an irregular sore of the size of a crown. Progressive emaciation and enfeeblement followed.

Path. Reports, 12th July, 1886, No. 1577.

IV. 182. Early Dysenteric Lesions in Large Intestine. (Prof. Macewen.)

The preparation shows three portions, the two larger being caput caecum and rectum and the smaller being an intermediate portion. The rectum shows five or six prominent pale lesions, some of them rounded in form and measuring from 2 to over 4 cm. They have somewhat abrupt margins, and their central parts are excavated, there being occasionally portions of brown slough still adhering. On examining a section of the wall, it is seen that the muscular coat passes inwards in the elevation, which was probably a transverse fold of the intestine originally. The muscular coat is involved in the necrosis, and in the section is seen to end on the exposed surface of the ulcer.

The caput caecum shows a more continuous infiltration, with occasional brown sloughing. But here also there is an indication of rounded areas, one of these cut across in the preparation taking in the whole circumference of the gut. In the intermediate portion there are smaller areas than in the rectum, varying from about 2 cm. down to 2 mm. The larger ones are markedly raised, and with sloughing central portions, and even the smaller ones have a central necrosis producing crater-shaped ulcers. Microscopic examination shows in the affected patches an extreme cellular infiltration, with superficial necrosis. At the outer edges large round bodies are observed, with the appearance of the amoebae described and figured by various authors. The liver presented one large and many smaller abscesses.

Ernest A. (aged 30), a ship carpenter, had an illness in the Gulf of Suez three and a half months before death, and there was a recurrence about a month and a half later.

Path. Reports, 23rd December, 1897, No. 5274.

IV. 183. Dysenteric Inflammation of Small Intestine. (Sir Wm. T. Gairdner.)

Two pieces of the small intestine are preserved, and they show considerable thickening of the mucous membrane, with an irregular fibrinous deposit on the surface, especially where there are prominent folds. On removal of this layer a partial loss of substance was observed. This condition involved 60 cm. of the intestine about the middle of the ileum. In addition, the body presented acute pericar-

ditis, chronic pneumonia, and amyloid disease of spleen, kidneys, and liver. For clinical details, too complicated to be here reported, see Journals of Ward I, CC, p. 281, and DD, p. 114.

Path. Reports, 27th February, 1884, No. 1146.

IV. 184. Acute Dysentery. (Sir Wm. T. Gairdner.)

The part preserved is the left portion of the transverse colon ending in the splenic flexure. The transverse colon was found adherent to the anterior abdominal wall, to liver, and to other parts around, and the adhesion was specially firm about the left extremity. Examination after removal showed that the disease was concentrated in the transverse colon, which, from the hepatic flexure on the right on to the splenic flexure, presented, as shown in preparation, an almost continuous ulcer involving the whole circumference and causing marked contraction, the circumference at the left extremity being only 3 cm. The ulceration has an almost abrupt ending, normal puckered mucous membrane being resumed at the narrowest part. The ulcers were more extensive in the descending colon than in the ascending colon and rectum, there being a continuous ulcer in the rectum from the anus for a distance of 8 cm. upwards. There were also abscesses in the liver.

Ternan S. (aged 35), a Lascar, was in perfect health till a month before death, when he was suddenly seized with great pain in the abdomen and diarrhoea, the stools containing blood and mucus. Before death he was greatly emaciated.

Path. Reports, 11th May, 1894, No. 3694.

IV. 185. Dysenteric Ulceration and Perforation of Large Intestine. (Sir Wm. T. Gairdner.)

Three pieces of intestine are preserved. One from the middle of the transverse colon shows the beginning of the ulceration, which has an abrupt transverse margin. The lesion is in the form of irregular ulcers which rapidly become deeper and more extensive till at the sigmoid flexure, a portion of which is preserved, the wall of the intestine shows an almost continuous ulcer, the floor of which is in some places little more than a series of bands, with thin and frequently perforated spaces between them. Beyond the sigmoid flexure the rectum shows less extreme ulceration, as shown

in the third piece of intestine, but there is here in the midst of an ulcer a small perforation. Immediately above the anus the ulceration again becomes almost continuous. There was acute peritonitis with gas in the abdominal cavity, and before removal of the intestine brown faeces were seen to issue from the anterior wall of the rectum by the aperture visible in the preparation.

Janet B. (aged 20), a servant, was affected with intermittent diarrhoea of two and a half years' duration, the motions from the first containing blood-clot. For the last six weeks the diarrhoea was almost continuous, and there was great tenderness all down the left side. *Path. Reports*, 23rd May, 1893, No. 3349.

IV. 186. Contraction and Ulceration of Caecum from Dysentery. (Dr. Tennent.)

The caecum and first part of ascending colon are greatly contracted, and there are several ulcers both here and in the rest of the colon, one displayed in the preparation being elongated across the gut and with the tissues contracted around it.

A Hindoo (aet. 55) was admitted with symptoms pointing to hepatic abscess and died in a few hours.

IV. 187. Mucous Polypus of Rectum. (Dr. Patterson.)

A small pyriform tumour, suspended by its narrow pedicle. It is perfectly smooth on the surface, and shows a typical glandular structure microscopically. The tumour was noticed by the patient some years previously, and always came down on his going to stool. The narrow neck was ligatured and removed by a pair of scissors. *Path. Reports*, 15th February, 1883, No. 933.

IV. 188. Glandular Polypus (Adenoma) of Rectum. (Sir Hector C. Cameron.)

The tumour is heart-shaped, measuring 2 cm. from base to apex, and was attached by a narrow pedicle, by which the preparation is hung. It presents larger lobes and smaller lobules, and, in addition, a finely-convoluted surface. Under the microscope a typically glandular structure is revealed in the form of elongated,

occasionally branching, tubes, lined with cylindrical epithelium. The gland structures open at the surface at frequent intervals. In certain areas the epithelium has the most pronounced goblet characters, but there is little or no cystic development, the secreted matter apparently finding exit.

IV. 189. Polypoid Lipoma of Large Intestine.

The preparation shows a portion of the ascending colon with attached polypus, whose base was 15·5 cm. above the valve. It has a broad attachment transverse to the gut, forming a fold which nearly surrounds the lumen. This is succeeded by an elongated narrow neck, which at its narrowest is 7 mm. in diameter. At the extremity of the neck there is a bulbous head 4 cm. in length and 16 mm. in diameter at its broadest part. The total length from the base of attachment to the summit is 9·5 cm. The polypus in the fresh state showed a deep blue-black colour.

Microscopic examination of the bulbous end shows lobules of adipose tissue, which present considerable variety in the size of the cells, and also an excess of fibrous tissue between the lobules. There is a thick layer of epithelium on the surface, with a series of short tubular glands, but beneath this there are no mucous or other glandular structures. Fine black granules are present, mostly in spindle-shaped cells in the mucous and submucous tissue.

John M. (aged 66) died from a gangrenous cancer of the oesophagus and cancer of the kidney. There were no known symptoms of intestinal origin, but, in addition to the lesion shown, there were found small polypi in the large intestine and many small false diverticula. *Path. Reports*, 14th January, 1897, No. 4889.

IV. 190. Fibroma of Ileum and Myoma of Stomach. (Prof. Geo. Buchanan.)

The fibroma is an oval tumour measuring 7·5 by 4·5 cm., and attached to the free border of the gut by a pedicle measuring 3·5 cm. in length. It hangs into the lumen of the intestine, dragging in the wall, and it is of such a bulk as to have occupied the entire lumen. Viewed from without, there is a somewhat deep depression opposite the attachment, and above this a marked narrowing with a ridge internally, this marking the place of the beginning of an intussusception, which was produced by the dragging of the tumour.

The intussusception was comparatively slight, and there were no adhesions or gangrene. The tumour was covered with mucous membrane, which was intensely congested. Above the tumour the intestine is distended and hypertrophied. The situation of the tumour was $1\frac{1}{2}$ metres above ileo-caecal valve.

The tumour is markedly tough, and under the microscope shows dense wavy fibres with somewhat abundant nuclei, which are somewhat oval. The tumour was highly vascular.

The other preparation is a small oval tumour, measuring 2 cm. by 1·3 cm. It is situated in the submucous tissue of the stomach, 1 cm. below and to the left of the cardiac orifice. It projects from the surface to the extent of about 7 mm., but is sessile. It was highly movable in the submucous tissue. Microscopically the structure is that of a myoma.

John M. (aged 56) was affected with chronic obstruction of the bowel of about four months' duration. There was severe abdominal pain, localised chiefly round the umbilicus. Patient died six days after a laparotomy. *Path. Reports*, 6th April, 1896, No. 4562.

IV. 191. Sarcoma of Jejunum, with Large Tumours in both Ovaries. (Sir G. H. B. Macleod.)

This preparation is a portion of jejunum about a metre from its upper end, and it is seen that for a distance of 10 cm. the wall of the intestine is entirely replaced by a somewhat massive pale tissue, which greatly increases the external circumference of the gut. The tumour ends somewhat abruptly at either end. Internally the valvulae conniventes are partly preserved in a hypertrophied form on either side, but in the middle part there is an ulceration which at one point passes deeply. At this part there is externally a prominent rounded mass, to which another fold of intestine is adherent, but without its walls being involved. The piece of mesentery corresponding with the tumour contained a mass of greatly enlarged glands. The tumour tissue and that of the glands is of a whitish colour and soft consistence.

Patient was a woman aged 43, who began to complain of ill health a year before her death. Tumour was noticed in left side of abdomen two months afterwards, and difficulty in micturition and constipation ensued. Latterly general oedema with ascites developed.

Path. Reports, 20th January, 1881, No. 616.

IV. 192. Sarcoma of Ileum: Constriction. (Sir Hector C. Cameron and Dr. Watt.)

The intestine has been cut longitudinally, and there is seen to be an extreme narrowing of it by a concentric growth, so that only a No. 8 bougie could be passed. The narrowing is caused by a tumour projecting inwards. The peritoneal surface shows numerous papilliform outgrowths, whilst the mucous surface seems to be continued over almost intact. The larger part of the tumour corresponds with the mesenteric attachment, but the growth has extended round the gut.

Mrs. S. (aged 51) had been subject for over 2½ years to symptoms suggestive at first of dilated stomach, latterly of intestinal obstruction. The bowels were greatly distended and hypertrophied. Colotomy was performed, but the patient died at the end of eight days. See *Trans. Path. and Clin. Soc.* of Glasgow, Vol. IV., p. 208.

IV. 193. Multiple Sarcomata of Intestine. (Prof. Macewen.)

Of the three specimens hung, one is presumably the primary tumour, and the others secondary extensions. The more bulky or primary tumour was partly removed by operation, and the stump stitched to the abdominal wall. The part affected was the lower part of duodenum, from immediately below the orifice of the common bile-duct, and to the cut end there was a distance of 10 cm. as shown. The lesion has quite an abrupt margin. Over the further parts of it the whole coat of the intestine is replaced by a bulky pale tumour tissue, which in the central parts shows considerable irregularity from partial ulceration. The tumour tissue surrounded the gut. Behind it there was a matted mass enclosing enlarged lymphatic glands. Besides this more bulky tumour the intestine showed, as is partly displayed in the specimen, a number of secondary extensions in the form of flat areas in which the wall, and especially the mucous membrane, is replaced by a white tumour tissue. The largest of these was about 9 cm. from the first lesion, and it surrounded the gut for a distance of about 4·5 cm. There was another large one 1 metre above ileo-caecal valve, which is preserved. In it, to the extent of 11 cm., the intestine is involved, the whole lumen being surrounded in about half of it, whilst the rest still shows a trace of valvulae conniventes. Besides this, there were several isolated patches, of which one of the preparations shows five closely aggregated. Under the microscope the tumour tissue consists of round cells,

and at the advancing edge there is an abrupt replacement of the mucous membrane, even the glands suddenly disappearing.

Robert F. (aged 27) had complained of pain in the left hypochondrium for five months. An abdominal tumour was detected, he himself having noticed the swelling five weeks previously.

Path. Reports, 30th October, 1895, No, 4371.

IV. 194. Sarcomata of Intestine—Water-Colour Drawing. (From preceding case.)

The illustrations represent the primary lesion above and the most considerable secondary lesion close to it. The abrupt margin and the replacement of the mucous membrane by masses of tumour tissue with a nodular surface, are shown.

IV. 195. Round-Celled Sarcoma Involving Large and Small Intestine. Secondary Tumour at Umbilicus. (Dr. Beatson.)

The main mass of the tumour as shown in section was in the right iliac region. It has pushed forwards and involved the first part of caecum and last part of ileum, especially posteriorly. The specimen shows in section the main mass of the tumour below and the intestine above. To the right is small intestine and to the left large, and there is an indication of the valve, but the parts here are greatly altered by infiltration of the tumour. The surface of the intestine is thoroughly incorporated with the tumour, although indications of the structure of the wall are visible, especially to the right, where the ileum is concerned. The tumour tissue is soft and somewhat tough. It is generally white in colour, but in the lower part there is a rounded portion blood-stained.

There were secondary growths in the great omentum, appendices epiploicae, and in the mesentery. There was also a tumour, which is preserved with the specimen, occupying the umbilicus.

Alex. K. (aged 24), postman, noticed a swelling in the right side of the abdomen 12 weeks before death, attended with aching pains and symptoms of intestinal obstruction. There was, however, no complete stoppage. An operation was performed, the abdomen being opened, but the tumour was not in a condition to be removed.

Path. Reports, 28th September, 1891, No. 2766.

IV. 196. Round-Celled Sarcoma of the Wall of the Great Intestine. (Dr. John Love.)

The specimen was obtained from the body of a lady who had been long insane, and who had presented no very definite symptoms.

Similar masses and nodules were found in the cerebellum and in the right lung. The specimen consists of an oval-shaped, smooth, somewhat polypoid projection from the mucous membrane of the bowel. On its surface is seen some black material which seems to be carbonaceous. The tumour has not altered in any way the serous coat of the bowel, and is situated just above the point where the small intestine passes into the large. A microscopic examination shows that it is composed of round cells, with strands of fibres running through the mass in different directions—round-celled sarcoma.

IV. 197. Cancer of Ileum. (Prof. M'Call Anderson.)

The situation of the tumour is about 45 cm. above the ileo-caecal valve; it is nearly circular in shape, and about 4 cm. in diameter; its edges are abrupt, and it projects considerably above the general surface. The whole coats of the intestine are involved, but a section at the margin shows that the mucous membrane was the primary seat. The liver was the seat of innumerable large tumours, and weighed 5 kilos. There were also secondary tumours in both kidneys. *Path. Reports*, 3rd November, 1879, No. 482.

IV. 198. Carcinoma of Small Intestine, Secondary to Malignant Ovarian Disease. (Sir Hector C. Cameron.)

The preparation consists of a piece of the small intestine, distended with cotton wool. The peritoneal coat is densely scattered with nodules, the whole tunic of the gut being greatly thickened.

The specimen was taken from a woman who died some weeks after the operation of ovariotomy, death being due to extension of the disease. The ovarian cysts were at the time shown microscopically to be carcinomatous. *Path. Reports*, No. 1865.

IV. 199. Carcinoma of Colon and Ileum Involving Valve and Opening Externally. (Prof. Macewen.)

The colon, which is much contracted, being the part with least calibre in the preparation, presents an extensive ulcer involving about 7 cm. of its length. At the distal extremity of this ulcer

there is a peculiar condition of the mucous membrane, which presents partly isolated folds and bridges which project considerably into the lumen. The proximal end of the ulcer ends in a gap in the wall, which gap also communicates with the last part of the ileum, the valvular structures, greatly thickened and infiltrated, intervening between the two. The ileum is infiltrated with the cancerous growth for a distance of about 5 cm., but the whole circumference of the intestine is not involved. The last part of the ileum was found much distended with faeces. There was an extensive external wound, which was separated from the general abdominal cavity by adhesions. At the bottom of this wound there was the communication with the intestine shown in the preparation. Under the microscope the tissue is typically that of the cylinder-celled cancer, and in some parts "goblet" cells are strikingly present.

Patient was admitted to Prof. Macewen's wards suffering from intestinal obstruction in the neighbourhood of the caecum. Perforation of the colon and abscess formation had occurred. On operation faeces were found in the iliac region, and a free external opening was made. *Path. Reports*, 1st Dec., 1892, No. 3195.

IV. 200. Carcinoma of Caecum with Partial Obstruction.
(Dr. Finlayson.)

The tumour involves the whole of the caput, causing great contraction and shortening, so that it is comprehended in a nearly solid mass of limited size. The gut being laid open, nothing is seen of the cavity of the caecum, but in its place there is a prominent rounded tumour about 4 cm. in diameter, in the midst of which there is a small aperture leading into a little pouch. Around the tumour the mucous membrane of the colon is folded concentrically. The tumour only involves very slightly the margin of the valve, but, by its prominence and the contraction, it nearly obliterates the cavity of the gut just within the valve. The mucous membrane of the ileum is greatly thickened.

The microscopic structure of the tumour is that of a glandular carcinoma with a marked tendency to colloid degeneration.

The patient was a man 22 years old. His case presented several attacks of acute obstruction, and latterly extreme wasting and diarrhoea came on. (See *Practitioner*, 1880, Vol. 2, paper by Dr. Finlayson on "Intestinal Obstruction," Case 3.)

Path. Reports, 12th December, 1878, No. 402.

IV. 201. Cylinder-Celled Carcinoma of Ascending Colon in Early Stage.

The lesion is in the form of a nearly circular ulcer about 2·5 cm. in diameter. The edges rise abruptly from the mucous membrane, and are smooth. The smooth edges abruptly give place to a granular ulcerated surface which has the naked-eye and microscopic characters of a cylinder-celled carcinoma. Viewed from the serous surface there is seen to be an infiltration corresponding with the centre of the lesion, producing a somewhat lobulated projection about 1·3 cm. in diameter. It was situated about midway between anterior and posterior longitudinal bands, 8 cm. above the aperture of the vermiform appendix.

Samuel H. (aged 69) died in consequence of gangrene of the lung. No symptoms of the lesion shown were known during life.

Path. Reports, 14th May, 1894, No. 3695.

IV. 202. Cylinder-Celled Carcinoma with Obstruction of Ascending Colon. Peculiar Relations to Duodenal Ulcer. (Dr. Renton.)

The preparation shows the terminal part of ileum and caecum greatly distended. The caecum undergoes a very sudden narrowing, its walls being puckered in so that the remaining calibre is about 5 mm. Below this stricture the wall of the caecum is occupied by tumour tissue which extends along the posterior wall for about 3·5 cm., but occupied the anterior wall [mostly removed] very little. Above the stricture the posterior wall, to a distance of 5·5 cm. is occupied by tumour tissue which nowhere forms a complete ring, except at the stricture. The duodenum is firmly adherent by means of matted tissue around the affected part of colon, and there is a round ulcer in the duodenum, measuring 1·5 cm. and having all the characters of a regular perforating ulcer. It is situated about 8 cm. from the pylorus. Beneath the ulcer there is a cavity having an extent of about 6 cm., and in general corresponding with the locality of the cancerous lesion of the colon. At the extreme lower part of this cavity there is indeed a small communication with the caecum. The mucous membrane of the distended caecum shows flat ulcers, and ulcers also existed in various parts of the small intestine, which was distended. In connection with one of the ulcers in the caecum a pin-hole perforation had occurred resulting in a fatal peritonitis.

Rose A. M. was admitted complaining of pain and distension of the abdomen, which was regarded as tubercular. There had been complete stoppage of the bowels for five days before death.

Path. Reports, 5th Jan., 1893, No. 3225.

IV. 203. Cancer of Hepatic Flexure of Colon. Perforation of Duodenum. (Prof. M'Call Anderson.)

The preparation shows the large intestine laid open from behind. It is replaced to the extent of 9 cm. by an irregular shaggy cavity. At the upper extremity, this cavity has a prominent edge in the wall of the intestine, while at the lower extremity the intestine is as if cut across abruptly. From the wall of the cavity the intestinal tissue is almost entirely absent, and is replaced by dense infiltrated tissue, to which there are sloughs adherent. The duodenum has also been laid open, and it shows a rounded aperture about 2·5 cm. in diameter which communicates with the irregular cavity already mentioned.

Peter L. (aet. 58) had complained for about nine months of pain in the right side of the abdomen with constipation. Blood was twice observed in the motions. He became greatly emaciated and latterly suffered from diarrhoea and vomiting.

Path. Reports, 9th November, 1888, No. 1970.

IV. 204. Carcinoma with Stricture of Transverse Colon. Dilatation of Intestine. Rupture of Caecum. (Dr. Tennent.)

The preparation shows in section the affected portion of transverse colon. There is a marked and sudden narrowing to such an extent as to look almost as if the intestine had been divided and re-applied. There is only a small remaining aperture indicated by a piece of whalebone. The upper and lower ends of this aperture present somewhat pouting margins with ulceration and puckering. The whole lesion, however, including infiltration of wall, is less than 3 cm. in extent. Above the lesion there was great distension of the intestine, and this culminated in the caecum, which is preserved, and which shows a distension having a diameter of from 9 to 10 cm. On the anterior aspect of the distended caecum there is a small ragged aperture which was observed before the parts

were disturbed. There was a fibrinous exudation covering the peritoneum generally, some traces of which are visible on the surface of the caecum.

Under the microscope a cancerous infiltration of the parts is visible, there being little of the typical cylinder-celled formation, but rather spaces with polygonal cells.

Mrs. L. had suffered from habitual constipation, and for 14 days had no passage except twice as a result of injections. There was no great pain except shortly before death. A swelling was detected in the abdomen some distance above the pubes.

Path. Reports, 25th May, 1885, No. 1370.

IV. 205. Constriction of Colon by Small Cancerous Ulcer: Great Distension. (Prof. M'Call Anderson.)

The greater part of the colon was enormously distended, as shown in preparation, its diameter measuring 10 cm. The wall, and especially the muscular coat, is considerably thickened. The vermiform appendix is also greatly elongated and dilated. The last part of the ileum, which is preserved, is also much dilated. The distension of the colon ends abruptly about the junction of the transverse and descending portions; here there is an extreme narrowing of the gut, as if by a cicatricial band. The narrowing is such that not more than a crow-quill could be passed. On laying open the constricted portion, a ring-shaped ulcer was disclosed; it was of a greyish colour, and had hard base and edges. The ulcer is of very limited extent, hardly passing beyond the limits of the constricted ring.

Under the microscope it is somewhat difficult to distinguish the exact character, but, in some parts of the wall of the ulcer, distinct collections of epithelial cells are found, and these even beneath the mucous membrane and in the muscular coat, so that the cancerous nature of the lesion is demonstrated.

The patient was a man aged 44. He had suffered from constipation and dyspepsia for a year or two, but latterly he had always to take medicine before the bowels acted. There was complete obstruction for five or six days before death with excessive, but not stercoraceous, vomiting. The abdomen was greatly distended.

Path. Reports, No. 366.

IV. 206. Cancer of Splenic Flexure of Colon. (Sir Wm. T. Gairdner.)

The cancer is situated at the splenic flexure, occupying the circumference of the gut for a distance of several inches. The central parts are deeply ulcerated, and at one place there is a considerably elongated passage which has almost caused perforation. On tracing the various coats of the intestine, the mucous membrane is seen to be primarily affected, the serous coat being, especially towards the central parts, thickened. Adhesions have been contracted with neighbouring loops of the jejunum, with the spleen and with the left kidney.

During life the condition closely resembled and was taken for cirrhosis of the liver, there being ascites, gastric symptoms, diarrhœa, rapid emaciation. The history of drinking also suggested cirrhosis.

Path. Reports, 8th May, 1877, No. 222.

IV. 207. Cylinder-Celled Cancer of Splenic Flexure: Obstruction: Laparotomy. (Dr. Beatson.)

A small portion of the descending colon is preserved and shown in longitudinal section. There is a prominent brownish-coloured tumour which was ring-shaped and had a maximum longitudinal extension of about 3 cm. It projects inwards and greatly narrows the bowel, but the narrowing is not only by its projection, but is largely by dragging-in of the wall. This can be seen at one side where externally there is a puckering-in of the wall, and on section, where the wall of the intestine can be seen on either side to pass into the tumour, the two sides almost parallel. This was plainly seen on microscopic examination, the two muscular coats being traceable well into the tumour and parallel to each other. It was also seen microscopically that the tumour is a typical cylinder-celled cancer infiltrating the coats of the intestine. The growth at the narrowest part has a diameter of 6 mm. There was no adhesion of the affected portion to parts around, and it was freely movable.

Agnes B. (aged 58) presented symptoms of complete obstruction of the bowel which had lasted some days. Laparotomy was performed, and the greater part of the large intestine was found enormously distended. The contracting tumour was felt at the splenic flexure, and, although it was limited in extent, the extreme distension of the intestine above and the collapsed condition of that below, precluded the idea of excision. An artificial anus was made in

the right iliac region. The patient did well for two days, and then died from syncope. There were no signs *post mortem* of peritonitis.

Path. Reports, 2nd January, 1891, No. 2548.

IV. 208. Cylinder-Celled Carcinoma of Sigmoid Flexure with Stricture: Distension and Hypertrophy above. (Prof. Macewen.)

The primary lesion was situated at the upper part of the sigmoid. It is in the form of an extreme thickening and contraction of the wall extending for about 2 cm. in the length of the intestine, so that to this extent only a narrow channel is left, not more than ·5 cm. in diameter. The surface of this channel is ulcerated. On the distal side the tumour has a somewhat abrupt margin with a raised edge. On the proximal side there is an extension up the gut for from ·5 cm. to 1·5 cm. in the form of a thickening of the mucous membrane, which gradually shades off. Above the stricture there is great distension and thickening of the colon, which contrasts greatly with the condition below. The thickening of the wall is in great part from hypertrophy of the muscular coats, the internal layer of which has a measurement of about 4 mm., the external of about 2 mm. There are two flat ulcers of the mucous membrane, the upper of which, of a diamond shape and 9 cm. in diameter, shows the transverse markings of the internal muscular coat, there being frequent slits and even partial diverticula. The whole large intestine was enormously dilated, the average diameter being about 11 cm. The small intestine and stomach were normal. The liver was the seat of numerous cancerous tumours. Microscopic examination shows a very infiltrating cancer, which however presents in many places a distinctly cylinder-celled arrangement.

Eliza M. (aged 60) complained of intestinal obstruction of about a year's duration with cachexia, much emaciation, and abdominal pain; the pain latterly was severe. There were much abdominal distension and marked visible peristalsis. A firm nodule was felt about the sigmoid flexure. The liver was found enlarged and nodulated. *Path. Reports*, 27th April, 1898, No. 5434.

IV. 209. Cylinder-Celled Carcinoma of Sigmoid Flexure. (Dr. A. Patterson.)

The growth, measuring 1·5 cm. in the long axis of the bowel, is seen to involve the entire circumference, to infiltrate the wall, and

to project into the lumen of the gut, causing marked obstruction. Around the annular constriction, as viewed from without, there is a grouping of the appendices epiploicae and the wall is puckered in, this being well seen in section. There is distinct ulceration in the upper part of the mass. The new growth has the naked-eye characters and microscopic structure of the cylinder-celled carcimona. Above the constriction the bowel was distended and hypertrophied, and contained a large amount of semi-fluid faeces; beneath the obstruction it was collapsed. No secondary tumours were found.

Arch. E. (aged 63) was admitted with symptoms of intestinal obstruction; neither motion nor flatus had been passed for fourteen days previously. Vomiting commenced eleven days before admission, and became persistent. The abdomen was markedly distended. The distended bowel was punctured and an artificial anus made. The patient died on the morning after the operation.

Path. Reports, 8th January, 1897, No. 4882.

IV. 210. Obstruction of Sigmoid Flexure by Cancer: Colotomy. (Dr. Miller, Dundee.)

The preparation shows a longtitudinal section of the intestine. The lumen is completely interrupted by a somewhat bulky, pale solid tumour, which presented a typical cancerous structure.

There were recurring attacks of obstruction of the bowel, extending over eight months. Colotomy was performed. The patient recovered from the operation, but died nine months thereafter. There were secondary cancerous tumours, chiefly in the lungs, liver, and mesenteric glands.

IV. 211. Cancer of Sigmoid Flexure Adherent to Rectum and Lying between Rectum and Uterus. (Dr. W. L. Reid.)

The cancer occupies about 4 cm. in the long axis of the bowel. There are considerable excavation of its central parts and great dragging in of the wall. The portion of intestine has been dislocated downwards and become adherent in a peculiar position between uterus and left broad ligament on the one hand, and rectum on the other. The chief adhesion is to the rectum, and the tumour tissue has incorporated the wall of the latter, bulging into its lumen but not apparently producing an ulcer. There is considerable

matting around, and the ovary is the seat of small rounded growths. There were secondary tumours in the liver, but somewhat sparse.

Mrs. A. (aged 45) was admitted with an obscurely fluctuant tumour, which seems to have been a left ovarian cystoma. After its removal by operation the patient only lived six days.

Path. Reports, 17th June, 1897, No. 5095.

IV. 212. Elongated Adhesion between Great Omentum and Mesentery. Carcinoma of Colon at Point of Crossing. (Sir Hector C. Cameron.)

The preparation is hung from the lower part of the great omentum, which was shortened and condensed. From this there pass two firm solid bands consisting largely of adipose tissue. They are bulky above and taper to a diameter of 5 mm. After an independent course of 6 cm. they join and form a thicker cord for a distance of 4 cm., ending in the anterior surface of the mesentery of the small intestine by a broad attachment, which corresponds with the lower third of the ileum. At the point of crossing of the bands the transverse colon is much narrowed, so that it just admitted a lead pencil. Here for a distance of 4 cm. the wall is infiltrated by tumour tissue, and at the proximal extremity there is a well marked edge where the prominent tumour tissue ends. Above the stricture, *i.e.* to the left in the preparation, the intestine is dilated and its muscular coat much thickened, contrasting with the condition beyond the stricture. Microscopic examination of the tumour shows typically the structure of the cylinder-celled carcinoma.

There were many traces of old peritonitis, such as adhesion of spleen and liver to diaphragm, and perimetritis. These, taken along with the presence of cretaceous glands in the mesentery, one of which is shown, suggest a very old and probably tubercular peritonitis, as the cause of the adhesion. This again suggests that, the adhesion being of much older date, the cancer has taken origin in connection with the crossing of the intestine by the former. It is to be noted that there was great adiposity of omentum and mesentery in spite of cancer and stricture. The loading of the mesentery with fat and the corresponding increase in its weight may have had to do with the elongation of the adhesion.

Jane H. (aged 39) was admitted to hospital only two hours before death, the symptoms being those of acute intestinal obstruction.

Path. Reports, 21st January, 1898, No. 5304.

IV. 213. Cylinder-Celled Carcinoma of Sigmoid Flexure: Obstruction.

There is great contraction of a portion of the intestine measuring about 7·5 cm., there being scarcely any lumen in this region, whose position is the lower extremity of the sigmoid flexure. The wall is here infiltrated and ulcerated, and microscopic examination shows the usual characters of the cylinder-celled cancer. Above the constricted portion the intestine is greatly distended and hypertrophied, these conditions extending up to the ileo-caecal valve. Some brown faeces had escaped from the intestine, but this must have been shortly before death, as there were no signs of peritonitis.

Captain M. had been affected with constipation and partial obstruction of the bowels for more than two years.

Path. Reports, 28th March, 1893, No. 3303.

IV. 214. Cylinder-Celled Carcinoma of Rectum. (Sir Hector C. Cameron.)

The preparation shows the parts divided but including more than half the rectum. There is a well-defined ulcerating tumour, which occupied the entire circumference of the gut for a distance of from 6 to 7 cm. Its margins are somewhat abrupt, and its lower extremity was 4 cm. from the anus. The tube is considerably contracted and only one finger could be readily passed. There was no appearance of secondary extension. Microscopic examination shows the structure of the typical cylinder-celled carcinoma.

Path. Reports, 3rd December, 1892, No. 3196.

IV. 215. Cylinder-Celled Carcinoma of Rectum [Secondary Tumours in Liver]. (Prof. Gemmell.)

The tumour occupies about 9 cm. of the lower part of the rectum, but does not completely surround the gut. It has prominent cauliflower-like margins, with somewhat deep excavation in the central parts. In the posterior part it has penetrated through the wall of the intestine and produced a somewhat bulky mass outside. There were enlarged glands in the neighbourhood of the rectum, secondary nodules in the peritoneum generally, and numerous secondary tumours in the liver. The tumours in the liver ranged from a minute size up to 6 cm. in diameter, and the organ as a whole was much enlarged, weighing 7060 grms. (15 lbs.).

Microscopic examination shows the typical structure of the cylinder-celled carcinoma.

Samuel M'G. (aged 39) was affected with swelling and tenderness on pressure over the abdomen, of about two months' duration. He had been affected with diarrhoea for three years, and blood was seen in the stools about eighteen months before death. Examination revealed a large cauliflower mass in the rectum and great enlargement of the liver. *Path. Reports*, 20th February, 1895, No. 4045.

IV. 216. Cancer of Rectum with Perforation Limited by Adhesions. (Dr. Jas. H. Nicoll.)

The portion of intestine preserved is immediately below the sigmoid flexure. There is great narrowing, so that the little finger was passed with some difficulty. As exposed there is an irregular ulcerated surface surrounding the gut, and having a general longitudinal extension of 5 cm. The narrowest part is towards the lower edge, and here there is a small round aperture 5 mm. in diameter. The upper and lower margins of the area are definitely prominent, but not greatly so. Above the lesion the intestine is considerably dilated and the muscular coat markedly thickened. Through the mucous membrane the transverse markings of the internal muscular layer are very distinctly visible.

Mary W. (aet. 32) had abdominal pains for three months, and there was complete obstruction for a fortnight. She was in the seventh month of pregnancy. Laparotomy was performed, but adhesions prevented the part from being accessible. Colotomy was subsequently resorted to. *Path. Reports*, 3rd August, 1895, No. 4262.

IV. 217. Carcinoma of Rectum: Ulceration and Constriction: Enormous Distension of Intestine. (Prof. M'Call Anderson.)

The principal appearance here is an abrupt constriction 15 cm. from the anus. Corresponding with the constriction there is ulceration with great contraction of the gut. The ulcer nearly surrounds the intestine, but there is a piece of normal mucous membrane left, the folds in which must have helped to close the intestine. The edges of the ulcer are abrupt and form a flat tumour which, under

the microscope, had the characters of cancer. Above the stricture there was enormous distension of the intestines.

Mrs. M'C. (aged 37) had been affected with obstruction of intestine for eight weeks in a minor degree. It became acute and was accompanied by stercoraceous vomiting for a day or two before death. *Path. Reports*, 4th November, 1879, No. 484.

IV. 218. Portion of Cylinder-Celled Carcinoma Passed per Rectum. (Dr. Sandeman.)

The specimen consists of an oblong piece of tissue measuring 4·5 cm. in length, and having a general thickness of 2·5 cm. At one end there is a rough surface, and following on this a comparatively smooth portion of the tumour, whilst the other end, which has been the distal or unattached part, presents a highly lobulated or cauliflower aspect.

Microscopic examination reveals the structure of cylinder-celled cancer.

The mass was passed by a woman aged 38. It was felt protruding from the posterior wall of the rectum, 5 cm. above the anus. *Path. Reports*, 22nd April, 1895, No. 4129.

IV. 219. Cylinder-Celled Carcinoma of Rectum. Rupture into Douglas's Pouch. (Sir Geo. H. B. Macleod.)

The cancerous tumour forms a broad ring round the gut, measuring about 6 cm. from above downwards. There is considerable narrowing of the gut, more especially at the lower extemity of the lesion, which has a somewhat abrupt margin. The upper margin is less defined. The greater part of the surface is ulcerated, and in the posterior wall there is a rent measuring about 2 cm. in diameter, which communicates directly with Douglas's pouch. There is considerable thickening and infiltration of the tissues around the lesion, and the gut is increased in diameter both below and above it. The lower border of the lesion was 9 cm. from the anus. There were two or three small secondary tumours in the liver, and the peritoneal cavity contained a turbid fluid with yellow flakes in considerable quantity.

James G. (aged 54) was affected with pain in sacrum, passage of bloody mucus and of pipe-stem shaped faeces. An ulcerating mass was found surrounding the lumen of the rectum. The finger was

passed through the stricture, and shortly afterwards severe pain with collapse ensued, and the patient died in about twelve hours.

Path. Reports, 26th May, 1890, No. 2377.

IV. 220. Cylinder-Celled Carcinoma of Rectum, Extending to Douglas's Space and Impinging on Uterus. Polypus just above Tumour. (Prof. Geo. Buchanan.)

The tumour is a bulky one, measuring 10 cm. from above downwards, and presenting considerable prominence but with an ulcerating surface. The lower edge was 14 cm. from the anal margin. The growth is principally on the right and anterior aspects. There is a bulky extension to Douglas's space, and the tumour impinges on the uterus, pushing it forwards, especially its right half, but not apparently infiltrating the substance of the organ. About 5 cm. above the cancerous tumour there is a small polypus measuring 1·6 cm. in length. It is attached by a narrow flattened pedicle succeeded by a bulbous portion which has an irregular lobulated surface. Microscopically the structure is typically that of the cylinder-celled carcinoma. Two secondary tumours were discovered in the liver, and the prevertebral glands were considerably involved.

Catherine L. (aged 66) complained of swelling of the abdomen and the passage of slime and blood from the bowel for two months. The tumour was beyond reach of the finger, but it was found that the uterus was pressed forwards.

Path. Reports, 4th February, 1898, No. 5322.

IV. 221. Cancerous Stricture of Sigmoid Flexure in a Child Aged 12. (Dr. Patterson.)

There is a narrowing of the intestine to an extreme degree, involving 4 cm. of the length of the bowel. The narrowed part has a smooth surface and an infiltrated wall, and above and below it ends abruptly, the apparently normal mucous membrane having a well-marked transverse margin. Above the seat of narrowing there is dilatation. Microscopic examination shows that in the smooth floor of the lesion the mucous membrane is entirely destroyed by a tissue which presents elongated spaces containing epithelial cells, along with an infiltration of leucocytes. In the midst of the ulcer the muscular coats are also destroyed, and there is considerable infiltration and new formation beneath the peri-

toneum. At the borders of the lesion the cancerous characters become more apparent; there are nests and processes of epithelial cells penetrating both the muscular layers and sometimes extending beyond them. The cells are large, with large oval nuclei, and the stroma is distinct.

Jessie A. (aged 12). For nearly a week before admission patient had suffered from severe pain round the umbilicus and from constant vomiting and complete constipation. On admission the whole abdomen was tympanitic and tender. The abdomen was opened, and the lesion found at the sigmoid flexure. Colotomy was performed in the right iliac region. The child never rallied, and died fourteen hours after the operation.

Path. Reports, 25th June, 1891, No. 2699.

IV. 222. Scirrhous Cancer of Rectum with Superficial Adenomatous Outgrowth. (Sir Hector C. Cameron.)

The parts exhibited were removed by operation, and they consist of the rectum from the anus upwards for a distance of 10 cm. The lower two-thirds of this present an extreme thickening and rigidity of the intestinal wall, but this is present chiefly in the sub-mucous, muscular, and sub-muscular layers, all of which are greatly thickened and to some extent involved in and replaced by a dense, more or less fibrous tissue. The mucous membrane, both in this region and above, is greatly wrinkled and perhaps thickened, but it is for the most part loosely attached and even movable over the subjacent wall.

On the posterior wall, slightly to the left of the middle line, there is a striking warty protuberance about 2·5 cm. in diameter, and with a projection of 1·3 cm. It is almost sessile, and its surface presents a characteristic papillomatous appearance. Its lower edge is about 2 cm. above the anus. Microscopic examination shows a characteristic scirrhous structure, consisting of connective tissue with spaces containing large epithelial cells with large nuclei. The growth is present, and is perhaps most cellular, in the sub-mucous tissue, but it infiltrates the muscle and extends to the external surface of the gut, there being epithelial processes even amongst the adipose tissue outside. The warty projection shows a highly glandular structure, rather that of a simple adenoma than of a cylinder-celled cancer.

George W. (aged 64) was admitted with a partial obstruction of the rectum. After a preliminary colotomy the parts were removed.

Path. Reports, 26th March, 1897, No. 4999.

IV. 223. Colloid Cancer of Caecum and Ileum. Great Dilatation of Ileum. Peculiar Connective Tissue Formation in Colon. (Sir Hector C. Cameron and Prof. Gemmell.)

The dilated portion here is small intestine, and that of narrower calibre is colon. The ileo-caecal valve and neighbouring parts of large and small intestine are represented by a large irregular ulcer, which has a thickened wall and tolerably demarcated edge at the ileum. In the caecum, on the other hand, its edge merges in a peculiar prominent new-formation composed of connective tissue and connected with the mucous membrane. It extends beyond the ulcer for a distance of about 8 cm. It has at places a diameter of 3 cm., and hangs into the intestine in the form of a fenestrated and partly polypoid structure. Immediately above it, again, there are some polypoid projections. In the midst of the ulcer also there is some partly isolated prominent tissue which partakes in the ulceration. The ileum is much dilated and its wall thickened. The colon, on the other hand, is much narrowed.

In this case the cancer has probably worked itself out in the caecum, where it has begun, and the fenestrated tissue may indicate healing. At its advancing edge in the ileum an infiltration in the form of rounded masses is visible to the naked eye, and these masses under the microscope have the structure of colloid cancer.

Hugh F. (aged 19), an office boy, complained of paroxysms of pain in the abdomen for eighteen months, with diarrhoea from the first. Latterly vomiting was very frequent, and became stercoraceous. Enterotomy was then performed and the bowel opened above the lesion (see preparation), but the patient succumbed on the next day.

Path. Reports, 16th May, 1893, No. 3344.

IV. 224. Colloid Cancer of Caecum. Communication with Rectum. Extension to Great Omentum. (Sir Wm. T. Gairdner.)

The caput caecum coli is converted into a ragged cavity whose walls are composed of a flickering gelatinous material forming a rather massive tumour. The tumour involves the first 6 or 7 inches of the ascending colon, and ends somewhat abruptly, both above and at the ileo-caecal valve. The rectum adheres to the surface of the tumour, and at many points the entire coats are involved in it, the

flickering gelatinous appearance presenting itself in the internal surface with occasional ulceration. In two places the rectum communicates with the caecum by openings into which whalebone has been inserted.

The case was that of a man aet. 35, and presents numerous details of great clinical interest, for which reference must be made to Journal of Ward I, A, p. 104. It was regarded as one of peritoneal or omental thickening, with probably glandular enlargements, and attended by extremely chronic symptoms, perhaps of tubercular, perhaps of cancerous disease. There was no diarrhoea till three months after admission, and then its character was such as to suggest a dysenteric complication; but the fact was specially noted that the milk taken, which latterly was almost the exclusive diet, was passed in the diarrhoeal discharges almost unchanged. The thoracic viscera were reported normal. Pain of a severe character was frequently experienced, but no fluid effusion was ever detected. Phlegmasia dolens of the right lower limb occurred about two months before death, which was the result of extreme and gradual exhaustion and emaciation. *Path. Reports*, 21st June, 1875, No. 13.

IV. 225. Colloid Cancer of Great Omentum. (From same case as above.)

The growths in the great omentum are composed of groups of transparent granules resembling boiled sago, the groups being sometimes pedunculated, but in the lower part of the omentum coalesced into a solid somewhat dense mass. In the midst of the groups the healthy veil-like omentum appears occasionally. The stomach is normal.

IV. 226. Ulcerating Colloid Cancer of Sigmoid Flexure. (Prof. Geo. Buchanan.)

The sigmoid flexure which has been laid open by removal of part of its wall, shows to the extent of 14 cm. of its length an irregular and somewhat ulcerated internal surface. The wall of the intestine is thickened and infiltrated, and at the place of greatest involvement this infiltration extends through the wall and involves the surrounding fat, replacing it by pale tissue, sometimes in the form of rounded nodules. In the midst of the affected portion the coats of the intestine are not distinguishable, but the muscular coat emerges

towards the borders of the growth and is even hypertrophied. The body was very obese, the omentum was thickly infiltrated with fat, and there were bulky appendices epiploicae. The structure of the tumour is typically that of colloid cancer, but here and there calcareous particles appear in the cancerous tissue.

Jane G. (aged 53) was admitted with a history of swelling of the abdomen for little over a week and constipation for six days. She was much collapsed. It was stated that she had been ill for five weeks, but the nature of the illness was not apparent.

Path. Reports, 29th January, 1898, No. 5314.

IV. 227. Colloid Cancer of Sigmoid Flexure, with Extension to Wall of Abdomen, Great Omentum, Diaphragm, etc. (Dr. G. P. Tennent.)

This is the primary tumour in the sigmoid flexure, and the next two preparations show extension to omentum and diaphragm. It is in the form of a ring-shaped infiltration of the wall of the intestine, involving about 8 cm. of its length, while the circumference is greatly increased. The intestine is opened up, and it is seen that the coats are in great part replaced by the translucent tissue of the tumour, and at the same time greatly thickened. The upper and lower margins of the tumour are somewhat abrupt and prominent, so as to obstruct the lumen to a great extent, but, especially at the lower end, it is seen that the tumour is involving mainly the mucous membrane in its growth. In its central parts there is considerable ulceration with excavation of the growth. At the attached surface of the flexure the tumour in its wall was continuous with tumour in the sub-peritoneal connective tissue, which was involved to a considerable distance.

In every part the tumour tissue had the firm translucent character of colloid cancer, and, under the microscope, presented typically its appearances.

The large intestine was greatly distended with semi-solid faeces above the seat of the tumour; the distended colon is shown in the next preparation.

The patient was a man aged 30, who complained chiefly of pain in right hypochondrium, followed by swelling of abdomen and oedema of right leg. The ascites was relieved by the removal of 160 oz. of fluid, but re-accumulation occurred.

Path. Reports, 19th December, 1881, No. 745.

IV. 228. Colloid Cancer of Great Omentum. (From same case as preceding.)

This is a transverse section through the transverse colon and great omentum. The latter formed a bulky hard apron, which could be lifted like a solid board.

IV. 229. Colloid Cancer of Diaphragm. (From same case as preceding.)

This is a section of diaphragm and liver. The diaphragm is greatly thickened by the growth in it of tumour tissue which almost entirely replaces its proper tissue, and converts it into a thick rigid structure. The tumour tissue appears even on the pleural surface of the diaphragm, where there are at places isolated nodules. The liver was largely surrounded by the rigid diaphragm, and its capsule presented numerous small translucent tumours almost like cysts. The suspensory ligament was greatly enlarged by tumour formation, and there was a bulky mass of tumour outside the porta of the liver (lymphatic glands).

IV. 230. Colloid Cancer of the Rectum. (Dr. G. T. Beatson.)

The structure preserved is about the half of that removed, which represented in two parts a portion of the rectum, from the anus for about 7 cm. upwards. At the lower part of the preparation the normal mucous membrane is visible. This is succeeded by a dense tissue, which formed a ring replacing the rectum for about 4 cm. of its length. This tissue is found, under the microscope, to possess a well marked stroma, filled with colloid material and occasional epithelial cells. The internal surface is somewhat irregular, with considerable ulceration.

The case was that of a man, aged 32, from whom the tumour with portion of rectum was removed by operation.

Path. Reports, 4th July, 1883, No. 1005.

IV. 231. Colloid Cancer of Rectum in a Child aged 12 Obstruction. Colotomy. (Prof. Geo. Buchanan.)

The preparation shows a longitudinal section of the rectum with the bladder in front. The wall of the rectum for a distance of

12 cm. is thickened and infiltrated at the upper extremity. It is seen that the mucous membrane is thickened inside the muscular layer, but on passing downwards the infiltration affects the whole wall so much that even the muscular coat cannot be traced, and for the last 7·5 cm. the lumen of the intestine is an irregular ulcerated canal, the extremity of the affection being at the anus. The lumen is considerably interrupted at this latter part; above there is considerable dilatation. There were numerous secondary nodules having a granular hyaline appearance, and varying in size from minute granules up to the size of a pea, dotted over the peritoneal surface, and there was considerable infiltration of the cavity of the pelvis. The pelvic, lumbar, prevertebral, and inguinal glands were affected, and there were three or four small nodules in the liver.

Marion G. (aged 12) was admitted Nov. 8th, 1889, with the symptoms of intestinal obstruction of a week's duration, and a history of intestinal trouble for about a year. The rectum was found to be almost occluded, and right lumbar colotomy was performed. The patient lived till March 28th, 1890.

Path. Reports, 29th March, 1890, No. 2324A.

IV. 232. Concretion from Vermiform Appendix. (Dr. Fraser, Paisley.)

The concretion had passed into the abdomen by ulceration of the terminal portion of the appendix, which had thus an open communication with the peritoneal cavity. The appendix was generally dilated but not otherwise remarkable. There were evidences of a very acute peritonitis, pus and soft fibrinous exudation being present in every region of the abdomen, but more abundant towards the ascending colon. The concretion is a pyriform body nearly half-an-inch in length, of a light brown colour, and of tolerably firm consistence, although slightly prone to crack. It was found lying on the surface of the rectum close to the tip of the appendix.

The case was that of a boy nine years of age, who began to complain of pain ten days before death. Shortly before this a friend had been severely pounding his abdomen "in sport," to test the pluck of the boy. The most acute symptoms developed about twenty-four hours before death.

IV. 233. Concretions from the Vermiform Appendix. (Sir Hector C. Cameron.)

The bodies are about the size of French beans, yellowish brown in colour, smooth, and of a stony hardness on the surface, somewhat clay-like in the centre. They are found to consist of vegetable fragments, such as might belong to the outer coat of wheat or oat grains. There is also some earthy matter. They were taken from an abscess in right iliac fossa communicating with vermiform appendix by gangrenous perforation. The vermiform appendix was long, adherent to the caecum, and its orifice of communication with the bowel was obliterated.

Path. Reports, No. 1920.

IV. 234. Concretion in Vermiform Appendix. Perforation. Acute Peritonitis. (Drs. Wilson and Renton.)

The vermiform appendage is much elongated and dilated. At about 2·5 cm. from its tip it is united by old adhesions to the posterior abdominal wall. In the parts proximal to this the dilatation is greatest, and the wall is thin, brown, and parchment-like in the portion of this dilated part next to the caecum. The concretion lies at the bottom of the jar; it was 1·5 cm. in length, and weighed 1 grm.; its proximal extremity was lying over 1 cm. from the orifice of the appendix. The part in which the concretion was found is specially thin and partly gangrenous. It presented a small aperture through which the concretion could be seen. The appendix between the orifice and the dilated part is not apparently abnormal. A piece of whalebone is passed from the orifice through the appendix and out at the perforation. The concretion was firm, and had a brown colour. It is composed of inspissated faeces. The abdominal cavity contained a considerable quantity of fluid pus, somewhat limited by adhesion to the right side, but there was also a general fibrinous deposition.

Mr. P. (aged 19) took a shivering on the evening of February 24th, and experienced pain in the right iliac region. Next day pain and tenderness continued, and the temperature went up to 105°. The pain became diffused over the abdomen, but rather diminished. He collapsed rather suddenly on the afternoon of March 1st, being five days after the seizure, the period of collapse only lasting three hours.

Path. Reports, 3rd March, 1893, No. 3277

IV. 235. Perforations (three) of Vermiform from Concretions. Acute Peritonitis. (Dr. Renton.)

The appendix is considerably enlarged in diameter, and it curves forwards making an acute angle. The lumen is much dilated and the wall in general somewhat thickened. The proximal part of the canal and orifice are narrowed. On the posterior and inferior surface there is a large gap about 1·4 cm. in diameter, and it is situated about 2 cm. from the orifice; a smaller perforation is visible on the same surface about 1·5 cm. further on, measuring about ·5 cm. Immediately opposite this aperture there is a third perforation similar in size. The peritoneal cavity was occupied by yellow faeculent fluid chiefly collected in the flanks, and there was an abundant fibrinous deposition which was specially present in the neighbourhood of the caecum.

John M. (aged 17) was playing football nine days before death. On the following day he was ill with pains in the abdomen, which were relieved by rest. He became much worse about a week after onset, when he was sent into the hospital. At that time he was very ill, and died within two hours.

Path. Reports, 18th May, 1898, No. 5467.

IV. 236. Small Abscess in Vermiform Appendix.

The proximal half of the vermiform appendix is dilated into an oval sac 3 cm. in diameter. It is closed at both extremities, and at the proximal end it bulges into the caecum at the dilated orifice, but it is separated by a dull membranous wall. At the distal end the sac has also a continuous surface, and the distal half of the appendix, although normal in diameter, is solid. The little sac contained thick yellow pus mixed with mucus, which gave cultures of the bacillus coli, and did not contain tubercle bacilli.

Arch. M. (aged 44) was affected with cancer of the oesophagus and phthisis pulmonalis. See Ser. IV. 32.

Path. Reports, 1st April, 1896, No. 4553.

IV. 237. Strangulation and Rupture of Vermiform Appendix. Acute Peritonitis. (Prof. Geo. Buchanan.)

The specimen shows the caecum, from the apex of which the vermiform appendix, measuring 9·5 cm. in length, springs. Origin-

ating at a point slightly above the level of the brim of the pelvis, the appendix for about 4·5 cm. of its length passes almost directly inwards on the pelvic wall. It then makes a sharp bend, and is continued almost vertically downwards in the remaining part of its course. At a distance of 3 cm. from its origin it is crossed by a well-formed band of connective tissue, evidently its own mesentery, which passes to the mesentery of the ileum. The band viewed *in situ* was clearly tight enough to strangulate the distal end of the appendix. Proximal to this band the appendix presented normal characters; while distal to the band it had a greenish-black colour, and was evidently sloughing.

A ragged triangular aperture, through which a piece of whalebone has been passed, is seen at a point 1·5 cm. from the tip, near the mesenteric border of the appendix. No concretions were found. There was acute generalised peritonitis, and bacillus coli and streptococci were found in the exudation. The coils of small intestine were markedly distended.

Daniel B. (aged 8) was admitted with symptoms of acute general peritonitis of two days' duration. There was considerable abdominal distension. Persistent vomiting had been present for two days, and no motion had been passed for five days. The abdomen was opened on the day of admission by Dr. Beatson, but owing to the extremely collapsed state of the child no systematic search for the obstruction was undertaken. The child died a few hours after operation.

Path. Reports, 5th October, 1896, No. 4788.

IV. 238. Bulky Concretions in Vermiform Appendix. Tuberculosis of Ileo-Caecal Valve and Caecum. (Dr. Finlayson.)

The case was one of phthisis pulmonalis with extensive tuberculosis and sloughing in the small intestine (see No. 180 of this Series). The caput caecum is here laid open, and there is extensive ulceration of the valve, extending to the wall of the caecum. There are also isolated crater-shaped ulcers. The orifice of the vermiform is narrowed but not obstructed. The preparation shows on section of its wall bulky concretions of a brown colour. There are three of these, the largest at the proximal part measuring 2·5 cm. the middle one about 1 cm., and the distal one extending nearly to the tip and having a length of about 1·5 cm.

Path. Reports, 16th September, 1895, No. 4315.

IV. 239. Vermiform Appendix with Caseating Tubercular Mass. (Prof. Gemmell.)

The appendix shows at a distance of 2 cm. from its origin, an oval swelling which on incision is seen to be mainly a collection of soft caseous matter, but with some grey structure at its periphery. The lesion seems to take up the whole circumference of the appendix, but no communication with the lumen is discovered, and indeed the proximal part seems largely obliterated. The aperture of the appendix at the caecum is represented by a small dimple which is in the midst of a flat ulcer. The case was one of fibroid phthisis (see Series III., No. 78).

IV. 240. Cystic Dilatation of Vermiform Appendix.

The vermiform appendix is considerably dilated without much elongation, its diameter is not uniform but in general is about 2 cm. It is occupied by clear translucent mucous contents, the condition presenting the beginnings of cystic transformation which was shown in the highest degree in the case figured in Dr. Coats's *Manual of Pathology*. The orifice of the vermiform is visible in the caecum, and a probe can be made just to enter it, but beyond there is complete obstruction.

IV. 241. Huge Cyst of Vermiform Appendix; Fibrous Obstruction. (Dr. Finlayson.)

The cyst which has a thin fibrous wall measures about 15 cm. in diameter. It contained a very large amount of viscid stringy material and some opaque fluid. The vermiform appendix directly runs into the tumour, and on dissection it is seen that whilst the appendix is normal or only slightly dilated at its caecal end for 2 cm., beyond there is a sudden abrupt obstruction, fibrous tissue replacing the canal for a distance of ·5 cm., but without narrowing of the external configuration. Beyond this the vermiform appendix is continued in a dilated condition into the cyst, the distance being about 3 cm. This part has been laid open and the lining membrane passes smoothly over the blind end without even a dimple. This portion of the vermiform is considerably thicker than the cyst, and at its opening into the cyst there is a kind of collar, at which the tissue is even thicker. The aperture here measures about 1 cm.

The upper border of the cyst is in contact with or adherent to the lower border of the last part of the ileum. The cyst lay in the right ilio-hypogastric region, its upper border reached to the cartilage of the 10th rib and its left border just reached the middle line.

Hugh L. (aged 67) was affected with phthisis pulmonalis.

Path. Reports, 30th Dec., 1892, No. 3218.

IV. 242. Intestinal Obstruction from Adherent Meckel's Diverticulum. (Sir Wm. T. Gairdner and Dr. Patterson.)

The diverticulum arises from the free border of the ileum 26 cm. above the valve. It has a length of 5 cm. and is in the greater part of its course about 1·5 cm. in diameter; the last 2 cm., however, are much narrower and feel solid. It encircles and constricts a loop of ileum 18 cm. in length, its distal extremity being adherent to the posterior aspect of the mesentery. The loop of strangulated bowel is immediately beneath the attachment of the diverticulum. There is a stitch at the attached apex from the neighbourhood of which a softened gland was removed by operation. The constricted loop was intensely hyperaemic and covered with fibrin, but not gangrenous. The intestine above the constriction was much distended whilst below it was collapsed.

George M. (aged 10) began to complain of intestinal obstruction six days before death. The abdomen was opened the day before death, but the constricting band was not discovered.

Path. Reports, 23rd May, 1896, No. 4637.

IV. 243. Constriction of Intestine by Band, Consisting of Adherent Meckel's Diverticulum: Abscess. (Sir Geo. H. B. Macleod.)

The conditions here were difficult fully to disentangle, but the general facts are that a broad and partly tubular band proceeds from just above the ileo-caecal valve, where it is attached near the mesenteric border to a point about 75 cm. above this, where it is attached at the free border. Between these two points the intestine has passed under the loop, and is greatly constricted at its entrance and exit. Most of the incarcerated bowel has been removed, and the cut ends are joined by a piece of silver wire. The upper end is indicated by a piece of whalebone passing under the constricting band along with the intestine. The constricting band was involved

in an abscess, forming part of the wall of it; but although considerably destroyed, it still shows the characters of a tube like the finger of a glove. It is believed that it represents a Meckel's diverticulum on the following grounds, as stated at the time:—1st, The tubular nature of the band; 2nd, the attachment of it about 75 cm. above the valve being the usual situation of Meckel's diverticulum; 3rd, the existence of a pouch in the wall of the intestine, visible internally at the place of attachment of the band, which pouch, however, was not continuous with the lumen of this tube, although the intestine in this region communicated with the abscess. The small intestine was greatly dilated above the seat of stricture.

Robert C. (aged 24) was suddenly seized with severe pains in the abdomen seventeen days before death. He was admitted three days afterwards suffering from severe pains and swelling, with vomiting, which was not faeculent. Improvement occurred, and twelve days after the seizure he had, after an enema, a large, light-coloured motion. He continued improving till the morning of his death, when extreme pain developed. He rapidly fell into a state of collapse, and died. *Path. Reports*, 3rd November, 1890, No. 2499.

IV. 244. Strangulation of Intestine by a Band Attached to the Vermiform Appendix. (Drs. W. L. Reid and M'Vail.)

The portion of intestine strangulated is about 25 cm. of the last part of the ileum, the small intestine being seen to issue from the constriction to pass after a course of about 75 cm. into the caecum. The constriction is by a band, which at one extremity, where it is attached to the upper end of the strangulated portion, is about as thick as whipcord, while at its lower end it is as thin as a catgut ligature. This latter end is attached to the vermiform appendix, about 12 mm. from its extremity. At its attachment the appendix makes a sudden turn, and the attachment is somewhat broad. Amongst these adhesions a small solid body, less than the size of a pea, and composed of some mineral matter, can be felt. Besides its attachment to this band, the vermiform appendix has also an attachment to the small intestine, just beneath the constriction, so that this small end of the band is virtually attached to the small intestine, and the band passes from small intestine to small intestine, leaving the loop of 25 cm. between, which has become strangulated.

The great omentum was also adherent to the vermiform appendix in this neighbourhood.

Mrs. Q. (aet. 33) was suddenly attacked by vomiting and pain in the abdomen. Latterly, vomiting was continuous, till the intestinal contents kept oozing from the mouth without violent retching. She died on the fourth day. *Path. Reports*, July, 1891, No. 2847.

IV. 245. Chronic Peritonitis with Bands. Kinking of Small Intestine. Obstruction (Origin in Vermiform ?) (Dr. Patterson.)

The preparation shows a thick band about the diameter of the finger passing from the umbilicus to the transverse colon. There is also a narrow band 6 cm. in length passing from the transverse colon to a compacted mass of small intestine. This mass, which was situated in the right iliac fossa, as shown by sections, is drawn together and kinked so as to form abrupt turns. This condition had induced almost complete obstruction at various points. The part of intestine affected is the lower part of the ileum. The vermiform appendix was traced from the caecum, and was found to become incorporated with the compacted mass, and no longer traceable. The peritoneum generally is considerably thickened.

Margaret T. (aged 55) complained of sickness, pain in the abdomen, and constipation, lasting about three months, with progressive increase in severity. The vomiting was latterly faeculent.

Path. Reports, February 19th, 1889, No. 2046.

IV. 246. Obstruction of Small Intestine from Adhesion to Mesentery. Contraction and Kinking. Tubercular Glands. (Prof. Geo. Buchanan.)

On the left is seen displayed by removal of part of its wall the greatly dilated upper end. This shows towards the mesentery various puckerings with prominent ridges. It ends below in an exceedingly narrowed piece of intestine, whose lumen at the narrowest part is only about 5 mm. This portion of intestine is firmly adherent to the mesentery for a distance of about 3·5 cm., and in addition to the narrowing there is a prominent projection of the

wall, which diminishes the calibre even beyond that stated above. Immediately below the greatly narrowed part there is still some adhesion, and the intestine shows prominent ridges internally. Outside there is a group of enlarged mesenteric glands, and there were cretaceous masses amongst them.

James M. (aged 14) presented a history of constipation, which began eleven days before death, with acute pain in the right iliac region. Faecal vomiting existed for four days before death. He died a few hours after admission. There was no tuberculosis of lungs. *Path. Reports*, 3rd July, 1896, No. 4693.

IV. 247. Healed Tuberculosis of the Peritoneum. (Prof. M'Call Anderson.)

The whole intestine is matted together by adhesions composed of delicate connective tissue, and similar adhesions unite the liver and spleen to diaphragm, and, indeed, almost obliterate the peritoneal cavity. In the midst of the adhesions there are occasional small masses of a gritty character, apparently old tubercular masses. The patient died of acute pleurisy, probably connected with tuberculosis of the spine, an abscess coming close to the pleura.

James T. (aet. 26) was affected with tubercular peritonitis ten years before death, and made a good recovery. He was admitted five months before death with symptoms of spinal disease. An abscess formed, which was opened. Next day the signs of acute pleurisy developed, and he died five days afterwards.

Path. Reports, 21st January, 1889, No. 2021.

IV. 248. Healed Tuberculosis of Peritoneum. Formation of Bands. Strangulation of Intestine. (Sir Hector C. Cameron.)

The preparation shows two loops of small intestine, the upper one strangulated by a rather complex band. The strangulated loop is about 22 cm. in length and is deeply infiltrated with blood which was also present free in the lumen and outside the loop. In some parts the loop was greenish from gangrene. At its two extremities this loop is firmly constricted by a band which embraces it so closely as to be almost buried in the grooves which it has made. This band, which con-

sists of connective tissue, has its two attachments to the small intestine, the lower one 15 cm. above the ileo-caecal valve and the other about 45 cm. higher up: about the lower half of the intervening intestine is the part which has become incarcerated. As shown in diagram the band has formed a loop into which the coil of intestine has passed (the band is represented loose in the diagram). The band had originated from a tuberculosis, as appeared from the fact that there were many other adhesions and numerous rounded cretaceous bodies in various parts of the peritoneum. There was also a healed tuberculosis of lungs.

A. C. A., a clerk (aet. 20), suffered from abdominal pain and constipation, latterly with stercoraceous vomiting for four days before death. He was admitted about 12 hours before death in a state of collapse. *Path. Reports*, 3rd July, 1889, No. 2133.

[An account of these two cases is published by Prof. Coats in the *Glasgow Medical Journal*, Nov. 1889.]

IV. 249. Strangulation of Loops of Small Intestine by Band from Omentum to Mesentery: Probably Old Tuberculosis. (Prof. Geo. Buchanan.)

The preparation shows a substantial band passing from the great omentum so as to completely surround a portion of mesentery and enclose small intestine. Towards its extremity the band has the characters of a smooth round cord, and it is inserted into the mesentery close to the intestinal attachments. Beneath this encircling band a large portion of small intestine has passed, namely the part hanging lowest in the preparation. Examination shows a limb of entrance and one of exit passing beneath the girdle. One of these is the last part of the ileum, and it can be seen that the intestine passes from the valve directly beneath the girdle, by which at this point it has been much constricted; the other limb emerges more freely where the girdle is looser.

George S. (aged 8) was admitted with strumous ulcers and glands. Four days before death he had a sudden attack of pain in the abdomen, succeeded next day by vomiting which rapidly became faecal. There was from the outset no passage of faeces, in spite of various methods of treatment.

Path. Reports, May, 10th 1890, No. 2360

IV. 250. Strangulation of the Small Intestine by the Slipping of the Bowel through an Aperture in an Adhesion in the Pouch of Douglas. (Dr. A. Patterson.)

The specimen shows a portion of the uterus with the anterior wall of the rectum turned downwards and backwards. There is a membranous expansion, the result of stretched adhesions, bridging over Douglas's pouch. In the midst of the adhesion there is a well-defined aperture 1·5 cm. in diameter, and in the immediate vicinity of this another smaller aperture through which the bowel has slipped and become strangulated. The obstruction is extreme, allowing of the passage of water only under very considerable pressure. The constricted loop of bowel measures 11 cm. in length. It had a dark livid-grey aspect, but was not gangrenous, and its serous surface was coated with a thin layer of fibrin. The constriction was found to end at a point 10 cm. from the lower end of the ileum. Above the obstruction the bowel was distended and filled with fluid or almost fluid faeces, while below it was collapsed and contained more solid faeces and, in its lower part, scybalous masses.

In addition to the pelvic adhesions there were fibrous adhesions between liver and diaphragm and in the vicinity of the vermiform appendix, which was found herniated into a subcaecal pouch and adherent. There was no tuberculosis in the abdomen, but cretaceous masses were found in the lungs and bronchial glands.

Eliz. C. (aged 46) was admitted in an exceedingly collapsed condition, with a history of "persistent vomiting and complete constipation" of four days' duration. Abdominal distension without distinct tumour, generalised abdominal tenderness and pain with stercoraceous vomiting, were the main symptoms. The patient died on the second day after admission.

Path. Reports, 17th March, 1897, No. 4986.

IV. 251. Acute Peritonitis with Fibrinous Exudation on Liver, Spleen, and Diaphragm. (Sir Wm. T. Gairdner.)

Shaggy masses are seen on upper surface of liver and under surface of diaphragm as well as on surface of spleen, showing the usual appearances of acute peritonitis. The origin of the inflammation was probably from the uterus or Fallopian tubes. One of the latter was tubercular, and the other contained pus. There was also a general tuberculosis.

Janet D. (aet. 21) had a miscarriage about 5th month, five weeks before admission. During her residence in hospital, tympanitic distension of abdomen, diarrhoea, and fever were prominent symptoms.

Path. Reports, Feb. 18th, 1889, No. 2045.

IV. 252. Biliary Peritonitis from Rupture of Gall-Bladder. (Prof. M'Call Anderson.)

A piece of liver is preserved whose surface is rough and presents a mottled orange pigmentation. A soft membrane having similar characters covered the small intestine and stomach, and united them into an oval mass in the upper part of the abdomen. The peritoneal cavity contained about 23 pints of turbid brown fluid. An aperture was found in the gall-bladder sufficient to admit the tip of the finger.

Mrs. C. was only in hospital a few hours, and there was no history as to how the rupture occurred.

Path. Reports, 30th May, 1887, No. 1718.

IV. 253. Peculiar Soft Masses in Peritoneum in Chronic Peritonitis. (Sir Wm. T. Gairdner.)

In this case there was a considerable amount of fluid in the peritoneal cavity, and in addition peculiar bodies, some of which have been preserved and which are described as follows:—"They are generally of an oval shape but some are greatly elongated. They are smooth on the surface and on section are somewhat firm, but of an opaque yellow colour. These bodies are partly free in the cavity and partly adherent, but in the latter case they can be stripped off from the surface of the peritoneum. One of these masses is present on each side running up from the pelvis to the borders of the ribs and forming a peculiar prominent chain in these regions. In each case the mass is irregularly lobulated. Immediately above the pancreas there is a large oval mass of a pultaceous consistence. There is no enlargement of the mesenteric or prevertebral glands." These bodies present no definite structure under the microscope.

In addition there was in this case pyelitis with small abscesses in the kidneys, also an old pleurisy and tuberculosis of the lungs.

During life there were evidences of chronic swelling of the abdomen with suspicion of disease of the lungs.

Path. Reports, 25th July, 1882, No. 845

IV. 254. Adhesion of Great Omentum to Vermiform Appendix, etc. (Sir Wm. T. Gairdner.)

The ascending and transverse colon have been preserved, and it is seen that the great omentum, hanging in front of the latter, is adherent by a long narrow band to the tip of the vermiform. There is also an adhesion between the transverse colon and the caecum. There were sundry other peritoneal adhesions of old standing which concentrated around the uterus.

Mrs. B. (aged 41) presented the symptoms of nephritis with oedema, etc. *Path. Reports*, 16th Oct., 1890, No. 2481.

IV. 255. Peritoneal Surface of Diaphragm in Bovine Tuberculosis or Perlsucht.

The parts were removed from an ox. The surface presents bulky shaggy masses, which are often coalesced into considerable tumours, but in other cases are in the form of more isolated and frequently pedunculated nodules. Even the larger masses are resolvable into rounded nodules, not generally larger than half the size of a pea. These nodules have the regular tubercular structure, giant-cells, etc., and the tubercle bacillus is present in all of those examined, although not exceedingly abundant.

IV. 256. Tubercular Peritonitis. (Prof. M'Call Anderson.)

The intestines and a portion of the abdominal wall are preserved. The intestines are seen to be firmly adherent among themselves, whilst in the midst of the adhesions there are numerous rounded bodies from the size of a pea downwards. On the internal surface of the abdominal wall there are masses formed by the coalescence of similar tumours.

The patient was a lad (aged 16), and there were tubercles in the kidneys, liver, and brain-substance as well as tubercular pleurisy and pericarditis. *Path. Reports*, 12th February, 1878, No. 296.

IV. 257. Great Omentum Thickened by Tuberculosis and Inflammation.

The specimen shows a part of great omentum, which was converted into a stiff solid layer by the infiltration.

From same case as Ser. IV., No. 178, which see.

IV. 258. Syphilitic Gumma of Peritoneum, Adherent to Spleen and Diaphragm. (Dr. Patterson.)

The lesion is in the form of a flattened mass intimately connected with the diaphragm above and spleen below. It does not, however, infiltrate the proper structures of either, the fibrous capsule of the spleen being distinctly visible beneath the mass, and the muscular layer of the diaphragm being separated from it by a fibrous layer. The mass which is shown in section measures 9 cm. by 4·5 cm., and has a thickness of 1·5 cm. Its cut surface shows a variegated appearance, there being, however, two prominent characteristics, viz., a tough brownish tissue, which is more abundant in its lower parts, and a white chalky substance, which is in some parts difficult to divide, present very abundantly in the middle and upper parts.

There was a syphilitic affection of the skull in this case and there were softenings and a large haemorrhage of the brain.

Alex. M. (aged 45) had gonorrhoea and chancre twenty-three years before death, followed by the usual secondary eruptions.

Path. Reports, 11th February, 1892, No. 2884.

IV. 259. Pedunculated Appendix Epiploica.

The appendix epiploica is in the form of a firm, flattened, ovoid mass, of the size of a haricot bean. It measures almost 2 cm. in diameter, and hangs free from the intestinal wall by a thread-like peduncle almost 1·5 cm. in length. The specimen is from the upper part of the sigmoid flexure.

This specimen, with the following one, illustrates the mode in which these "pedunculated lipomata" of the colon may separate, as well as the possible source of some of the "free bodies" met with in the abdominal and pelvic cavities, and in hernial sacs.

Path. Reports, Sept. 27th, 1895, No. 4334.

IV. 260. Twisting and Congestion of Appendix Epiploica.

The appendix has an exceedingly narrow, almost thread like, neck, which is obviously twisted several times. The appendix itself was swollen and highly hyperaemic.

IV. 261. Small Fatty Growth on Under Surface of Diaphragm, possibly a Transplanted Appendix Epiploica.

A flattened body, about 2 cm. in diameter, is sessile on the surface of the diaphragm, to which it is, however, very loosely attached by means of delicate fibres of connective tissue. Its structure is adipose tissue with a fibrous capsule. The appendices epiploicae were well developed and similar in size to this body.

Path. Reports, 22nd April, 1898, No. 5427.

IV. 262. Portion of an Immense Retro-Peritoneal Lipoma from Neighbourhood of Kidney. (Dr. A. Patterson.)

This is a section of a piece of the tumour which was excised during life, the whole mass removed weighing 12 kilos. It consisted of great masses of fat, a good deal condensed by the formation of fibrous tissue. After death it was found that a considerable portion of tumour remained in the abdomen (about 5 kilos.), and that the part excised had left a cavity in which the left kidney was lying. So far as could be judged the tumour was entirely behind the peritoneum, and was intimately connected with, if it did not originate from, the fatty capsule of the left kidney. It occupied the position of spleen, stomach, kidney, and descending colon, these organs being pushed greatly forwards, downwards, and to the right, the edge of the kidney, for example, passing beyond the middle line. The diaphragm was pushed greatly upwards.

Path. Reports, 14th and 20th February, 1884, Nos. 1133 and 1135.

IV. 263. Spindle-Celled Sarcoma of Retro-Peritoneal Tissue. (Sir Wm. T. Gairdner.)

The tumour, a slice of which is preserved, was situated in the lower part of the abdomen, behind the peritoneum on the left side. It extended from the lower border of the kidney down to Poupart's ligament, there being here a slight prolongation beneath the ligament, the total measurement being 20 cm. with a transverse measurement of 16 cm., and a thickness of about 10 cm. The psoas muscle was partly in front of and adherent to the tumour. On the surface of the tumour were descending colon and sigmoid flexure, and the left broad ligament was attached to and passed on to the peritoneal

covering of the tumour. There was thrombosis of both external iliac veins, that on the right passing into the common iliac. Under the microscope the tumour was composed of large spindle-cells; the tissue was very soft and there was considerable haemorrhage.

Mrs. R. (aged 46) was affected with a tumour in the lower part of the abdomen. Her illness began about eight months before death, and the order of symptoms seems to have been pain in left knee and leg characterised as sciatica, swelling of her left leg, and extension of this swelling to the right leg. On admission there was great dropsy, bed-sores formed, and she died from asthenia.

Path. Reports, 9th December, 1886, No. 1637.

IV. 264. Round-Celled Sarcoma of Abdomen, Infiltrating Kidney, Supra-Renal Capsule, Stomach, etc. (Sir Hector C. Cameron and Dr. Tennent.)

The preparation shows a section from above downwards including part of fundus of stomach, region of supra-renal capsule and kidney. Between stomach and kidney there is a massive white tumour occupying a space of about 6 cm. The tumour tissue infiltrates the stomach-wall above, where it presents internally, and the kidney below, where it has infiltrated the pelvis and extended somewhat into the substance of the organ. The supra-renal capsule is lost in the tumour mass. In the fresh state its outline could be made out vaguely, but there was no normal tissue remaining. The pancreas was stretched over the tumour with extremity slightly infiltrated. The spleen was adherent, but not involved. The tumour, as a whole, formed a bulky mass in the left upper part of the abdomen. It was firmly adherent to the bodies of the vertebrae, but the bone was not eroded.

Microscopically it consists of round cells with a considerable intercellular substance of reticulated fibres. In many places it has involved adipose tissue, fat-cells appearing, more or less isolated, in the midst of the tumour tissue.

Drummond L. (aet. 45), miner, was affected with pain in the left lumbar region, which gradually increased in intensity. There were, latterly, slight albuminuria and leucocytes in the urine.

Path. Reports, No. 2116, 10th June, 1889.

IV. 265. Sarcoma of Abdomen Infiltrating Intestine, Pancreas, etc. Secondary Tumours in Kidney and Heart. (Dr. Dun.)

The preparation is a slice of the abdominal contents, and shows a massive tumour which has apparently sprung either from the retro-peritoneal tissue or the lymphatic glands. It has grown into and transformed the coats of the intestine, whose lumen is shown in the preparation as irregular openings, the whole wall of the intestine, greatly thickened, being almost entirely replaced by tumour tissue even to the internal surface. Where the valvulae conniventes are present, these are reproduced in thickened tumour tissue. The pancreas toward its head is somewhat involved in the tumour, and there were secondary tumours in the kidneys and in the heart. Under the microscope the tissue is seen to consist of round and spindle-shaped cells with a considerable amount of intercellular substance which is frequently fibrous.

Luke K., a shoemaker (aged 27), complained of pain in the abdomen, constipation, and great loss of flesh, which had begun about six months before death. A tumour was first noticed in the right hypochondrium about three months before death. During the last month diarrhoea occurred and increased up to death.

Path. Reports, 8th April, 1889, No. 2077.

IV. 266. Cancer of Peritoneum. (Prof. M'Call Anderson.)

The abdomen in this case was the seat of a massive tumour which had in general the situation of the great omentum and measured 15 by 10 by 8 cm. This mass was evidently composed of innumerable tumour nodules. The parts preserved in the preparation show anterior abdominal wall, diaphragm, and a portion of small intestine, in which extensive secondary implication has occurred. On the abdominal wall there is an almost continuous infiltration of tumour tissue, which retains indications of an original formation in separate nodules. At one place a considerable rounded mass has existed, but has been cut across. The peritoneal surface of the diaphragm also shows an almost continuous tumour infiltration, and the pleural surface presents a large number of small nodules. A portion of lung is preserved adherent to the diaphragm, and it is seen that at the seat of the adhesions a much more extensive involvement of the pleura has occurred. The peritoneal surface of the small intestine and its mesentery are dotted over with numerous

tumours, the largest of which scarcely exceeds the size of a pea, but there are in the mesentery considerable flat infiltrations occasionally. The abdominal cavity contained 14 pints of a deep brownish-red turbid fluid. There was also in the left pleura a dark brown fluid, that being the side from which the preparation was taken. There were some isolated nodules in this lung. A diligent search in all the organs failed to detect any further tumour except two minute white nodules in one kidney.

Microscopical examination shows a cellular tissue in distinct alveolar spaces and sending out processes which infiltrate the surrounding structures. The cells have large oval nuclei, and there are occasionally large multinuclear cells. In some places there is a marked necrosis of the tumour tissue.

Mrs. C. (aged 57) noticed five and a half months before death that the abdomen had become much distended. At the time of admission six weeks before death the main tumour mass was detected and found freely movable. It was hard and painless. The history is further that of failure of appetite followed latterly by very severe vomiting.

Path. Reports, 22nd February, 1897, No. 4952.

IV. 267. Hydatid Cysts (Echinococcus) in Omentum and Ovarian Region. (Dr. W. L. Reid.)

There are three cysts presented, two in the midst of the adipose tissue of the great omentum and one removed from the neighbourhood of the ovary. The last mentioned is a thick-walled sac measuring 8 cm. in diameter; it had been emptied, but it contained the chitinous membrane of the echinococcus cyst, and typical heads were discovered. Of the other two, the larger, which measured 9 by 9·5 cm., contains the shrivelled cysts in an irregular congeries, and the smaller, which measures 5·5 by 4 cm., shows the cysts more in their proper relation, as this one was hardened before being laid open. In both there is a thick connective tissue membrane, but there seems no general parasitic membrane enclosing the whole congeries of cysts. In the fresh state the larger of the two which was cut into yielded a small quantity of limpid fluid, in which were many brood capsules and separate echinococcus heads.

The parts were removed from a woman who was thought to be suffering from ovarian disease.

Path. Reports, 5th December, 1895, No. 4413.

IV. 268. Bothriocephalus Latus. (Dr. A. Patterson.)

The worm here is in several pieces and the head is absent. The narrowest part is 8 mm. in breadth, and here the proglottides are only indicated by transverse markings, of which there are two to the centimetre. It gradually gets broader and thicker, but even when it has attained its greatest breadth of 12 mm. the proglottides are still only 3 mm. in length. They remain of the same breadth, increasing after a time in length till the last twelve to eighteen are over 6 mm. in length and less than 12 mm. in breadth. These terminal proglottides have also changed their shapes, being now nail-shaped and somewhat loosely attached.

IV. 269. Half of an Intestinal Concretion from a Horse.

IV. 270. Ascaris Lumbricoides. (Dr. R. M. Buchanan.)

The worm is 31 cm. in length, and has the general appearance of a large earthworm. It tapers at both ends. In the middle part, through the translucent skin, convoluted tubes are visible.

It was passed by a boy three years of age.

IV. 271. Ascarides Lumbricoides from Stomach, Oesophagus and Small Intestine. (Prof. Gemmell.)

There are twenty worms, of which nine were found in the stomach, three in the oesophagus, and eight in the small intestine. They are of varying size, from about 6 cm. in length, and correspondingly narrow, to about 24 cm. in length.

The person affected was a lascar, who died of dysentery.

Path. Reports, 30th January, 1894, No. 3776.

IV. 272. Ascaris Lumbricoides passed by a Child.

IV. 273. Taenia Solium.

The worm is of the usual size and shape, the head being absent.

IV. 274. Taenia Mediocanellata.

The whole worm is not preserved, but bits of it at different stages of development. The head was not found.

IV. 275. Taenia Mediocanellata. (Prof. Joseph Coats.)

Four and a half metres of the worm as passed by a patient are present, but the head was not found. The narrowest part is 6 mm. broad, gradually increasing to the middle of the worm where the proglottides are 1·5 cm. broad and about the same in length. From this downwards they get longer and narrower till the terminal ones, which are 2·5 cm. long and only 6 mm. broad, and separate very readily. These last contain a uterus, having somewhat ramifying branches. *Path. Reports*, 10th June, 1878, No. 335.

IV. 276. Taenia Mediocanellata. (Prof. M'Call Anderson.)

This part of a tapeworm was found in the intestine after death. It measures nearly 2 metres, and the patient passed about 12 metres four months before, and 1·5 metres as well as many segments lately. The part preserved includes the head, which is somewhat deeply pigmented, and presents four large sucking discs without any hooklets. The pigment is in the discs. The head measures 3 mm. transversely, and the immediately succeeding neck 1·5 mm. The last segments are much elongated, measuring 2 cm. by 6 mm.

Path. Reports, Jan. 12th, 1886, No. 1466.

IV. 277. Head and Neck of Taenia Mediocanellata. (Dr. Sinclair, Brinscall.)

The head is visible with its four sucking discs, which are deeply pigmented. The narrow part of the worm preserved is about 2·5 cm. in length. The worm came entire from a woman and measured about 25 metres.

IV. 278. Taenia Mediocanellata, Prismatic Malformation.

A portion of the worm is preserved. Instead of the usual flat band with two borders, there are here three borders, and the worm

has somewhat the shape of a prism. The sexual apertures are at the edges of one of the three limbs. The proglottides are very close together. For full description see *Glasgow Medical Journal.*

IV. 279. Tape Worm without Segments. (Prof. Geo. Buchanan.)

A long tape-like body, having the appearance of a tape worm, but without any proper appearance of segmentation. It is 50 cm. in length and 12 mm. in average breadth. Along its margin there are at somewhat irregular intervals slightly projecting papillae, sometimes at distances of from 4 mm. to 3 cm. On close examination marked longitudinal striation is observed and less distinct transverse markings. At each end there is considerable distortion consisting of exaggerated projections like papillae.

The worm was passed per anum by a female patient in Ward VIII., there were no previous symptoms, and she is not known to have passed any segments either before or after, although careful inquiry was made. *Path. Reports*, July 16th, 1886, No. 1580.

IV. 280. Cysticerci in Omentum of Rabbit.

The omentum is seen to be studded with large numbers of variously sized cysts. On examination these are found each to contain a cysticercus head with a short neck terminating in an oval vesicle. The head is mostly retracted within the neck.

SERIES V.

ALIMENTARY SYSTEM—THE LIVER, PANCREAS, AND SALIVARY GLANDS.

V. 1. Liver with Gas Cavities from Decomposition.

The slice of liver preserved is honeycombed by innumerable small cavities which contained gas, the result of decomposition. The spleen was similarly decomposed and the kidney partially. The cavities were uniformly distributed throughout liver and spleen, and this seemed to indicate that the germs of decomposition had been sown throughout these organs during life. The case was one of a septic wound of the neck, after an operation for removal of cyst of the thyroid. There were no true pyaemic abscesses, except in the heart, and doubtfully in lungs. The condition is due to a short anaërobic bacillus, which, in certain cases, multiplies with great rapidity after death and evolves gas. The post-mortem examination was made 36 hours after death, on 24th November, 1883.

V. 2. Congenital Deformity and Cirrhosis of Liver.

The liver is considerably reduced in size, weighing 43½ oz., and its surface is irregular, suggesting cirrhosis; but its smallness is not chiefly due to the cirrhosis, the right lobe being evidently atrophied, as is evidenced by the position of the suspensory ligament and the gall bladder. The latter is close to the right border of the liver, and the former is apparently much farther to the right than usual. In this case the right kidney was absent, while the left was hypertrophied. *Path. Reports*, No. 486.

V. 3. Deformity of Liver from Stays.

There is a deep transverse depression on the upper surface of the liver near its lower edge, with thickening of the capsule. With this there is marked atrophy of the hepatic tissue, a portion of the anterior part of the right lobe being partially separated so as to form a distinct small lobe, and the fundus of the gall-bladder projecting considerably beyond the anterior edge, not from enlargement of the bladder but from atrophy of the tissue over it.

V. 4. Elongation downwards of Right Lobe of Liver, etc., from Constriction of Lower Part of Chest. ("Stay Liver.")

The right lobe of the liver is elongated into a tongue-shaped projection so that the anterior margin reached to within 6 cm. of the level of the superior iliac spine. The notch for the gall-bladder is deep. The fundus of the bladder projects about 3 cm. beyond the margin. The upper surface of the right lobe presents a broad, shallow depression, with considerable thickening of the capsule, and there is an indication of folding of the upper and posterior aspect of this lobe.

Agnes P. (aged 50-60) died of cerebral haemorrhage.

Path. Reports, 7th October, 1895, No. 4353.

V. 5. Cicatrices in Liver. Atrophy of Right Lobe; Hypertrophy of Left. (Dr. G. P. Tennent.)

The liver contains many cicatrices, but there is one of a special depth corresponding with the situation of the gall-bladder, causing a considerable portion of the bladder to be visible from above and dividing the liver into two almost separate parts, which are freely movable on each other. To the right of this cicatrix the right lobe has an almost globular form, and measures only about 10 cm. transversely, being greatly contracted. The left lobe, on the other hand, measures about 12 cm. from the cicatrix, and a similar amount from before backwards, the relative size of the two lobes being to a great extent reversed. Besides this large cicatrix there are many small ones, especially in the left lobe, but none of those incised are found to contain a gumma. The aggregate weight of the liver is not appreciably reduced, being 1400 grms., and there is no pronounced amyloid disease.

The kidneys were amyloid and contracted. The spleen (weighing 225·6 grms.) presented diffuse amyloid disease, and there was hypertrophy of the left ventricle.

It is to be noted in connection with the malformation of the liver that the right kidney was very much smaller than the left, weighing 70·5 grms. as compared with 162 grms., both of them being granular. This may indicate a congenital malformation of right lobe of liver and right kidney. *Path. Reports*, 20th February, 1883, No. 939.

V. 6. Pieces of Amyloid Liver.

V. 7. Passive Hyperaemia of Liver.

A small portion of the liver is preserved, including the capsular part. The cut surface shows areas occupied chiefly by blood, which in many places, especially near the capsule, exceed in extent the surrounding hepatic areas, the latter being peripheral in relation to the lobules, and in many places visibly surrounding the congested areas.

Gordon F. (aged 50) had a greatly enlarged and dilated heart, and the appearances of general venous engorgement.

Path. Reports, 4th August, 1897, No. 5143.

V. 8. Tropical Abscess of Liver, Following Dysentery. (Dr. Tennent.)

The preparation is a slice of the liver, and three abscess cavities are visible on section. Two, which are close together and have communicated, belong to the left lobe. They measure respectively 5·5 cm. and 9·5 cm. in diameter. The larger is furthest to the left, and it projects downwards beyond the liver, so that for nearly half of its circumference the wall of the abscess is formed by stomach and pancreas. The stomach is visibly adherent, and forms the extreme left portion of the abscess. The lower border is formed of a soft tissue, which only on microscopical examination is seen to be pancreas. In addition, there is an abscess in the right lobe, quite isolated and measuring 5 cm. in diameter. All the abscesses have an exceedingly

shreddy, irregular internal surface, and contained a thick curdy pus. A portion of the intestine is preserved. (See Series IV., 186.)

M. J., a Hindoo (aged 55), was admitted almost moribund. It was stated that he had been ill for about three weeks. He had arrived by one of the steamers from the East.

Path. Reports, 24th October, 1888, No. 1952.

V. 9. Tropical Abscesses of Liver, Associated with Dysentery. (Sir Wm. T. Gairdner.)

The right lobe of the liver is shown in section, and three abscesses are displayed—two on the upper surface, measuring 2·75 cm. and 4·5 cm. respectively, and one below which measures 5 cm. These abscesses have the general appearance of a necrosis of the liver tissue with a surviving network of connective tissue. Partial softening has occurred in the two larger ones. There was a fourth small abscess in the upper part of the lobe. (See Series IV., 184.)

Fernan S. (aged 35), a Lascar, was affected with pain in the abdomen and diarrhoea, which had lasted for a month at the time of death. There was some tenderness of the abdomen, more marked over the liver than elsewhere.

Path. Reports, 11th May, 1894, No. 3694.

V. 10. Tropical Abscesses of Liver—One Large and Many Small. (Prof. Macewen.)

The preparation represents the posterior half of the liver. The right lobe is in large part replaced by a huge abscess measuring about 17 cm. in diameter, and mostly thin-walled, without any hepatic tissue between it and the surface. The abscess contained 2 litres of thick pus with numerous small necrosed masses in it, and the internal surface still shows a pale, shreddy material adhering. The left lobe, as shown in section, presents numerous smaller and larger abscesses, the largest about 2·5 cm. in diameter. The abscesses have the appearance rather of demarcated necrosed areas than of distended cavities, their edges being accurately defined. Their contents are pulpy. Abscesses are also seen to project from the surface of the left lobe, and in some instances the wall has partly collapsed. Microscopical examination shows amoeboid bodies which

appear to be extending between the hepatic cells and presumably in the capillaries. There is evidently a rapid necrosis and melting away of the hepatic cells. The intestine showed the lesions of early dysentery. (See Ser. IV., No. 182.)

Ernest A. (aged 30). For history, see as above.

V. 11. Abscess Cavity communicating with Portal Vein. Multiple Abscesses in Liver. (Sir Wm. T. Gairdner.)

A large cavity filled with an orange-coloured pultaceous material was found lying in the posterior part of the abdomen behind the pancreas, and extending into the substance of the liver. The portal vein communicated with the portion of the cavity occupying the liver, and on the proximal side was obstructed by thrombus. The specimen shows a portion of the cavity in the liver, and in addition, numerous isolated abscesses, many of them of a lobulated outline. There was a cavity also in the head of the pancreas, but no isolated abscess.

Wm. M'L. (aet. 35) was attacked two or three months before death by what was regarded as an acute peritoneal inflammation (possibly perityphlitis). Afterwards, the local signs of inflammation were in abeyance, but the temperatures suggested a pyaemic condition with deep internal suppuration, suspected to be in or about the liver. Death was from sheer exhaustion, the general symptoms being more like those of phthisis than of an acute febrile disease.

Path. Reports, 26th Dec., 1884, No. 1276.

V. 12. Portal Pyaemia of Liver from Penetration of Gall-Stone. (Sir Wm. T. Gairdner.)

The small portion of liver preserved shows at one side a lobulated abscess, partly projecting from the surface and composed really of dilated and convoluted veins. In other parts of the liver there were branching abscesses following the distribution of the portal vein and representing that vessel filled with pus. In many places the abscesses had a characteristic lobulated appearance. The portal vein just outside the liver was closed by a thrombus, which was shreddy and decomposing on the aspect next the liver and normal on the other aspect. The large abscess was in immediate contact with the gall-bladder, which was greatly shrunken. The floor of the bladder was

in immediate contact with portions of this abscess, but no actual communication was discovered. A facetted gall-stone about 1 cm. in diameter occupied the bladder. Acute peritonitis was present, evidenced by fibrinous exudation, chiefly in the hepatic region. There was also a pyosalpinx.

Euphemia M'L. (aged 42) complained of sickness, vomiting, and severe pain, ascribed to gall-stone, and accompanied by intermittent jaundice. Rigors occurred, with rapid elevation of temperature, as high as 106° F. At first there was little pain or tenderness, but latterly there were paroxysmal pains in the hepatic region with some degree of tenderness. *Path. Reports*, 17th Nov., 1891, No. 2809.

V. 13. Biliary Abscesses in Liver. (Prof. M'Call Anderson.)

Portion of liver preserved shows on section a number of cavities varying from about 2 cm. downwards. They contained a tenacious bile-stained fluid, traces of the colour still remaining in the preparation. Microscopical examination showed the presence of crystals like those of haematoidin, in the cavities. The cavities were also seen to be related to the bile-ducts. They are lined with many layers of cells, and contained multitudes of leucocytes. There was a general dilatation of the larger ducts and gall-bladder. The obstruction was due to a cancerous ulcer of the duodenum, which did not involve the orifice of the ductus communis, but caused pressure on the orifice. The pancreatic duct was also dilated and inflamed.

Mrs. C. (aged 36) had been affected with stomach symptoms for four and a half years. There were debility, emaciation, and a yellow pallor. *Path. Reports*, 1st May, 1889, No. 2095.

V. 14. Cirrhosis of Liver in Child of 11, with Diabetes Mellitus. (Dr. Tennent.)

Part of liver preserved, which includes the anterior edge, presents the usual features of advanced cirrhosis with hob-nail characters, etc. There is a band uniting the two lobes on the inferior surface. The extreme right of the liver is considerably atrophied, the gall-bladder being much too near the right extremity. Microscopically, the ordinary characters of multilobular cirrhosis are presented.

David M'A. (aet. 11) was in the Infirmary for a week with symptoms of advanced diabetes mellitus, which seems to have run a very rapid course. *Path. Reports*, 26th Nov., 1891, No. 2817.

V. 15. Cirrhosis of Liver.

The liver retains its general outline, but is slightly smaller, weighing in the fresh state 1200 grms. Its surface presents everywhere rounded prominences of variable size, many of them as large as 2·5 cm., whilst others are less than 1 cm. On the whole, however, the size of these prominences is greater than in the typical "hob-nailed" liver. The distribution of the prominences is nearly uniform, but they are perhaps more numerous and smaller on the under surface. The prominences are separated by connective tissue, which was found on section to map out the liver substance generally.

Joseph M. (aged 27) died from a septic condition of the forearm. He was delirious from time of admission, and his previous history was not obtainable. *Path. Reports*, 29th August, 1892, No. 3099.

V. 16. Cirrhosis of Liver. (Dr. Jas. Finlayson.)

In the portion of liver preserved the surface is seen to present innumerable rounded prominences, generally about the size of hob-nails or smaller. On section the tissue was found to be of considerable toughness, and the cut surface was much lobulated, being divided by tough connective tissue. The liver weighed 1200 grms., but without any striking contortion.

There was great enlargement of the spleen and a general biliary staining of all the tissues.

The patient was a woman aged 45. There was a history of jaundice for two years and of ascites for two months. Latterly there was great emaciation. There was a history of alcoholism.

Path. Reports, 18th December, 1882, No. 895.

V. 17. Cirrhosis of Liver with Fatty Infiltration. (Dr. Finlayson.)

A portion of the liver, including part of anterior edge, is preserved. The surface shows multitudes of elevations of tolerably uniform size and generally about 2 mm. in diameter. The size of the organ was not diminished (1770 grm., about 1600 being normal), and the shape was not appreciably altered, the anterior edge, as shown in the specimen, being only slightly blunted. The cut surface showed in the fresh state a reddish-yellow colour, the yellow in some parts predominating. Under the microscope there are the usual appearances of multilobular cirrhosis, the connective tissue not being very exces-

sive. There is, however, an exaggerated fatty infiltration, so that the proper hepatic tissue resembles adipose tissue, being represented mainly by large fat-drops. It is noteworthy that the body presented otherwise marked general obesity. There was also a marked fatty infiltration of the heart, even affecting the internal layers of the musculi papillares.

Mary C. (aged 51) was affected with sickness of seven months' duration and swelling of the abdomen from ascites. During the period of her residence in hospital (two days) there was continuous vomiting of blood, and she also passed blood by the bowel. The urine contained albumen, but no bile. There was a distinct history of alcoholism. *Path. Reports*, 6th September, 1897, No. 5158.

V. 18. Extreme Cirrhosis of Liver, with Thrombosis of Portal Vein. (Dr. R. S. Thomson.)

The liver, half of which is preserved, presents on the surface a very marked granular appearance, which is in some places obscured by thickening of the capsule and atrophy of the subjacent hepatic tissue. On section the hepatic tissue is seen to be divided up into somewhat regular lobules, generally from 3 to 6 mm. in diameter, by a grey connective tissue. Under the microscope the usual appearances of cirrhosis are seen. The areas of hepatic tissue do not correspond with the hepatic lobules, and there is no appreciable intra-lobular extension.

The main portal vein is occupied by a thrombus which presents a channel in its centre, not improbably from softening. The thrombus is traced into several branches, which present still a small central lumen.

There were extreme ascites, enlargement of spleen, and cirrhosis of the kidneys.

Alex. F. (aet. 56). There is a history of intemperance extending over a long period of years, and several attacks of ascites which were recovered from. Latterly there were extreme distension of the abdomen, and diarrhœa with some blood in the stools.

Path. Reports, 24th April, 1889, No. 2090.

V. 19. Perihepatitis from Ascites: Amyloid Liver. (Dr. G. P. Tennent.)

The capsule of the liver is generally thickened, but especially over the upper surface of the right lobe, which is occupied by a con-

tinuous tendinous-looking membrane. Elsewhere the thickening is not continuous, but presents a certain honeycombed appearance. The shape of the liver is considerably altered, being distinctly more globular than usual. The antero-posterior diameter is diminished and the thickness increased, while the edges are much rounded. The tissue of the liver is highly amyloid, and the organ weighed about 1950 grms.

The case was one of Bright's disease, lasting for over three years, with repeated anasarca and latterly extreme ascites. Paracentesis abdominis was performed nine times.

Path. Reports, 18th June, 1883, No. 956.

V. 20. Liver in Bovine Tuberculosis. (Dr. G. T. Beatson.)

The whole organ was beset by numerous tumours, many of which, as seen in the preparation, are visible through the capsule, and some of them projecting distinctly from the surface are flattened round prominences somewhat resembling duckweed. On section it is seen that, although more abundantly present in some parts than others, the tumours exist in every region. They present, on being cut into, an opaque yellow colour, and are each surrounded by a distinct fibrous-looking capsule. They vary in size from a pin's head to a small hazel nut, but even the smallest of them have a surrounding capsule. Under the microscope the tumours have all the characters of bovine tuberculosis. *Path. Reports*, No. 736.

V. 21. Syphilitic Liver: Gummata. (Dr. Jas. Finlayson.)

The liver is much contorted, there being frequent deep or shallow cicatrices, but no general granulation. There are numerous yellow tumours of various sizes — the largest about 1 cm. in diameter, and these are mostly in the midst of the cicatrices. The piece hung separately shows a group of gummata with little or no hepatic tissue between.

There was a history of syphilis fifteen years before death: swelling in epigastrium, and dropsy for first time four years before death.

Path. Reports, 14th February, 1878, No. 298.

V. 22. Syphilitic Gummata in Liver. (Sir Wm. T. Gairdner.)

A small portion of the liver is presented showing several irregularly-shaped, partially caseous, new formations. There are several

groups of these chiefly in the left lobe, which was greatly shrunken by cicatricial contraction. There was peculiar syphilitic ulceration of the trachea and bronchi. (See III., 25.)

V. 23. Syphilitic Gummata in Liver. (Prof. Gemmell.)

As shown on section, rounded masses are present in the superficial parts of the liver. These are largely composed of opaque necrosed tissue, but are surrounded by a grey connective tissue. There were several other similar masses. The liver was considerably adherent to the parts around.

Extensive ulceration of the trachea and bronchi was present in this case (Series III., 21).

Path. Reports, 19th April, 1894, No. 3670.

V. 24. Syphilitic Liver: General Cirrhosis and Gummata. (Dr. Jas. Finlayson.)

In addition to a few deeper cicatrices, there is a general granulation on the surface, so that the liver might almost be designated hob-nailed. On section, the general appearance is that of cirrhosis, with a few small yellow areas. On microscopical examination the cirrhosis is seen to be at a comparatively early stage, and there are numerous very small gummata. There is also occasional amyloid degeneration of hepatic capillaries, with marked amyloid degeneration of the branches of the hepatic artery.

There were also numerous cicatrices in the lungs—each cicatrix being occupied by a yellow nodule (gumma). In addition, kidneys, spleen, and intestine were highly amyloid, the kidneys weighing together 22 oz., and the spleen 14 oz.

The patient was a man of 30. He contracted syphilis five years before death. Dropsy came on two months before death. He had albuminuria: urine at first abundant and with blood colour; latterly scanty; severe diarrhœa. *Path. Reports*, 19th June, 1878, No. 343.

V. 25. Syphilitic Liver: Gummata and Amyloid Disease. (Sir Wm. T. Gairdner.)

Two small portions of the liver are preserved, and on section it is seen that the liver tissue is replaced at intervals by a grey tissue,

which at places presents pultaceous material in its central parts. In some cases around these grey masses the liver tissue is completely replaced by amyloid material, and elsewhere also there is considerable amyloid disease.

A portion of the spleen from this case is preserved (see Series VI., No. 6).

The patient was a man, aet. 36, admitted with ascites and anasarcous swelling of limbs and scrotum, but with a history pointing with great probability to interference with the portal circulation having preceded the general dropsy. See Journal of Ward I., S, p. 227, and T, p. 45. The urine was albuminous, sometimes scanty, sometimes in excess. Maximum, 74 oz., sp. gr. 1024-35, no remarkable sediments. Repeated tapping was required, both of abdomen and of the scrotum and feet, nearly 1200 oz. of fluid being removed altogether, and the fluid in the abdomen being perfectly clear serum.

Path. Reports, 12th November, 1880, No. 588.

V.26. Nodular Hyperplasia of Liver.

The liver is nearly normal in size, but the right lobe especially shows on the under surface various bulgings and foldings. The most peculiar and pronounced of these is a raised platform on which the gall-bladder is seated. This platform is of a generally square shape, measuring 7 cm. in diameter. It projects somewhat beyond the anterior edge, and elsewhere rises from the general surface abruptly and frequently with an overhanging edge. The fundus of the gall-bladder is somewhat spread out on this platform. The tissue of this piece of liver was in the fresh state considerably paler than the liver generally. On cutting into the liver a peculiar variegated appearance was visible, there being pale areas, generally with a vessel in the midst, contrasting with darker areas. Some of these had the appearance of distinctly lobulated tumours of a rounded shape, but not encapsuled or even abruptly circumscribed.

Under the microscope the tumours referred to present in general the characters of hepatic tissue, the cells being apparently identical with hepatic cells, but the lobular arrangement is exceedingly irregular. There are many small lobules and there are places where the lobules are apparently broken up by connective-tissue septa, so as to resemble a cancerous structure.

Jane W. (aged 26) had been affected with swelling of the abdomen, apparently ascitic, and also with pronounced cardiac disease involv-

ing both aortic and mitral valves. She died after an operation, in which the ovaries were removed.

Path. Reports, 6th March, 1893, No. 3282.

V. 27. Adenoma of Liver.

The tumour was an oval one, about 3·5 cm. in diameter, which was situated in the upper part of the right lobe. The tumour is well defined and distinctly encapsuled. There are a number of haemorrhagic areas visible on section. The tumour consists microscopically of epithelial cells generally arranged in double and single rows, and supported by connective tissue. They have no lobular arrangement. The cells are closely packed. The connective tissue capsule is somewhat thick, and there is considerable excess of the connective tissue amongst the lobules of the liver, this new-formed connective tissue being very cellular. The cells comprising the tumour in general resemble hepatic cells, but are smaller as are also their nuclei, their diameter bearing a relation of 2 to 3 as compared with the hepatic cells. The nuclei of the tumour cells, on the other hand, are nearly the same in diameter as those of the duct-epithelium. The liver showed to the naked eye the general granular appearance of cirrhosis, and there were occasional adhesions to the diaphragm, to the stomach, and to the intestine.

John S. (aged 71) died from cerebral haemorrhage, which occurred immediately after his admission to hospital, to which he had come with a view to the radical cure of a hydrocele.

Path. Reports, 21st Nov., 1892, No. 3186.

V. 28. Cavernous Angioma of Liver. (Sir Hector C. Cameron.)

The specimen shows a piece of the liver with a large, almost pendulous angioma attached to its margin.

A microscopical examination showed it to be of the common cavernous character. *Path. Reports*, 26th October, 1886, No. 1614.

V. 29. Cavernous Angioma of Liver. (Sir Hector C. Cameron.)

The preparation shows in section a tumour of about the size and shape of a hazel-nut, which projects from the lower surface of the right lobe. It has the structure of the angioma, the spaces being filled with blood.

V. 30. Cavernous Angioma of Liver.

The appearance here is of the somewhat frequent vascular tumour of the liver. A portion of the liver having a diameter of about 2 cm. and without any surface projection is simply replaced by what looks at first sight to be a simple mass of blood, but which microscopical examination shows to be a cavernous tissue with blood in its meshes.

V. 31. Cystic Liver [and Kidneys]. (Sir Wm. T. Gairdner.)

Slices of the liver are preserved showing on section the principal cysts. The seat of cysts is chiefly the left lobe, which is converted into a congeries of cysts. The cysts, however, especially at the anterior part, extend into the right lobe, and in addition there are a number of other cysts, single or in groups, the principal of these being on the upper surface about the middle of the right lobe. This also is shown on section, and it is seen that there are two large cysts which penetrate somewhat deeply into the liver substance.

The kidneys also showed cystic disease (see Series VII., No. 35, where also the history will be found).

V. 32. Melanotic Cancer of Liver, with Wide-spread Generalisation. (Prof. Gemmell.) See following nine numbers.

The primary tumour in this case was in the liver, and as shown in the picture drawn by Dr. Alex. Macphail, the organ showed on section an enormous pigmented tumour almost black in hue, occupying the greater part of the right lobe, and measuring in general about 15 cm. in diameter. Besides this, which almost replaces the right lobe, there are many others of similar character, varying in size from exceedingly minute up to several cm. in diameter. The liver as a whole was much enlarged, and weighed 5 kilogrammes (11 lbs.).

There were in addition innumerable black tumours in various organs, as partly illustrated in the following numbers. In regard to almost all of them, the tumour tissue seems largely to take the place of the normal tissue without apparent great increase in bulk, and it also appears that the tumours generally were almost uniformly inky black in hue. More particularly, the tumours may be divided into the visceral, osseous, mucous, serous, and cutaneous.

(1) Of the viscera, the spleen (see V. 33, 34) contained many; they were sparsely present in the kidneys; they were present in the suprarenals in the form of cysts containing inky black fluid; they were sparsely distributed in the pancreas; there were a few in the testes, and a few in the brain (see V. 41). They were also sparsely present in the thyroid. In the heart they were chiefly pericardial and endocardial, but a few were present in the muscular substance.

(2) The marrow of many of the bones seems simply replaced by black tissue, this being the case in the vertebrae, ribs, and sternum, whilst in others there were more individual tumours, as in the femur (see V. 35, 37). In the calvarium the tumours are mostly small, and sometimes very minute. Many are visible from the internal surface, whilst from the external surface they are more obscure (see V. 35). A small tumour is noted in the substance of the cricoid cartilage, which is ossified (see V. 33).

(3) The stomach (V. 38, 39) presented many tumours, and, in the case of some, branching offsets are visible at the irperiphery. They were present in the duodenum, but almost entirely disappeared in the upper half of the jejunum, becoming again more and more numerous towards the lower end of the ileum. There was a large crop in the caecum, beyond which they rapidly disappeared. They are mostly small in the intestine (see V. 38).

The urinary bladder (see V. 38, 40) showed an extraordinary number of the black tumours, all of them being small in size.

One small tumour was found in the conjunctiva.

(4) Tumours were abundantly studded over the pleurae of both lungs and the parietal pleurae, and there were also some areas of diffuse pigmentation. There were tumours in the general subperitoneal tissue, in the mesentery and omentum. The mesenteric glands were soft and inky black. The dura mater showed few tumours, whilst those on the surface of the brain seemed to belong to the soft membranes. An area of diffuse pigmentation was visible on the lateral aspect of the left hemisphere (see V. 41).

(5) There were numerous small tumours of the skin, which were chiefly present on the scalp, face, and anterior wall of chest and abdomen (see V. 38).

Microscopical examination raised difficulties in the diagnosis between cancer and sarcoma. This applies more especially to the liver tumours. In the smaller examples of these it could be seen that the tumour advanced by its cells extending between the hepatic cells,

obviously in the blood capillaries. They were thus even at the first contained in alveolar spaces, and even when further advanced, so that the hepatic cells had disappeared, the alveolar character was presented, and the tumour tissue closely resembled a cancer. It was noted that the recent cells are non-pigmented, but that soon pigmentation occurs, and that in the more advanced and deeply pigmented portions not only is the nucleus undifferentiated by staining methods, but the cells are liable to disintegrate. In the secondary tumours elsewhere the resemblance to cancer is much less, although the tendency to propagate into vessels is manifest and often gives an alveolar character. The cells, moreover, tend to grow in masses in the lymphatics, and in the brain they even show an indication of gland-like arrangement. The conclusion therefore is that the tumour is of epithelial origin.

Duncan M. (aged 54) was admitted with the general symptoms of phthisis pulmonalis. During his residence in hospital the liver became much enlarged and tender to pressure, and numerous black tumours appeared over the chest, head, and back. The urine was very dark, and gave the reactions of melanin.

Path. Reports, 24th June, 1893, No. 3379.

V. 33. Melanotic Cancer as above. Liver, Spleen, Thyroid, and Heart.

V. 34. Melanotic Cancer as above. Drawing of Spleen and Heart.

V. 35. Melanotic Cancer as above. Portions of Femur, Vertebrae, Rib, Calvarium, and Dura Mater.

V. 36. Melanotic Cancer as above. Drawing of Femur.

V. 37. Melanotic Cancer as above. Drawing of Sternum, Vertebra, and Rib.

V. 38. Melanotic Cancer as above. Portions of Skin, Stomach, Intestine, and Urinary Bladder.

V. 39. Melanotic Cancer as above. Drawing of Stomach.

V. 40. Melanotic Cancer as above. Drawing of Urinary Bladder.

V. 41. Melanotic Cancer as above. Drawing of Left Lateral Aspect of Brain.

V. 42. Secondary Sarcoma of Liver with Umbilication (Dr. Finlayson.)

A portion of the liver is preserved with a rounded tumour, 4 cm. in diameter, occupying its substance and projecting from the surface. The surface shows a typical umbilication. This was the only tumour in the liver.

The primary tumour was at the root of the lung, and both it and the secondary tumours in pleura, pancreas, suprarenal capsules, kidney, and liver consisted essentially of large spindle cells, which frequently showed fatty degeneration. There was also a large subserous myoma of the uterus.

Janet R. (aged 54). The clinical history refers entirely to the myoma of the uterus.

Path. Reports, 6th February, 1886, No. 1483.

V. 43. Primary Scirrhous Cancer of Liver: Secondary Nodules. (Sir Wm. T. Gairdner.)

The left lobe of the liver is greatly contracted, being reduced to a wedge-shaped appendage, and the hepatic tissue here is entirely replaced by a tough grey tissue. From this there is an extension to the right lobe in the form of rounded tumours continuous with the left lobe. In addition there are numerous isolated tumours throughout the liver, generally from 1 cm. to 3 cm. in diameter. Those at the surface are umbilicated. There were two considerable tumours and several smaller ones in the lungs. Under the microscope the tumour in the left lobe of the liver had the structure of scirrhus, viz.: a dense stroma with cellular processes. The more recent tumours have less pronounced stroma; the cells are small. No cancer of any other organ.

Allan B. (aet. 56). On admission he had signs of cancer of the liver of about four or five months' standing. He became progressively emaciated and weaker.

Path. Reports, 18th May, 1886, No. 1530.

V. 44. Primary Scirrhous Cancer of Liver. Secondary Nodules. (Dr. Finlayson.)

A slice of the liver is preserved, and it is seen that a bulky tumour occupies a considerable portion of the right lobe. The tumour involved the anterior edge, and it extended, occupying both upper and lower surfaces, a distance of about 9 cm. from the anterior edge.

In addition to this large mass there are numerous smaller ones, some of which are shown in the section. They are most abundant in the immediate neighbourhood of the principal tumours, as may be seen in the preparation by examining the other side of the specimen, whose surface skirts the main mass. There were secondary tumours in the lungs, ribs, kidneys, and portal glands, and there was ascites.

All the tumours are very tough, and have the microscopic characters of scirrhus.

Wm. B. (aged 51) was affected with swelling of the abdomen of six weeks' duration. During a residence in hospital of six months the abdomen was tapped four times, the quantities of fluid removed being from 325 to 428 oz. There was a progressive emaciation till death. *Path. Reports*, 2nd June, 1893, No. 3362.

V. 45. Water-colour Drawing of the above. (By Dr. Alex. Macphail.)

The picture represents the whole liver, with a longitudinal incision extending from the upper surface partly through the liver. The bulky tumour in the anterior part and many of the smaller nodules are shown.

V. 46. Primary Cancer of Liver and Secondary Nodules. (Dr. Christie.)

There is a large central cancerous mass, measuring about 9 cm. in diameter. Its centre corresponds with the suspensory ligament,

and it comes to the surface in that neighbourhood, the greater part of it, however, being deep in the substance of the liver. The central parts of this mass are dense and fibrous in character. There are numerous secondary nodules chiefly grouped around the central mass. They are much more abundant on the upper than the lower surface, the greater part of the right lobe also, except near the suspensory ligament, being comparatively free. The main mass has sinuous margins, one of the smaller pieces in the preparation showing this characteristic. The secondary tumours are frequently umbilicated, and some of them deeply so, as shown in the specimen hung separately. Under the microscope the cancerous structure is typical, there being large cells with a fibrous stroma. In the central parts of the nodules this stroma is specially developed. There were numerous secondary nodules in the lungs, varying in size from a split-pea to a small orange, and distinctly umbilicated. No tumour was found in any other organ. The liver weighed 2·5 kilos.

Oliver H. (aet. 64) was consciously ill for only about four months, the complaint being chiefly of swelling of the abdomen, but without any pain. There was enlargement of the liver, and some of the nodules were felt. *Path. Reports*, 25th April, 1887, No. 1784.

V. 47. Large Primary Cancer of Right Lobe of Liver.
(Prof. M'Call Anderson.)

The specimen is a slice of the liver from before backwards, and it is seen that the anterior portion is expanded into a bulky globular tumour 12·5 cm. in diameter. The central parts of the mass are mainly fibrous, and, on microscropical examination, even the marginal parts have a distinctly scirrhous character, presenting an excess of stroma, and cells usually in elongated passages. There are no other tumours in the liver, but there were cancerous infiltrations of the uterus and ovaries. There was also a cystic tumour of the right ovary, about 15 cm. in diameter.

Mrs. J. (aet. 48) had noticed a tumour in the hypochondrium for six months. Her symptoms were mainly gastric—anorexia, vomiting, etc. There occurred continuous loss of weight, debility, and anaemia. The tumour was distinctly felt during life.

Path. Reports, 28th May, 1891, No. 2075.

V. 84. Cancer of Liver. Perforation of the Wall of the Transverse Colon. (Sir Wm. T. Gairdner.)

The specimen was obtained from the body of a man admitted to the wards on 2nd July, 1883, suffering from pain at the pit of the stomach, occasional vomiting and sickness, and a tumour in the right side of the abdomen which was first noticed about three weeks before admission. The tumour appeared to be demarcated from the liver by clear percussion, but not so distinctly from the right kidney. The tumour was approximately globular, extending a little beyond the umbilicus, and upwards close to the hypochondrium, being separated from it by tympanitic percussion, which allowed of the edge of the liver being demarcated in its normal position. The tumour admitted of a little displacement. The temperature was normal till the 16th, when it rose with symptoms of acute peritonitis, and he died on the 17th.

At the post-mortem a large tumour was discovered in the right iliac and lumbar regions, and extending in the direction described above. It was found to be a large nodulated tumour springing from the anterior margin of the right lobe of the liver by a narrow neck, which was easily encircled by the forefinger and thumb. The tumour had extended downwards and become inseparably adherent to the right end of the transverse colon, upon opening which the appearances shown in the specimen were observed. The specimen consists of the affected portion of bowel, and through its mucous surface the projecting nodule is observed; the serous surface is seen to be completely replaced by tumour tissue. The tumour of the liver was primary. *Path. Reports*, 18th July, 1883, No. 1010.

V. 49. Large Cancer of Liver, Infiltrating Diaphragm, Pleura, Pericardium and Posterior Mediastinum. (Sir Wm. T. Gairdner.)

The preparation shows in section, upper surface of liver, and the portions of diaphragm and pleura involved. There is a massive tumour of the liver immediately beneath the diaphragm. The diaphragm over the tumour is thickened and infiltrated, and this infiltration extends to the greater part of the diaphragm and thence to the abdominal and pleural walls. The lung is firmly adherent to the thickened diaphragm, and although the pleura is much involved, yet the lung

tissue itself seems scarcely affected, except that it is condensed. The cancerous infiltration has extended to the posterior mediastinum, where there is a great mass consisting of glands and infiltrated tissue, all firmly adherent to pericardium and oesophagus; the infiltration even extends to the heart wall. Besides the large tumour in the liver, which is in the right lobe, there was a considerable one in the left lobe, and a few rounded tumours in other parts. There were also tumours in the pancreas and kidneys.

Jane M'M. (aged 41) was affected with stomach symptoms, abdominal pain, etc. There was also ascites, followed by oedema of the legs. After paracentesis, nodules in the liver were detected.

Path. Reports, 28th May, 1891, No. 2674.

V. 50. Cancer of Liver, probably originating from Bile-Ducts. Great Jaundice. (Dr. Tennent.)

The conditions here were such as to suggest a primary cancer arising in connection with the ducts in the portal region and extending in the liver along the ducts. There was great matting in the portal region, the gall-bladder being partly included. On section there were visible in the right lobe numerous and somewhat extensive cancerous areas, such as are shown in the preparation, which did not present anything of the circular outline of ordinary secondary cancers, but showed a lobular appearance, often with a central stem consisting of a portal vessel. Outside the liver the ducts contained no bile, but were filled with a thick yellowish tenacious mucus, which also filled the gall-bladder. The wall of the gall-bladder was thickened, but not apparently cancerous. The body presented intense jaundice. Under the microscope the cancerous infiltration is seen to be essentially in the capsule of Glisson, in almost every part of which there are cancerous processes, commonly in passages that are evidently lymphatic vessels.

John W. (aged 53) was ill for about seven months with pain in the region of the stomach, afterwards associated with vomiting. Jaundice supervened about two months after the commencement of the illness, but this by and by disappeared, and again recurred. At the time of admission the jaundice was extreme.

Path. Reports, 23rd December, 1891, No. 2844.

V. 51. Secondary Cancer of Liver with Haemorrhage. Primary Tumour in Stomach. (Prof. Coats.)

The primary tumour in the stomach consisted of a large fungating mass, which in some places overhung its base considerably and had mostly a brown colour. The stomach and duodenum contained about a quart of bloody fluid. Under the microscope the cancer in the stomach presents large irregular cells in an indefinite stroma, the cell groups having no particular arrangement.

The liver as a whole was much enlarged, the enlargement being due to the existence of nodules of various sizes, the largest being of the size of an apple. The nodules were generally of a dark red colour, as if from haemorrhage. When this red colour is not present they have a cream colour, and are soft. Under the microscope there is little else than blood in some of the nodules, only a small amount of tissue composed of large irregular cells. There were a few small tumours in the lungs.

The patient (a man aged 53) had complained for a year of severe pain and a lump over the stomach, also of vomiting after food. On one occasion he vomited a bowlful of blood. On admission he was very blanched in appearance, and he died suddenly.

In this case the tendency to haemorrhage in the tumour of the stomach was very remarkable. The greater part of the tumour had a brown colour from bleeding, and the patient died evidently from loss of blood. The haemorrhagic character of these tumours in the liver is interesting in this connection.

Path. Reports, 26th Dec., 1885, No. 1458.

V. 52. Secondary Cancer of Liver. Enormous Enlargement. Primary Lesion in Stomach. (Prof. M'Call Anderson.)

The preparation is the anterior border of an enormously enlarged liver, which weighed 7·5 kilos. It is the seat of an enormous number of comparatively small tumours, which, as seen on section, almost entirely replace the hepatic tissue. The lesion in the stomach was a comparatively small cancerous ulcer about 5·5 cm. in diameter, but there was outside the stomach and elsewhere great enlargement of the lymphatic glands. (See Series IV., No. 65.)

George C. (aged 47) was admitted with great enlargement of the liver, said to have been of three months' duration.

Path. Reports, 21st April, 1892, No. 2966.

V. 53. Cystic Cancer of Liver. Primary Cancer of Stomach. (Sir Wm. T. Gairdner and Prof. Macewen.)

The primary lesion in the stomach is in the form of a nearly circular ulcer measuring 5 cm. in diameter. It has a slightly raised edge, and whilst the general surface is ulcerated, there is a deeper penetration near the middle. This was in communication externally with a mass of partly solid and partly disintegrated tissue, which had formed a cavity. The lesion was on the posterior wall of the stomach, its lower edge being just at the lesser curvature and its nearest edge 12 cm. from the pylorus.

The liver presents large cavities which occupy and distend the right lobe. The largest is 12 cm. and the second 10 cm. in diameter. Besides these cyst-like cavities, there are three projecting tumours on the upper surface of right and one in the left lobe.

Microscopic examination showed the structure to be that of a cylinder-celled cancer.

John N. (aged 48) was affected with a tumour in the right hypochondrium. *Path. Reports*, 7th December, 1894, No. 3970.

V. 54. Drawing of Cancerous Ulcer of Stomach. (From preceding case.)

V. 55. Drawing of Cancer of Liver. (From preceding case.)

V. 56. Secondary Cancer of the Liver. Primary Tumour in Rectum. (Dr. Jas. Finlayson.)

Only the lower half of the organ is preserved. As is seen upon its cut surface, the liver tissue is almost entirely destroyed, being obliterated by the enlargement of the cancerous nodules, with which it is abundantly studded. The nodules vary in size from that of a bean to that of a cricket ball, being separated in some places by only the merest trace of liver tissue. Some of them show a tendency to break down in their central parts, and this is well seen in the great excavation which has taken place in the largest nodule. The masses are also well seen projecting through the peritoneal coat, some of them presenting the characteristic dimpling or umbilication of their surfaces. The liver was very greatly enlarged, "almost filling the abdomen," and weighing 7·5 kilos. The primary tumour was found to be a cylinder-celled cancer of the rectum, situated

about 15 cm. from the anus. The tissue around this tumour was much matted, and in the midst of it two large glands were found, which presented, under the microscope, cylinder-celled tissue of characteristic appearance.

The patient was a woman aged 40. During life there seemed to be no suspicion of the tumour in the rectum, but there was a large swelling in the hepatic region which was growing rapidly. She had only been complaining for about six months, and definite symptoms only came on about four months before death.

Path. Reports, 14th June, 1881, No. 676.

V. 57. Secondary Cancer of Diaphragm and Liver. Primary Tumour in Stomach. (Sir Wm. T. Gairdner.)

The parts preserved are a slice of diaphragm and liver, with the attachments where the liver is free of peritoneum. The case was one of cancer of the stomach with extension to the peritoneum. The peritoneal surface of the diaphragm was specially involved, as shown in preparation, and there has been an extension, apparently from without inwards, from the diaphragm into the liver, so that continuous with the diaphragmatic cancer there is a cancerous mass in the liver extending to a depth of 5 cm. This cancerous mass has evidently grown from a number of centres, and there are many smaller tumours grouped around it in the liver parenchyma. There were many other tumours in the liver, two of considerable size, one connected with the suspensory ligament, but most of them small and not distributed with any degree of regularity. There were cancerous tumours also in the pleura and lymphatic glands, and there was extensive thrombosis of the veins of the legs and inferior cava.

John J. (aged 40) presented the usual symptoms of stomach disease along with, latterly, pain and swelling of the legs. There was no ascites. *Path. Reports*, 11th Nov., 1892, No. 3177.

V. 58. Pieces of the Liver of an Ox Affected with Distoma Hepaticum. (Dr. G. T. Beatson.)

The hepatic ducts throughout are the seat of very striking changes, namely, great distension with débris, which in many cases has a cretaceous character, and in which are the remains of flukes, many of them also cretaceous, also great thickening of the wall by connective

tissue. These two conditions together produce the effect that the ducts are frequently almost impassable. In addition, throughout the hepatic tissue, the smaller ducts are surrounded and in many cases narrowed by new formed connective tissue so as to produce an approach to cirrhosis.

V. 59. Liver of Ox Affected with Distoma Hepaticum. (See preceding preparation.)

V. 60. Distoma Hepaticum or Liver Fluke, from an Ox.

The worms measure from 3 cm. to 3·5 cm. in length, and about 1·2 cm. in breadth.

V. 61. Liver of Sheep Affected with Distoma Hepaticum. (Dr. G. T. Beatson.)

Throughout the liver the hepatic ducts are greatly dilated, the dilatations frequently assuming a partially sacculated character. Many flukes were found in the ducts, sometimes isolated, sometimes in groups, and there was also occasionally a considerable mass of brown débris. Beyond the dilatation the ducts are not appreciably altered, their walls not being considerably thickened, while there is none of the cretaceous deposition met with in the preceding specimens from the ox.

V. 62. Hydatid Cyst of Liver. (Prof. Gemmell.)

The preparation shows what was an extinct lesion, the parasite having been probably a long time dead. The right lobe of the liver is almost replaced by a large cavity, generally rounded in form and measuring 14 cm. in diameter. It projects from the upper surface of the liver, and extended to the lower margin of the portal region. The cyst wall as shown, is composed of dense fibrous tissue having in general a thickness of about 3 mm. The relation of the portal structures to the cyst showed that they had been considerably pressed on; the hepatic duct passed along the wall of the cyst for 6 cm. The portal vein was in contact with the cyst at its entrance

into the liver. The left lobe of the liver was considerably enlarged, chiefly in the form of a bulging downwards (partly shown in preparation). The Spigelian lobe was also increased in size and more isolated than normal. The contents of the cyst were a turbid yellowish-brown matter containing glistening scales. There were considerable pieces of a substantial but somewhat friable membrane, parts of which are preserved. The membrane was smooth on one surface and on the other or inner surface presented numerous small round elevations. Microscopical examination showed the membrane to be stratified, and the round projections to be capsules containing heads mostly calcified. The capsules were evidently shrunken, and in some cases were partly embedded in the membrane.

James W. (aged 31), a hair-dresser, suffered chiefly from ascitic accumulation in the abdomen, and oedema of the legs and feet. The abdomen was repeatedly tapped, but the fluid reaccumulated rapidly after the paracentesis. A hard irregular mass was felt projecting from the right costal arch, but its nature was not made out. Latterly vomiting and diarrhoea developed.

Path. Reports, 19th November, 1894, No. 3940.

V. 63. Echinococcus Cysts in Liver.

The remains of three hydatid cysts were present, all of them dead, but presenting various degrees of alteration. One is a large cyst 14 cm. in diameter seated in the upper and posterior part of right lobe and projecting against the diaphragm. The cyst-wall is composed of dense connective tissue, which over the greater part of its extent forms the only covering, being here free of hepatic tissue. Below, however, the cyst has a similar membrane separating it from the hepatic tissue. The contents of the cyst were 12-14 oz. of a bright yellow fluid, containing abundant cholesterine crystals. Numerous pieces of membrane floated in this fluid. The second cyst is entirely condensed. It was situated at anterior border of left lobe and measured 3 cm. in diameter. It has a dense connective-tissue wall, while within pieces of membrane and calcareous matter are visible. The third cyst is about 1·2 cm. in diameter, and consists of a dense calcified capsule and of solid contents in which pieces of membrane can still be seen.

Margaret C. (aet. 62) was affected with gangrene of foot. The existence of hydatids was not suspected during life.

Path. Reports, 1st March, 1888, No. 1849.

V. 64. Collapsed and Obsolete Echinococcus Cyst of Liver (Dr. Finlayson.)

At the anterior border of the left lobe projects an oval cyst (seen in section) measuring 3 cm. by 2 cm. It has dense walls and contains a pultaceous matter with laminated membrane. Under the microscope the membrane is seen to be stratified in the manner characteristic of the echinococcus membrane, and hooklets of this parasite are discovered.

Mrs. M'L. (aged 44) died in consequence of mitral stenosis. There was no history obtained which referred to the hydatid of liver. *Path. Reports*, 8th February, 1886, No. 1484.

V. 65. Adhesion of Gall-Bladder to Pyloric Region of Stomach, with Partial Dislocation. (Sir Wm. T. Gairdner.)

At the post-mortem the pyloric end of the stomach was found to pass up towards the region of the gall-bladder, where it was slightly adherent. The gall-bladder was absent from this part of the liver, but it was found greatly contracted and very firmly adherent to the stomach. In the preparation it is shown in this position, and the ducts are also shown dissected out.

The patient, a man (aet. 40), died of very acute pneumonia; and the clinical facts had no reference to the pathological conditions shown in the preparation.

In this case there was great deformity of the hands and feet, of which casts are preserved.

See *Path. Reports*, 11th April, 1883, No. 968.

V. 66. Large Cyst, probably of Congenital Origin, Replacing Hepatic Duct and Portion of Cystic and Common Bile Duct, and Communicating with Cavity of Lesser Omentum. (Dr. Tennent.)

The cyst displayed lies immediately below the liver, pushing up into its concavity. It measures about 18 cm. in diameter. It consists of a dense fibrous coat, the internal surface of which is in some places smooth and in some places irregular and brownish in colour. This cyst has superiorly four well-marked and wide apertures. The uppermost of these, which is an oval aperture about 1 cm. in diameter, is the opening of the cystic duct, which from this point upwards to the

bladder is correspondingly dilated. The other three apertures are below this, and they are somewhat crescentic in form, with a valved arrangement. These apertures are wide and communicate with dilated ducts in the liver, as is shown by pieces of whalebone inserted. At the lower part of the cyst a small crescentic aperture was discovered, and this was found to communicate with a duct which, after considerable trouble, was traced as common bile-duct to the papilla in the duodenum. Traced from the papilla, as shown by a silver wire in the preparation, the duct passes upwards and then makes a sudden bend in the wall of the cyst to the right, forwards and downwards, forming an acute angle so as almost to double on itself. The contents of the cyst were a deep brown but nearly clear fluid, which gave the reaction of bile pigments.

Besides this cyst there was a very large cavity which represented the lesser cavity of the omentum greatly distended. Part of its wall is preserved. It lay chiefly between the stomach and transverse colon, but also behind the former. Its wall, as shown in preparation, was partly formed by the posterior wall of the stomach, which was greatly stretched over it, with flattening of the organ as a whole. The pancreas in its middle portion was exposed on the internal surface of the wall inferiorly, and the pancreatic duct was considerably dilated in the tail portion of the organ. The large cyst had an irregular internal surface, and it was occupied by a turbid, partly feculent, biliary fluid. No communication with the primary cyst was discovered, but the repeated tapping (twenty-three times) and the resulting inflammation had probably altered the conditions. The general cavity of the peritoneum contained a brownish fluid, and the peritoneal surface of the liver and other parts showed a shaggy deposit of bile-stained fibrin. The liver tissue itself shows an extreme degree of greenish coloration from biliary infiltration.

Agnes S. (aged 16) was affected with swelling of the abdomen for 12 months and with jaundice for 9 months. There was considerable pain of a dull character in the region of the liver. On tapping, a bile-stained fluid was obtained, which was carefully examined for hooklets, but without result. There were subsequent tappings to the number of twenty-three during the subsequent three months, and the amount of fluid withdrawn was 1224 ounces. The fluid was bile-stained and highly albuminous. In the last tapping the intestine seems to have been injured.

Path. Reports, 3rd March, 1897, No. 4967.

V. 67. Narrowing of Cystic Duct; Enlargement of Hepatic Ducts, probably Compensatory.

The gall-bladder, which is slightly dilated, contained a pale mucus unstained with bile. There were also a number of small black concretions in it, and four very irregular black calculi about the size of peas. The cystic duct was apparently obstructed by valving of its distal aperture. The common duct is dilated, and it was obstructed by a calculus of about the size of a cherry. This seemed to act as a kind of ball-valve about 6 cm. from the orifice. The main hepatic ducts at the porta of the liver are greatly dilated so as to form, as shown in preparation, an almost cyst-like pouch. In it and in the larger branches of the duct a number of small calculi were found.

Thos. B. (aged 58) died in consequence of injuries to the leg, which necessitated amputation. There was no note of jaundice.

Path. Reports, 28th March, 1891, No. 2619.

V. 68. Cancer of Terminal Part of Common Bile Duct. Distension of Ducts and Gall-Bladder. Rupture of Gall-Bladder. (Dr. Finlayson.)

The preparation shows the ductus communis laid open. Its terminal portion, to the extent of 2·5 cm. is occupied in its whole circumference by an infiltrating tumour with irregular papillary surface. The tumour has an abrupt termination at both ends, stopping short at the duodenum on one hand and forming a defined prominent margin on the other. Before being laid open, it appeared as a cylindrical swelling of the papilla, and a probe could be passed through the orifice. Under the microscope, the tissue shows abundant cylindrical epithelium, with alveolar spaces in the deeper layers. The common duct, hepatic and cystic, are greatly dilated, and the gall-bladder is also dilated. On laying open the latter, a small oval aperture with smooth rounded edges was found near the fundus, and a probe inserted here issued in the midst of adhesions implicating the great omentum, which was drawn up and considerably attached along the left border of the gall-bladder. There was a great quantity of deeply bile-stained fluid in the peritoneal cavity and shaggy masses of fibrinous material in considerable abundance. The liver showed extreme biliary infiltration, and was greatly enlarged.

James B. traced his illness 10 months back. Symptoms: loss of appetite, vomiting, jaundice, which began soon after onset, and latterly

was very extreme: evidences of enlargement of liver and gall-bladder. Acute symptoms developed one week before death.

Path. Reports, 14th January, 1890, No. 2259.

V. 69. 200 Gall-Stones removed from the Gall-Bladder.

They are about the size of peas, and are facetted. In colour they are brown. They do not appear to have led to any prominent symptoms during life.

V. 70. Gall-Bladder with Gall-Stones.

The bladder was found collapsed on three gall-stones, which are shown in preparation by removing part of the wall of the bladder.

V. 71. Gall-Bladder full of Facetted Gall-Stones.

V. 72. Facetted Gall-Stones with Pointed Projections.

V. 73. Solitary Gall-Stone.

It is oval in shape, and apparently free from pigment. The surface is rough, and shows the usual glistening appearance of cholesterine.

V. 74. Two Examples of Solitary Gall-Stones.

One is preserved entire, and the other has been broken so as to show the internal structure. The former is of an oval shape, transparent, and nearly colourless. It is very light in weight, and composed almost entirely of cholesterine. The other is also oval in shape, but though composed mainly of cholesterine, it presents a certain amount of bile pigment. In section the radiating arrangement of the cholesterine is well shown. These calculi were found in the gall-bladders of two different persons after death, and had given rise to no symptoms so far as known.

V. 75. Small Gall-Stones composed of Pigment.

These are irregularly nodulated calculi of a black colour. The surface presents rounded tubercles and the stones are irregular in shape. They consist almost entirely of bile-pigment.

V. 76. Dilatation of Ducts and Gall-Bladder from Impaction of Calculus at Orifice of Ductus Communis. (Sir Wm. T. Gairdner.)

The preparation shows the upper part of the ductus communis, cystic duct, gall-bladder, and first part of hepatic duct. These are all considerably distended, and the convolutions of the cystic duct are somewhat opened out. This was the effect of a gall-stone which was found presenting in the duodenum at the orifice of the ductus communis. There were numerous facetted gall-stones in the gall-bladder, some of which are attached to the preparation. In addition the mitral and aortic valves were considerably thickened and distorted.

Mrs. G. (aet. 46) presented symptoms of cardiac insufficiency, but also symptoms referred to the region of the stomach and characterised by severe pain at times. A striking peculiarity is that no jaundice seems to have existed. See paper in *Lancet*, 6th June, 1885.

Path. Reports, 25th May, 1885, No. 1369.

V. 77. Dilatation of Gall-Bladder from Obstruction of Duct by a Gall-Stone. (Dr. Jas. Finlayson.)

The gall-bladder is distended into a pear-shaped cyst, which, at the time of the post-mortem, extended as far as the umbilicus, projecting from the liver. The contents of the cyst were a thin clear mucus, with a trace of biliary colouring. The gall duct is completely occluded about an inch beyond the neck of the bladder by a rather large gall-stone, whose surface is grey on its aspect next the bladder and brown from biliary staining on the aspect distal to the bladder. There is great distension of the duct from the neck of the bladder to the gall-stone, but beyond the gall-stone the duct is of normal calibre.

The patient, a woman 30 years old, took ill two or three months before death with vomiting and purging, the contents of both stomach and bowel being bloody. There was a swelling in the region of the liver. No distinct jaundice; face being pale and only slightly yellow. *Path. Reports*, 2nd June, 1882, No. 825.

V. 78. Gall-Stone Obstructing Orifice of Common Bile Duct. Absence of Gall-Bladder. (Dr. Lawrence Waddell.)

The gall-stone is a facetted one, and one of its edges projects through the orifice, the body of the stone occluding the duct. The

common bile duct is widely dilated, forming a tube of uniform diameter from the duodenum to the transverse fissure of the liver, where it entered the substance of the liver and divided into two branches. Lying loosely in the dilated duct were four small facetted stones. Another facetted stone was discovered, by inserting the finger into the dilated duct, deep in the liver tissue. No gall-bladder was discovered, and in its usual situation only a small quantity of white fibrous tissue. The liver was deeply fissured in various parts, and its tissue friable.

The case was that of a woman, aged 45, a patient in Abergavenny Asylum, Monmouthshire, suffering from chronic mania. Bodily condition rather flabby, but no history of jaundice. On night of 25th October, 1878, was suddenly seized with retching, and a frequent desire to go to stool. This continued up till her death next day at 8.30 p.m. During all this time there was no jaundice and no pain in the hepatic region, other than slight tenderness on pressure in epigastrium. She had been in her usual health up till seizure, only complaining occasionally of indigestion. No jaundice was observed during life, but at the post-mortem a slight degree was visible.

V. 79. Gall-Stone passed per Anum, which had Obstructed the Intestine. (Dr. Edwin Brownlow.)

The preparation is a large oval calculus, 3 cm. in long diameter. There is an external amorphous crust forming an irregular rind in some parts 6 mm. in thickness. The calculus shows on section the usual glistering appearance and radiating arrangement of the solitary cholesterine gall-stone.

Dr. Brownlow, in sending the calculus, thus describes the case—"The patient is a Catholic priest, aged 74, who has always enjoyed good health except when the liver bothered him. About eighteen months ago he was suffering from a good deal of pain and discomfort over the hepatic region and right shoulder, and was jaundiced for three or four days. He was afterwards much better, and even at that time did not appear to suffer from biliary colic. In the present illness he suffered from constipation, with slight pain and a little flatulent distension of the abdomen. An enema brought away hardened faeces, but the abdomen remained hard and distended, and the pain unbearable. Afterwards he passed another little mass

of faeces similar to the first, which gave great relief. Two hours later, after a full dose of ether and camphor, he passed a great deal of watery discharge with the calculus sent. A large amount of flatus followed, and there was immediate relief."

V. 80. Cyst of Head of Pancreas.

The cyst is unilocular and measures about 10 cm. in diameter. Its internal surface is wrinkled and presents opaque patches as of degeneration. The duodenum lies to its left, and was considerably stretched over it. The stomach is adherent in front and below. A portion of the head of the pancreas remains at its upper border, and the tail of the pancreas, considerably atrophied and occupied by fat, is attached on the right.

The cyst was found in the body of a man who died after an accident, but who was found to be affected with acute Bright's disease. *Path. Reports*, 23rd October, 1885, No. 1427.

V. 81. Cancer of Head of Pancreas. Obstruction of the Pancreatic and Common Bile Ducts, etc. (Sir Wm. T. Gairdner.)

The head of the pancreas is the seat of a scirrhous cancer of an almost cartilaginous consistence, which involves the terminations of the pancreatic duct and the ductus communis. The preparation shows an enormous dilatation of the pancreatic duct in the substance of the gland, and this cyst-like dilatation contained a glairy colourless fluid. The ductus communis, cystic duct, gall-bladder, hepatic duct and its branches in the liver, are all enormously distended. In the liver there were, especially near the surface, frequent small cysts filled with dark bile. There were also a few secondary cancerous tumours, one as large as a small apple and deeply umbilicated. In the preparation a portion of the liver is preserved, showing the biliary cysts and one of the secondary tumours.

The patient, a woman (aet. 66), was admitted only three days before death, in a condition of extreme debility and emaciation, and with jaundice of five months' duration.

Path. Reports, 20th November, 1877, No. 262.

V. 82. Cancer of Head of Pancreas. Extension to Mesenteric Glands. Thrombosis of Vena Portae. Distension of Lacteals. Oedema of Jejunum. (Sir W. T. Gairdner.)

At the upper part of the preparation the pancreas is displayed, its tail portion free but its head and a considerable portion of the body involved in a bulky tumour mass measuring about 15 cm. in diameter. An incision into the pancreas shows the head to be replaced by somewhat dense tissue, which, towards the left, borders on the normal pancreatic tissue. The bulk of the tumour mass is beneath the pancreas, and it was adherent to the transverse colon and occupied chiefly the mesentery of the first part of the small intestine. The tumour has a somewhat lobulated appearance as if made up of enlarged glands. It is generally much softer than the pancreatic portion, and in some places there are cavities containing pultaceous matter sometimes with blood colour. The portal vein cannot be traced beyond its position behind the pancreas, when it becomes adherent and lost in the tumour, its lumen becoming immediately obstructed by thrombus. The splenic vein is pervious till close to the portal, but its orifice is obstructed by the thrombus in the latter. On cutting into the tumour two veins completely filled with brown thrombus are met with, then immediately beneath these a vein filled with whitish tumour mass, also in one or two other places what appear to be the outlines of veins. The first few loops of the jejunum are greatly enlarged, and on opening it the wall is seen to be thickened and the valvulae conniventes much exaggerated by oedematous swelling. The serous surface shows numerous distended lacteals filled with yellow matter, and the surface is also studded with numerous rounded granules which have apparently arisen by rupture of lacteals, as they are occasionally visible in rows in connection with a distended lacteal. Beneath the first part of the jejunum the small intestine is normal. There was a large quantity of turbid fluid in the peritoneal cavity.

The case was that of a man, aet. 52 years, who complained of diarrhoea and painful swelling in abdomen. The former had existed for four or five months, and the latter had been noted two or three months before death; pain, at first referred to lumbar region, occurring perhaps still earlier. He gradually emaciated up to the time of death.

Microscopically, the tumour presents a typical stroma with large epithelial cells in its meshes.

Path. Reports, 12th March, 1886, No. 1504.

V. 83. Salivary Calculus. (Dr. J. G. Lyon.)

Removed from a cyst beneath the tongue of a man aged 39. The cyst and calculus were first noticed three years before. (Ward X, 20th September, 1880.)

V. 84. Salivary Calculus. (Removed by Dr. Beatson.)

The calculus is the shape of a spindle, 2 cm. in length and 5 cm. in greatest breadth ; it has a light yellow colour.

V. 85. Salivary Calculus. (Dr. Richard Macpherson.)

(See account by Dr. Middleton in *Clin. and Path. Soc. Trans.*, 11th October, 1886.)

V. 86. Myxo-adenomata from Neighbourhood of Parotid. (Dr. A. Patterson.)

One tumour is of about the size and shape of a turkey's egg, but its surface is highly nodulated. On section in the fresh state a clear transparent tissue was visible, with intersections of a more opaque appearance. Under the microscope the transparent tissue had the usual clear matrix and variously-shaped cells of a myxoma. In the more opaque part there are masses of cells often suggesting glandular tissue in their arrangement. The tumour was of slow growth, and had its seat over the parotid gland, where it formed a very prominent growth.

The other tumour is of nearly the same size and shape, and is from the same situation. Its structure is more complex, consisting of cartilage, glandular tissue, and fibrous tissue.

Path. Reports, 3rd August, 1878, No. 354.

V. 87. Myxoma of Parotid Gland. (Dr. A. Patterson.)

The tumour (which has shrivelled considerably) formed originally a mass as large as the two closed fists, and weighing $14\frac{1}{2}$ oz. It is irregularly lobulated, and the lobules present smaller rounded projections. The tumour, viewed from the surface, presented a distinct grey transparency, which was still more marked on section, but more so towards the surface than deeper. In the central parts there were several cysts containing a gelatinous fluid.

Under the microscope the structure is that of a very cellular myxoma, the central parts being more cellular than the superficial.

The tumour was six years in growing, and was freely movable.

Path. Reports, 31st January, 1879, No. 418.

V. 88. Gigantic Myxo-sarcoma of Parotid. (Dr. A. Patterson.)

The tumour is of an irregularly globular shape, the surface presenting larger and smaller rounded prominences. A large piece of thin skin has been removed with, and still covers a part of, the tumour. The diameter of the tumour is generally about 15 cm. and its weight 3 kilos. On being cut through, the tumour is seen to be mainly composed of a soft fleshy tissue, partly transparent and gelatinous in appearance and partly opaque; it has a central cavity filled with a gelatinous coagulum. The gelatinous portion, which is apparently the more recent part of the tumour, has the characters of the myxoma; the opaque parts forming the bulk of the tumour are abundantly cellular, the cells being generally elongated.

The tumour was removed from a woman 55 years of age; it had commenced 26 years before, had never caused any pain, and was quite freely movable; its circumference at the base was 52 cm.

Path. Reports, 27th February, 1879, No. 429.

V. 89. Myxo-sarcoma of Parotid. (Sir Hector C. Cameron.)

The tumour in general size and shape resembles a hen's egg; mostly smooth, but with here and there one or two nodular projections. In section it is seen to be almost wholly solid, but one cyst about the size of a hazel nut is seen in the right half. In the recent state the body of the tumour was composed of a substance like oedematous adipose tissue. The cysts also, which are numerous, contained viscid blood-stained material.

The patient was a farmer who had had the tumour, situated just below and behind the ear, for about twenty years. At first it was quite small, and only recently had grown to its present size.

Path. Reports, 10th Oct., 1885, No. 1422.

V. 90. Myxo-sarcoma of Parotid. (Dr. A. Patterson.)

The specimen consists of one half of the original tumour. At the lower part of the growth a piece of skin is seen attached. The tumour

is much lobulated and mostly encapsuled. On section its surface presents in parts a very broken-down, shaggy appearance, which at the lower part is dark in colour.

The tumour was removed from a man aged 60 years. Upwards of twenty years ago the swelling first made its appearance in the form of a kernel or nut below the lobe of the left ear. For many years its growth was very slow; latterly, however, its increase was very rapid. On removal the tumour was found to weigh 1 lb. 5 oz. Microscopically it showed the characters of myxo-sarcoma.

Journal of Ward XIV., 2nd July, 1887.

V. 91. Myxo-sarcoma of Parotid. (Sir Hector C. Cameron.)

The tumour, which is shown in section, is of flattened oval shape, and measures 8 by 5·5 by 4 cm. It is distinctly encapsuled. There is a firm fibrous centre from which strands radiate out dividing the tumour into lobules. The tumour tissue itself has a translucent, somewhat gelatinous appearance, and at one end there is haemorrhage. Under the microscope the mucin reaction was well marked, and there were abundant polymorphous cells, which showed at places an apparent glandular arrangement.

The tumour was removed from the right parotid region, the centre being over the angle of the lower jaw, in which situation it began, and was stated to be of six years' duration. It was almost fluctuant and freely movable under the skin.

Path. Reports, 30th June, 1896, No. 4690.

V. 92. Cyst of Parotid with Papillary Ingrowth. (Dr. Geo. Buchanan.)

The cyst, of which half is preserved, is in the form of a flattened sphere, 5 cm. in diameter. It has a thin translucent wall, except over an area about 2 cm. in diameter, where a warty-looking tissue projects into the cavity. The contents of the tumour were a brownish, friable, crumbly mass, which on microscopical examination was found to consist of granular and fatty débris with cholesterine crystals and numerous compound granular corpuscles.

Under the microscope the warty surface presents dendritic papillary projections containing a small vessel and covered with somewhat flat epithelium.

Helen D. (aged 48) discovered about two years before the operation a swelling about the size of a pea. It gradually increased in size to the dimensions shown. It was situated in the parotid region, reaching as high as the maxillary articulation and passing behind the lobule of the ear. It was painless, elastic, and freely movable. It was removed with slight dissection, being superficial to the gland.

Path. Reports, 28th February, 1896, No. 4503.

SERIES VI.

SPLEEN, LYMPHATIC GLANDS, THYROID, AND SUPRARENALS.

VI. 1. Spleen Showing Marked Lobulation of Anterior Margin.

VI. 2. Supernumerary Spleens.

The tissue from the neighbourhood of the spleen is preserved, showing two supernumerary spleens, one of the size of a pea and the other of a small hazel nut.

VI. 3. Movable and Enlarged Spleen. (Dr. Hawthorne.)

The spleen, which is much enlarged and which weighed 340 grms., was found considerably displaced downwards and to the right. Its upper border corresponded to the 10th rib and its lower border to the brim of the true pelvis. It passed in front of the descending colon. The omentum of the spleen was much elongated, so that it measured from above downwards about 9 cm. This elongated omentum allowed of considerable alteration in position of the spleen.

Mrs. M'K. (aged 41) referred her illness to a violent blow on the left back about six months before death. About three months afterwards she discovered a lump in the abdomen. The tumour was easily detectable, and moved backwards and forwards according as she lay on her back or her right side. She developed the symptoms of pernicious anaemia, and the post-mortem examination showed in general the appearances of that disease.

Path. Reports, 2nd August, 1894, No. 3814.

VI. 4. Rupture of the Spleen. (Prof. Geo. Buchanan.)

The rupture is a small one, 2 cm. in length, situated externally at the lower extremity of the spleen. There was considerable sub-peritoneal haemorrhage in its neighbourhood, and, in addition, a double fracture of the pelvis.

The patient, a servant girl, fell down four stories, and only survived a few hours. There were no external marks of injury whatever. *Path. Reports*, 19th February, 1876, No. 74.

VI. 5. Two Amyloid Spleens (Sago Spleen).

In these two spleens, the structures affected are the Malpighian bodies, which are enlarged and transparent, so that they appear on the cut surface as rounded clear areas like grains of boiled sago. They were removed from a case of psoas abscess, and a case of phthisis pulmonalis. In connection with one a small supernumerary spleen is shown, also highly amyloid.

VI. 6. Diffuse Amyloid Degeneration of the Spleen (Lardaceous Spleen). (Sir Wm. T. Gairdner.)

A slice of the spleen is shown, and it can be seen that the organ was very greatly enlarged. It weighed 600 grms. The amyloid disease was not confined to the Malpighian bodies, but affected even more the splenic pulp. The case was one of syphilitic disease of the liver and parenchymatous nephritis. Amyloid disease was present in the liver and kidneys.

Path. Reports, 12th November, 1880, No. 588.

VI. 7. Diffuse Amyloid Disease of Spleen. (Sir Geo. H. B. Macleod and Sir Wm. T. Gairdner.)

Half of the spleen is preserved, chiefly to show the altered anterior margin. The spleen as a whole was greatly enlarged, weighing 2 lbs. It has a rounded plump appearance, and the anterior margin shows several fissures with rounded bulging prominences between. The anterior edge as a whole is also rounded. The substance of the organ is dense and highly waxy in appearance; the Malpighian bodies appear as white areas on section.

The case was one of necrosis of the left iliac bone with prolonged

discharge. The left kidney was converted into a sac filled with pultaceous matter. There was amyloid disease of the other kidney, and to a very slight extent of the liver also.

Path. Reports, 3rd December, 1886, No. 1633.

VI. 8. Diffuse Amyloid Degeneration of the Spleen. (Dr. Jas. Finlayson.)

The spleen was considerably enlarged, weighing 10 oz.: it was firm, and felt like an amyloid spleen, but did not present the sago character. On examination it was found that amyloid degeneration was present, in a very high degree, in the pulp.

The case was that of a man, aged 33, affected with aortic valvular disease, with dropsy and albuminuria. There was found *post-mortem* evidence of old disease at the apices of both lungs, in the form of great contraction, with pultaceous matter in the midst of the contracted tissue, but no active disease. The organs generally were amyloid; liver, kidneys, and intestine very much so. A perforating ulcer of the duodenum was also found.

Path. Reports, 21st April, 1879, No. 437.

VI. 9. Embolic Infarction of the Spleen.

The infarction is of a yellow colour, and occupies the upper extremity of the organ. It measures 4·5 cm. vertically and 7·5 cm. transversely, having a general wedge-shaped outline. A small infarction of a similar character was present near the lower extremity of the spleen, a portion of which is shown in the preparation. The organ as a whole was greatly enlarged, measuring about 17 cm. in length, and weighing 750 grms.

VI. 10. Embolic Infarctions of Spleen; Great Enlargement. (Dr. Tennent.)

The spleen is traversed by a pale infarction measuring from 2 to 3 cm. in diameter, and extending through the entire thickness of the portion of organ preserved. There is also a small infarction at the upper extremity. The organ as a whole was greatly enlarged, measuring 18 cm. from above downwards, and weighed about 700 grms. The case was one of disease of the mitral and aortic valves, with large vegetations.

Path. Reports, 22nd November, 1886, No. 1624.

VI. 11. Embolic Infarctions of Spleen. (Sir Wm. T. Gairdner.)

A slice of the spleen is shown from the same case as II. 95. The evidences of three infarctions are visible, one old, represented chiefly by a deep cicatrix; one more recent, with a cicatrix partially separating it—these two being at either end; and a third large one in the middle without any evidence of encapsuling.

VI. 12. Embolic Infarction of Spleen. (Sir Wm. T. Gairdner.)

A yellow wedge-shaped infarction is shown. The source of embolism was an acute endocarditis with prominent warty outgrowths on the aortic and mitral valves. There was also embolic infarction of the kidneys. In addition, acute endocarditis of the pulmonary valve with prominent vegetations, and embolism of the pulmonary artery were present.

Patient was a married woman aet. 40. Besides the symptoms, which may have been the result of the lesions above described, there was left hemiplegia, and mental disturbance, due to atrophy of cerebral convolutions with cortical softenings. Death was apparently due to this cause.

Path. Reports, 7th December, 1882, No. 885.

VI. 13. Large Cyst-like Cavity in Spleen from Necrosis of Tissue due to Embolism. (Dr. Scobie, Belvidere.)

The preparation shows a large cavity measuring 19 cm. vertically and 14 cm. transversely. The diaphragm has been distended over and remains adherent to one-half of the preparation. As shown in section the spleen is, as it were, distributed over the surface of the preparation, and the remains of splenic tissue have the characters of the sago form of amyloid spleen. In the portion under the diaphragm there are two infarctions of the ordinary character. The section shows inside the cavity considerable masses of necrosed tissue, and this on section is obviously splenic tissue, the amyloid areas being still to some extent distinguishable. The necrosis passes with an irregular margin into the remaining unaffected splenic tissue. The necrosed tissue is in part disintegrated, and in some places in process of separation from the walls of the cavity. It is frequently coated with an orange-coloured deposit, in which

stellate and rhombic crystals of haematoidin are present. A great portion of the cavity is free of splenic tissue, and the wall is there formed of a firm membrane which is continuous with the splenic capsule. The cavity contained a reddish pus-like fluid which presented numerous cells in a state of fatty degeneration. Acetic acid did not reveal the partite nucleus of the pus corpuscle. The main splenic artery divides into two large branches, each of which about 12 mm. from the bifurcation is occupied by a firm adherent plug, which is pale or brownish in colour. Microscopical examination of one of these plugs shows decolorised coagulum with some deposited pigment and considerable penetration of the material with highly cellular connective tissue and occasional blood-vessels. The plug is thus of considerable duration. Otherwise the case was one of aortic and mitral endocarditis, with extensive thrombosis and a valvular aneurism. There were multiple infarctions of the kidneys. Death occurred from cerebral softening, the result of embolism.

The patient was a girl, aged 22.

Path. Reports, 6th April, 1898, No. 5405.

VI. 14. Spleen, with Tumours from Leukaemia. (Dr. Tennent.)

A slice of the spleen is kept. There is here, as is usual in leukaemia, great enlargement of this organ, which weighed 1 kilogram, but there is the difference here that the enlargement is mainly due to the presence of rounded tumour-like masses, measuring sometimes as much as 2·5 cm. in diameter. There were also rounded tumours in the kidneys, and a tumour-like infiltration of the liver. The lymphatic glands in several situations were greatly involved, and formed in many instances massive tumours. In all the situations the tumours were white and rather tough. The bone-marrow was altered to a yellowish or reddish tissue and was highly cellular.

Bernard D. (aged 23) complained of general weakness, difficulty of breathing, and loss of appetite, of nearly two years' duration. The blood presented an excess of leucocytes, the proportion being one white to eight or ten red corpuscles.

Path. Reports, 6th December, 1886, No. 1635.

VI. 15. Part of Femur from case of Leukaemia. (Dr. Jas. Finlayson.)

The parts preserved in this and the following two preparations are the heart and the pericardium, femur, and part of intestine.

In this case there was a moderate enlargement of the spleen, which weighed 450 grms., and there was also considerable enlargement of the lymphatic glands in the abdomen, axilla, and groin. The glands in the neck were also enlarged, and one of them which had suppurated had been opened.

The more remarkable conditions were as follows: The medulla of the femur, and presumably of other bones, was converted into a dark red tissue, found on microscopical examination to be composed of red cells, to the almost complete exclusion of fat. The root of the lungs, as shown in next preparation, is occupied by a massive tumour, which surrounds the bronchi and great vessels, and is continuous with a tumour which occupies the upper part of the pericardium. Both visceral and parietal layers of pericardium are enormously thickened at the basal parts, and, in fact, converted into a mass of soft pale tissue. The kidneys were the seat of numerous pale tumours, the right weighing 312 grms. The liver was much enlarged, weighing 2268 grms., and the tissue pale, but without any definite tumours. In the intestine, as shown in VI. 17, there was a general enlargement of the Peyer's patches and solitary follicles, the latter especially in the large intestine where the mucous membrane was dotted over with nodules as large as split peas. In all the tumours the tissue has essentially the same structure—viz., round cells, which are to some extent infiltrated among the normal tissues.

The patient was a man, aet. 25. In addition to the glandular swellings, there was great excess of white blood-corpuscles, and evidence of a mediastinal tumour. Latterly albuminuria, general dropsy, etc., occurred. Reported by Dr. Gowans in *Glasgow Medical Journal*, October, 1876. *Path. Reports*, 11th July, 1876, No. 114.

VI. 16. Heart and Pericardium in Leukaemia. (See preceding preparation.)

VI. 17. Intestine in Leukaemia. (See two preceding preparations.)

VI. 18. Enlargement of Spleen in Hodgkin's Disease. (Prof. Gemmell.)

The spleen, a portion of which is shown, was much enlarged, weighing 590 grms. The surface shows a number of rounded swellings which on section are seen not to be isolated tumours but localised infiltrations of the splenic tissue by a grey tissue. Microscopical examination shows this new tissue to be highly cellular in some parts, chiefly round cells with a few giant-cells, in other parts to have the form of spindle-celled tissue. The remaining splenic tissue is apparently atrophied, being represented chiefly by clumps of brown pigment not uniformly distributed, but as if masses of new-formed tissue had pushed aside the splenic tissue, forming it into septa between the tumour masses. For history see Ser. VI. No. 29.

Path. Reports, 4th June, 1894, No. 3727.

VI. 19. Greatly Enlarged Spleen, from a Case of Acute Peritonitis. (Prof. M'Call Anderson.)

The spleen, a slice of which has been kept, is greatly enlarged, weighing 1200 grms. and measuring 20 cm. from above downwards. Its tissue is firm. The liver was also greatly enlarged, weighing 2600 grms., and so were the kidneys, weighing 240 and 255 grms. respectively. The hepatic cells and renal epithelium presented a high degree of cloudy swelling. The peritoneal cavity contained a considerable amount of turbid fluid, but without fibrin. This fluid, examined a few hours after death, contained innumerable bacteria.

The case was that of a man, aged 61, a forgeman. He was admitted with general dropsy and ascites. Paracentesis abdominis was performed several times, and after the last tapping the temperature went up to 104° F., and the patient died in a few days.

Path. Reports, 8th May, 1879, No. 439.

VI. 20. Peri-Splenitis from Ascites.

This preparation is from the same case as Series V. No. 6, and shows a thickening of the capsule of the spleen similar to that of the liver, and affecting especially the convex surface. The organ itself is not enlarged, weighing 64 grms., and there is the merest trace of amyloid disease, only detected by microscopical examination. The peritoneum was thickened generally. In this case there was prolonged ascites, and the fluid was removed by paracentesis as often as nine times.

Path. Reports, 15th March, 1883, No. 956.

VI. 21. Chronic General Tuberculosis; Caseous Masses in Spleen. (Dr. Christie.)

A slice of spleen shows several yellow masses, some of them 6 mm. in diameter. There were similar large tubercular masses in kidneys, liver, lungs, diaphragm, etc. The primary tuberculosis was in the lymphatic glands of the neck. There was also tubercular meningitis.

John F. (aet. 20) presented the symptoms mainly of tubercular meningitis. *Path. Reports*, 3rd May, 1887, No. 1711.

VI. 22. Tubercular Masses in Spleen.

These masses are yellow in colour, and of various sizes, up to that of a small marble. They are scattered throughout the spleen, which is considerably enlarged, weighing 283·5 grms. There were also tubercular enlargement of the lymphatic glands, miliary tuberculosis of the lungs, liver, and kidneys, tubercular ulceration of the intestine, tubercular nodules in the brain, and tubercular meningitis. The patient was a negro. *Path. Reports*, 23rd April, 1880, No. 548.

VI. 23. Tuberculosis of Mesenteric Glands. (Tabes Mesenterica.)

A portion of intestine and mesentery of a child is shown. In the mesentery are numerous prominent and enlarged glands, one of which has been cut into.

VI. 24. Tuberculosis of Mesenteric Glands. (Sir Wm. T. Gairdner.)

Some of the glands are greatly enlarged; and many of them were found to be highly caseous. There was also tubercular peritonitis.

Path. Reports, 18th July, 1881, No. 696.

VI. 25. Masses of Enlarged Lymphatic Glands (Lymphadenoma) removed on two separate occasions. (Dr. A. Patterson.)

The masses consist of glands which retain their capsules, though to some extent mutually adherent. They present no trace of caseous metamorphosis, their tissue being of a generally grey colour, and closely resembling that of a normal lymphatic gland. Under the microscope the structure is also that of a lymphatic gland, except

that there is an occasional development of spindle-celled tissue. One of the glands has been converted into a putty-like mass, the capsule enclosing this mass.

Path. Reports, 14th August and 18th November, 1878, Nos. 357 and 389.

VI. 26. Malignant Lymphoma of Abdominal Glands. (Prof. Joseph Coats.)

The preparation shows the prevertebral glands, greatly enlarged and coalesced, so as to be converted into a mass measuring about 45 cm. from above downwards and 12 cm. from side to side. The mass is highly lobulated, indicating its origin from groups of glands, but for the most part these have coalesced. The glands of the opposite sides meet each other in front of and behind the aorta and vena cava, so that these vessels are buried in the middle part of the mass, but the glands have scarcely coalesced in the middle line, some movement being possible between the lateral halves. In addition to this mass there was a smaller but similar enlargement at the root of the right lung, and there were in the spleen a number of rounded tumours (see preparation after next). There was amyloid degeneration in spleen, kidneys, intestine, and liver.

During life the chief symptom was diarrhoea, which latterly was very persistent and became associated with dropsy. There were also cough with expectoration, and great emaciation.

Path. Reports, 1st December, 1885, No. 1451.

VI. 27. Malignant Lymphoma at Root of Lung. (See VI. 26.)

The root of the right lung is seen to present an elongated mass, measuring 9 cm. by 4·5 cm. and consisting of enlarged and coalesced glands. The mass is adherent to the main bronchus, and there are smaller masses behind the bronchus and impinging on the lung tissue, so that the bronchus is to some extent surrounded by enlarged glands.

VI. 28. Malignant Lymphoma Affecting Spleen: Amyloid Disease. (See VI. 26.)

A portion of the spleen is preserved, and it is seen that the surface presents a few rounded projections, the largest of about the size of a marble. On section these masses are found to replace

the splenic tissue, but without having definite boundaries. The spleen otherwise has the typical sago characters. Under the microscope it can be seen that the round-celled tissue, of which the new formation in the spleen as elsewhere is composed, has infiltrated certain areas, apparently from the arteries as centres. It is remarkable that while the arteries elsewhere are amyloid, they have recovered more or less in the infiltrated areas.

VI. 29. Hodgkin's Disease Involving Mediastinal Glands, Lung, Spleen, etc. (Prof. Gemmell.)

The preparation shows a portion of trachea near the lower end, surrounded by and embedded in a bulky mass of enlarged glands. The glands are for the most part individually distinguishable, and contain carbonaceous pigment. Their tissue is dense, sometimes almost fibrous, and there is no obvious caseation. The enlargement extended from the bifurcation up to the level of the suprasternal notch. The prevertebral glands were likewise greatly enlarged.

A portion of the right lung is also shown in section. Besides enlarged glands surrounding the main bronchus, there is an infiltration of the lung tissue, especially in the upper lobe. At the extremity of this infiltration there are two small cavities well defined and probably bronchiectatic. The spleen showed the usual infiltration of Hodgkin's disease (Series VI. No. 18).

Walter K. (aet. 26) dated his illness about five months back, but eleven months before he had a severe cough, profuse expectoration, and also breathlessness on exertion. Pain in the abdomen and swelling were first observed on admission six weeks before death. He was very anaemic, the fingers were clubbed, and the nails curved. Enlarged glands were noticed in the neck and a nodular induration in the left hypochondrium. *Path. Reports*, 4th June, 1894, No. 3727.

VI. 30. Lympho-Sarcoma of Mediastinum, Incorporating Portion of Lung, etc. (Dr. J. T. Moore.)

A bulky soft tumour occupied the left side of the chest, extending above the clavicle, and half-way down the thorax. A considerable portion of this tumour is preserved, and in section it is shown that the upper lobe of the lung is largely replaced by the tumour, its vessels and other structures being hardly distinguishable. The tumour surrounds the arch of the aorta, which is shown laid open at the bottom of the incision, and the great vessels spring from the

aorta in the midst of the tumour mass. The left innominate passes through the midst of the tumour, a piece of whale-bone in the preparation indicating the position of it in section, and this vessel is much narrowed. The lower part of the trachea, which is laid open from behind, shows the tumour tissue in its wall, presenting internally. There is also an extension to the right main bronchus, while the left is almost entirely replaced by tumour tissue which projects into it, and here and there completely replaces it. There were numerous isolated tumours in the subcutaneous tissue of the abdomen. There were also numerous tumours in the pancreas, which was greatly enlarged, especially the tail part. The left supra-renal capsule was very greatly enlarged by numerous tumours, and there were a few small ones in the right capsule, which was however not enlarged.

The case was that of a young lady, aged 29, who was in good health till four or five months before death, and even up till death remained generally well nourished. At the period indicated, she began to be troubled with breathlessness and weakness. A few months afterwards, loss of respiratory murmur and dulness on percussion were detected on the left side, and some time later a swelling appeared above the clavicle. Great oedema of the integument generally, but especially of the left arm, occurred some time before death. *Path. Reports*, 27th August, 1883, No. 1035.

VI. 31. Lympho-Sarcoma of Left Anterior Mediastinum, Involving Pericardium, Left Auricle, Bronchus, Pulmonary Artery, Pneumogastric, etc. (Sir Wm. T. Gairdner.)

The preparation presents a bulky mass almost altogether to the left of the middle line. The left bronchus, which is opened from behind, is adherent for a considerable distance near its extremity, while tumour tissue pouts through its wall and involves very greatly one of its primary branches. On viewing the specimen from the other side, the tumour is seen to pout into the pericardium in bulky lobules which penetrate between the left auricle and the pulmonary artery and infiltrate the wall of the auricle. The tissue penetrates through the wall of the auricle at the orifice of one of the pulmonary veins, which in its further course is occupied by tumour tissue. The right pulmonary artery is unaffected, but the left passes through the midst of the tumour.

It is much narrowed at its origin and in the greater part of its course, but the tumour tissue does not appear to penetrate through its wall. The left pneumogastric nerve is involved in the very midst of the tumour, and the arch of the aorta is somewhat adherent to the tumour. The recurrent nerve emerges from tumour tissue round the arch. The pericardium was much distended with blood-stained fluid. A portion of the sac is preserved, showing a somewhat thinned character.

Microscopical examination shows the tumour to be composed essentially of round cells of about the size of red corpuscles, and with round nuclei. There is a sparse fibrous tissue dividing large areas of cells.

Thos. Y. (aged 38) was admitted with marked alteration in the voice, due to paresis of the abductors of the left vocal cord. This had lasted for a month and was the only symptom except a temporary pain in the lower part of the left chest and the occurrence of blood-stained expectoration. There was dull percussion over manubrium sterni, and extending to the left side; it afterwards became continuous with the cardiac area. He left the Infirmary and died about a week later. *Path. Reports*, 1st December, 1893, No. 3509.

VI. 32. Lympho-Sarcoma of Mediastinum Involving Superior Cava and Causing Venous Obstruction of Face and Arms. (Sir Wm. T. Gairdner.)

The preparation shows the superior cava laid open along with the two innominates. The superior cava at a distance of about 4 cm. above its lower extremity is occupied and almost completely obscured by tumour mass which encloses it and the two innominates. These latter vessels both pass through tumour masses, and their walls are incorporated, although apparently their lumen is not greatly diminished. On the other aspect of the preparation it is seen that the tumour mass surrounds the aortic arch and innominate artery, but there is no obstruction of vessels other than that of the veins already mentioned.

Matthew C. (aged 64) first noticed swelling of the face three or four months before death. Swelling of the left arm was either simultaneous or soon followed. On his admission there was oedema affecting generally the upper segment of the body, but not every part equally. The left side was more affected than the right, and this was especially the case as regards the arms. The peculiar

distribution of the affected veins was interesting. Both superficial epigastrics, but especially the right, were enlarged and could be traced above the umbilicus to their anastomosis with the intercostals. Many cutaneous veins were enlarged, and formed stellate patches, in some of which the vessels had a cord-like feeling. Behind, there was also enlargement of veins extending down as far as the sacrum. Dyspnoea supervened late, and only became well marked on the day of death. *Path. Reports*, 25th Feb., 1892, No. 2904.

VI. 33. Lympho-Sarcoma of Mediastinum Involving Sternum. (Dr. Tennent.)

The main and primary tumour was chiefly in the posterior mediastinum, and it involved by continuity the oesophagus, pericardium, auricles, trachea, lung, vagus nerve, etc. There was a discontinuous extension to the pelvis and vertebrae as well as to the sternum. The specimen shows in section a bulky tumour on both the anterior and posterior aspects of the sternum. The osseous tissue of the sternum lies between the two, but a transverse section of the other half hung separately, shows that the two masses were continuous round the edge of the sternum between the second and third ribs and possibly between the first and second. Microscopical structure is that of the ordinary lympho-sarcoma, viz. small, round cells with a very sparse supporting structure.

There was also a goitre (see Series VI. No. 47).

David M. (aet. 41), a miner, suffered chiefly from what was called "asthma and angina" and from sciatica.

Path. Reports, 2nd July, 1894, No. 3777.

VI. 34. Lympho-Sarcoma of Mediastinum Extending into Lung and Obstructing Bronchi; Gangrenous Cavities. (Dr. R. S. Thomson.)

The tumour was a somewhat massive one, occupying the mediastinum and extending into the right lung, a portion of which is preserved. It extended along the bronchi into both lobes, and it penetrated the bronchial wall so as to produce almost complete obstruction both of the main bronchus and its branches. Distal to the tumour there are many cavities which have a gangrenous character. The tumour extended upwards along the trachea. There were secondary tumours in both suprarenal capsules (see VI. 56) and in the brain.

Harriet D. (aet. 43) complained chiefly of weakness and vomiting, but also of cough and spit. There was extensive dulness over the right side, with deficiency of movement, etc.

Path. Reports, 16th August, 1894, No. 3827.

VI. 35. Lympho-Sarcoma of Mediastinum, Involving Blood-Vessels, Bronchi, and Lung. (Prof. M'Call Anderson.)

The parts preserved are,—tumour with the great vessels proceeding from the heart, and portions of trachea and right lung. The tumour is a bulky one, occupying the mediastinum, but extending considerably to the right, its transverse diameter being about 12·5 cm., and its antero-posterior about 10 cm. The tumour surrounds the great vessels at their origin, pouting somewhat into the pericardium in lobulated masses, and involving the vessels as follows. The aorta passes through its midst, and the right innominate and first parts of subclavian and carotid are buried in it, emerging at its summit. The left carotid is nearly surrounded by the tumour just at its origin, whilst the left subclavian is free. The right pulmonary vein is embedded in the tumour, which also involves the wall of the left auricle, forming bulging projections into it. The main pulmonary artery is not involved in the tumour, but its right branch passes through its midst and is considerably obstructed. The superior cava is involved in the tumour, and from its origin onwards its wall is entirely replaced by tumour tissue, all trace even of its lumen disappearing in the general mass shortly after its origin. The same applies to the right innominate and internal jugular, and to the first part of the left innominate—the distal part of the left innominate is entirely occluded by thrombus, which, at its proximal portion, merges in tumour tissue. The extreme lower part of the trachea is involved in tumour tissue, which projects internally to a slight extent. The same applies to the left bronchus, while the right becomes entirely replaced by tumour tissue, and its lumen gradually disappears. A section of the lung, made a short distance from its root, shows that tumour tissue has largely replaced the upper lobe, some of the lung pigment remaining apparent in places, but the mass generally being pale in colour. The left pneumogastric nerve passes down in front and skirts the tumour, but the recurrent is embedded in it.

The patient was a man aged 51. He was subject to a severe cough for 16 weeks. Oedema of the upper extremities came on

eight weeks before death, and latterly there was great distension of the veins of the neck, upper extremities, chest, and abdomen. The right radial pulse was weaker than the left.

Path. Reports, 20th February, 1883, No. 938.

VI. 36. Lympho-Sarcoma of Bronchial Glands, Invading Trachea, Bronchi, Lung, Veins, Periosteum, Liver, and Suprarenal. (Sir Wm. T. Gairdner.)

The principal preparation shows the lower part of the trachea laid open from behind and the beginning of the main bronchi. These are in intimate contact with the massive pale tumours, especially in front. The tumour tissue appears through the wall in the lower part of the trachea, chiefly in the inter-spaces between the cartilages. It is also visible in the first part of the left main bronchus, whilst the right main bronchus is completely incorporated. The branch of this bronchus to the upper lobe, as shown on the other side of the preparation, emerges from the tumour tissue as a mere slit, being virtually obstructed, and it is here seen that the wall is replaced in great measure by tumour tissue. This is further shown in the other preparation, where a probe indicates the lumen of the bronchus extremely narrowed by ingrowth of tumour tissue. Alongside the trachea, at its lower part, there is a small caseous bronchial gland. It is surrounded by a layer of tumour tissue, the periphery of the gland apparently being involved. The apex of the lung is invaded by the tumour mass, which lies in large part between the trachea and the lung. The right innominate vein, as shown in the smaller preparation, passes through the midst of tumour tissue, and its wall is not only incorporated but lobulated masses of tumour tissue project internally. The protrusion of the tumour tissue extended downwards as far as the superior cava. The lung tissue in the upper lobe is consolidated, but possesses a marked toughness as in chronic pneumonia.

There were secondary tumours affecting the periosteum of the sternum, both in front and behind, as well as that of several ribs. There was no unequivocal appearance of extension to the bone proper. One small tumour was found in the liver and one in the left suprarenal body. Microscopically the tumour tissue consists of small round cells with a supporting framework of connective tissue. The tumour in the liver has a striking alveolar stroma. It is noted that the tumour tissue is growing inside the portal veins and the capillaries, and this suggests the origin of the alveolar structure.

John T. (aged 50) had been ill for nine months, the chief symptoms being at first failing health, with slight cough and spit. These symptoms became aggravated as time elapsed, and blood appeared in the sputum. Six weeks before death, swelling appeared in the right hand and arm, and later in the left; it afterwards appeared in the face, and finally in the feet. The thoracic veins became prominent, and the breathing became progressively more difficult.

Path. Reports, 19th March, 1898, No. 5381.

VI. 37. Lympho-Sarcoma of Root of Lung. Penetration of Tumour into Bronchus and Vena Cava. (Sir Wm. T. Gairdner.)

The lower part of the trachea and the main bronchi are preserved, and are seen to be surrounded by a tumour, which, in the specimen, has become greatly reduced in size, but was of massive proportions, occupying the mediastinum. Of great interest was the extension of the tumour. It was found to have penetrated into the right bronchus, incorporating its issue and bulging its wall inwards. The bronchus going to the upper lobe of the lung was greatly obstructed by the bulging and by the prominence of the tumour. The upper lobe of this lung was completely condensed, and the bronchial tubes somewhat distended with a yellow material. On examining the superior vena cava it is found that about 12 mm. from its orifice it is completely occluded, not by a thrombus, but by the vein being incorporated in the tumour, which has partly penetrated within its coats. The azygos vein, at its opening into the vena cava, is completely incorporated in the tumour, and its orifice cannot be found. The innominates are also incorporated to a great extent, especially the left, and in this vein it is made out that the tumour has broken through the posterior wall and presented itself within the vein, replacing the clot, a thin brownish layer of which still remains.

The branches of the superior cava are filled with thrombi, which are traced into the neck and the arm. The thrombi are old, presenting partial breaking down and abundant formation of blood crystals.

The following is a summary of the clinical features: Mrs. C., a middle aged woman, presented peculiarly distributed dropsy of upper part of body, suggestive of venous obstruction and mediastinal tumour. Dyspnoea was present, but there were no paroxysmal attacks. Obscure affection of right lung, affecting chiefly the upper lobe, but considered to indicate malignant disease rather than tubercle.

Increasing dyspnoea and lividity, and changes from day to day in the amount and distribution of the dropsy. Entire absence of fever throughout. There were well-marked varicosities in the superficial veins below the mammae, to which however she attributed a duration much greater than the obvious symptoms of the disease—the latter apparently dating from not more than three months before death, and having been of gradual rather than sudden origin. The following appears in the first report of the case on admission: "Altogether, the evidence derived from the localisation of the dropsy seems strongly to point in the direction of obstruction of the venous and lymphatic trunks either within the thorax, or at least in some way influencing the circulation through the superior cava; at the same time it is to be observed that there is no cyanosis, no obvious fulness of the veins, and, as far as hitherto noticed, none of the kind of paroxysmal dyspnoea often associated with mediastinal tumour."

Path. Reports, 28th May, 1879, No. 445.

VI. 38. Lympho-Sarcoma of Abdominal Glands, Involving Pancreas, Duodenum, etc. (Dr. Richard, Merryflats.)

The preparation shows the pyloric orifice of the stomach with duodenum displayed by a piece of whalebone. There is an immense mass of pale, soft tissue, through which the common bile duct passes, as is seen in section. The tumour tissue pushes in the wall of the duodenum, and just beyond the pylorus it completely incorporates this wall, forming a rounded prominence internally at the point where the whalebone is placed. The tumour mass has also infiltrated the pancreas, as shown on the other side of the preparation, where it can be seen with the naked eye. Under the microscope the tissue appears uniform and is composed of small round cells in a fine reticulum. In the pancreas the infiltration extends along the connective tissue stroma, and is at places visible at a distance from the proper tumour margin. The closed follicles of the stomach were strikingly enlarged, and under the microscope they have a less isolated character, apparently extending by infiltration of both the mucous membrane and sub-mucous tissue. There was enlargement of lymphatic glands in the neck, root of lungs, axilla, and inguinal regions, and the spleen was much enlarged, weighing 1075 grms.

Chas. C. was affected with a high degree of anaemia, and enlargement of the glands of the neck was early observed. During a

residence of over two months, the temperatures were frequently elevated, and towards the end reached 103·6 on one occasion.

VI. 39. Lympho-Sarcoma. Secondary Tumours of Upper Surface of Diaphragm and Kidney. (Dr. Dalziel.)

The primary tumour was a massive one in the region of the porta and behind the stomach. There was obstruction of the hepatic duct with intense jaundice. The preparation shows a tumour about the size of a small walnut projecting near the upper end of the right kidney. The tumour is in two parts, one belonging to the supra-renal capsule and the other to the kidney substance. The capsular one forms a somewhat bulky cap on the surface of the proper renal one, and it is discontinuous with the renal one at its margins all round, but continuous in the centre. The preparation also shows an oval tumour 4 cm. in long diameter lying between the diaphragm and the cartilaginous ribs. There were also many secondary tumours in the mesentery.

Patrick M. (aged 29), a miner, complained chiefly of pain in the abdomen. He subsequently developed severe pain over the liver and intense jaundice. *Path. Reports*, 31st August, 1894, No. 3845.

VI. 40. Base of Skull and Trachea from a Cretin. (Dr. Jas. Finlayson.)

The base of the skull is seen in median section. The foramen magnum is open, and the half of the medulla oblongata remains in it. The tissue in front of it is chiefly cartilaginous; the odontoid process and, in front of and below it, the atlas, are also cartilaginous. The basilar portion of the occipital bone is displayed on section, and measures 1·4 cm.; then comes the cartilage between occipital and sphenoid, measuring 2 mm. The basilar part of the sphenoid succeeds, and the sella turcica, with the pituitary body completely filling it and enlarged, is shown on section. Microscopical examination of the cartilage and adjoining basilar portions shows an entire absence of activity in the cartilage cells. The bone and medullary cavities come quite up to the cartilage, and the latter even extend into it.

No trace of thyroid gland could be found after dissection of the trachea.

The lungs (see Series III. No. 81) were tubercular, the disease taking the fibroid form.

Hugh M'M. (aged 3 years) was regarded as a typical cretin. Intelligence was almost wanting, and there were difficulty in swallowing, and inability to walk or to speak. The eruption of the teeth was delayed till after the second year, and at death there were only seven teeth, five on the upper and two on the lower jaw. The hair was coarse and bristly. The anterior fontanelle remained open, and the head did not seem especially large or small. The root of the nose was markedly depressed, the mouth big, the lips thick, the tongue protruded. The neck was noted as thick. There was no apparent stunting of the body or limbs, the height being 66 cm.

See Children's Hosp. *Path. Reports*, 5th March, 1895, No. 231.

VI. 41. Thyroid in Exophthalmic Goitre. (Sir Wm. T. Gairdner.)

The preparation has been injected with carmine gelatine. The thyroid gland is seen to be greatly enlarged, especially the right lobe, whose upper extremity reaches the level of the upper border of the thyroid cartilage. There are obvious cysts visible from the surface, one of considerable size being near the upper border. In addition there was great enlargement of the lymphatic glands of the neck and mesentery, as well as of the bronchial glands, masses of these, as shown, being adherent to bifurcation of the trachea.

Under the microscope the appearances presented are those of the regular colloid goitre, namely, saccules of the gland more or less distended with colloid matter, and sometimes forming distinct cysts.

The heart showed considerable subpericardial and subendocardial haemorrhage, and there were several ounces of blood in the pericardium. The lungs and liver showed excessive numbers of minute miliary tubercles, evidently recent, and there were a few calcareous masses in the mesentery and one small tubercular ulcer in the intestine.

L. M. (aet. 33) showed typical symptoms of exophthalmic goitre. The first phenomenon observed was exophthalmos, developed rather suddenly, and perhaps in connection with a fright 16 years before death. Palpitation was contemporaneous or soon after. Thyroid swelling was only observed two years afterwards. Latterly there were pulmonary symptoms, with great emaciation and diarrhoea. Five weeks before death there occurred a general eruption of purpura haemorrhagica. *Path. Reports*, 29th October, 1889, No. 2192.

VI. 42. Small Fibroma of Thyroid.

The preparation shows in section the left lobe of the thyroid, which presents a rounded tumour measuring 1·5 cm. in diameter. It is white in colour and dense in consistency. Under the microscope it has a fibrous character, and is very sparsely cellular. The tumour encloses small saccules of thyroid tissue. The tumour was not detected during life. *Path. Reports*, 1st Nov., 1892, No. 3167.

VI. 43. Multiple Adenomata of Thyroid.

The preparation, which shows in section the left lobe of the thyroid, presents six or seven rounded tumours varying in size from 2 mm. up to 16 mm. The tumours are mostly considerably darker than the thyroid tissue, this being partly from excessive vascularity. They are all well defined, and mostly present a distinct capsule.

Under the microscope they vary somewhat in structure, some reproducing thyroid tissue, with its characteristic colloid formation, whilst others present irregular alveolar spaces occupied by epithelium and without colloid formation, the structure here resembling cancer. There was no considerable enlargement of the gland.

Isabella P. (aged 50) died of Addison's disease. There were multiple cysts in the liver, kidneys, broad ligament, and cervix uteri. *Path. Reports*, 8th May, 1896, No. 4604.

VI. 44. Simple Cyst of Thyroid. (Dr. A. Patterson.)

The cyst was in connection with the left lobe of the gland. It commenced to grow about 12 years back, and had increased so as to obstruct respiration. It was tapped several times and a red fluid withdrawn, but again filling and causing laryngeal difficulty, it was finally removed. The cyst has a thin wall composed of connective tissue.

VI. 45. Simple Cyst of Thyroid. (Dr. Dalziel.)

The sac, which measures 2·5 by 1·5 cm., is formed of a somewhat dense layer of fibrous tissue, lined in the fresh state by what is described as a soft, glistening, pinkish-yellow tissue, resembling the tissue of the thyroid gland, but softer. Under the microscope this tissue shews the characters of that of the thyroid, viz. saccules lined

with low cubical epithelium, which latter often contains colloid matter. The cyst contained a dark brown fluid with abundant cholesterine.

It was removed from a lady aged 35. It had been growing for seven months, and was found embedded in the right lobe of the thyroid gland, from which it was readily enucleated.

Path. Reports, 21st August, 1895, No. 4282.

VI. 46. Cysts of Thyroid, Hyoid Bone and Base of Tongue. Prolongation of Thyroid in Position of Thyro-glossal Ducts. (Dr. Tennent.)

The thyroid gland was considerably enlarged. It is now somewhat shrivelled in alcohol. The left lobe has been laid open, and shows many cysts, from 1 cm. in diameter downwards. From the mesial aspect of the right lobe a narrow band of thyroid tissue passes upwards, and this can be traced to the under surface of the hyoid bone. At its apparent termination there are several cysts projecting from the under and anterior surfaces of the hyoid bone, and there is a larger one of the size of a hazel-nut projecting from its upper border. This one had to be dissected from the muscles of the tongue. The hyoid cysts had clear contents, those in the thyroid had colloid.

John C. (aged 46) was affected with acute pneumonia, etc.

Path. Reports, 27th May, 1896, No. 4642.

VI. 47. Ordinary Goitre. (Dr. Tennent.)

The thyroid gland is displayed, and is seen to be greatly enlarged. The right lobe is prolonged upwards as high as the upper border of the thyroid cartilage. The left lobe is prolonged downwards, and is in general more bulky than the right. The hypertrophied gland impinges somewhat on the trachea.

The case was one of lympho-sarcoma of mediastinum (see Ser. VI. 33).

VI. 48. Colloid Goitre.

The right lobe of thyroid is seen to be greatly enlarged—the left to a less extent. On cutting into right lobe a number of cysts containing turbid fluid were laid open.

Path. Reports, 2nd July, 1879, No. 454.

VI. 49. Goitre—Cystic, Necrotic, Haemorrhagic, and with separate Adenomatous Nodules; Partial Calcification. (Sir Wm. T. Gairdner.)

The gland is shown in partial section, and it is seen that both lobes are much enlarged—the right extending upwards, and the left showing considerable prominence. The latter is largely necrotic and haemorrhagic, and microscopic examination shows little of a cystic character. The right is largely cystic, and there are embedded in this lobe several rounded and separate tumours, measuring from four to eight mm. in diameter. These show under the microscope the thyroid structure with the usual colloid matter, but without such cystic development as in the tissue around. In two or three of these tumours calcareous matter is deposited in the centre, giving an opaque appearance and a gritty character. The microscope also shows occasional haemorrhages, even in the left lobe. There is also in some places a distortion of the thyroid tissue so that it sometimes resembles cancer in structure.

Isabella P. (aged 50) was affected with Addison's disease (tuberculosis of suprarenal capsules). There were multiple cysts in the kidney, liver, and broad ligament.

Path. Reports, 8th May, 1896, No. 4604

VI. 50. Carcinoma of Thyroid. (Dr. Tennent.)

In this preparation the thyroid gland is much enlarged, especially the left lobe, which measures 5·5 cm. by 4·5 cm. There is much calcareous infiltration, especially in the left lobe. Under the microscope the structure of the normal thyroid is repeated with moderate colloid degeneration. There is considerable fibroid thickening of the septa, and it is here that the calcareous deposit has occurred.

VI. 51. Tumours in Skull, Secondary to Cancer of Thyroid. (From preceding case.)

This preparation shows two of the secondary tumours in the skull. One of these is in the occipital bone, and is shown in section. The tumour occupies the place of the bone for a space 4 cm. in diameter, the soft tissue of the tumour replacing the bone. The upper edge of this tumour is close to the apex of the lambdoidal suture. In the hardened state the thickness of the

tumour is about 2 cm., but in the fresh state it was somewhat more. Its edges are abrupt, and the neighbouring bone at the margins presents a slightly rough but fairly regular outline. This is shown in the section from which the soft tumour has been removed. The other tumour is situated at the anterior and inferior extremity of the parietal bone, perhaps involving part of the squamous portion of the temporal. The tumour was adherent to the dura mater (shown in preparation), and came away with it, leaving a quadrilateral gap in the internal table about 2·5 cm. in diameter. The tumour occupied the thickness of the bone, but the external table is destroyed to a less extent than the internal, namely, over an elongated space measuring 2 cm. There were other tumours visible, but not destroying the skull in its entire thickness. The majority of these were in right parietal.

Under the microscope the tumours in the skull show the regular structure of the thyroid gland precisely similar to that of the goitre.

Mrs. C. had a goitre for many years. The occipital tumour had been observed for eighteen months. It formed a soft pulsating swelling at the back of the head.

[The case is recorded in the *Path. Trans.* of London, vol. for 1887.] *Path. Reports*, 5th March, 1887, No. 1682.

VI. 52. Round-Celled Sarcoma of Thyroid. Penetration of Trachea. Formation of Cysts. (Sir Wm. T. Gairdner.)

There is a bulky tumour occupying the position of the thyroid and intimately connected with the trachea. It has replaced the middle, and most of the lateral, portions of the gland, but has grown more to the left than the right. On either side the extreme upper part of the gland has escaped; but more of the gland remains on the right side than the left, as shown in a piece hung separately. The lower part of the growth is greatly prolonged downwards by the formation of two cysts which lie one above the other, being separated by a septum. The lower cyst reached down into the chest as far as upper extremity of pericardium. The upper one measures 5 cm. and the lower 4·5 cm. in diameter. They contained a brownish fluid, with abundant crystals of cholesterine suspended in it. These cysts are generally thin-walled, but in the septum between them, and to some extent elsewhere, there is tumour tissue present, and this tissue projects

into the upper one from the tumour above it. It is observed also, under the microscope, that in the septum between the two cysts there is not only tumour tissue, but some altered gland structure in the form of contorted spaces.

The trachea is considerably incorporated in the tumour, which pouts into its left side (as shown in preparation), obstructing the lumen to a great extent, and presenting an ulcerated surface. The wall of the oesophagus is also considerably bulged by a rounded swelling, but is not apparently incorporated in the tumour. The arteries are not involved in the tumour, but the neighbouring veins show tumour tissue in their walls.

The tumour shows microscopically round-celled tissue, the cells being of about the size of leucocytes. In many places there are spaces like those already mentioned as having the characters of remains of thyroid tissue, and sometimes a piece of colloid substance appears On examining the part where the tumour and gland tissue are continuous, it is seen that the round cells are penetrating between the glandular follicles, and the latter are undergoing atrophy. In the part of the gland which is not incorporated, the follicles are often much enlarged and filled with colloid material, and, in fact, cysts are visible to the naked eye.

The case was that of a man aged 21, who was admitted with dyspnoea of an extreme character, permanent, but with paroxysmal exaggeration even on slight exertion. The illness was stated to have been of three or four months' duration. A tumour occupying the lower neck and mediastinum, and displacing the trachea backwards, was easily detected, but in a position only admitting of palliative treatment. Death occurred from exhaustion.

Path. Reports, 29th May, 1884, No. 1193.

VI. 53. Old Cystic Goitre becoming Cancerous. (Prof. Coats.)

The left half of the gland is expanded into a bulky tumour, which, in the upper parts, is considerably calcareous, and in the lower parts partly fleshy and partly cystic. The expanded portion projects beyond the middle line. The right half of the gland is perhaps slightly enlarged, and contains a few cysts. Behind the enlarged portion, and along the side of the trachea, there is an enlarged gland, measuring 5 cm. in long diameter. There were masses of enlarged glands at the root of the lung and in the

abdomen, and the lungs presented numerous flat nodules on the surface and an injection of the lymphatics with cancerous tissue. The liver was also the seat of numerous rounded nodules, generally of small size. The goitre presented microscopically epithelial masses in a fibrous stroma, with some resemblance to the thyroid structure, but less regular; there was also some colloid change. The gland near has also a cancerous structure, with less approach to the appearance of the thyroid tissue, but with occasional colloid change.

Archibald M'A. (aet. 63). Goitre was first noticed when he was seven years of age. During his residence in hospital the principal complaint was connected with the tumours in the abdomen, and these were detected by palpation.

Path. Reports, 21st Feb., 1891, No. 2592.

VI. 54. Tuberculosis of Suprarenal Bodies: Addison's Disease. (Dr. Hawthorne.)

The following description applies both to the preparation and to the excellent painting by Dr. Alex. Macphail. Both suprarenal bodies are enlarged, but the left is about twice the size of the right. Their surface is slightly lobulated, and they are distinctly firm to the touch. On section the tissue is seen to be entirely replaced by rounded caseous masses, except that in both the outer and lower corners it retains a trace of the normal structure. Dissection of the solar plexus shows it to be embedded in a dense matting of fibrous tissue, but a number of nerve twigs are partially isolated and traced into the fibrous tissue around the altered suprarenal bodies. The left semilunar ganglion is involved in the fibrous matting, into which also the left great splanchnic nerve passes and is lost. The right semilunar ganglion is much less involved. No tuberculosis was found to exist in the lungs or any other organ, except a small caseous area near the hilus of the right kidney.

Sarah S. (aged 15) for more than a year had been losing strength, but more especially after an illness, ten months before death, called "influenza." Her chief symptoms latterly were general weakness, giddiness, headaches, breathlessness, palpitation, and progressive loss of flesh. There was bronzing of the skin, but no discoloration of the buccal mucous membrane.

Path. Reports, 20th December, 1890, No. 2537.

VI. 55. Water-Colour Drawing of Parts in Addison's Disease. (Same as VI. 54.) (Dr. Alex. Macphail.)

VI. 56. Secondary Lympho-Sarcoma of Suprarenal Capsules. (Dr. R. S. Thomson.)

Both suprarenals are displayed, and they are seen to be greatly enlarged by the presence of white tumour tissue having the regular structure of the lympho-sarcoma. The right is adherent to the vena cava, and tumour tissue pouts into the vessel. (From same case as VI. 34.)

SERIES VII.

URINARY AND GENERATIVE SYSTEMS.

VII. 1. Unsymmetrical Kidney; Entire Absence of Right Kidney; Nephritis.

The kidney forms a quadrilateral mass, measuring 5 cm. vertically, 6·5 cm. transversely, and 3 cm. antero-posteriorly. It presents a deep notch antero-inferiorly. The anterior aspect of the mass is distinctly lobulated, while the convex posterior surface shows a number of superficial furrows. The hilum is on the anterior aspect of the organ. The pelvis is small, being formed of two converging tubes; and the ureter, 6 mm. in diameter, lies in the notch, and opened by a considerable orifice on the left side of the trigone.

An artery of some size descends in front of the upper part of the mass, and bifurcates in the upper part of the hilum. The exact vascular relations are not preserved.

Microscopically, the kidney shows the appearances of parenchymatous nephritis, with interstitial round-celled infiltration, especially round the glomeruli.

The specimen was removed *postmortem* by Dr. J. F. R. Gairdner, in the Belvidere Fever Hospital, from a male infant, aged 1 year and 10 months, who died of scarlet fever complicated with acute nephritis. The mass was found occupying the position of the left kidney. No trace of right kidney or of right ureter could be found. There was no trace of an orifice on the right side of the trigone. No abnormality in the generative organs was noted. Both testicles were well developed, and were fully descended.

Note.—The appearance of the mass at first sight suggests a fusion of two kidneys at their internal and upper margins, the fusion involving the upper three-fourths of these margins, and resulting in

the production of an "inverted horse-shoe." On the other hand, the single pelvis, the single ureter, and the lateral situation of the mass indicate that the case is rather one of a single or unsymmetrical kidney.

VII. 2. Horse-Shoe Kidney; Pyonephrosis in One Half. Perinephric Abscess. (Drs. Dalziel and Rutherfurd.)

The conjoined kidney is shown on section and the two halves are seen to be joined by a broad isthmus. The left half is greatly enlarged, the pelvis is dilated, and there are cavities representing dilated calices which largely replace the renal tissue and still contain remains of pus. The left half of the isthmus shows a similar lesion; the right half of the kidney and of isthmus is normal. In addition there is an abscess cavity outside the left kidney which was found to communicate with the internal cavities. Microscopically examined the lesion in the kidney was found to be non-tubercular.

Clifford D. (aged 3 years) was noticed to pass matter with the urine for two months. He was in an extreme state of debility on admission to the Sick Children's Hospital, where an abscess in the back was laid open and continued to discharge.

VII. 3. Malposition and Malformation of Right Kidney.

The left kidney, as shown in the preparation, has its normal position and relations, but the right kidney was found lying at the brim of the pelvis and is greatly altered both in shape and relations. It lies with its upper edge close to the bifurcation of the aorta, and there is a groove on its posterior surface in which the right common iliac artery lay. Two short arteries coming off from the aorta just above the bifurcation pass into the kidney by its upper border to the right and to the left. There are also two veins which are apparently similarly distributed, but one comes from the left renal vein, having a long course downwards, and the other from the vena cava, having only a short course to the kidney. The kidney itself is somewhat oval in shape with the hilum looking forwards. The pelvis is bifid, the two limbs passing into the kidney to the right and to the left, the left one being higher. The ureter comes off from the lower end of the united pelvis.

The specimen was accidentally discovered in the postmortem room.

VII. 4. Malposition and Malformation of Right Kidney; Nephritis.

The *right kidney* is represented by a somewhat quadrilateral mass, flattened from before backwards, and with its long axis vertical. It measures 10·25 cm. vertically, 6·75 cm. transversely, and 3 cm. antero-posteriorly. The surface is coarsely granular, and there is a cyst 7 mm. in diameter projecting from the right margin. The capsule was very adherent. Posteriorly the mass presents a general concavity; anteriorly the surface is markedly lobulated, showing three distinct lobules, a right and a left superior, and an inferior. The upper edge of the mass is about 3·5 cm. above the level of the aortic bifurcation, the lower extends downwards to a point about 6·5 cm. below the bifurcation. The inner edge of the mass lies at the right side of aorta, in front of the vena cava.

The *hilum* looks forward, and is in the form of an irregular depressed area. The *pelvis*, which is small (measuring from apex to base 1·5 cm., and having a maximum width of 1·75 cm.), is formed by six calices, of which the two lower are hidden behind the pelvis, and enter it separately. At the upper end of the hilum there are two calices which join before passing down to the pelvis, and on the right side the remaining two join and pass obliquely downwards and inwards to the pelvis. The *ureter*, somewhat narrowed at its origin, passes from the pelvis downwards and inwards, lying in a shallow groove on the anterior surface of the lower lobule.

The organ is supplied by three *arteries*. There are two on the anterior aspect, measuring, the upper nearly 7 mm., the lower 5 mm. in diameter, and springing from the aorta 3 cm. and 1·5 cm. respectively above the bifurcation. These enter the upper and lower extremities of the hilum. On the right side of the aorta, and just at the origin of the right common iliac artery, is a third artery of small size, having an average diameter of 2 mm., which runs outwards across the back of the organ to the outer edge, where it bifurcates in the notch between inferior and right superior lobules.

The *veins* converge from all parts of the hilum into right and left vessels which unite to form a single trunk about 2·5 cm. below the upper edge of the mass. This trunk empties into the vena cava about .6 cm. above the junction of the common iliac veins. In addition, a small vein accompanies the third artery round the back of the mass, and another leaves the notch between the lower lobe and the left upper one, and passes round the inner edge of the mass. Both of these join the vena cava separately.

The normal position of the kidney is indicated in the preparation by the left renal artery and vein. These are at the extreme upper end of the preparation, and this level would therefore correspond with the hilum of the organ in its normal position.

Microscopically examined, this kidney presents the characters of interstitial nephritis. Fibrous and cellular areas of a wedge-shape occupy the cortex. There is marked atrophy of the tubules with fibrosis and sclerosis of the Malpighian bodies. Occasional hyaline casts are present, and there is well-marked endarteritis.

Clinical particulars are wanting.

VII. 5. Horse-Shoe Kidney in a Boy.

The kidneys are united by a broad isthmus, and this as well as the lower parts of the kidneys show considerable lobulation. The hilum of the right kidney faces somewhat forward and the ureter comes off in an outward direction from a somewhat divided and only partially formed pelvis. The hilum of the left kidney faces more directly inwards, but the ureter seems to pass outwards after emerging from the pelvis.

Path. Reports, 17th September, 1895, No. 4317.

VII. 6. Horse-Shoe Kidney.

The two kidneys, which are nearly normal in size, are united at their lower extremities across the middle line by an isthmus having a measurement from above downward of about 2·5 cm. The isthmus is marked by a deep groove. The hilum of each kidney is entirely on the anterior surface, so that there is a piece of kidney about 1 cm. in width between the hilum and the internal border. On either side the pelvis lies in the hilum, but the ureter springs from the external border of the pelvis and not from the internal as in the normal kidney. There are two sets of renal arteries, an inferior, whose connection with the aorta has been preserved, and a superior, whose connection has been severed. These enter at the extreme lower and upper extremities of the hilum respectively. The renal vein on either side comes off from the vena cava. The aorta and vena cava lie behind the kidney.

Path. Reports, 6th February, 1884, No. 1125.

VII. 7. Horse-Shoe Kidney with Unusual Vascular Relations.

The kidneys, which measure from above downwards, right nearly 13 cm., left 12·5 cm., are united at their inferior extremities by an

isthmus of renal tissue measuring 3·5 cm., from above downwards and over 1 cm. from before backwards. The isthmus shows on its anterior surface a groove which passes obliquely downwards and to the right.

The left kidney has retained the normal reniform outline; the right is more quadrilateral in form. The posterior aspect of both kidneys is smooth, but lobulation is present in both on their anterior surfaces. This is particularly the case in the right kidney, the lower fourth of which is separated externally from the rest of the organ by a deep fissure.

The *hilum*, in the right kidney, is anterior at its lower part, antero-internal at its upper; while in the left kidney the hilum is internal, and even looks slightly backwards.

The *pelvis* of the right kidney is very short, measuring about 1·2 cm. in length by 1·5 cm. in breath at its base, and is formed by the union of five separate tubes. It is situated at the lower end of the hilum, and the upper tubes are correspondingly longer than the lower tubes. The *ureter* leaves the pelvis at its lower end and passes downwards and outwards on the surface of the lower part of the kidney 2 cm. from its outer margin.

The pelvis of the left kidney is larger than that of the right, and measures 2 cm. in length and in greatest breadth. It is roughly triangular in form, and receives four or five tubes from the hilum, at the lower end of which it is situated. The ureter leaves the pelvis at its lower end and passes downwards and inwards over the lower lobe of the kidney 6 cm. from its outer border. Both ureters opened into the bladder in the normal position.

The right kidney receives two arteries from the aorta, arising one in front of the other about 5 mm. below the origin of the superior mesenteric; the anterior passes to the upper end of the hilum, the posterior divides and sends an upper branch to the upper end of the kidney itself and a lower to the upper half of the hilum. The fissure separating the lower lobe from the convexity of the kidney contains an artery coming from behind and supplying the lower half of the hilum. This vessel springs from the right common iliac 2 cm. below the bifurcation of the aorta.

The left kidney receives two arteries from the aorta, an upper branch arising opposite the corresponding branch to the right kidney and distributed mainly in front of the pelvis, and a lower arising from the lateral aspect of the aorta 1 cm. beneath the upper and distributed mainly behind the pelvis.

The right kidney has an upper renal vein which passes from the upper end of the hilum almost transversely to end in the inferior vena cava. Entering the cava immediately above it is a long vein which courses up in front of the pelvis from the deep fissure, receiving branches from the anterior lip of the hilum in passing. This vein at its entrance into the cava is joined by a twig from the upper end of the kidney substance corresponding to the artery above mentioned. The *left* common iliac vein is joined in front by another twig coming from the posterior aspect of the lower lobe near the lower convex margin of the right kidney.

The left kidney is drained by one large renal vein whose branches are found both in front of and behind the pelvis.

The specimen was obtained from the body of a youth 19 years of age. It occupies the middle line, the lower edge of the isthmus being situated 2 cm. above the sacral promontory. No other malformations were found. The cause of death was a wound of the heart. (See Series II., No. 12.)

VII. 8. Displacement of the Right Kidney with Mobility. Short Renal Vein. (Sir Wm. T. Gairdner.)

On opening the abdomen in this case the right kidney was at once seen to form a tumour near the middle line. Its lower margin was situated near the middle of the vertebræ, while its proper upper margin was much posterior, the organ lying nearly transversely, the hilum presenting upwards and inwards. In this position it formed a swelling just beneath the lower edge of the liver, immediately outside the level of the gall-bladder. From this position the kidney could be readily displaced forward till its middle was at the middle line, but it could not be displaced backwards into its normal position. On more particular examination it appeared that the principal cause of its inability to pass backwards to its normal position was the position of the renal vein, which seemed to hold the organ upwards and towards the middle line. The renal vein passed into the vena cava an inch below the entrance of the latter into the liver, the renal vein itself being an inch and a half in length.

The condition was not discovered during life, and the patient died with cardiac symptoms apparently related latterly to atheromatous obstruction of the coronary artery.

Path. Reports, 22nd November, 1882, No. 875.

VII. 9. Movable Kidney. Conversion into Cysts Filled with Pultaceous Material. (Dr. Jas. Finlayson.)

This preparation is from a case of cancer of stomach and liver, but there is no apparent connection, and, in particular, there were signs of movable kidney detected nearly a year before death, at which time there was no enlargement of the liver. The kidney, which is the right one, was found somewhat enlarged, nodulated, and displaced downwards, with its lower extremity presenting somewhat forwards. The organ could be readily moved downwards to the front of the vertebræ and restored to its normal place; but although the peritoneum and subperitoneal tissue were somewhat loose around it, there was no proper sac and no mesonephron. The kidney is converted into a mass of cysts without any remains of kidney tissue. The cysts vary in size from that of a hazel-nut to that of a small apple, and were filled with a whitish pultaceous material. The pelvis is obliterated, and the ureter converted into a fibrous cord right down to the bladder, where the aperture is obliterated.

The patient was an unmarried woman, 30 years of age, who had never had children. *Path. Reports*, 10th August, 1883, No. 1027.

VII. 10. Kidney Partially Injected from a Branch of the Renal Artery.

The injection material is carmine in a solution of gelatine. The preparation illustrates that each branch of the renal artery is distributed to a definite piece of the kidney without anastomosis—is an end artery. It is seen that the injected portion is abruptly demarcated. It also illustrates that the arterial distribution is primarily to the cortex, which is here fully injected.

VII. 11. Infarction Involving almost Whole Kidney; Embolism of Main Artery. Endocarditis of Mitral and Aortic Valves with Marked Thrombosis. Rupture of Chordæ Tendineæ and Curtains. (Dr. Cook, Greenock.)

The greater part of the kidney is entirely necrotic, being replaced by a dense yellow structure, in the midst of which, towards the middle, a comparatively small area of surviving kidney substance remains. In the smaller portion it is seen that where the infarction is

surrounded by remaining kidney tissue an intense congestion of the vessels is present. The main renal artery is plugged with a pale and somewhat crumbling material, and the plug extends into a larger branch which passes into the middle region, and a smaller one which passes towards the upper end.

The mitral valve presents on its anterior curtain a bulky thrombus, which is attached just above the insertions of the chordæ tendineæ. There is a flat surface with deposition of thrombus immediately opposite the former. Several chordæ tendineæ in connection with the larger thrombus are ruptured and present bulbous extremities. The aortic valve presents a bulky thrombus attached in about equal degrees to the anterior and left posterior curtains. There is much destruction of these curtains and a passage through them to the thrombus.

The case occurred in Greenock Infirmary. The patient was much cyanosed, and there were high temperatures.

VII. 12. Infarction of Kidney, Partly Absorbed. (Sir Wm. T. Gairdner.)

Half of the lower portion of left kidney has been preserved. At the edge a deep depression is seen, at the bottom of which, as seen on section, there is a yellow caseous material which extends in the form of a wedge into the kidney.

The case was one of aortic valvular disease with thrombi on the curtains. Besides this evidence of old embolism of the kidney there were recent infarctions in these organs, and one of intermediate date in the spleen. *Path. Reports*, 13th Nov., 1883, No. 1059.

VII. 13. Localised Atrophy of Kidney from Arterial Disease. (Dr. Finlayson.)

The half of the left kidney is preserved. It shows an extreme atrophy chiefly of the part in the neighbourhood of the pelvis, but extending in several places to the convex margin. This existed both on the anterior and posterior aspects of the organ. The edges of the atrophied area are somewhat abrupt.

Microscopic examination shows a general atrophy of the kidney tissue, involving both cortex and pyramids, but at the marginal parts involving chiefly the cortex. (See figure in Dr. Coats's Manual, 4th Edition, page 969.)

The case was one of widely distributed atheroma and the patient died from cerebral hæmorrhage, apparently due to atheroma of the arteries. The ventricle of the heart was hypertrophied.

Catherine C. (æt. 49) was brought to the hospital unconscious, and died in a few hours.

Path. Reports, 8th November, 1888, No. 1967.

VII. 14. Irregular Contraction of Kidneys; Irregularity of Ureters. (Dr. Tennent.)

The left kidney is very small, weighing scarcely an ounce, and measuring 6 cm. in length. The surface is very irregular, the ureter divides before reaching the kidney, so that the pelvis is in two parts, and one of these shows indications of a further division. The right kidney is less contracted weighing 82·5 grms. and measuring 9 cm. The pelvis here is in four parts, and the upper division shows a marked hydronephrosis. The lower half of the kidney is much less atrophied than the other. The surface of this kidney is also very granular and the capsule is adherent. There was hypertrophy of the left ventricle of the heart.

Ellen F. (æt. 28). Swelling of the feet occurred two years before death, but was recovered from. About ten months before death, symptoms of Bright's disease developed insidiously—anasarca, headache, drowsiness and vomiting, being the chief signs. Three months after the onset, uræmic convulsions occurred. There were further uræmic symptoms in the seventh, ninth, and tenth months, the last mentioned attack proving fatal.

Path. Reports, 8th January, 1889, No. 2010.

VII. 15. The Kidneys in Ulcerative Endocarditis. (Dr. J. C. Renton.)

Both kidneys were enlarged, weighing $6\frac{3}{4}$ oz. and $7\frac{1}{4}$ oz. In both there were two or three large infarctions, and in addition numerous red spots, each with a yellow centre, mostly in the cortex. In these patches the microscope showed vessels filled with micrococci, as well as the usual inflammatory changes. Similar organisms in great abundance were present on the affected valves of the heart. (See Series II., No. 46.) *Path. Reports*, 18th March, 1880, No. 537.

VII. 16. Pyæmic Abscesses in Kidney. (Dr. Jas. Finlayson.)

A number of small abscesses are seen to project from the surface of the kidney, having similar appearances to those met with in ordinary cases of pyæmia. The primary suppuration was in connection with the right sterno-clavicular articulation and neighbouring parts of thyroid and connective tissue of neck.

The case was otherwise one of cancer of the head of the pancreas, with obstruction of the bile and pancreatic ducts, in a man 39 years of age. *Path. Reports*, October, 1882, No. 860.

VII. 17. Metastatic Abscesses in Kidney.

On the surface are seen numerous yellow projections, each with a dark surrounding zone. These are small abscesses surrounded by an intensely hyperæmic area. There were also metastatic abscesses in the lungs, and numerous white nodules in the intestinal mucous membrane, but no source of pyæmic infection was discovered.

The case was that of a boy of 10 years, admitted moribund, and supposed before admission to have had diphtheria.

Path. Reports, 10th September, 1883, No. 1038.

VII. 18. Suppuration of Kidney, with Foreign Body in Pelvis. (Mr. E. Maylard.)

The substance of the kidney, except at its extreme lower part, is occupied by large cavities, which in the recent state were filled with creamy pus. Lying in the pelvis of the organ there is a bristle like that of a coarse brush. It lies in the long axis of the cavity, and its lower end is inserted into a calculus, which sends a branch into a neighbouring calyx. The right ureter was somewhat dilated. The bladder was normal in appearance, but contained a little purulent urine. The left kidney was normal.

The case was that of a man who died from injury to the head, with laceration of the brain, etc. Nothing was known as to renal symptoms during life.

Path. Reports, 1st December, 1883, No. 1097.

VII. 19. Parenchymatous Nephritis. Large Kidney. (Sir Wm. T. Gairdner.)

This kidney weighed in the fresh state 10 oz.—the enlargement depending mainly on thickening of the cortex. The cortex was

pale, but not remarkably so; and there were dark red spots indicating hæmorrhage. Under the microscope there were abundant cloudy swelling and degeneration of the renal epithelium, and numerous hæmorrhages into the convoluted tubules.

In addition, there was enlargement of the heart, but not specially of the left ventricle. In both ventricles there were thrombi. In the right lung there was a hæmorrhagic infarction, with pleurisy.

The case was that of a man (æt. 40), and the symptoms were quite as much those of the cardiac as of the renal disease. The urine was diminished in amount, with abundant albumen, and it contained epithelium, blood, and pus.

Path. Reports, 26th March, 1880, No. 54.

VII. 20. Chronic Parenchymatous Nephritis. Small Kidney.
(Sir Wm. T. Gairdner.)

The kidney preserved is the left, weighing 2½ oz. (the right weighed 4½ oz.). The capsule was non-adherent, and the surface, though presenting a wrinkled, irregular appearance, has nothing of the granular condition. It shows, however, an exaggeration of the fœtal lobulation. In the fresh state it was seen to be dotted over with numerous yellow specks. On section the cortical substance was not much increased in thickness, if at all, and it also presented yellow streaks and patches. The heart was enlarged, weighing 19 oz., with some dilatation of the auriculo-ventricular orifices, but no proper valvular disease. At the apex of the left ventricle there was a pretty large thrombus undergoing softening.

The spleen preserved, as Series II. 170, was the seat of several large infarctions involving most of the tissue. The organ weighed 10 oz. One of the two principal branches was found distended with clot, and this vessel, with its clot, was traced some distance into the splenic tissue. There was extreme œdoma of the entire surface, dropsy of pleuræ, of abdomen, and of the ventricles of brain.

The history shows that renal dropsy began in 1872—being connected with her first pregnancy. This attack was recovered from, but there was a second in 1874, a month after second confinement. She was admitted to the hospital in January, 1875, with cough and dyspnœa, with slight hypertrophy of heart, arteries remarkably twisted considering her age (31), urine albuminous, mean quantity 64 oz., sp. gr. 1012-18, and containing abundant tube-casts. She was re-admitted in May, 1875, with

greatly diminished urine, extensive œdema, and dropsy of the serous cavities. With occasional partial relief the dropsy continued to the end, producing great embarrassment of the respiration.

Path. Reports, 26th September 1875, No. 28.

VII. 21. Small Fatty Kidney. (Dr. Tennent.)

The kidney weighed in the fresh state 3¾ oz., and the capsule was slightly adherent. It is partly removed from the specimen and the surface is seen to have a somewhat regularly granular appearance. In the fresh state the surface was pale and there was visible a marked mottling with small fatty areas; the fatty markings were also visible on the cut surface. Under the microscope, the renal epithelium, especially near the surface, is seen to be extremely fatty. There are many tube casts. There is also marked round-cell infiltration of the cortical substance and occasional sclerosis of the Malpighian tufts. Thickening of the internal coat of the arteries is also visible. There was dilatation and hypertrophy of the left ventricle of the heart.

Alex. N. (aged 30) was affected on admission with extreme dropsy of the legs and abdomen, which had lasted for about eight weeks. This was the third attack of Bright's disease, the two previous ones having been at the ages of 2½ and 15 years. The patient was very anæmic and the urine contained abundant albumen with hyaline and granular casts; s.g. 1015. *Path. Reports*, 6th Dec., 1892, No. 3199.

VII. 22. Parenchymatous Nephritis. Contracted Kidney. Fœtal Lobulation. (Dr. Jas. Finlayson.)

This kidney resembles the preceding one. It is not very granular, but presents exaggerated lobulation, and fatty markings on its surface. This kidney weighed 3¼ oz., and the other 2¾ oz.

The heart presented typical hypertrophy of the left ventricle.

The case was one of acute Bright's disease in a woman (æt. 42), with extreme œdema, which recurred several times as the disease became chronic. *Path. Reports*, 16th October, 1884, No. 1246.

VII. 23. Large White and Amyloid Kidney. (Dr. G. P. Tennent.)

Both kidneys were much enlarged, each weighing 10 oz. As shown on section in the preparation, the cortical substance is greatly

thickened and pale, contrasting with the red pyramids. In the fresh state it was found that, in addition to the amyloid disease, there was fatty degeneration of the epithelium. Amyloid disease was present in the spleen ("sago spleen") and liver.

The case was one of phthisis pulmonalis of at least three years' duration. Latterly the urine became scanty, with high specific gravity and abundant albumen and tube casts. There was also œdema. *Path. Reports*, 27th March, 1883, No. 959.

VII. 24. Interstitial Nephritis, Contracted Kidney. (Prof. M'Call Anderson.)

The kidney preserved weighed only 2¼ oz. The capsule is adherent and the surface granular. On microscopic examination, interstitial inflammation and cysts are discovered. In this case the vessels of the brain were atheromatous, and there was softening with formation of cysts. The heart was much enlarged, weighing 23 oz., but without any valvular disease, and without any obvious predominance of one ventricle over another.

Path. Reports, 22nd January, 1876, No. 61.

VII. 25. Contracted and Amyloid Kidney, from a Case of Syphilis. (Dr. G. P. Tennent.)

The capsule, which was adherent, has been removed, and the exposed surface shows a very striking granulation, alternating with an almost smooth appearance of the surface, the smooth parts being considerably depressed below the level of the granular parts. On section it was found that the granular portions were persisting pieces of cortex, and that the smoother surface is due to the complete disappearance of the cortex. The kidney as a whole was much contracted, weighing only 2½ oz.

The other kidney had also a granular surface, with shrinking of the cortex, but it was normal in size. The spleen had the characters of amyloid disease. The liver presented many cicatrices, some of them very deep. *Path. Reports*, 20th February, 1883, No. 939.

VII. 26. Chronic Nephritis: Uric Acid Deposits in Pyramids (Gout). (Prof. Joseph Coats.)

The kidneys were not appreciably reduced in size, and weighed 6 oz. each. The cortical substance however, as shown in the prepara-

tion, was much destroyed, so that the bases of the pyramids approached the surface, and the surface generally was granular, with adherent capsule. The pyramids present abundant white chalky deposits, which were determined by chemical examination to be uric acid. Under the microscope the cortical substance showed abundant infiltration with round cells, with newly formed connective tissue, and sclerosis of glomeruli. There was somewhat extensive fatty degeneration of the epithelium. There was great enlargement of left ventricle.

The case began about three years before death with a severe attack of gout (in both great toes) and acute general œdema. From this he recovered, but had frequent and excessive micturition, till six weeks before death when a second attack of general œdema occurred. Uræmic convulsions with a maniacal condition developed about a fortnight before death. Hypertrophy of left ventricle and albuminuric retinitis were detected.

Path. Reports, 12th February, 1885, No. 1302.

VII. 27. Greatly Contracted Kidney from a Case of Phthisis Pulmonalis. (Prof. M'Call Anderson.)

The kidney is very small, weighing only 1 oz.; the other kidney weighed 3 oz. The surface of each was granular and the capsule adherent. The case was one of advanced phthisis pulmonalis.

James A. had presented symptoms of phthisis for a year. Had also about a year before death three attacks of gout.

Path. Reports, 1st March, 1886, No. 1493.

VII. 28. Miliary Tuberculosis of Kidney. (Dr. Finlayson.)

The tubercles are of small size, but are exceedingly numerous. They are present chiefly in the cortex, but a few also exist in the pyramids. The case was one of general tuberculosis.

Path. Reports, 19th March, 1880, No. 538.

VII. 29. Chronic General Tuberculosis; Caseous Masses in Kidney. (Dr. Christie.)

The kidney shows on the surface and in section several considerable caseous masses which are much larger than those in acute general tuberculosis.

VII. 30. Large Simple Cyst of Kidney. (Dr. Jas. Finlayson.)

The cyst which is as large as both closed fists, is situated chiefly in the kidney substance which it has opened up, but it also projects considerably from the convex and upper borders. Through the wall of the cyst on looking from within, the various regions of the kidney substance are visible, cortex and pyramids, and even at various places calices separated from the cyst only by a thin wall. There was no distention of pelvis or calices, and no communication of these with the cyst. The cyst contained 10 or 12 oz. of a slightly yellow transparent fluid.

The other kidney was normal. The man was 49 years old, and died of pachymeningitis hæmorrhagica. There had been albumen in his urine. (See *Glasgow Medical Journal*, Vol. 17, p. 243.)

Path. Reports, 12th January, 1877, No. 176.

VII. 31. Simple Cyst of Kidney.

A cyst of considerable size is displayed in section at the upper end of the kidney. It pushes aside the renal tissue and extends down as far as the hilum.

VII. 32. Large Simple Cyst of Kidney Projecting at Hilum and Flattening Vessels and Pelvis. (Sir Wm. T. Gairdner.)

The preparation has been divided longitudinally and a large thin-walled, translucent cavity is displayed measuring 9 cm. in diameter. It projects from the anterior and internal border of the right kidney, and whilst its upper border is 4 cm. from the upper end of the kidney its lower border is 2 cm. from the lower end of the kidney. In the section it is seen that it bulges into the kidney tissue, but without altering it otherwise than by displacement. The vessels and pelvis lie posterior to and are flattened against its convexity. This applies more especially to the artery and vein.

Dennis F. (aged 60) died from parenchymatous nephritis.

Path. Reports, 18th Feb., 1898, No. 5345.

VII. 33. Simple Cysts of Kidney.

There is a large cyst at the lower extremity of the left kidney measuring 7 cm. in diameter. It opens up and displaces the kidney

tissue, which is partially displayed in its wall. Two smaller cysts are shown towards the upper end, and there were others. The contents of the larger cyst was a clear colourless fluid.

Peter M. (aged 60) was affected with slight interstitial nephritis with hypertrophy of the left ventricle, and an old lung affection.

Path. Reports, 22nd April, 1898, No. 5427.

VII. 34. Cystic Transformation of the Kidneys. (Sir Wm. T. Gairdner.)

Both kidneys are converted into a congeries of cysts of larger and smaller size, which project on the surface, presenting variations of colour in their contents. The left is the larger, and measures 19 cm. in length, 11 cm. in breadth, and 7·5 cm. in thickness. The right weighs 627 grms., measures 15 cm. in length, 7·5 cm. in breath, and 6 cm. in thickness. In this kidney there is a good deal of solid tissue remaining in which, under the microscope, Malpighian tufts are detected. The pelves of both kidneys are normal, and so are the ureters. The calices are somewhat distorted by the encroachment of the cysts. The urinary bladder presented thickening of its mucous membrane with frequent hæmorrhage.

The patient was a man 43 years of age. There were repeated attacks of hæmaturia extending over 18 years. In later stages symptoms of vesical irritation were present. Tumour of kidneys was recognised. Death occurred with uræmic symptoms—*i.e.*, suppression of urine, delirium and coma, lasting in all for about 36 hours, and coming on suddenly two days after admission. Urine contained leucocytes and blood corpuscles; just before the fatal attack its quantity was 30 oz., sp. gr. 1012-15. The malformation of aortic valve, forming Series II., No. 6, is from the same case.

Path. Reports, 26th January, 1880, No. 516.

VII. 35. Cystic Transformation of Kidney (Cysts in Liver). (Sir Wm. T. Gairdner.)

The organ which is seen in section presents a congeries of cysts of all gradations in size up to 3·5 cm. in diameter. There is little renal tissue remaining. The other kidney was similarly affected. The liver presented numerous small cysts in every region. The broad ligament also contained many cysts in its outer part.

Mary L. (aged 44) died as the result of a hæmorrhage in the pons with paralysis of the right side, affecting face as well as body. It was noted that the urine was albuminous.

Path. Reports, 12th May, 1892, No. 2992.

VII. 36. Cystic Transformation of Kidneys (Cysts in Liver).
(Sir Wm. T. Gairdner.)

Only a slice of one kidney is preserved, but both kidneys were converted into congeries of cysts which varied in size from very minute to 6 cm. in diameter, but mostly from ·5 to 1 cm. Each kidney as a whole measured 16 cm. in length, and the ureter and vessels passed into the organs without obvious change. The cysts had for the most part colourless fluid contents, but in some a deep blue fluid was present.

Peter R. (aged 58) was affected with vomiting, thirst, anorexia, and progressive weakness for seven months. He had occasional attacks of urticaria. The urine contained abundant albumen and also blood. There was no œdema. Latterly, striking drowsiness and lethargy supervened, which twelve hours before death deepened into complete coma, with contracted pupils, feeble pulse, and loud accelerated breathing.

The liver also was cystic.

Path. Reports, 26th February, 1890, No. 2292.

VII. 37. Adeno-Sarcoma of Kidney of Congenital Origin.
(Sir Hector C. Cameron.)

The specimen was removed by operation. It consists of a massive tumour 10 cm. in measurement from above downwards and 8·5 cm. from before backwards. At its upper end is the greater part of the kidney, but there is a deep cleft or hilum situated essentially between kidney and tumour; beneath the cleft there is a portion of kidney expanded over tumour, and on all the aspects the capsule of the kidney is prolonged over the tumour. The tumour, as seen in section, has a somewhat lobulated appearance, and was exceedingly soft. Examined more closely, there are small cyst-like apertures visible at places, and at the lower extremity there is a more considerable cyst, measuring about 1·5 cm.

Microscopic examination reveals a highly cellular connective tissue, the cells being chiefly round or slightly elongated; occasionally there is a development of spindle-celled and of connective tissue.

In the midst of this tissue there are frequent passages and slits and occasional cyst-like spaces, all of which are lined with epithelium, which is usually columnar. In addition, there are occasional smaller gland-like structures chiefly in the midst of the connective tissue.

The tumour was removed from a baby 11 months old. It occupied the right lumbar region.

Path. Reports, 17th February, 1896, No. 4492.

VII. 38. Bulky Spindle-Celled Sarcoma of Kidney. (Dr. W. L. Reid.)

The tumour, half of which is preserved, was a dense rounded mass, measuring 20 cm. by 12 cm., and weighing 2,600 grms. On one of the flatter aspects of it lies the right kidney partly embedded, the tumour being contained in general within the capsule of the organ. The kidney is attached to the tumour chiefly by the outer convex border, the upper and lower extremities of the hilum aspect being for the most part free. The section in the specimen, which includes the lower extremity, shows that in the middle regions of the organ the tumour tissue has penetrated deeply, the kidney tissue being replaced in the superficial parts, and the tumour tissue even reaching the pyramids to some extent. The tumour, however, has greatly expanded over the kidney, and is only connected with it in its central parts.

Microscopic examination shows a spindle-celled tissue, in some places resembling involuntary muscular fibre. The kidney tissue is encroached upon by the new formation, which penetrates between the tubules. In some places the tissue, which in general is exceedingly tough, develops into a distinctly fibrous tissue.

Mrs. W. (aged 28) was confined about three years before the operation, and stated that at that time she noticed something in the abdomen which moved from side to side. This observation, however, is doubtful, and it was only ten months before operation that any marked abdominal swelling was definitely noticed. The operation was undertaken under the impression that the tumour was one of the broad ligament or uterus. The urine before operation was normal, and after the operation there seemed no disturbance further than that usual after a severe operation. Patient made a good recovery.

See report of case to Path. and Clin. Soc., *Glas. Med. Journal*, March, 1896, Vol. XLV., p. 226.

VII. 39. Cancer of Kidney Replacing the Kidney Tissue; Removed by Operation. (Drs. Gemmell and Dalziel.)

The specimen consists of the left kidney, the lower part of which is replaced by a tumour, which preserves the general form of the organ, though greatly expanded, and is contained within its capsule. The tumour measures 11 cm. from above downwards and the remaining kidney tissue 6 cm. The tumour as seen in section is directly in contact with the kidney tissue, but presents a distinct boundary line, although there are a few isolated nodules in the midst of kidney tissue beyond the boundary line. A rounded pedunculated tumour about 3 cm. in diameter occupies the pelvis of the kidney. The tumour tissue is tolerably firm in consistence; the central parts are extensively necrosed.

Under the microscope the tissue consists of large epithelium with a well-arranged stroma, the whole appearance suggesting a tubular structure, and resembling the renal tissue with all the elements enlarged. The epithelial cells are large, and the nuclei also are much larger than, although in general resembling, those of the renal epithelium. The boundaries of renal and tumour tissue are well defined, and no transition stages are seen.

Geo. B. (aged 45) complained of pain on left side of abdomen, and of passing blood in the urine. He had been in hospital nine months before with similar symptoms, paroxysmal hæmaturia being prominent. Blood was present occasionally in the urine, at other times only albumen. The tumour was removed by operation and weighed 636 grms. After the operation there was considerable sickness and smoky urine was passed. He died three days after the operation.

Path. Reports, 22nd Sept., 1894, No. 3882.

VII. 40. Cancer of Left Kidney. (Dr. C. O. Hawthorne.)

The preparation shows in section a kidney whose upper part is expanded into a massive tumour, the total length of the organ being 20·5 cm. At the lower part the kidney tissue is distinctly seen, but with several rounded tumours in its midst; the pelvis is shown with a probe passed into the ureter. On passing upwards, the kidney tissue is partly expanded over the tumour, and the capsule of the organ is retained, but the kidney tissue soon disappears, and the tumour tissue, which is of a soft friable character, replaces it. In the midst of the mass, however, a portion of the pelvis remains as a cavity lined with membrane. Along its posterior and inner borders

the tumour has broken through its capsule, and was continuous with a mass of cancerous glands. The suprarenal body was found infiltrated with the cancer, but still showing some traces of its proper structure. The tumour pushed the diaphragm and spleen (which was much enlarged) upwards, so that the latter reached to the third intercostal space. On the other hand the cancerous glands reached as low as the pelvis. Under the microscope, the tumour tissue is seen to form a delicate stroma and the epithelium is very large. There is sometimes an approach to cyst-like spaces with papillary ingrowth.

Sarah B. (aged 30) gave a history of loss of flesh and strength extending over six months without any local reference, the symptoms being referred chiefly to the pleura. Latterly there was great obstruction of the large venous trunks in the abdomen, and ascites developed. The urine throughout was albuminous, but there was no hæmaturia.

Path. Reports, 10th Dec., 1893, No. 3521. See also Trans. of Path. and Clin. Soc. V., 35.

VII. 41. Cancer of Kidney; Great Enlargement. Extension to Pleura and Lung. (Prof M'Call Anderson.)

The massive tumour, of which about a half is kept, represented the left kidney, being almost entirely contained within its capsule and behind the peritoneum. It projected so as to fill the entire left side of the abdomen, the stomach and descending colon being especially displaced. It extended from the diaphragm, which was flattened over it, to 2·5 cm. from the symphysis, having a long diameter of 30 cm. and a transverse of 17·5 cm. On cutting into it, it was seen to be generally lobulated, and composed of a very soft, dead-white or yellowish tissue. In the upper part, there was a cavity, partly shown in preparation, nearly large enough to contain the fist, and lined with shreddy material. This cavity is in the centre of a single large lobule. At the lower extremity of this lobule, the tumour presents irregularly conical lobules, which somewhat resemble in shape the exaggerated renal pyramids, and the apices of these end in a kind of cavity, into which the ureter was traced. In some parts of these pyramids a trace of renal tissue was visible with the naked eye, and with the microscope numerous Malpighian tufts and distorted tubules were found.

At its upper extremity the tumour had broken through the capsule, and there were prominent nodules partially separated. At

the extreme posterior part these nodules extended through, or behind the attachments of, the diaphragm, and there were a number of tumours dotted over the pleura, both parietal and pulmonary (see next preparation). The pleural cavity contained a great excess of bloody fluid, which compressed the lung.

The structure of the tumour is seen to be epithelial, the cells in general being large and sometimes with a distinct tendency to be cylindrical. In the exaggerated pyramids mentioned above, where there are Malpighian tufts and tubules, there is a good deal of fibrous tissue, and the epithelial cavities are generally pretty large. A section of one of the pleural nodules shows a typical coarse, but not abundant stroma, containing nests of large epithelial cells.

Wm. B. had an attack of hæmaturia two years before death, this symptom recurring several times. Pain and swelling of the left side were first observed a year before death. Latterly, a large tumour was detected in the abdomen, and before death the left pleura was known to be filled with fluid.

Path Reports, 10th Nov., 1887, No. 1768.

VII. 42. Secondary Tumours in Pleura and Lung. (From previous case.)

The diaphragmatic surface of the pleura is seen to be studded with tumours, and there are numerous nodules of various sizes in the lung substance.

VII. 43. Cystic Tumour of Kidney originating from Adrenal Tissue. (Sir Hector C. Cameron.)

The upper part of the right kidney is expanded into a bulky tumour approaching in size that of the two closed fists. It measures in its greatest diameter 13 cm. As shown in section the tumour consists largely of cavities filled sometimes with a colloid material, sometimes with blood, and sometimes with necrotic matter. There are in two or three places more solid masses of tissue. One of these towards the outer border consists of a whitish tissue which is in direct contact with the kidney tissue. On the surface the tumour presents some lobulation, and there were cysts visible in the fresh state at the surface. The tumour has a capsule continuous with that of the kidney, and the kidney tissue is in part expanded over the tumour,

but this ceases at a short distance from the lower extremity of the tumour. The surviving portion of kidney would represent probably at least three-fourths of the organ. It measures about 11 cm. The pelvis and calices are somewhat dilated, and there are six papillæ which open normally into the latter. The tumour tissue protrudes into the uppermost of the calices by two bulbous projections, on the summit of one of which cysts protrude. Under the microscope the process of cyst-formation is well displayed. There is a glandular tissue consisting of trabeculæ and cells which strongly suggest those of the adrenal bodies. The internal cells have the goblet form and are obviously secreting the contents of the cysts. The contents of the cysts are occasionally mixed with blood, and sometimes there are rounded clumps of brown pigment. Pigment is also occasionally present and is sometimes in great abundance in the solid tissue between the cysts. The solid pale tumour mentioned shows a structure resembling that of cancer, but with more of a glandular arrangement. The cells are large and with round nuclei, and present a general resemblance both in structure and arrangement to those of the adrenals. There are considerable areas of necrosis which are markedly infiltrated with polymorphonuclear leucocytes.

Path. Reports, 15th March, 1898, No. 5376.

VII. 44. Cancer of Kidney in the Form of a Bulky Cyst.
(Sir Hector C. Cameron.)

There is a massive tumour measuring 16 cm. in diameter. It has a firm external capsule and its contents were mainly a brownish yellow coagulum with only here and there some translucent greyish-yellow tissue. The kidney is in large part extended over it and greatly flattened, the hilum of the organ being towards the tumour. The capsule of the kidney extends continuously over that of the tumour. There are no secondary tumours in the kidney and no apparent direct involvement of the renal tissue. A branch of the renal artery passes over the convexity of the tumour and is somewhat flattened by pressure. The capsule of the tumour is composed of dense fibrous tissue the internal layers of which are at places calcified.

Microscopic examination of the general contents shows merely necrosed and coagulated matter, but occasionally a formed tissue is discovered which presents the structure of a typical cancer. The

stroma is sparse and the cells are large and with large nuclei. Occasionally there is a glandular appearance, viz., spaces having a distinct lumen lined with epithelium. The tissue is soft and there are visible signs of breaking down. The tumour has originated in the kidney, but suggests an origin other than the kidney substance, in respect that the microscopic appearance does not reveal kidney tissue and that the remaining kidney substance is not infiltrated by the tumour. An origin from an aberrant suprarenal is suggested.

Margaret M'M. (aged 34). The tumour was known to exist for 10 years in the right hypochondrium. It has grown steadily and painlessly and the patient has borne three children. There has never been hæmaturia. The tumour was removed, but recurrent tumours subsequently appeared in inguinal region of same side, omentum, left breast, and elsewhere.

Path. Reports, 7th April, 1896, No. 4567.

VII. 45. Cancer of Kidney, probably from Suprarenal Inclusion. (Prof. M'Call Anderson.)

The lower half of the right kidney is replaced by a lobulated tumour which on the surface presents strikingly prominent rounded masses, to which the capsule was in part adherent. On section the tumour tissue, which was found to directly supplant the kidney tissue, showed various colours; bright yellow areas predominated, but there were also brownish parts, and occasionally a cystic condition manifested itself.

Microscopic examination showed the tumour to be largely necrotic, and it was difficult to get recent structure. In the fresher parts there was extreme fatty degeneration and frequently an accumulation of blood pigment, both of which obscured the structure. In some places however there were epithelial columns, distinctly suggesting suprarenal structure.

In addition there was a gangrenous cancer of the œsophagus and there were small tumours, one in each suprarenal capsule, believed, from correspondence of structure, to be secondary to the cancer of the œsophagus.

John M. (aged 66) presented symptoms which were referred to the œsophageal tumour. There was ultimately great emaciation.

Path. Reports, 14th Jan., 1897, No. 4889.

VII. 46. Hydatid Cyst of Right Kidney. (Drs. J. Lindsay Steven and John Fotheringham.)

The specimen shows that the kidney has been converted into a large loculated cyst, measuring in greatest length 19 cm., in breadth 11 cm., and in depth about 8 cm. Practically no renal tissue remains; the upper portion of the tumour has adhering to it a portion of the diaphragm. The ureter is seen with a piece of whalebone passed through it into the interior of the cyst; it is very greatly dilated, and its walls are much thickened. The cavity was filled with daughter cysts, which readily escaped when the thin anterior wall of the tumour was ruptured at the postmortem. Some of them are seen lying at the bottom of the jar, and a few have been replaced within the parent cyst. An examination of the contents of these cysts showed that they were filled with a clear non-albuminous fluid, in which small white granules were floating, which, on microscopic examination, proved to be the echinococcus heads. Half of the opposite kidney is also seen, and its surface presents a coarsely nodulated appearance. On microscopic examination the organ, in addition to presenting considerable interstitial new growth, is seen to be the seat of extensive amyloid disease.

The case occurred in the practice of Dr. Fotheringham of Motherwell, and was seen on two occasions by Dr. J. Lindsay Steven in consultation with that gentleman. The patient was a married woman, æt. 30, and came under observation on account of symptoms of acute Bright's disease of about two months' duration. About a fortnight afterwards a tumour was discovered, filling the right lumbar region. Suddenly, after pain complained of in the line of the right ureter, a number of cysts were discharged along with a quantity of pus. These discharges occurred at longer or shorter intervals until the patient's death a month or two afterwards. (For fuller account see Transactions of the Glasgow Pathological and Clinical Society, and also *Glasgow Medical Journal*, December, 1884, Vol. XXII., p. 427; and June, 1885, Vol. XXIII., p. 429.)

VII. 47. Daughter Cysts discharged during life by the Ureter and Urethra. (From preceding case.)

The specimen shows daughter cysts of precisely the same nature as those exhibited in preceding preparation. They are mounted in glycerine. The large one was ruptured before discharge, but the smaller ones came away entire. The discharge was preceded by symptoms closely resembling those of renal colic.

VII. 48. Hydatid Cyst of Kidney. (Dr. G. P. Tennent.)

The kidney was replaced by a large tumour consisting of a nearly globular cyst. At the lower end of the tumour there are the remains of the kidney, seen in section in the preparation, and it is as if the cyst had opened up and pushed aside the kidney tissue without producing any other considerable alteration. The cyst was filled with pultaceous material like very soft putty, which was found to consist mainly of oil and cholestearine with some lime salts. The wall of the cyst is partly infiltrated with lime, and the internal surface has a very irregular appearance not unlike that of the aorta in advanced atheroma.

On dividing the cyst, the kidney and suprarenal capsule are found to be spread out to a considerable extent on its anterior and inner surfaces, the pelvis of the kidney being greatly elongated. The cyst itself has no connection with the pelvis, and its wall is quite distinct from the kidney tissue, although firmly adherent to it.

In the cyst were many irregular pieces of soft membrane, portions of which are preserved in the next preparation.

Path. Reports, 1st April, 1881, No. 647.

VII. 49. Pieces of Hydatid Membrane. (From preceding case.)

They are of various sizes and thickness, and under the microscope present a homogeneous appearance, and are often in layers. They have been separated from the pultaceous material by boiling in alcohol.

VII. 50. Hæmorrhage in the Pelvis of the Kidney in Purpura Hæmorrhagica. (Dr. Jas. Finlayson.)

The pelvis is seen to be full and even distended with blood clot, its mucous membrane being also infiltrated with blood. The stomach also presented hæmorrhages. The ureter contained blood clot, and during life there was hæmaturia. There were bleeding from the gums, tarry motions, abundant purpuric spots, and other evidences of purpura hæmorrhagica.

The patient was a man 28 years of age.

Path. Reports, 25th July, 1878, No. 351.

VII. 51. Blood Casts in Ureter. (Dr. T. W. Hay, Scarborough.)

The preparation consists of some specimens of casts passed by the urethra. They are elongated bodies of various diameters, the largest about the size of a goose quill. They consist of blood corpuscles and fibrine, and the fibrine has condensed on the surface into a smooth covering.

Dr. Hay writes: "These were passed by an old woman (80 years). She had suffered more or less for six years with pain in the back, which she attributed to a strain. There were no kidney symptoms. Two days before passing the casts, blood was noticed in the urine. She then passed one cast 8 in. long. On the following day she passed casts to the length of 5 ft., during one period of micturition, and on the following day she passed something over 16 ft., during one micturition, *i.e.* 22 ft. 6 in. altogether, when measured after hardening in spirit. The blood ceased to appear in the urine from that time, and the patient was fairly well within a week."

VII. 52. Hydronephrosis with Dilatation of Ureter in an Anencephalous Fœtus.

The *kidneys* are about equal in size, measuring 4 cm. in length. They show distinct lobulation of their anterior surfaces, while their convex posterior surfaces are smooth. There is slight dilatation of the pelvis of the right kidney, but the calices are normal. This ureter is apparently normal in diameter, but is considerably shorter than the left. On the left side there is distinct hydronephrosis. The calices are dilated, and there is some atrophy of the pyramidal substance.

There is a more or less uniform dilatation of the left ureter, the calibre of which is at least three times greater than that of the right. Its junction with the pelvis is marked by a slight constriction. The opening of the ureter in the bladder is slightly larger on the left side.

The *bladder* itself presents some hypertrophy without dilatation.

There was no obstruction in any part of the *urethra*. The generative organs were normal.

The anencephalous fœtus was of the female sex, and measured 40 cm. in length.

(For account of this and following specimens *vide* paper by Drs. L. R. Sutherland and G. H. Edington in *Glasg. Med. Journ.*, February, 1898.)

VII. 53. Double Hydronephrosis; Dilatation of Ureters; Hypertrophy of Bladder, in an Anencephalous Fœtus.

The *kidneys* are about equal in size, measuring 4·5 cm. in length, and retain the reniform outline. There is well-marked lobulation present, particularly on the anterior aspect of the right kidney. There is antero-posterior flattening of the left kidney.

Both *pelves*, with their corresponding calices, are markedly distended, and there is distinct atrophy of the renal papillæ. The pelves are infundibuliform, and their junctions with their ureters are marked by a distinct constriction.

The *ureters* are both uniformly dilated and hypertrophied. There is no obstruction at their vesical extremities. The *bladder* is distinctly hypertrophied, with moderate dilatation. The urachus is well marked, and its cavity communicates with that of the bladder. The *urethra* presented no obstruction whatever. The generative organs were normal.

The anencephalous fœtus was of the female sex, and measured 48 cm. in length.

VII. 54. Congenital Hydronephrosis from Narrowing of Ureter at Upper Orifice, in a Child. (Dr. T. K. Dalziel.)

The preparation was removed by operation, and it consists of a large thin-walled cyst, measuring vertically 13 cm. and transversely 12 cm., on one aspect of which remains of kidney tissue are flattened out.

The cyst is divisible into two portions—the pelvic and the renal. The former consists of a thin-walled portion much distended, and measuring 9 × 7 cm.; the latter is considerably more elongated, measuring 13 cm. from above downwards and 5 cm. transversely. The dilated calices are partially displayed in this latter portion. Appended to the pelvis is a portion of ureter, which at its point of section, 5 cm. from the pelvis, is normal in appearance. On approaching the pelvis it tapers, and at its actual entrance measures about 1 mm. in diameter. The cyst contained a colourless, odourless fluid, and on squeezing the contents, fluid was observed to drop very slowly from the cut end of the ureter. The internal orifice of the ureter is represented by a slight dimple, and passage is given to a bristle, as shown in preparation.

Jeanie C. (aged 6) was admitted with a large tumour in the right renal region, which had been first noticed eighteen months after birth. It was stated that it remained of the same size till the date of operation. It was removed by abdominal nephrectomy.

Path. Reports, 16th Sept., 1897, No. 5168.

VII. 55. Hydronephrosis. Great Narrowing of Pelvic Orifice of Ureter.

The kidney, which is the left, presents a marked dilatation of the pelvis and calices, and the latter communicate with the pelvis by comparatively small apertures expanding inside the kidney so as to form considerable cavities. The ureter is extremely narrowed at its pelvic orifice, so that even a fine probe could not be passed, only a bristle being admitted. No cause for the stenosis was discoverable, and a congenital origin seems the most probable.

William M'L. (aged 50) died in consequence of cerebral softenings. *Path. Reports*, 12th March, 1890, No. 2305.

VII. 56. Extreme Hydronephrosis, Ureter Entering Pelvis at an Acute Angle. (Dr. Jas. Finlayson.)

The external outline of the kidney is greatly enlarged, the organ measuring 16 cm. from above downwards. As shown in the preparation the pelvis is greatly dilated, measuring 9 cm. from above downwards and 6 cm. transversely. It communicates with a series of large compartments which represent greatly dilated calices, and which, in some places, extend close to the surface, the remaining kidney tissue forming simply a thin rind. The ureter is not dilated, and it enters the pelvis at an acute angle about 2 cm. above the lower extremity of the latter. The pelvis is not elongated towards the ureter; and the orifice, into which a piece of whalebone has been passed, is even smaller than normal. From the position of the ureter the orifice would be valved when the pelvis was full.

The other kidney was considerably enlarged (*compensatory hypertrophy*), weighing 280·5 grms.; it was otherwise normal. The patient, a man aged 53, was affected with symptoms of acute rheumatism and pneumonia with pleurisy. There is no note of renal symptoms during life. *Path. Reports*, 6th January, 1883, No. 909.

VII. 57. Hydronephrosis of Peculiar Form; Ureter Entering Pelvis at an Acute Angle. (Prof. Geo. Buchanan.)

The preparation shows a very large cyst which contained 46 oz. of fluid, and represents the greatly dilated pelvis of kidney. This cyst is attached to the lower and anterior aspects of the kidney, the vessels passing to the organ running along its upper border. Towards the kidney there are six large rounded apertures which represent calices much less dilated than the pelvis, and these apertures communicate with cavities inside the kidney. The uppermost of these cavities is of considerable dimensions, but in the case of all of them there is a considerable amount of kidney substance between them and the surface.

The ureter, into which a probe has been passed, is found to enter the dilated pelvis near its inferior part at an acute angle, traversing the wall of the cyst for some distance and opening by a slit-like aperture. The ureter is not dilated, and its aperture is not unduly narrow. The other kidney was normal in size, weighing 6 oz. This is noteworthy in connection with the fact that in the affected kidney there was still a considerable amount of kidney tissue remaining, as mentioned above. Nothing was known during life of the existence of this condition.

Mrs. G. (aged 45) had suffered from tumour in the right lumbar region for 12 years. *Path. Reports*, 2nd October, 1882, No. 855.

VII. 58. Dilatation of Ureters and Hydronephrosis in a Child. (Dr. W. J. Fleming, at Royal Hospital for Sick Children.)

The obvious condition here is great dilation and wasting of ureters, with hydronephrosis; but there was also a septic condition both of the dilated spaces and of the kidney substance. The bladder presents great hypertrophy of the muscular coat. There was no obvious obstruction in the urethra or in the neck of bladder, but there was a narrow external meatus and an adherent prepuce. It was suggested by Dr. Dalziel and others that the obstruction, which must obviously have existed, was partly direct from the narrowed meatus and partly reflex, the irritation of the adherent foreskin causing spasm.

D. L. (æt. 5) had suffered from the age of eighteen months from pain on micturition, referred to the glans penis. He would go for a whole day without micturating, but when this was so there

was a dribbling away of the urine. He wet the bed at night if he was lying on his back. On admission, bladder was found greatly distended. The prepuce was long and adherent, and the meatus narrow. Some balanitis occurred, and after circumcision had been performed further septic phenomena appeared, the urine becoming smoky and depositing blood corpuscles and leucocytes. Death occurred with high temperatures.

See *Glas. Med. Journal*, Vol. XLII., p. 131.

VII. 59. Hydronephrosis from Branch of Artery Crossing Ureter.

The pelvis of the kidney has been filled with paraffin-wax. It is seen to be enormously dilated, bulging out from the hilum in a conical or pear-shaped form, the hilum being greatly enlarged so as to accommodate the dilated pelvis. There is also a lesser degree of dilatation of the calices. The preparation shows the organ supplied by two principal arteries; the larger of these has four branches, three of which pass into the kidney along the anterior border of the renal pelvis, whilst the fourth passes rather downwards and backwards. In its passage the artery has crossed the ureter close to its insertion into the apex of the pelvis. The artery here is considerably buried in a deep groove produced by it in the dilated pelvis, and the ureter emerges from beneath the artery in this groove. The groove is overhung, on the opposite side from the ureter, by two rounded bulgings, which consist of apex of pelvis and dilated first part of ureter, the former being thin and translucent, and the latter thicker and more opaque from the presence of a muscular coat in the ureter. The ureter could be drawn out from beneath the artery, and the place of crossing was marked by a thinning due to atrophy of the muscular coat.

Alex. M'R. (aged 65) died from bronchitis. There were no known symptoms referable to the kidney.

Path. Reports, 16th Jan., 1891, No. 2560; also *Glasgow Medical Journal*, Vol. XXXV., p. 342.

VII. 60. Calculus at Upper Orifice of Ureter. Hydronephrosis. Cancer Secondary to that of Lung. (Prof. Gemmell.)

An oval calculus about 1·5 cm. in diameter occupies partly the pelvis of the kidney, completely obstructing the upper orifice of

the ureter. The pelvis itself is not greatly dilated, but there is a marked hydronephrosis, though without complete destruction of the kidney tissue. There are several secondary cancerous tumours, one of them, shown in a piece hung separately, being 1·5 cm. in diameter. The case was one of primary cancer of the lung, represented by a gangrenous cavity. There were also secondary growths in spleen, liver, and brain, one of the latter having the form of a cyst.

Helen T. (æt. 39). Nothing related to the kidney was discovered during life, the symptoms referring chiefly to the tumours in the brain. *Path Reports*, 22nd December, 1893, No. 3532.

VII. 61. Hydronephrosis with Contraction of Kidney, due to a Calculus in Ureter. (Prof. M'Call Anderson.)

The right kidney, which is the one affected, is much contracted. There is no proper renal tissue remaining; the organ constitutes a cyst having the usual character of hydronephrosis. The ureter is distended down to an inch and a half from the bladder, where an oval calculus is impacted. Below the calculus the ureter is much contracted. The other kidney was enlarged, weighing 6½ oz.

Path. Reports, 24th October, 1877, No. 257.

VII. 62. Hydronephrosis in the Form of Multiple Cavities Communicating with Small Pelvis. Calculi. (Dr. Dalziel.)

The kidney is replaced by a congeries of cysts which protrude from the general contour, the whole having the general form of the kidney expanded; the total measurement from above downwards reached 18 cm. The cysts are thin-walled, and no trace of renal tissue is discovered. The cysts, which internally are partially divided by projections from the walls, have apertures generally of small size, by which they communicate with the pelvis. Several of the upper cysts communicate, and in this common part there is an odd-shaped calculus with several processes of a dark-red or brown colour. The hilum of the kidney is considerably overhung by the cysts. The ureter is of normal size. The pelvis is largely occupied by a calculus which is closely grasped in a great part of its circumference. The pelvis as a whole measures only 3 cm. from above downwards and 1·5 cm. transversely. A small calculus was also sent down, which had probably also occupied a portion of the pelvis. This, like the others,

is dark in colour externally, but has a whitish core. Both parts are found to give the reactions of oxalate of lime, the external layers being apparently coloured with altered blood.

Benjamin D. (aged 58) had been under treatment with Dr. Gemmell for hydronephrosis two and a half years before operation. The tumour was repeatedly tapped. Latterly pus appeared occasionally in the urine, and aspiration of the kidney revealed pus in it. The mass was removed by operation, and the patient made a good recovery.

Path. Reports, 8th August, 1896, No. 4742.

VII. 63. Hydronephrosis with Decomposition and Inflammation and Peculiar Calculi. (Dr. Patterson.)

There is here a large irregular cavity consisting essentially of the renal pelvis, whilst the calices are represented by more or less rounded cavities communicating with the main one. The mucous membrane of the pelvis is thickened, and a thick layer of fat covers it continuously. The ureter opens by an aperture large enough to give passage to an ordinary probe. Beyond the aperture the ureter is considerably dilated, and the dilatation is continued down to the bladder. Near the vesical extremity two small flattened calculi, similar to those shown in next preparation, were found. The kidney had been laid open [the part is not preserved] and stitched to the abdominal wall. In the pelvis at the time of death were found the calculi shown in next preparation, and twenty-seven similar ones were removed at the operation.

Marion M. (aged 41) dated back her illness six years, when she began to be troubled with recurrent attacks of pain in the left side, accompanied by swelling. On admission there was a large tumour extending to within an inch of the umbilicus. At the operation the cavity was found occupied by a large quantity of badly-smelling urine. *Path. Reports*, 6th July, 1896, No. 4695.

VII. 64. Phosphatic Calculi. (From preceding case.)

The calculi, to the number of fourteen, are all pale, some of them being white. They all form rounded or oval discs, the smaller ones almost like scales. They are composed of non-fusible phosphate of lime.

VII. 65. Calculi in Ureter and Kidney. Hydronephrosis. (Dr. Finlayson.)

The ureter just above the bladder contains a number of calculi, some of them rounded and reddish in colour (uric acid), some of them roughened from incrustation. The ureter is considerably dilated above. The kidney shows great dilatation of the pelvis and atrophy of kidney substance. At the lower part there are two calculi, one rounded and reddish. There was considerable hæmorrhage in the mucous membrane of the pelvis. The other kidney contained a calculus in the pelvis, and both kidneys showed opaque markings from deposition in the tubules. The kidney tissue in both showed distinct interstitial nephritis. There was hypertrophy of the left ventricle of the heart, this organ weighing 19½ oz.

Joseph M'W. (æt. 38), a lead worker. His illness only dates two years back, when retention of urine occurred. The symptoms on admission resembled somewhat those of chronic nephritis, including hæmorrhagic retinitis and white spots. There were also headache, giddiness, and dimness of vision, etc.

Path. Reports, 14th July, 1890, No. 2423.

VII. 66. Hydronephrosis from Calculus in Ureter. (Dr. Finlayson.)

The outline of the kidney is considerably enlarged, and, as shown in section, the pelvis and calices are considerably dilated, the proper renal tissue being atrophied, but the atrophy only affecting the pyramidal portion. The ureter is dilated for a distance of about 4·5 cm. from the pelvis, after which it suddenly resumes the normal calibre. At the last part of the dilated portion there is an elongated calculus of a reddish colour and a somewhat irregular surface. It measures 1·7 cm. in length by about ·7 cm. in width. Another small calculus lies loosely above it.

James G. (aged 47) was affected with phthisis pulmonalis, followed by amyloid disease. There is nothing in the history pointing to the lesion shown. *Path. Reports*, 30th July, 1895, No. 4255.

VII. 67. Double Hydronephrosis and Dilatation of Bladder from Enlargement of Prostate. (Dr. Finlayson.)

Both ureters are greatly distended, and so are the pelves of the kidneys, which bulge out very markedly from the general outline of

the kidney. The calices are also much dilated and the apices of the pyramids are considerably atrophied, but there is no increase of the general outline of the kidneys. See VII. 108.

Path. Reports, 2nd January, 1884, No. 1100.

VII. 68. Hydronephrosis with Thickened Fatty Capsule, from Cancer of Bladder. (Prof. G. Buchanan.)

Both ureters were much distended, thinned, and tortuous. The left kidney, which is preserved, was surrounded by a thick capsule of fat; and the kidney itself, although not enlarged in its outline, is in a state of hydronephrosis. As the tumour was mainly on the left side of the bladder, this ureter had probably been obstructed for a prolonged period. See VII. 128.

VII. 69. Double Hydronephrosis, with Great Enlargement of one Kidney and Atrophy of the other. (Sir Hector C. Cameron.)

The left kidney is greatly enlarged in outline and converted into a congeries of cavities whose walls consist of thick fibrous tissue. The pelvis is dilated and communicates with these cavities, but in the case of some the orifice is small. There was a single stone in several of the cavities. The uppermost cavity has a wall about 1 cm. in thickness, and this is composed of renal tissue. The right kidney is greatly reduced in size. The pelvis is much dilated as are also the calices, leaving a comparatively thin layer of renal tissue at the surface. A complete examination was not allowed and the condition of the bladder and urethra was not discovered.

John M'R. was admitted with uræmic symptoms. There was a large swelling on left side of abdomen reaching up beneath the costal cartilages. Epileptiform convulsions occurred, and complete suppression of urine. The kidney was cut down on twenty-four hours after the suppression of urine occurred, and a large stone removed. Patient died on the same day.

Path. Reports, 17th June, 1889, No. 2124.

VII. 70. Calculus in Pelvis of Kidney; Hæmaturia. (Sir Wm. T. Gairdner.)

In the pelvis of the right kidney there is a calculus about 2·5 cm. in long diameter, which is stuck in the orifice of the ureter and on

its free surface shows an indication of the shape of the calices. It is almost black in colour with a reddish tinge, except in two places, where there is a white deposition. There are two other small dark masses in the pelvis. The pelvis and calices are considerably dilated. Smoky urine was found in the bladder.

Charles M'L. (æt. 54) presented chiefly cardiac symptoms. In addition he had frequently recurring attacks of hæmaturia and was latterly very anæmic.

Path. Reports, 7th July, 1887, No. 1730.

VII. 71. Renal Calculus. (Dr. Patterson.)

The specimen shows a large branching calculus filling both the pelvis and calices. At the post-mortem the end of the calculus which was plugging the orifice of the ureter was found separated from the main mass. The fractured surfaces, though fitting each other, were smooth, and suggestive of an old fracture.

The patient, a man, was admitted in a semi-comatose condition and with suppression of urine.

Path. Reports, 10th March, 1888, No. 1855.

VII. 72. Obstruction of Ureter by Calculus; Pyonephrosis. (Dr. Beatson.)

The calculus is impacted in the ureter about 5 cm. above the bladder. It is irregular in shape and consists partly of a brown tuberculated material in which white phosphates are deposited. Its diameter is, generally, 1·2 cm. by ·6 cm. Above the calculus the ureter is greatly distended, as were also the pelvis and calices. Pus was present in these, and there were abscesses in the remaining kidney substance. There were more numerous abscesses in the other kidney, and the case was one of pyæmia arising in connection with fracture of the radius, humerus, and bones of the leg.

Path. Reports, 26th Sept., 1888, No. 1934.

VII. 73. Kidney Removed by Operation. Pyonephrosis. (Sir Hector C. Cameron.)

The kidney is almost normal in size but the pelvis is considerably dilated. The mucous membrane of the pelvis is thickened and has a general granular appearance. The dilated pelvis has been cut

through on removal, leaving a wide gap nearly 5 cm. in diameter. The pelvis communicates with the surface by a sinus which has been laid open. It has a well-marked wall and is ·6 cm. in diameter. The kidney substance is firm and the surface granular. The capsule is firmly adherent. Under the microscope the kidney presents the usual appearances of the contracted kidney.

Mary O. (æt. 19) was affected for more than two years with recurring pains in right side of abdomen. Latterly an abscess formed, which was opened and was found to extend to the kidney. A drainage tube inserted gave passage to urine, usually amounting to about 20 oz. in twenty-four hours. Attempts at removal of the drainage tube always resulted in accumulation requiring re-insertion. Eight months afterwards the kidney was removed. The patient slowly recovered, but when dismissed three months later the wound was still slightly open, and there was some paralysis of the right leg. The amount of urine after the operation was on an average from 20 to 30 oz.

Path. Reports, 14th Nov., 1888, No. 1973.

VII. 74. Calculous Pyonephrosis. Nephrotomy on one side.
(Prof. Geo. Buchanan and Dr. Renton.)

The right kidney is the seat of numerous cavities which communicate with the pelvis and contained pus. The outline of the kidney is not appreciably increased. From this kidney a large calculus was removed 15 months before death. The wound closed but re-opened, and pus was discharged. The left kidney is much enlarged. There are enlarged cavities communicating with the pelvis, and there are several calculi, one of large dimensions occupying the pelvis and extending into the communicating cavities, and others lying in the cavities. The cavities in this kidney also contained pus.

William G. (age 31) had a stone removed from the bladder by perineal section five years before death. Again, fifteen months before death, he had a stone removed from the right kidney. On the wound re-opening and continuing to discharge, a free incision was made down to the kidney. The patient never seemed to rally from the operation, and died in five days. It will be noticed that the right kidney contains no kidney tissue, and the left very little. *Path. Reports*, 23rd Dec., 1890, No. 2539.

VII. 75. Pyonephrosis with Calculi. Separate Cavities. (Sir Wm. T. Gairdner.)

Both kidneys here consist of a congeries of cavities some of which contained a creamy pus and some a more watery pus. Some of the cavities communicate with the pelvis and others are separate. In each kidney the pelvis was contracted, and contained a calculus. The kidneys were buried in a thick mass of fat, and the ureters were surrounded by fat, so as to present elongated, pudding-shaped bodies in the abdomen. They are shown in the preparation as channels in the midst of the fat.

Janet M'G. (æt. 48) was admitted moribund, with no history obtainable. *Path. Reports*, 18th June, 1891, No. 2695.

VII. 76. Double Calculous Pyonephrosis. (Prof. Gemmell.)

Both kidneys are enlarged in outline, the calices being extended almost to the surface. The pelvis in both is rather collapsed and occupied by a calculus of complicated shape, which is in some places grasped by the contracted pelvis. The pelvis and dilated calices are rough on the surface, and flocculent matter remains adherent. The intervening renal tissue is condensed, and that next the calices has even a fibrous character. The contained calculi have a brownish colour and a friable consistence, being phosphatic. Both kidneys contained a thick greenish pus; a greenish-yellow pus was also present in the bladder.

Marion P. (aged 38). The history is very imperfect, but the symptoms, latterly at least, were mainly sickness and vomiting. She was only four days in hospital, and the urine was found to contain pus and much albumen.

Path. Reports, 1st April, 1898, No. 5401.

VII. 77. Calculous Pyonephrosis. Nephrectomy. (Sir Hector C. Cameron.)

Half of the kidney is preserved. It is composed of a series of cavities with surrounding condensed and altered kidney tissue. There is a branched calculus in a cavity which represents the pelvis, and several other smaller calculi were present. This kidney was removed by operation, and after death it was found that the kidney on the other side was similarly affected, there being a calculus in the pelvis extending into the ureter. There were in this kidney also cavities surrounded by indurated renal tissue.

Barbara L. (aged 32) was affected with an abscess in the right lumbar area, which was found on opening to be connected with the kidney. The kidney was afterwards excised and the patient lived 22 days, her death being preceded by uræmic convulsions.

Path. Reports, 15th March, 1892, No. 2929.

VII. 78. Calculous Pyonephrosis. Perinephric Abscess. Abscesses in Spleen. (Sir Hector C. Cameron.)

The preparation shows in section the parts concerned. Below, the ureter passes from a large cavity. With this there communicate in a somewhat complicated manner several smaller cavities representing calices, and these are partly occupied by a branching calculus. The large cavity is directly bounded in its upper part by pancreatic tissue, which is spread over its surface, the cavity being thus to a considerable extent extra-renal. The spleen, from which a portion has been removed so as to show the organ in section, presents a large central cavity, with a well-defined wall, but irregular internally. This cavity communicated by a somewhat narrow channel with the large general cavity, and like it was occupied by a thick tenacious yellow matter. There are indications of one or two smaller cavities in the spleen. The splenic tissue shows a well-defined amyloid degeneration of the sago form.

The mucous membrane of the urinary bladder showed superficial erosions, and the surface was coated with an opaque puriform matter.

Sarah M. (aged 38) was moribund on admission. There was a history of an acute illness of one month's duration, with rigours and profuse sweating. This was said to have followed a prolonged period of ill-health accompanied by leucorrhœa. There were febrile temperatures. *Path. Reports*, 9th Oct., 1895, No. 4355.

VII. 79. Pyonephrosis. Perinephric Abscess Perforating into Intestine and Ureter. (Sir Wm. T. Gairdner.)

The kidney, which is the left, was completely surrounded by an abscess of complicated shape which communicated externally. The kidney itself is converted into a series of irregular cavities, which contained pus. The pelvis of the kidney is greatly shrunken, and hardly recognisable ; but a cavity, in its position, communicates with an aperture in the ascending colon, through which a piece of whale-

bone has been passed. The abscess was also in communication with the ureter of this side, and with the opposite ureter by an elongated branch of the abscess which crossed the middle line. The right kidney was enlarged, and the seat of numerous small abscesses. The liver and spleen were highly amyloid. The right testicle was the seat of tubercular disease.

The patient was a man aged 30, who had been in the hospital twice at an interval of two years. There had been a severe injury to the testicle, with urethral suppuration six years before ; but it was on the opposite side from the renal abscess. At first there was a somewhat acute nephric or perinephric abscess, with a very large tumour in the region of the left kidney, and with pus in the urine. This subsided apparently by discharge into the intestinal canal, the renal tumour being no longer perceptible after two to three months, although pus was still present in the urine. He recovered sufficiently to leave, although there was presumptive evidence of amyloid disease. He was re-admitted fifteen months afterwards with large re-accumulation of the abscess, which was opened antiseptically. After a time albuminuria, anasarca, etc., supervened, but it was only about a fortnight before death that pus returned to the urine.

The case has been made the subject of a most important dissertation and commentary by Dr. J. Lindsay Steven. See *Glas. Med. Journ.*, January, 1882, "On a case of Pyelonephritis with Micrococci." See also on "The Pathology of Suppurative Inflammations of the Kidney," *Glas. Med. Journ.*, September, 1884.

Path. Reports, 4th May, 1881, No. 656.

VII. 80. Perinephric Abscess. Suppurative Nephritis. Enlarged Prostate and Hypertrophied Bladder. (Sir Geo. H. B. Macleod.)

The prostate is much enlarged, and the middle lobe, as seen in section, projects at the neck of the bladder. The prostatic urethra is also shown in section to be much elongated and also widened. The bladder has the usual appearances of hypertrophy.

A portion of the right kidney is preserved, and shows at its lower extremity a large abscess cavity measuring about 6 cm. in diameter, the kidney tissue being partly dilated over it. This abscess communicated on the one hand with the lowest of the kidney calices, and on the other hand with the parts around, the psoas muscle being infiltrated for some distance. In this connection the wall of the

abscess cavity is seen to be incomplete. Both ureters were dilated, both pelves inflamed, and both kidneys the seat of multiple abscesses.

Wm. S. (aged 70) had been troubled with retention of urine for about five years. After a catheterisation about five weeks before death the urine became putrid and bloody, and he was sent into the Infirmary. He left the Infirmary, however, in three days, and was only re-admitted in a dying condition.

Path. Reports, 10th November, 1891, No. 2799.

VII. 81. Pyonephrosis with Isolated Cysts. Obliteration of Pelvis. (Sir Wm. T. Gairdner.)

The preparation is about the half of the kidney divided longitudinally. Scarcely a trace of kidney tissue remains, the organ presenting merely a congeries of cysts. These vary in size, the largest measuring about 5 cm. in its longitudinal diameter. Most of the cysts contained a clear serous fluid, but some were filled with putty-like material, which is preserved in the preparation. These cysts do not communicate with one another or with the pelvis, and the latter seems obliterated by adhesions. The urinary bladder was dilated, and its muscular coat hypertrophied. (See VII., 165.)

The other kidney was greatly enlarged (*compensatory hypertrophy*), weighing $8\frac{3}{4}$ oz. On section a special thickening of the cortex was visible, its thickness being on an average about 1 cm.

The case was that of a woman (aged 35), who suffered from symptoms chiefly of bronchitis with dyspnœa. There was slight albuminuria with amorphous urates. After death there was found hypertrophy of the heart, but this was almost confined to the right ventricle. *Path. Reports*, 12th December, 1882, No. 889.

VII. 82. Cystic Kidney, with Occasional Presence of Pus. Obliteration of Pelvis. (Sir Wm. T. Gairdner.)

The kidney is converted into a series of cysts, mostly of large dimensions; some are filled with serum, others with a sero-purulent material. Those which contain pus present a distinct granulation-like internal lining. The pelvis is obliterated and the ureter stops short at its entrance to the pelvis. The other kidney was reduced in size, being in a state of cirrhosis.

The patient was a woman (aged 43) admitted in a state of profound coma, with contracted pupils, and evidences of incomplete right hemiplegia. The urine was albuminous, and there was a history of eight years' liability to attacks of sickness and bilious vomiting. The cerebral attack, however, occurred suddenly twenty-four hours before admission, and was shown after death to be due to a large recent hæmorrhage in the left hemisphere. The heart weighed 14½ oz., the enlargement being due to hypertrophy of the left ventricle.

Path. Reports, 14th January, 1879, No. 411.

VII. 83. Kidney Containing Numerous Large Cysts, Filled with a Pultaceous Material; the Result of Pyonephrosis. (Sir Hector C. Cameron.)

The kidney was much reduced in size, and in addition to the pultaceous matter contained in the cysts, several calculous masses were found near the pelvis. The organ has been laid open so as to show the interior. The cystic structure is well seen, many of the cysts being more or less completely filled with the pultaceous matter mentioned above. A piece of whalebone inserted at the cut end of the ureter is seen to pass directly into one of the cysts. For rest of case, see next preparation.

VII. 84. Suppurative Inflammation of the Kidney.

This is the other kidney from the same case as the preceding, and represents a stage through which the latter has probably passed. The organ is considerably enlarged, and weighed 12 oz. Small abscesses were found in every part of its tissue, and they also involved the capsule, as was seen by their being opened into when the capsule was removed. The stripped capsule is preserved in the specimen, and numerous yellow spots are seen on the surface of the kidney (the abscesses).

Patient suffered twenty years ago from tubercle of testis, and ten years ago was castrated. After the operation he began to suffer from bladder symptoms. When admitted he was in a very weakly condition, and died forty-eight hours after admission, so that no clinical history was obtained.

The urinary bladder, which is preserved as VII. 99, was also greatly inflamed, and contained turbid urine with pus in it. It may be inferred that the disease began in the bladder, and extended first

to the left kidney (preserved in preceding preparation), which it destroyed by suppuration. It had, shortly before death, extended to the right kidney, as noted above. See Dr. Steven's paper, "The Pathology of Suppurative Inflammation of the Kidney," *Glasgow Medical Journal*, September, 1884.

Path. Reports, 11th July, 1881, No. 692.

VII. 85. Kidney Containing Numerous Cysts Filled with Pultaceous Matter: Healed Tuberculosis.

Two halves of the kidney are shown, one with the cysts emptied and the other containing the original pultaceous matter. There is no trace of kidney tissue remaining, the organ consisting of a congeries of cysts, usually from 1 cm. to 2·5 cm. in diameter. There is no sign of activity in the structures, and the contained matter is like putty. The pelvis is contracted and the ureter thickened. It also contained a similar pultaceous matter, and was impervious at the vesical end. The vas deferens and the vesiculæ seminales also contained pultaceous matter. The opposite kidney was enlarged and amyloid, and the spleen was much enlarged, and presented the "sago-spleen" characters. There was also disease of the iliac bone.

The condition of the urino-genital organs was only discovered after death. From its distribution, the original disease has undoubtedly been tuberculosis, this being also confirmed by the amyloid condition.

Path. Reports, 3rd December, 1886, No. 1633.

VII. 86. Local Tuberculosis of Kidney and Ureter. (Sir Wm. T. Gairdner.)

The outline of this kidney is considerably enlarged. As may be seen on section, there are a number of irregular cavities, both in the upper and lower parts of the kidney, these cavities having largely the shape of exaggerated calices, and in some cases approaching within two or three lines of the surface. Internally these cavities are lined by a rough yellow layer, and outside this there is a grey layer, which separates the yellow surface from the kidney tissue. The pelvis of kidney is similarly altered, and the ureter is greatly thickened and continuously lined throughout with a yellow opaque layer without any apparent ulceration. There was tuberculosis of the bladder, and a single tubercular mass in the right kidney; also tubercular ulcers of intestine, cavities in lungs, tubercles in the

bronchial mucous membrane, miliary tubercles in the pulmonary tissue and the liver, etc.

The symptoms, of two years' duration, differed but little from those of ordinary chronic pulmonary and laryngeal phthisis. The patient was a man (aet. 38) much exposed to cold and wet. The urine, however, constantly contained a small sediment of pus while under observation, at first without any special symptoms referable to the urinary organs, but afterwards with pain in left lumbar region, and some evidence of increase in volume of the left kidney.

Path. Reports, 4th March, 1880, No. 532.

VII. 87. Tubercular Disease of Kidneys, Ureters, and Bladder. Hydronephrosis. (Dr. A. Patterson.)

There are in this case a general and advanced tubercular disease of the kidney and ureter on the right side, and a somewhat advanced hydronephrosis, with limited tubercular disease of the kidney, along with dilation and slight tuberculosis of the ureter, on the left side. The course of events has probably been a chronic local tuberculosis of the left kidney, with extension down the ureter to the bladder, tuberculosis of the bladder extending to the orifice of the left ureter, and causing obstruction there with resulting dilatation of this ureter and hydronephrosis. An extension to this kidney has subsequently occurred. The right kidney is somewhat enlarged in outline, and is converted into a series of cavities with a ragged irregular internal surface and caseous wall. The ureter is greatly thickened and lined with irregular caseous material. The mucous membrane of the bladder presents almost continuous superficial ulceration. The terminal part of the left ureter is greatly thickened and hard, while the ureter above is much dilated but thin-walled, and with only here and there a localised thickening. The outline of the left kidney is considerably greater than that of the right, and it presents internally a dilatation of the pelvis and calices, the internal surface of which, in the upper two-thirds, is smooth and has the usual appearance of hydronephrosis. In the lower third, however, there is an irregular surface, with shaggy projections at places and a hard caseous lining of some thickness. There is a considerable thickness of kidney tissue between the distended calices and the surface, and in this tissue a number of small abscesses are visible.

The case is one of a boy aged 9, who had an abscess behind the bladder, which was opened. *Path. Reports*, 7th Feb., 1883, No. 926.

VII. 88. Tuberculosis of Kidney, Ureter, and Testicle: Process of Healing. (Dr. Newman.)

The kidney is converted into a cavity with partial partitions as in pyonephrosis, and the cavity was filled with creamy pus. The wall of the cavity is partly rough as in tuberculosis, but partly smooth as if healing were occurring, nearly the whole kidney tissue having disappeared. The ureter is obviously tubercular, being thickened and lined with a caseous layer. There was a small tubercular cavity in the other kidney. The left testicle, which is hung below, shows the epididymis replaced by a cavity which contained cretaceous matter without any trace of active tuberculosis. There was also cretaceous matter, as if from healed tuberculosis, in the vas deferens and vesiculæ seminales. This case is an example of tuberculosis undergoing healing in its earlier seats while still extending in its more recent situations.

Patrick F. (æt. 36) was only a day in the hospital. He was admitted with vomiting and purging, and gradually became weaker.

Path. Reports, 19th Sept., 1891, No. 2755.

(This case with others is referred to in *British Medical Journal*, October 31st, 1891, in a paper on "Spontaneous Healing of Tuberculosis.)

VII. 89. Tuberculosis and Septic Inflammation (Abscesses) of Bladder, Kidneys, Vasa Deferentia, and Testicles. (Sir Hector C. Cameron.)

The conditions here are somewhat complicated and obscure, as there has been obviously a suppurative inflammation involving bladder and vasa deferentia, and probably extending to the right kidney. There has been a preceding tuberculosis, the chief evidences of which in the preparation are excavation of prostate and neck of bladder, and destruction of almost the entire tissue of the left kidney. This kidney is small and the pelvis obliterated; the kidney substance is replaced by cavities with the merest rind of kidney tissue. Some of the cavities contained a clear fluid and some a pultaceous matter, certain of the latter showing tubercles in their walls.

The right kidney is in a state of hydronephrosis, the pelvis greatly dilated, but a considerable amount of kidney tissue remains. The ureter is greatly dilated, looking almost like a coil of small intestine; it has two sigmoid bends, one near the kidney and

the other at the brim of the pelvis. The dilatation ends abruptly near the bladder, and a probe passed from above penetrates through a narrow tube which projects into the bladder, the orifice being at its apex. The bladder itself had a shreddy villous appearance, and its wall was thinned, being like paper posteriorly. Each vas deferens as it passes along the posterior wall of the bladder presents an abscess in its course; that on the left has been preserved, and it had perforated into the peritoneum, producing an acute peritonitis. Both testicles were tubercular.

Archibald L. (age 28), a clerk, dated the commencement of his illness 13 years back, when he had slight obstruction at neck of bladder and pain in urethra. Ten years before death, blood was abundantly present in the urine for a period of three days, and since then re-appeared frequently. Incontinence of urine developed four years before death. The testicles became affected two years later. *Path. Reports*, 5th Nov., 1890, No. 2505.

VII. 90. Tuberculosis of Kidney. Perinephric Abscess under Spleen. Perforation of Stomach. (Sir Hector C. Cameron.)

The kidney is represented by a congeries of cavities with thick partitions. These are lined in some places with an irregular granular surface suggesting tuberculosis, whilst in other places the lining is smoother. At the lower end is the thickened and dilated ureter in open communication with the cavities in the kidney. Above the altered kidney, and communicating with its cavities, there is a large cavity over-arched by the spleen. This cavity has an irregular lining generally thin. On its outer surface this cavity is covered by the stomach, which is bulged considerably outwards, and in the midst of this bulging there is an irregular aperture measuring about 2·5 cm. in diameter. There is no thickening of the mucous membrane around the aperture, and no appearance of ulceration. The cavities in the kidney and outside contained a white curdy material, and the stomach contained a large quantity of blood and clots. The other kidney was normal. Microscopic examination of the walls of the cavities in the kidney showed granulation tissue with occasional rounded collections of epithelioid cells, the appearance being that of tubercles. There were cretaceous particles at the apices of both lungs, but no other appearances of tuberculosis.

Margaret K. (aged 39) complained for about a year of symptoms mainly referable to the stomach, chiefly gnawing pain and vomiting after food, with weakness and emaciation. There was no history of urinary trouble, and the urine showed leucocytes, epithelium and sometimes tube casts. On admission a tumour was detected in the abdomen, and was opened by a lumbar incision.

Path. Reports, 19th April, 1898, No. 5421.

VII. 91. Tubercular Infiltration of Bladder and Tuberculosis of Right Ureter and Kidney.

The bladder wall is greatly thickened, especially in its lateral aspects, and microscopic examination shows it to be the seat of tubercles which extend well into the muscular coat and to the external connective tissue and adipose layers. The right ureter is greatly thickened and lined with a caseous layer, but its lumen is almost obstructed. The right kidney is converted into a congeries of cavities with an irregular internal surface, and some of them nearly reach the surface of the kidney. The left ureter is normal and the kidney was hypertrophied.

Tubercle bacilli were especially abundant in the cavities in the right kidney. In addition there was tuberculosis of both lungs, and there were small tubercles in the spleen and liver.

Mrs. B. (aged 24) had frequent and painful micturition for six months and latterly pain in the right lumbar region. Within the last few days before death blood began to appear in the urine and there was a considerable rise of temperature.

Path. Reports, Jan., 1898, No. 5335.

VII. 92. Tubercular Disease of Urinary Bladder, Prostate, etc. (Prof. M'Call Anderson.)

In the bladder there are numerous small circular ulcers and a few of larger size. They are all superficial, and the smaller ones distinctly raised. The prostate and vesiculæ seminales are greatly enlarged, and contain firm cheesy masses. There was also tubercular disease of the epididymis and testicle, and slightly of one kidney. Disseminated tubercles also existed in the lungs.

Path. Reports, 13th November, 1879, No. 485.

VII. 93. Tubercular Ulceration and Contraction of Urinary Bladder. Excavation of Prostate. (Dr. James Finlayson.)

The preparation shows two pouches, a larger and a smaller, divided by a partial septum. The upper of these, which only measures 4·5 cm. in diameter, is the greatly contracted bladder, whose internal surface is also greatly ulcerated; the lower pouch is taken to be the excavated prostate, some remains of the gland being visible at the upper part of the pouch on either side. In the middle line this pouch presents a cylindrical prominence, which has a calibre for a certain distance, and is taken to represent terminal portions of ducts. There was in addition tubercular disease affecting the epididymis, vas deferens and right kidney; the last was in a state of hydronephrosis, the vesical extremity of its ureter being obstructed.

The case was that of a man æt. 21. Five years before death he was treated for chronic cystitis, and a year before death the swelling in the testicle burst. Latterly, the urine dribbled away without control, and contained blood, pus, and much albumen. He complained of burning pain in passing urine.

Path. Reports, 28th November, 1881, No. 738.

VII. 94. Tubercular Excavation of Prostate. Tuberculosis of Urethra and Testicle. (Sir Wm. T. Gairdner.)

The preparation shows prostate converted into an irregular cavity. The urethra passes into this cavity from the bladder. The parts have been cut across through this cavity, and the part of the urethra following is hung separately. There is a contraction of the calibre of the urethra beyond the excavation, and distal to this the mucous membrane is beset with small round elevations often depressed in the centre so as to form crater-shaped ulcers. At first these are so close together as to form an almost continuous yellow layer. They are continued sparsely down the urethra till a narrow stricture is reached, about 5 cm. from the meatus. The urinary bladder is dilated and there were a few ulcers in its mucous membrane, and the globus minor in each testicle was tubercular. There were tubercular cavities in the lungs.

George M. (aged 33) was admitted with the signs of phthisis pulmonalis. He had gonorrhœa some years before. Six days before

death retention of urine occurred, and attempts at catheterisation failing on account of stricture, the bladder was aspirated.

Path. Reports, 6th March, 1893, No. 3309.

VII. 95. Oxalate of Lime Calculus at Vesical End of Right Ureter, Invaginating Wall of Bladder.

Seen from within there is a distinct, slightly lobulated swelling at the seat of the orifice of the right ureter, and the contained calculus showed a bluish tint. A probe introduced from the ureter encounters a hard body of some size. The calculus, as displayed by an incision, is a dark flattened oval body measuring 8 mm. in diameter. It has prominent, somewhat sharp projections, and is very hard; the sac in which it is contained holds it loosely. The ureter in its course shows only a slight dilatation and thickening. The calculus is virtually inside the wall of the bladder, but it has pushed before it a sort of sac composed of invaginated mucous membrane. There was no hydronephrosis.

Jas. S. (aged 42) died of acute pneumonia. There were no urinary symptoms. *Path. Reports*, 1st July, 1896, No. 4692.

VII. 96. Diverticulum at Upper Surface of Bladder, from Remains of Urachus.

The preparation shows the bladder in median section. From the anterior wall at its upper part there protrudes a diverticulum 5 cm. in length and with a rounded aperture 1·3 cm. in diameter, by which it communicates with the bladder. The muscular coat of the bladder is continued for a short distance into the diverticulum, but soon shades off. There are narrow isolated muscular bands in other parts of the wall, but widely separated. No cord was found connected with the diverticulum.

George P. (aged 36) died from acute pneumonia, and nothing was known as to bladder symptoms.

Path. Reports, 10th May, 1897, No. 5047.

VII. 97. Rupture of Urinary Bladder.

There is a gaping aperture measuring about 3 cm. extending from the summit downwards in the anterior wall and situated to the left of the middle line. The edges are irregular, and were covered with

blood clot. The pelvic organs were found matted together by masses of blood-stained fibrin, and the general peritoneal surface was covered with a thin layer of fibrin. There was blood-stained fluid in the pelvis, and a yellowish turbid fluid to the extent of 2½ pints in the abdomen.

There was no stricture of the urethra.

Jas. M. (aged 29) was in good health till three days before death, when he was suddenly seized with cramps in the abdomen. He is said to have passed no urine after this, and an attempt to draw it off before admission seems to have been unsuccessful. After admission a small quantity was obtained with some difficulty. On admission he complained of great pain over the whole abdomen, but there was no elevation of temperature; the pulse was small and rapid. The pain continued, and vomiting set in during the night after admission and continued at intervals until death.

Path. Reports, 29th Aug., 1892, No. 3101.

VII. 98. Rupture in Posterior Wall of Urinary Bladder. (Dr. Finlayson.)

The posterior wall of the urinary bladder shows a transverse rent about 2 cm. in extent, and the tear is continued on either side in the peritoneum to the extent of about 3 cm. on the left and 2 cm. on the right. The aperture is only slightly removed from the summit of the bladder. Viewed from within the mucous membrane is seen to be everted and almost covers the wound in the muscular wall. The wound and the peritoneum around present a slight brown coagulum and there was some clot in the pouch of Douglas. The peritoneal cavity contained a considerable amount of blood-stained fluid, but there was no fibrinous exudation whatever on the peritoneum. There were no external signs of violence, and the body was a very muscular one.

Wm. S. (aged 30), an ironmoulder, was admitted with symptoms of acute peritonitis, which had existed for three days at the time of his death. On the night before the onset he was intoxicated and lay out all night. Next morning he had a severe rigor. On admission two days afterwards the abdomen was tympanitic and very tender, face pinched and tongue dry. There was a good deal of vomiting. The temperature was 99·2°, but rose shortly before death to 103·8°. There was an obscure history of falling downstairs on the night before the onset of illness. *Path. Reports*, 21st Feb., 1894, No 3595.

VII. 99. Cystitis of Long Standing. (Sir Hector C. Cameron.)

The specimen will be seen to be exceedingly irregular in its internal surface, presenting frequent rough dark-coloured projections. There is no normal mucous membrane left. This specimen is from the same case as Ser. VII., Nos. 83 and 84.

Path. Reports, No 692.

VII. 100. Ulceration of Bladder in Paraplegia. (Dr. Jas. Finlayson.)

Outside and behind the aperture of the right ureter there is a considerable excavated ulcer which, in the recent state, had a ragged appearance. In the neighbourhood of the left ureter, although no definite ulcer is present, the mucous membrane presents a softened appearance. The muscular coat of the bladder presents a general trabeculation.

The case was one of acute softening of the cord with hæmorrhage, and the paraplegia had lasted three weeks. There were acute bedsores on the outer aspect of left thigh. Patient was a man 39 years old. *Path. Reports*, 13th August, 1883, No. 1028.

VII. 101. Slough of Entire Mucous Membrane of Bladder in Paraplegia. (Dr. Patterson.)

The mucous membrane of the bladder is seen to lie as a detached and folded membrane in the bladder. It was found attached only at a mere point near the urethra. At the post-mortem examination the bladder was found greatly distended with a turbid, foul urine. Both kidneys showed innumerable minute yellowish patches surrounded with red areas.

Evelina M. (æt. 17) was affected with complete paralysis and anæsthesia of the lower limbs in consequence of a fall from a window two stories high. There was retention of urine for two days, and afterwards incontinence. The urine was bloody almost from the first. The bowels did not act without purgatives. Death was sudden, a few days after accident.

Path. Reports, 21st January, 1889, No. 2022.

VII. 102. Cystitis, with Necrosis of Mucous Membrane, following Paraplegia from Fracture of Vertebrae. (Prof. Macewen.)

The bladder has been turned outside in. It is seen to be markedly enlarged, and a great part of the mucous membrane has separated in the form of a slough, but adherent at the left side posteriorly. The muscular trabeculæ are to a large extent exposed. The bladder contained purulent urine.

Microscopically, the detached layer had the structure of necrosed mucous membrane without any appearance of muscle.

John D. (aged 37) sustained a fracture of the cervical vertebræ from a fall. There was paraplegia, the duration of which was 18 days. *Path. Reports*, 30th December, 1895, No. 4433.

VII. 103. Slough of Large Portion of Bladder Wall, Following Parturition. (Dr. E. Lawrence Oliphant.)

The specimen is a shreddy membrane discharged from the bladder, and representing a large portion of the wall. It is somewhat oblong in form, and measures 22 by 12 cm., with a varying thickness of from 1 to 5 mm., but the general thickness is about 2 mm. A gritty layer of white, evidently phosphatic, deposit, almost completely covers one (doubtless the internal) surface.

Partly shining through this, and still more obvious in many parts from without, there are bundles having the characters of the muscular trabeculæ of the bladder. On the outer surface there is an area as large as the palm of the hand over which a smooth white membrane covers the muscle, the appearance being suggestive of the peritoneal coat. Corresponding with the base of the bladder, on the above supposition, there is an area in which the wall is considerably thicker than elsewhere, and this might correspond with the trigonum, but no trace of the orifices of the ureters or of the urethra is found on microscopic examination. No nuclear staining is obtained, but the organised tissue of the bladder is distinctly visible. The mucous membrane is infiltrated with crystalline matter; outside it, muscular bundles are visible, and outside these again there is indefinite partly fibrous tissue, in which are many dilated blood-vessels containing a granular debris.

Sections made in the part where peritoneum appears show a somewhat thin muscular layer, and outside it fibrous tissue, which on the surface is considerably condensed into a membrane-like structure.

VII. 104. Cystitis: Enlarged Prostate: Dilated Ureter: Double Ureter. (Dr. Finlayson.)

The urinary bladder is greatly thickened, all the coats being involved. The mucous membrane is very irregular on the surface and deeply pigmented, while a considerable deposit of phosphates is present. The third lobe of the prostate is visible at the neck of the bladder, about the size of a marble, and valving the aperture. The left ureter is double in the greater part of its course. The kidney has no proper pelvis, but the two ureters start independently, each forming a slight pouch at its origin. They are nearly equal in diameter. They continue separate, and were slightly twisted on each other till 9 cm. from the bladder. The kidney contains cysts, but is not diminished in size. The right kidney was much contracted, weighing only 83 grms., and presented microscopically the characters of chronic parenchymatous nephritis. The urinary bladder showed on microscopic examination, after staining by Gram's method, enormous nnmbers of micrococci on its surface.

Thomas C. (aged 71), a labourer, complained for six weeks before death of anasarca, without previous illness. Urine scanty, high-coloured, and albuminous. Retention of urine sixteen days before death called for use of catheter, after which symptoms of cystitis occurred, with blood in the urine. The catheter was used up till death. *Path. Reports*, 24th February, 1888, No. 1845.

VII. 105. Enlargement of Prostate: Septic Inflammation of Bladder: Suppurative Nephritis. (Sir Hector C. Cameron.)

There is a symmetrical enlargement of the prostate, the lateral lobes, which are shown in section, being greatly enlarged, and the middle lobe projecting, as is usual in such cases, at the neck of the bladder. The part of the middle lobe within the bladder has a shaggy, irregular surface, and was found coated with a thick exudation. The mucous membrane of the bladder in general is irregular, and almost like granulation tissue. The contents of the bladder were a yellowish-green material with crystalline particles and some blood clot. The urethra presented two tears as if by the catheter, one anteriorly and the other in front of the prostate. The kidneys were enlarged, and were the seat of numerous abscesses.

Geo. F. (æt. 63) had the history of acute retention and subsequent catheterisation. On admission the urine was ammoniacal, purulent,

and containing clots. A catheter was left in for twenty-four hours, and after its withdrawal a rigor and great elevation of temperature ensued. He died in three days.

Path. Reports, 19th December, 1894, No. 3987.

VII. 106. Enlarged Prostate: Dilated Bladder. (Mr. Maylard.)

Removed from a patient where during life there had been at times extreme difficulty in passing a catheter. The bladder is seen enormously distended, but its walls are not apparently thickened. The prostate—which in the fresh state was about the size of a clenched fist—was seen markedly trilobed. The two lateral lobes formed posteriorly uniform, distinct, oval masses, but in front they were united. Posteriorly the middle lobe is seen projecting forwards and upwards. Just beneath the lobe two orifices are seen on either side of the hypertrophied veru montanum. These were found to lead for about 1 cm. into the substance of the prostate. On the right side also another orifice is seen at the floor of the urethra. This was found to enter for about 2 mm. towards the surface of the right lateral lobe. *Path. Reports*, 1st May, 1886, No. 1525.

VII. 107. Enlarged Prostate: Hypertrophy of Bladder.

The enlargement of the prostate is very marked, and the prominence of the middle lobe is particularly so, as it projects at the neck of the bladder rounded like a marble. The bladder is enormously hypertrophied, and somewhat dilated; the internal surface shows prominent trabeculæ projecting and interlacing. These are so prominent as to remind one of the trabeculæ of the internal surface of heart. There was a double hydronephrosis.

Patient was a gentleman (aged 73) who had suffered from urinary symptoms for twelve years.

Path. Reports, 30th March, 1880, No. 542.

VII. 108. Dilatation and Hypertrophy of Bladder: Submucous Hæmorrhage: Great Enlargement of Prostate. (Dr. Jas. Finlayson.)

The bladder is much enlarged, measuring 12·5 cm. in two diameters. Its wall is also greatly thickened, especially the muscular coat, which presents internally very prominent trabeculæ. In the fresh state a

very extensive submucous hæmorrhage was observed, but there were no signs of inflammation. The prostate is enormously enlarged, measuring 6 cm. longitudinally, 5 cm. transversely, and 4 cm. from before backwards; it shows also a very marked rounded projection into the bladder. In the preparation the urethra has been laid open, and there is a false passage through which a piece of whalebone has been passed. The ureters and pelves of the kidneys were distended (see VII. 67). There was recent hæmorrhage into the tubules of kidney.

The case was that of a man aged 64. For about nine months there had been frequent micturition. On admission six days before death, the bladder was found much distended (the patient not being aware of it). He passed urine frequently, but only about 4 oz. at a time; it was slightly albuminous and contained hyaline casts, but no blood or pus. The catheter was used and the urine became bloody, continuing so afterwards when passed by patient. (See *Glasgow Medical Journal*, Feb., 1884, p. 132.)

Path. Reports, 2nd January, 1884, No. 1100.

VII. 109. Unsymmetrical Enlargement of Prostate: Hypertrophy of Bladder. (Prof. Macewen.)

The left lobe of the prostate is greatly enlarged, projecting across the middle line and upwards into the bladder. The urethra is correspondingly deviated to the right. The right lobe is slightly enlarged and the middle lobe has the usual character of a round projection at the neck of the bladder. The bladder was greatly enlarged, and showed the usual character of hypertrophy of the muscular coat. The fundus was somewhat bulged inwards in its posterior wall and the coats were thinned correspondingly.

Jas. L. (æt. 57), a warper, complained of discomfort and tenderness over the bladder region. He passed an excessive quantity of urine.

Path. Reports, 28th December, 1894, No. 3994.

VII. 110. Enlarged Prostate: False Passages. (Sir G. H. B. Macleod.)

The chief feature in the enlargement is the middle lobe, which has developed so as to form a septum at the entrance of the urethra into the bladder. The lateral lobes are also seen enlarged. There are three false passages indicated by black directors. Two perforate the

septum; the most posterior takes a circuitous course along the back of the prostate and in the walls of the bladder. It is seen projecting into a pouch-like process of the bladder wall. At the post-mortem this projection formed with the cellular tissue in the pelvis a closed space, lined with a ragged necrosed membrane and containing fœtid urine like that in the bladder.

Patient was a man aged 69. He had suffered from difficulty in micturating for two or three years.

Path. Reports, 1st Feb., 1888, No. 1821.

VII. 111. Enlarged Prostate: Hypertrophy of Bladder with Many Diverticula. (Prof. Joseph Coats.)

The prominent feature here is the extraordinary number of sacculated diverticula, which are visible externally and are also partially displayed. There is one on the right lateral aspect, forming a quadrilateral pouch about 4 cm. in diameter, and with a narrow neck. There are several of smaller dimensions on both lateral borders and at the summit; there is a somewhat irregular one prolonging the bladder upwards. These diverticula have all thin, translucent walls. The internal surface of the bladder shows the trabeculated appearance of hypertrophy, and there is a much enlarged prostate with projecting middle lobe. There were also dilatation of the ureters and hydronephrosis.

James Y. (æt. 60) was affected with bronchitis and emphysema. The urine was normal. On the day after admission he became delirious and he died comatose on the third day of his residence in hospital.

Path. Reports, 15th October, 1887, No. 1752.

VII. 112. Enlarged Prostate: Dilatation and Elongation of Prostatic Urethra: Hypertrophy of Bladder: Diverticula. (Dr. Tennent.)

The preparation shows a section nearly in the middle line, but the anterior wall of the bladder is truncated. The prostate is enlarged, chiefly in its right lobe, and the prostatic urethra is much dilated and elongated by the projection of this lobe into it. The bladder shows the usual trabeculated appearance of hypertrophy of the muscular coat. From its posterior wall project two diverticula; a large one which measures over 7 cm. in diameter, whose orifice (1 cm. in diameter) lies above the orifice of the right ureter, and a smaller one which has

a diameter of 2·5 cm., beneath the larger one. These two are laid open in the preparation. They are thin walled but well defined.

Thomas M. (æt. 40) is stated to have suffered for from eight to ten years from difficulty and pain in micturition. The post-mortem examination revealed, in addition to the condition shown, tuberculosis of the lungs and ulceration of the intestine.

Path. Reports, 20th Oct., 1890, No. 2485.

VII. 113. Inflammation of Bladder: Large Diverticulum. [Dilated Ureter and Calculous Hydronephrosis, with Large and Small Stones, see next two preparations.] (Prof. Geo. Buchanan.)

The wall of the bladder is greatly thickened by chronic inflammation, but, in addition, there are numerous shaggy masses projecting from the internal surface indicating a more acute inflammation. In its posterior wall there is a large irregular aperture which readily admits one finger, and through this aperture the shaggy masses project, forming a somewhat pyramidal protuberance into the cavity next to be described. This cavity is larger than the bladder itself and of very irregular outline. Its wall is formed of somewhat loose connective tissue, and it contained two or three pints of a turbid purulent fluid. There was also pus in the abdominal cavity, especially in the neighbourhood of this cavity.

The patient was a man aged 43. He was cut for stone when twelve years old and made a good recovery. Urinary symptoms re-appeared ten years before death and became aggravated six years afterwards, when blood and gravel began to be passed. There were subsequently several exacerbations, pain in passing gravel being a prominent feature. *Path. Reports*, 3rd Jan., 1883, No. 906.

VII. 114. Dilated Ureter and Calculous Hydronephrosis (from preceding case).

The left kidney and ureter are here preserved. The ureter is considerably dilated and thickened, and the pelvis of the kidney is thickened, but not greatly dilated. The kidney, however, is converted into a congeries of cysts, several of which contain calculi. The cysts are seen to be formed largely around the calculi, having similar shapes. All these cavities, whether containing

calculi or not, communicate with the pelvis, but generally by a small aperture. The large calculi, which are retained *in situ* and exposed by partial removal of the cyst walls, present a pure white colour and considerable density, having none of the crumbling characters of the soft phosphatic calculus. Smaller calculi were present in hundreds, both in the cysts with larger calculi and in others. They are white like the larger, but many of them have a definite disc shape, their diameter varying from 6 mm. downwards; besides the disc-shaped, there are irregular ones.

Both forms of calculi presented the reactions of the tribasic phosphate, being fusible in the blowpipe flame, soluble in nitric acid without effervescence, and precipitable from such solutions by oxalate of ammonia.

VII. 115. Small Calculi (from preceding case).

Small calculi shown on a piece of cardboard.

VII. 116. Extreme Cystitis and Large Cystic Diverticulum of Urinary Bladder. (Sir Hector C. Cameron.)

The preparation has been divided longitudinally, and the parts displayed are—above, urinary bladder and diverticulum laid open and below, the rectum. The internal aspect of the urinary bladder is seen to be thickened and its surface thrown into folds, the summits of which are coated with phosphates. The cystic diverticulum is larger than the bladder, and is situated immediately behind it, being separated by a moderately thick septum. It communicates with the bladder by an aperture in this septum, large enough to admit the first joint of the index finger. The cyst, which is large enough to contain a closed fist, has a well-defined wall, generally about 5 cm. in thickness, and its internal surface is coated with phosphates which at places penetrate into its substance. The wall itself is formed of a grey fibrous tissue. The muscular coat of the bladder is hypertrophied and there are several smaller diverticula with apertures between the thickened muscular bundles. These are mostly of small size, but one has a depth of 2·5 cm.

Thomas M'L. (aged 45), cab-driver, was affected with difficulty in micturition for six months and a catheter was used early in that

period. On his admission the urine already contained blood and pus; extravasation of urine occurred into scrotum, etc., for which perineal incision was performed.

Path. Reports, 2nd October, 1882, No. 854.

VII. 117. Hypertrophy of Bladder with Diverticulum: Dilatation of Ureters: Double Hydronephrosis. History of Gonorrhœa (Stricture ?) (Sir Geo. H. B. Macleod.)

There is great enlargement and thickening of the urinary bladder, to the extent of about 1 cm., and this is essentially of the muscular coat. The internal surface shows the usual trabeculæ but obscured by thickening of the mucous membrane. There is a diverticulum as large as a walnut on the right side, with a wide neck. The prostate is not enlarged, and there was not at the time of death any considerable stricture. The urine was purulent. Both ureters are dilated and tortuous, and the kidney presented hydronephrosis. (See next preparation.)

VII. 118. Double Hydronephrosis (from preceding case).

The pelvis and calices of the left kidney are greatly dilated, so that in several places the calices come to within 2 mm. of the surface. The right kidney presents a less degree of the same condition. The cavities contained a watery pus, and there were abscesses in the remaining substance of the kidneys.

John B. (aged 43). The above two preparations suggest obstruction of the urethra or at the neck of bladder, and there is a history pointing to stricture, treated by gradual dilatation five years before death. After his admission no stricture was found; there was a purulent inflammation of the bladder extending up to the kidneys.

Path. Reports, Dec. 13th, 1884, No. 1272.

VII. 119. Hypertrophy of Bladder and Partial Double Hydronephrosis.

The muscular coat of the bladder is very greatly hypertrophied, its internal surface being almost like the auricular appendage of the heart, from prominence of the muscular trabeculæ. This indicates

obstruction to the passage of the urine, and there is a certain hypertrophy of the prostate, but it is not known whether there was obstruction in the urethra or not.

Both ureters are much dilated, especially the left, and on both sides the pelves and calices of the kidneys are enlarged at the expense of the kidney tissue. The outline of the left kidney is considerably enlarged, but that of the right is about normal.

VII. 120. Bladder five years after Lithotomy by Rectangular Staff. (Prof. Geo. Buchanan.)

The bladder was removed after death. [See VII. 74.] The bladder is dilated and the wall thin. At its neck there is rather a deep pit slightly to the left of the middle line.

Wm. G. (æt. 31). See *Journal*, XI., p. 70, Ward III.

VII. 121. Stricture of Urethra. Hypertrophied Bladder. False Passages. Dilated Ureters and Slight Hydronephrosis. (Mr. E. Maylard.)

The stricture was present just in front of the membranous portion of the urethra, and here, as shown by pieces of whalebone in the preparation, there are several false passages passing backwards in the direction of the prostate, which latter is the seat of a pretty large abscess. The bladder shows very marked trabeculæ from hypertrophy of the muscular coat. The ureters are considerably dilated, equally so, and the pelves of the kidneys show a moderate dilatation.

During life the stricture in this case was so great that after the frequent use of catheters without success, the bladder was aspirated above the pubes several times. Perineal section (Cock's operation) was performed, and the patient died next day in a comatose state. See account by Mr. Maylard, *Glasgow Medical Journal*, January, 1884, p. 55. *Path. Reports*, 14th September, 1883, No. 1040.

VII. 122. Stricture of Urethra, with Abscess; Perforation of Bladder; Peritonitis. (Sir Hector C. Cameron.)

The urethra is considerably ulcerated, and an abscess cavity (shown by a piece of whalebone) communicates with it just in front of the prostatic portion. There was another abscess at the

root of the penis, which communicated freely both with the cutaneous surface and the urethra. Besides this abscess there was one behind the posterior wall of the bladder which communicated with the peritoneum and with the bladder. These communications are in the form of small apertures through which pieces of whalebone have been passed. Both apertures are in the same line, and occupy a position directly continuous with the urethra. It is obvious from position and size of aperture that perforation has taken place from an instrument passed by the urethra. The mucous membrane of the bladder is greatly thickened and shows a shaggy appearance.

The patient was a man aged 39. After relief of the stricture a catheter was tied in, and this had apparently been the cause of the perforation. *Path. Reports*, 4th June, 1884, No. 1215.

VII. 123. Stricture of Urethra; False Passages. (Dr. Beatson.)

Patient was admitted into the Infirmary suffering from retention. Extravasation subsequently took place, incisions were made, erysipelas set in and carried off the patient. The stricture is seen far forwards, about 4 cm. behind the meatus. Posterior to the constriction, the canal is greatly dilated. To the left (on looking at the preparation) is a long false passage opening at both extremities into the normal channel. To judge from the tightness and narrowness of the stricture, and the patency of the communication between the false passage and the urethra in front, instruments must have taken this course in their passage into the bladder. The bladder is much hypertrophied, its wall being about 1 cm. in thickness. The mucous lining presents a general mammilated appearance.

Path. Reports, 15th January, 1885, No. 1286.

VII. 124. Stricture of Urethra: False Passage. (Sir Geo. H. B. Macleod.)

The urethra has been laid open, and a portion of it extending from the neck of the bladder for about 9 cm. forwards is shown. At a point about 6 cm. in front of the veru montanum there is a stricture so tight that before opening up this part it was found impossible even to pass a small probe from either side. Immediately in front of this point (below, in the specimen) there is a large aperture in the posterior wall of the urethra which leads

into a prolonged false passage of very irregular form. The false passage ends by a large ragged aperture through the veru montanum. A glass rod has been passed from one aperture to the other through the false passage. Further dissection revealed hypertrophy of the bladder, suppurative nephritis of the left kidney, and minute hæmorrhages in both kidneys.

John D. (æt. 40), a farm-servant, injured his urethra in crossing a fence about seven or eight months before death. The resulting stricture was treated with Holt's dilator on several occasions in the course of the month before death, but evidently the true stricture was not reached. The last dilatation was followed by rigor, elevation of temperature, delirium, and death, the latter about nine hours after the operation. *Path. Reports*, 3rd June, 1892, No. 3019.

VII. 125. Myomata of Prostate, Removed by Suprapubic Operation. (Sir Hector C. Cameron.)

There are several rounded tumours each of which was bisected in process of removal. They consist of lobulated masses covered with mucous membrane and having the rough fibrous character of the uterine myoma. They grew from the prostate, partly overhanging their base but not definitely pedunculated. Under the microscope the structure is seen to consist of smooth muscle with a considerable amount of fibrous tissue and very sparsely distributed canals lined with epithelium.

Patient, a man of 49, was first operated on on 29th October, 1890, by suprapubic operation, when thirteen calculi were removed. The tumours were noticed at this time. This operation was recovered from, but hæmaturia supervened a year afterwards. The tumours were removed by operation on 6th December, 1892. There was complete recovery from the operation. See *Glas. Med. Journal*, Vol. XXXIX., p. 140.

VII. 126. Papilloma of Bladder. (Prof. Geo. Buchanan.)

The portion of bladder preserved is the posterior wall. Here and slightly to the one side of the middle line there is a pedunculated flat tumour of a mushroom shape. When placed in water the individual papillæ become evident and give to the growth a shaggy appearance. A large amount of blood was found in the bladder, whose wall was partly infiltrated with blood.

The preparation was from a man aged 65, who complained mainly of persistent hæmorrhage from the bladder.

Path. Reports, 16th June, 1880, No. 563.

VII. 127. Papilloma of Bladder. (Sir Hector C. Cameron.)

The tumour, which is about the size of a small walnut, is composed of dendritic papillæ. Microscopically, the papillæ are covered by stratified epithelium many layers deep. In the fresh state the tumour was succulent and the tips of the papillæ tense and glistening. The tumour was pedunculated.

The tumour was removed from a man, aged 27, by suprapubic cystotomy. The pedicle was ligatured and cut across. He had complained for about nine months of hæmaturia, there being sometimes severe attacks and at other times only a few drops of blood at the end of micturition. With the exception of the occurrence of suppuration in or around the bladder the patient made a good recovery. See *Glasgow Medical Journal*, Vol. XXXIX., p. 139.

VII. 128. Villous Cancer of Urinary Bladder. (Prof. Geo. Buchanan.)

The urinary bladder is occupied, chiefly on its posterior wall, by a bulky tumour, having a very irregular surface, at parts even shreddy. The tumour is mostly on the left side of the bladder, more behind than in front. The left ureter is covered, and the tumour just reaches the orifice of the right ureter, a small projection from it almost covering the orifice. There was no extension of the tumour to the rectum or any secondary formations in the glands. For condition of kidneys see VII. 68.

Path. Reports, 27th January, 1877, No. 179.

VII. 129. Villous Cancer of Bladder. (Dr. Nicoll.)

The preparation shows a portion of bladder with pieces of whalebone in urethra and ureter. Outside the right ureter there is a surface with a rather flat villous growth. The surface is irregular in outline and its greatest measurement is 4·5 cm. : it has a breadth generally of about 2 cm., but somewhat greater at its upper end. Outside the prominent growth there are flat elevations of the surface. The

bladder wall beneath the growth is markedly infiltrated, and microscopic examination shows a distinct epithelial infiltration penetrating deeply even into the muscle. The cells are generally flat, but there is no horny transformation or pearl-nodules.

A woman (aged 47) suffered for three years from frequency of micturition, pain in the right loin and groin, increased by micturition, and very profuse hæmaturia. The urine contained abundant multinucleated epithelial cells, and during the periods of hæmaturia many renal blood tube casts. In the intervals no albumen or casts could be found. Besides the tumour in the bladder there were found *post mortem* secondary growths in the pleura of the left base.

See Report of Glasgow Clinical and Pathological Society in *Glasgow Medical Journal*, Vol. XXXVIII., 1892, p. 61.

VII. 130. Cancer of Urinary Bladder. Pyonephrosis and Suppurative Nephritis. (Prof. Macewen.)

The urinary bladder is shown with its anterior wall removed. At its upper end there are various apertures, one of them from a suprapubic operation. The mucous membrane of the bladder is entirely destroyed, and the wall of the bladder in general replaced by cancerous tissue. This is especially the case on the left side, where a thickness of 12 mm. is reached. The internal surface has an irregular aspect, being formed by the whitish, somewhat friable tissue of the cancer. Outside the bladder, on left side, there is a secondary cancerous mass of considerable size, and the left ureter passes behind and partly in contact with this mass. Both ureters are greatly dilated, especially the right, which presents several convolutions. Both kidneys showed dilatation of pelvis and calices, but the left, although much smaller in outline, shows a much more complete destruction of the kidney tissue, the dilated structures extending close to the capsule. In both cases pus occupied the dilated cavities, the condition thus being one of pyonephrosis. In addition, the right kidney presents innumerable abscesses in the remaining substance of the organ, and these are visible in the preparation as small pale projections from the surface. Microscopic examination reveals the characters of an ordinary cancer, with large cells and without any villous character.

Robert D. (æt. 58), a miner, began to suffer pain in the lower part of the abdomen about six months before death. He frequently passed blood in the urine, which ultimately became dirty and muddy.

Latterly micturition was very frequent. At the operation a calculus was removed, and the wall of the bladder was seen to have a carcinomatous aspect. *Path. Reports*, 20th May, 1895, No. 4161.

VII. 131. Cancer of Bladder. (Sir Geo. H. B. Macleod.)

A prominent fungating mass is displayed on the posterior wall of the bladder, measuring about 5 cm. from above downwards, and situated just above the orifices of the ureters, especially on the left side. The posterior wall of the bladder further towards the neck is also infiltrated, and there is an ulcer in the prostatic portion of the urethra, which communicates with a large cavity behind the bladder, which contained pus but was lined with tumour tissue. Both kidneys showed hydronephrosis, with some suppuration in the pelvis and minute abscesses in their substance. Microscopic examination shows the cancerous tissue to have a very fine stroma, whilst the cells are generally large and of very various shapes, many of them with processes projecting at two or more poles. They have also the appearance of being very loosely attached.

Andrew S. (aged 48) complained of passing blood with the urine. The first attack of hæmaturia was six years before death, but after this occasion it did not recur for a year. For about six months the hæmaturia was constant. *Path. Reports*, 25th June, 1892, No. 3047.

VII. 132. Infiltrating Cancer of Urinary Bladder. (Dr. M'Cartney.)

The bladder is almost converted into a thick-walled cavity with irregular ulcerating internal surface. The mucous membrane is preserved only in a limited area on the left side. The thickening of the bladder is in part from hypertrophy of the muscular coat. The tumour tissue attains bulky dimensions on the right side, especially in the posterior wall, and there is here a somewhat massive tumour extending outside the bladder. The orifices of both ureters are obstructed, and the ureters dilated. Microscopic examination shows infiltrating masses consisting of large epithelium, without any pronounced glandular or villous character. The cancer extends into the thickened muscular coat.

John M'L. (aged 57) was affected with incontinence of urine and pain. There was a diagnosis of cystitis of eight months' duration. The patient died of pneumonia two days after admission.

Path. Reports, 21st September, 1894, No. 3880.

VII. 133. Numerous Secondary Cancerous Tumours in Wall of Urinary Bladder and in Psoas Muscle. (Prof. Gemmell.)

The primary tumour in this case was of the gall-bladder, and the liver was involved by continuity. There was no gall-stone present. Besides an infiltration of the abdominal mesenteric glands, other secondary tumours were discovered in the urinary bladder, and in the psoas, iliacus, and quadratus lumbrorum on both sides. The urinary bladder is much thickened, its substance being in great part replaced by nodules of tumour tissue. The piece of muscle preserved shows almost continuous rounded tumours, which in the fresh state contrasted greatly by their white colour with the red muscular substance.

The suggestion is made that this peculiar distribution of the secondary tumours may have been by embolism, a cancerous gland bursting into an artery which supplied the muscles named and urinary bladder.

Robert H. (æt. 47) dated his illness from about eight months before death. *Path. Reports*, 19th June, 1894, No. 3753.

VII. 134. Elephantoid Outgrowths of Labia Pudendi and Neighbouring Parts. (Prof. Murdoch Cameron.)

The parts, shown *in situ* in the accompanying photograph, consist of four pieces of tissue, which are the altered and greatly enlarged labia pudendi, mons Veneris, and clitoris. They consist of massive lobulated and papilliform thickening of the skin, sometimes forming pedunculated tumours. One of these, in the form of a rounded swelling, was situated at the lower part of the left labium, and another, constituting a lobulated mass, represented clitoris, and was attached by a narrow pedicle.

Microscopic examination shows greatly thickened cutis vera, often with cellular areas, especially near the surface. The epidermis is also thickened, but without any epitheliomatous characters.

Sarah J. (aged 48) first noticed the growth 15 years before the operation. An operation was performed five years after the onset, and recurrence took place about four years later.

Path. Reports, 12th Sept., 1894, No. 3867.

VII. 135. Photograph of the above before operation.

VII. 136. Elephantoid Hypertrophy of Clitoris and Labia Pudendi. (Dr. W. L. Reid.)

The clitoris is replaced by a bulky pedunculated tumour measuring 5 cm. from side to side and 3·5 cm. from above downwards. The base of the tumour on the left side involves a portion of the vaginal wall and also partly incorporates the labium minus. The tumour is divided by a deep cleft into right and left portions, the latter being considerably the larger; otherwise the surface shows the irregular lobulation of elephantiasis, but the lobulation is finer. The labia majora are considerably enlarged and prominent, and covered with a thick epidermic layer. The parts as a whole present a brown pigmentation. Microscopic examination shows thickening of the cutis vera with considerable cellular development.

Jeanie R. (aged 29) had a sore in the external genitals with swelling and abscess in left groin six years before operation. The affected parts were exceedingly sensitive. See Journal, Ward VI. A, Vol. III., p. 85.

VII. 137. Cutaneous Outgrowth from Labium Majus. (Dr. Bryce.)

The preparation consists of a flattened spherical body about 8 cm. in diameter, with a long narrow pedicle, which before removal measured 6 cm. in length. The structure is composed of a soft wrinkled skin. On incision several small smooth-walled cysts are opened into. The tumours hung from the skin of the left labium major in a woman aged 22 years.

VII. 138. Pendulous highly Cellular Fibroma from Labium Majus. (Dr. Andrew Moyes.)

The tumour has a narrow stalk measuring at the time of removal about 3·5 cm. The tumour itself was the size of an apple, and had a dimple at its lower end. The surface was smooth and tense, but now has become wrinkled. On cutting into the tumour it was found highly œdematous, and abundant fluid escaped, which, however, gave no mucin reaction.

Under the microscope the tumour shows a fibrous structure, but in some places is so abundantly cellular as to suggest sarcoma. Remains of adipose tissue are found, and the tumour tissue extends amongst the fat cells.

The tumour was first noticed about one year before removal, and was then the size of a pea. It grew slowly at first, but for the last two months its growth was rapid; there was no pain at any time.

VII. 139. Papilloma of Labium Majus. (Dr. W. L. Reid.)

The tumour is a prominent warty one with a total length of 5·7 cm., and a breadth of 2·5 cm., and a projection forwards of 3 cm. It has a comparatively narrow base attached to the left labium just outside the clitoris, whose inferior and outer aspect it slightly involves. On the inner side the tumour ends abruptly, but on the outer side there are some shaggy papillæ on the mucous membrane for a distance of about a centimetre beyond the attachment of the tumour. Microscopically there is found a thick layer of squamous epithelium with a basis of connective tissue. The epithelium was not found to penetrate deeply.

Isabella M. (aged 63) first noticed the tumour four years before operation, when it appeared as a small wart. It has had a gradual and painless growth since then.

Path. Reports, 19th Oct., 1897, No. 5198.

VII. 140. Cyst of Labium Minus. (Dr. Beatson.)

There is a large unilocular oval cyst measuring 9 cm. in diameter. It is covered with a soft hairless skin, generally smooth and uniform, but with a fold representing clitoris flattened out. The wall is generally about 3 mm. in thickness, and consists, besides the thin skin, of a dense connective tissue. The cyst contained decomposing pus, and is lined with a gelatinous layer of granulation tissue. The whole is covered with skin except a raw surface 5 cm. in diameter, where the pendulous tumour was excised. It is said to have been growing for about a year and a half. *Path. Reports*, 3rd April, 1890, No. 2330.

VII. 141. Epithelioma of Right Labium Majus. (Sir Hector C. Cameron.)

An oval prominent surface, having the appearance of a raw, ulcerated surface, is shown. It measures 6·5 by 4·5 cm. The edge is somewhat abrupt and partially rolled over in places. The surface is granular and somewhat friable. Microscopically, the tumour presents the characteristic elongated processes of flat-celled epithelium with

somewhat frequent laminated capsules. The intervening structure is highly cellular, the cells being small, and in large part with divided nuclei.

The patient was a woman aged 70. The parts removed were the antero-internal parts of the labium and the right inguinal glands.

Path. Reports, 4th April, 1898, No. 5403.

VII. 142. Epithelioma of Vulva. (Dr. W. L. Reid.)

The parts have been removed by operation, the incision being placed well outside the labia majora. These are apparently unaffected, but the clitoris, labia minora, and neighbouring structures are involved in an irregular new formation, which presents various prominences, the principal of which is a considerable rounded elevation in front. There is ulceration on the left side and in the internal parts. The tumour is mainly in front, scarcely extending to the posterior parts of the vulva. Under the microscope the tissue is seen to consist of large flat cells, with occasional epithelial globes.

The patient was a lady aged 60. She had suffered from irritation about the vulva for eighteen months, and for three months before the operation she had no sleep except from opiates. Her general health was rapidly declining. The parts were removed partly by scissors and partly by Pacquelin's cautery. The wound healed rapidly.

VII. 143. Vesico-Vaginal Fistula. (Dr. Beatson.)

The preparation shows in section, nearly in the middle line, vagina, uterus, and bladder. There is a large open communication between vagina and bladder in such a form that the vagina seems as if prolonged into the bladder, or as if the floor of the bladder had been removed. The diameter of the aperture is about 3·5 cm. The urethra comes off just in front of the abnormal aperture. The vagina and interior of the bladder were coated with an offensive slaty-green deposit containing phosphates. The left ureter was greatly thickened, and the pelvis of the kidney dilated and coated with phosphates. The stomach was the seat of a cancerous tumour in the pyloric region.

Barbara G. (aged 24) was delivered by forceps about seven years before death. She was admitted to hospital in the same year with

two fistulous openings, one of which was operated on. There were two subsequent operations but with little relief. Latterly stomach symptoms were prominent, especially vomiting, leading to emaciation.

Path. Reports, 2nd September, 1892, No. 3106.

VII. 144. An Air Pessary which had been worn by a Woman for Twelve Months. (Removed by Prof. Geo. Buchanan.)

VII. 145. Serous Cyst of Vagina. (Dr. W. L. Reid.)

The preparation consists of a portion of the vaginal wall, having the usual corrugated appearance, and a thin-walled cyst of a general cylindrical shape which measures 6·5 by 3 cm. It is adherent by its upper extremity to the under surface of the vaginal mucous membrane. The contents were clear and colourless.

Margaret W. (aged 24). The cyst lay beneath the anterior vaginal wall, and was removed by operation.

Path. Reports, 26th May, 1896, No. 4641.

VII. 146. Double Uterus (U. Bicornis Duplex). Both Organs Enlarged from Pregnancy in One. (Prof. Wm. Leishman and Dr. A. Patterson.)

The preparation shows vagina with the two uteri laid open posteriorly. There are two distinct nearly cylindrical organs of considerable size. The right measures from os to fundus 11 cm., and the left 10·5 cm. The breadth of the right is 6 cm., and that of the left 4·5 cm. The cavity of the right is considerably larger than that of the left, and in the fresh state its walls were softer. The pregnancy was in this uterus, which presents internally a rough placental surface. The wall of the right uterus is thinner than that of the left, apparently because the cavity is larger. Each uterus has a smooth rounded margin towards the middle line, and each is furnished on its outer aspect with Fallopian tube and ovary. These structures on the left side are somewhat concealed by old adhesions, which united the left wall of this uterus to the pelvic wall; the great omentum was adherent to the anterior aspect of this uterus. There is an oval encysted hæmatocele 4 cm. in length, adherent to the posterior wall of this uterus, and there are a few smaller ones as well. The two

organs are quite distinct down to their necks, which are adherent. They open by wide orifices into the somewhat dilated vagina. The vagina is greatly torn, an aperture in its anterior wall forming a wide communication with the urinary bladder, and one on the left side close to the os uteri communicating with the surrounding connective tissue. The vagina and the apertures are coated with earthy phosphates. In connection with the aperture on the left side of the vagina there was an abscess which formed extensive and irregular communications in the pelvic tissue, passing in part behind the rectum, and extending up on the left side as high as the diaphragm. In all this course the sub-peritoneal connective tissue was infiltrated with pus and with gas, the result of decomposition. The substance of the diaphragm was also infiltrated with pus and gas, and the left pleural cavity contained stinking pus with gas. The left kidney was entirely absent, and no trace even of a ureter could be found. The right kidney was considerably enlarged, weighing 450 grm., and there were four or five abscesses in it.

The case was that of a young woman who was seen by a medical practitioner, who, finding a uterus without a fœtus in it (the left), and finding the woman pregnant, concluded that it was a case of extra-uterine pregnancy. In his manipulations he seems to have made the tearing of vagina noted above. The case was sent into the Western Infirmary, where it was found that the fœtus was in the uterus, but the existence of a second uterus was not suspected. The woman was delivered of a male child, and lived for a fortnight after. It appears that she had a child two years before, and this was probably in the left uterus. At any rate, the hæmatoceles and adhesions around this uterus indicate a previous inflammation in connection with it.

Path. Reports, 3rd April, 1885, No. 1336. Also *Glasgow Medical Journal*, 1885.

VII. 147. Uterus Bicornis.

The uterus is divided down to the internal os, but the cervix is not divided, the two horns coming off on either side at the summit of the cervix, which is 2 cm. in length. The external os is quite definite. A strong fibrous band passes in the middle line from the rectum to the posterior wall of the bladder completely dividing Douglas's space. This band is adherent to the posterior wall of the vagina and cervix and to the uniting part of the uterus.

The two horns of the uterus are pear-shaped; the left measures externally 5 cm. from os to fundus, the right 4½ cm. The Fallopian tubes and round ligaments come off from either horn, and there is a large ovary on either side.

Janet T. (aged 33) was the subject of chronic bronchitis with cardiac failure. The uterine condition was discovered after death.

Path. Reports, 8th March, 1892, No. 2922.

VII. 148. Uterus with Fœtus, in Sixth Month of Pregnancy.

The uterus has been laid open in the posterior wall so as to show the fœtus *in situ*. It has the normal position, its head downwards, and the amniotic sac is shown distinct from the uterus wall. The uterus measured 24 cm. from above downwards, 18 cm. transversely, and 12 cm. from before backwards. The liquor amni measured 600 cc. (21 oz.). The os uteri is soft and somewhat ragged.

The case was one of sarcoma of the mesentery, and the ovaries and broad ligaments were obscured by tumour tissue. The patient was a woman of 24 years of age. *Path. Reports*, 7th Jan., 1894, No. 3541.

VII. 149. Uterus with Fœtus, in Seventh Month. Death during Parturition.

The posterior wall of uterus and vagina has been removed, and the fœtus is shown with the head downwards and the left ear backwards. The os and cervix are almost completely abolished, there being in the preparation a prominence on the right side corresponding with the os, which was more marked in the portion of uterus removed. There is a myoma partly calcified on the anterior surface near the fundus.

Mrs. Q. (aged 33) died in consequence of a strangulation of the intestines. She was six months pregnant and labour pains came on in the morning of the day of death, but parturition was not completed when she died at noon.

Path. Reports, July, 1891, No. 2847.

VII. 150. Uterus with Fœtus near Full Time.

The fœtus is seen in the normal position by removal of the anterior wall of the uterus. The os is shown by the removal of the posterior wall of the vagina. It is bulky and succulent-looking.

There is no appearance of labour having begun, there being ample space inside the uterus for fœtus and amniotic fluid.

The mother, who was an unmarried servant girl, was admitted deeply comatose, and was said to have committed suicide by some form of poisoning. The blood generally was fluid, and there was some extravasation on the posterior parts of the brain, but otherwise the body presented nothing remarkable.

Path. Reports, 8th May, 1893, No. 3337.

VII. 151. Pregnancy at Seventh Month: Breech Presentation. (Dr. Nicoll.)

The uterus measures 24·5 cm. by 17·5 cm. The breech occupies the extreme inferior part, and the cranium, almost symmetrically, the extreme supreme portion. The right ear presents almost directly forwards, and the attitude of the body is almost exactly facing to the left. The placenta is chiefly on the left side of the fundus, but extends slightly beyond the middle line. The umbilical cord is attached just beyond the line in which the placenta has been divided, which is about 3·5 cm. to the left of the middle line. Passing thence, the cord proceeds across forehead and the right ear to course backwards round the neck. It returns behind the left leg, then passes forward between the two legs, which are stretched upwards, to reach the umbilicus. The cervix and os are bulky, and show no signs of preparation for delivery.

Mary W. (aged 32) had a cancerous ulcer of the upper part of the rectum with marked constriction and perforation.

Path. Reports, 3rd August, 1895, No. 4262,

VII. 152. Fœtus with Membranes. (Dr. Brock.)

The fœtus occupies a cavity at the extremity of a pyriform body, and in its coiled-up position measures 1·5 cm.

VII. 153. Fœtus with Membranes.

This is the product of an abortion, date unknown. There is a pyriform sac, 4·5 cm. in length, whose walls are infiltrated with blood. Portion of the wall having been removed, a small fœtus, about 1 cm. in length, is displayed. It shows rudimentary upper and lower limbs, and head with dark eye-spot. There is a short umbilical cord, and this is inserted into a bulging part of the sac.

VII. 154. The Uterus after Abortion in the Fourth Month.

The cavity of the uterus measures, from fundus to internal os, 7 cm., and the cervix 4 cm.; its wall is from 1·2–2 cm. in thickness. The cavity has a roughened surface where the placenta has been attached. The left ovary shows the corpus luteum.

The patient died from an attack of acute rheumatism, with adherent pericardium and acute endocarditis.

Path. Reports, 24th November, 1881, No. 734.

VII. 155. Uterus and Ovary a Month after Delivery. (Dr. Finlayson.)

The uterus has been divided in the middle line. It seems to be considerably enlarged, measuring 9 cm. from external os to fundus. It presents internally a rough placental surface, situated on the posterior wall, with its edge at the fundus. There is a cystic cavity in the posterior wall close to the internal os. In the neighbourhood of the ovary there are several cysts, which seem to belong to the parovarium.

Eliza. H. (aged 44) was delivered of a child about a month before death. (See II. 96.)

VII. 156. Uterus a Week after Delivery: Endometritis, and Septic Peritonitis. (Sir Wm. T. Gairdner.)

The uterus is of considerable size, measuring 12 cm. from external os to fundus, and 8 cm. across the body. The cavity is dilated, and the internal surface is coated with a semi-purulent and semi-fibrinous layer. The right Fallopian tube near its distal extremity presented considerable redness and swelling, and the fimbriated extremity had a yellow œdematous appearance.

The peritoneal cavity had the usual appearances of acute peritonitis, it contained a considerable amount of turbid fluid, and the surface was coated with a soft yellow exudation, at places approaching the purulent condition.

The acute illness began two days after delivery at the full time, with pain and swelling of the abdomen, etc. The patient died four days after the onset of the illness.

Path. Reports, 28th November, 1882, No. 881.

VII. 157. Cast of Uterus, Consisting of Decidual Tissue. (Dr. Thomson, Coatbridge.)

The specimen is a complete cast of the uterus, having the triangular shape of the cavity. It has itself a central cavity opening below and the two apertures corresponding with the Fallopian tubes. It measures 6 cm. from apex to base, and 2·5 transversely at the base. The wall, *i.e.* from the central cavity to the surface, has a thickness of about 7 mm. The surface is markedly irregular and the tissue somewhat friable.

Under the microscope the structure is that of well-preserved decidual tissue, the details and the nuclear staining being perfect. There are the large decidual cells and abundant blood-vessels containing well-preserved blood corpuscles and fibrin. There is no appearance of necrosis anywhere.

VII. 158. Endometritis and Thrombosis of Uterine Veins, Following Delivery. (Dr. Finlayson.)

The uterus, which is in a state of partial involution five weeks after delivery, shows on the internal surface a yellow fibrinous layer somewhat adherent. The uterine and ovarian veins on the left side are plugged with adherent thrombi. The case was one of mitral disease with the usual resulting cardiac phenomena.

Mrs. M'T. (aged 39) had been ill ostensibly for only about three or four months. There were extensive œdema, great breathlessness, etc., and a systolic murmur over the apex region.

Path. Reports, 10th May, 1893, No. 3340.

VII. 159. Transverse Rupture of Uterine Wall Anteriorly. (Maternity Hospital.)

There is a huge rent across the anterior wall of the uterus just about the junction of uterus with cervix. The rent was such that the child and placenta passed through it into the abdominal cavity. There is a large collection of blood in the right broad ligament, shown partly on section. In connection with the rupture the condition of the os uteri is interesting. It is thick and rigid, and the aperture only measures 4·75 by 2 cm. The uterus ruptured during delivery and the patient survived.

VII. 160. Parts Several Years after Amputation of Uterus.

The parts are shown in section slightly to the left of the middle line. In front is the bladder, whose anterior wall has in great part been removed. Immediately behind it is the vagina, which reaches well up towards the fundus of the bladder and ends in a rounded vault, at the summit of which is a small aperture leading into condensed and indefinite tissue. The area of the vagina is covered with peritoneum for a distance of 3·5 cm., and forms a bulging in Douglas's space, the latter being voluminous. Immediately behind the vagina is the rectum.

Catherine R. (aged 44) had been affected with strangulated hernia, which on operation was found gangrenous, and so an artificial anus was established. Six weeks later she died after an operation for the relief of the artificial anus.

Path. Reports, 15th Feb., 1892, No. 2887.

VII. 161. Anteflexion of Uterus.

As seen in section the uterus forms a rounded angle with its neck. The upper part of the vagina with the os uteri are shown, and it is seen that the body of the uterus comes close to the anterior wall of the vagina, the fundus projecting forwards. The point of flexure is about an inch from the os uteri. The body of the uterus is considerably enlarged. A small mucous polypus projects from the os uteri, and there is marked dilatation of the mucous glands of the cervix.

VII. 162. Hypertrophy and Prolapse of Cervix Uteri.

(Prof. Gemmell.)

The cervix is enormously enlarged, and projects into the vagina as a solid cylinder 6 cm. in diameter. The exposed os is deeply lobulated and shows occasional ulceration. The body and fundus of the uterus are not obviously enlarged.

The case was that of a woman aged 51, who was affected with a tumour in the mesentery. Pneumonia developed after admission, and proved fatal. She had no symptoms pointing in any way to the uterus.

Path. Reports, 12th April, 1882, No. 801.

VII. 163. Mucous Polypus Projecting from Os Uteri. Cyst in Broad Ligament. (Dr. Finlayson.)

The posterior wall of the vagina has been turned up so as to show an irregularly oval-shaped polypus which projects from the os and hangs into the vagina to the extent of an inch. There are also some smaller polypi. A small simple cyst the size of a marble is situated on the broad ligament, lying between the fimbriated extremity and the ovary.

Mrs. D. (aged 51) was affected with anæmia and latterly with pachymeningitis. She ceased to menstruate eight years before death and there had been no discharge since. The anæmia had the characters of pernicious anæmia, and its duration was eight months.

Path Reports, No. 1303, 14th February, 1885.

VII. 164. Hydatid Mole.

The preparation consists of pieces of the mole, and presents innumerable berry-like cysts of larger and smaller size.

VII. 165. Polypoid Myoma of Uterus. Cyst of Urethra. (Sir Wm. T. Gairdner.)

A somewhat pear-shaped tumour hangs from the fundus of the uterus and may be divided into a cylindrical neck and bulbous extremity. The neck, which is about 2 cm. in length and 2 cm. in diameter, corresponds with the cavity and cervix of the uterus, while the bulbous extremity, which is 4·5 cm. in diameter, and somewhat flattened from below upwards, is placed in the vagina. The os and cervix are greatly dilated by the neck of the tumour and, as shown in the preparation, the lips, and especially the posterior one, are greatly flattened. The attachment of the tumour is to the anterior part of the fundus, and the neck becomes somewhat narrower as it approaches its attachment.

In the posterior wall of the urethra, half an inch from its vesical extremity, there is a longitudinal aperture leading into a cavity placed between vagina and urethra, and of considerable internal dimensions, in certain of its diameters being at least 2 cm. In this cavity there are several small brown calculi (uric acid). The cavity has been laid open and a piece of whalebone passed from the urethral aperture out at the cut opening. The left kidney was in a

state of pyonephrosis, consisting of cysts filled with putty-like material. The other kidney was hypertrophied. (See VII. 81.)

The patient was a woman aged 35, who had been troubled with bronchitis and cardiac symptoms for years. She had for eight years been troubled with irregular and often excessive catamenia.

Path. Reports, 12th December, 1882, No. 889.

VII. 166. Large Polypoid Myoma Attached to Anterior Wall of Cervix Uteri. (Prof. Wm. Leishman.)

The tumour is a bulky pear-shaped one, measuring 11 cm. in length and 10 cm. in its greatest breadth. Its neck is 6 cm. in breadth, and is attached to the anterior wall of the cervix and body of the uterus. The tumour is generally rather fleshy to the touch, and at some parts distinctly soft. The surface has a dark brown colour, as if decomposing or suppurating. On section, the tissue presents in general the white fibrous appearance of the myoma, but in places, especially at the periphery, it is infiltrated with blood. There is also some infiltration with pus in the substance of the tumour. The bulky tumour greatly distends the vagina, which presents anteriorly a considerable number of erosions. The distended vagina is continuous with the uterus, whose cervix is kept wide by the thick neck of the tumour, so that demarcation of vagina and uterus is hardly possible. Viewed from without, the fundus of the uterus looks double, the part of the cervix to which the tumour is attached being forced upwards so as to project in front of the fundus. This projection was felt above the pubes during life.

The case was sent into the Infirmary as one of prolapse of the uterus, the tumour in the vagina having been taken for the uterus. Attempts had been made to replace it. The patient died thirty-six hours after admission. *Path. Reports*, 8th May, 1885, No. 1360.

VII. 167. Sloughing Polypus of Uterus, removed by Ecraseur—Uterus Showing Place of Attachment in Neck. (Dr. J. G. Lyon.)

The polypus is an ordinary myoma, the lower part of which is shreddy and discoloured. After removal by the écraseur fatal peritonitis ensued. As seen in the preparation, the surface from which the tumour was taken is situated in the neck, and is nearly circular. There were the usual evidences of acute peritonitis.

Path. Reports, 4th June, 1875, No. 9.

VII. 168. Polypoid Myoma of Uterus, Removed by Ecraseur. (Dr. A. Patterson.)

It is an elongated oval tumour about 15 cm. in length. Near the upper extremity there is a circular raw surface about 2·5 cm. in diameter, representing severed attachment; the tissue was much softer than that of an ordinary myoma, being highly oedematous, but the microscope showed the usual muscular structure.

The patient was a woman aged 32, and the tumour filled the greater part of the vagina, sometimes protruding beyond it. It was attached apparently inside the cervix in front. There was considerable menorrhagia for some months. The tumour having been removed, she was dismissed well a fortnight after the operation.

Path. Reports, 22nd February, 1882, No 778.

VII. 169. Pedunculated Inflamed Myoma of Uterus, Removed by Ecraseur. (Prof. Wm. Leishman.)

The tumour is about the size of the fist, and irregularly lobulated, the cut surface being considerably narrower than the widest part of the tumour. The general surface of the tumour is rough and ulcerated in appearance, and the microscope shows that its proper tissue is greatly mixed with inflammatory cells, so that sometimes the appearance is like that of granulation tissue.

The patient was 39 years of age, and she had complained of pain in the uterine region and of menorrhagia for about six years. She has had eleven children, of whom the youngest is two years old. The above symptoms became progressively worse, and for the last three months the bleeding and pain showed little relation to the menstrual periods. The discharge had been foetid lately. At the operation the tumour was found to be attached to the fundus, that portion of the organ springing upwards on division of the pedicle. The patient was dismissed three weeks after the operation, practically well, a normal menstruation having occurred.

Path. Reports, 30th October, 1882, No. 865.

VII. 170. Polypoid Myoma of Uterus, Removed by Ecraseur. (Prof. Wm. Leishman.)

The tumour is pear-shaped, the long diameter being 4·5 cm. in length; the surface is generally smooth. At the neck, where the tumour has been torn through, the diameter is about 1 cm.

The patient, married and having seven children, the youngest 16 months old, was subject to floodings for a considerable time. The tumour was found to be attached inside the uterus, but it occupied chiefly the cavity of the cervix. In a month she was dismissed well.

Path. Reports, 7th October, 1878, No. 374.

VII. 171. Polypoid Myoma of Uterus, Removed by Ecraseur.

The tumour is irregular in form, and rather larger than both closed fists. At one extremity it is ragged and irregular, as if partially torn. At another part there is a rough circular surface which is probably that of attachment to the uterus. The section is pearly white, and shows very typically the concentric fibrous arrangement.

VII. 172. Myoma of Uterus, Showing Internal Structure.

(Prof. Murdoch Cameron.)

The tumour, which has a general diameter of about 6·5 cm., shows externally considerable lobulation. Internally there are many reticulated bands, forming a kind of stroma, in the alveoli of which lie tumour masses frequently of a rounded form. One half of the tumour, which was hardened after division, shows some of these tumours projecting from the general surface.

Mrs. S. (aged 35) complained of pain and bloody discharge for about seven months. This tumour and a small one were removed from the fundus. *Path. Reports*, 5th October, 1895, No. 4348.

VII. 173. Calcified Myoma of Uterus.

This structure, which in its external appearance resembles nodulated bone, was found in the cavity of the uterus after death. It not only possesses a firm external calcareous shell, but is intersected, as appeared when it was sawn through, by calcareous trabeculae. In the spaces between these trabeculae there is a soft tissue, which under the microscope presented the usual characters of the myoma. (The preparation was presented by Dr. Algernon Chapman, County and City Asylum, Hereford.)

VII. 174. Large Interstitial Myoma: Great Enlargement of Uterus. (Prof. Wm. Leishman.)

The preparation shows the lateral half of the specimen with a section in the middle line. At the post-mortem examination the appearances were those of the uterus at full time, the fundus extending 7·5 cm. above the level of the umbilicus and pushing the intestine upwards and to either side. The section shows a large tumour which measures 24 cm. from above downwards, and is situated in the posterior wall of the uterus. For the most part the uterus, greatly enlarged and thickened, can be traced over the tumour, especially at the summit, where its wall has a thickness of 1·2 cm.; but further down the tumour is more directly continuous with the uterine wall, which can still be traced, however. In front of the tumour is the greatly enlarged cavity of the uterus, which extends almost to the summit of the tumour. The anterior wall of the uterus is greatly thickened, especially towards the fundus. The cervix uteri is greatly thinned and spread out so as to form an almost paper-like diaphragm, the anterior and lateral portions of which are most distinct. The urinary bladder in front and the rectum behind are shown. The ovaries are considerably enlarged. Under the microscope the tumour has the regular structure of the myoma.

Elizabeth M. (aet. 23), single, had an enlargement of the abdomen of two years' duration. After the enlargement began, menstruation became irregular and excessive. There were also floodings between the periods, one of them amounting to a pint of blood. She was admitted highly anaemic, with a haemic cardiac murmur, and oedema of the feet and legs. A sound exactly like the uterine souffle was heard on auscultation of the abdomen, to the left of the umbilicus.

Path. Reports, 24th June, 1886, No. 1566.

VII. 175. Large Intra-Mural Myoma of Posterior and Upper Wall of Uterus. (Dr. W. L. Reid.)

The preparation shows the left half of the specimen at its lower part, the cavity of the uterus being displayed at its fundus, along with a small portion of Fallopian tube and the ovary. Above and behind the cavity of the uterus is a bulky oval tumour measuring 20 cm. from above downwards and 13 cm. from before backwards. The uterine wall is split by the tumour, so that a layer of it is dis-

tinguishable all over the tumour. The tumour-tissue itself has the usual fasciculated appearance of the myoma. There is a central slough measuring 9 by 5·5 cm.

Maggie P. (aged 31) first noticed a swelling in the abdomen six years before operation. The tumour is stated to have increased more rapidly within the last two years, and especially in the last six months. It was removed with portion of uterus and appendages, and the patient died two or three days afterwards.

Path. Reports, 10th Dec., 1894, 3971-3975.

VII. 176. Uterus with Immense Myoma in its Wall. Distension of Cavity. Removal by Operation. (Sir Hector C. Cameron.)

The structure removed had an oval or nearly globular shape, its longest diameter being 24 cm., and its shorter 21 cm. It had a generally smooth surface, being covered with peritoneum, except around the uterine orifice. The mass was found, on examination, to consist of an immense uterus, the Fallopian tubes, etc., being attached, but cut short on the left side. On the anterior surface of the mass there was a crescentic orifice, measuring 4·5 cm. transversely, into which five fingers could readily be passed. The mass is shown divided in the middle line, and the uterine cavity is seen anterior to the main mass as a large flat cavity, which measures 16 cm. from the aperture to the fundus, and 15 cm. transversely. The anterior wall of this cavity is fleshy, and about the thickness of the uterus at full time. The section shows that the tumour is in the posterior wall of the uterus, lying between the mucous membrane and the muscular layer. The mucous membrane thus covers the tumour in front, whilst the greatly thickened muscular layer, which is over 1 cm. in thickness, is expanded over the posterior surface. The tumour itself has the ordinary characters of a myoma, being composed of lobulated masses, and one or two of the lobules have undergone calcareous infiltration.

Jane F. (aged 45) had suffered from severe menorrhagia with pain in the abdomen. Latterly the symptoms were mainly gastric. These symptoms began five or six years ago, at which time also the abdomen began to swell. At the operation, a large rounded tumour was disclosed with a fleshy pedicle. The tumour was regarded as ovarian, and it was entirely free from adhesion. The patient lived three days afterwards. *Path. Reports*, 20th March, 1882, No. 794.

VII. 177. Massive Myoma in Anterior Wall of Uterus. (Dr. E. A. Gibson.)

The tumour has been freely laid open from the front, and the uterine cavity has been exposed from behind. The tumour mass is entirely in the anterior wall, whose muscular substance splits to accommodate it. There is thus a layer of uterus behind the tumour measuring 2 mm., and a layer in front measuring in some places as much as 8 mm., but at the lower part diminishing to about 2 mm. The tumour has a generally lobulated aspect, with sinus-like openings of veins. It measures 19 cm. from above downwards by 14 cm. from side to side. The uterine cavity is greatly enlarged, extending throughout the whole length of the tumour. The uterus has a breadth of 9 cm. Its posterior wall is in general about 4 cm. in thickness, but diminishes below. There are several smaller tumours both on the anterior and posterior walls, one on the anterior wall measures 2·5 cm., and is flattened by the large tumour; there is another at the summit above the tumour. There are two small ones near the upper extremity of the posterior wall, and a subserous one, which has been laid open to the right side near the summit. The uterine appendages are partly preserved, those on the right side more fully than those on the left.

Microscopically the tumour shows typical muscular bundles, separated by a very sparsely cellular tissue, which is interpolated amongst the muscle, and seems in many cases to break up the bundles. It consists of wavy, fibrous tissue, apparently compressed.

The patient was a widow, who had reached the menopause eight years before operation. She had no symptoms till three weeks before operation, when profuse hæmorrhage occurred; there was another violent hæmorrhage a fortnight later. The uterus with appendages, as preserved, were removed, and the patient recovered.

Path. Reports, 25th February, 1897, No. 4957.

VII. 178. Interstitial General Myoma of Uterus. (Sir Geo. H. B. Macleod.)

This bulky mass, which weighed about 3 kilograms, consists of uterus and appendages, with enormous new-formation in the uterine walls. The cavity of the uterus is buried in the upper two-thirds of the tumour, the latter being situated partly in front of the cavity but mainly behind, its posterior portion extending below the uterus into the pelvis, which it filled up to a large extent. The mass, as a whole,

is of a generally oval form, but flattened from side to side. It measures from above downwards 30 cm., from before backwards at most 22 cm., and from side to side about 11 cm. It is variously lobulated, but anteriorly there is a deep fissure, in which a canal sufficient to admit the finger represents the vagina. The uterine cavity, as shown in section, has a curved outline, and measures 14 cm. in length. It is very narrow. The cavity is deeply buried in the tumour, being 8 cm. from the anterior, 11 cm. from the posterior, and 6 cm. from the upper extremity of the mass. The tumour, as seen in section, presents very numerous rounded areas as of centres of growth, and the part in the pelvis is a single rounded tumour. None of the rounded masses are distinctly encapsuled, but the uterine wall can be traced over all. At the sides of the tumour there were the Fallopian tubes and ovaries, those of the left side being preserved in the preparation.

With the exception of the neighbourhood of the fissure described above, and the anterior surface of the pelvic portion, the whole surface is covered with smooth peritoneum, whose cut edge is visible around the uncovered part.

Mrs. M. (aged 38) has had four children, the youngest ten years old. She first noticed swelling of abdomen ten years before the operation. During that time she suffered from pain in back and loins, and had several attacks of severe flooding. Catamenia have been regular, but with great pain and general illness, causing life to be miserable; during the last two years the quantity of blood has been excessive. The operation was a prolonged one, and the patient died the same night. *Path. Reports*, 21st December, 1882, No. 900.

VII. 179. Multiple Myomata of Uterus.

There are many tumours connected with the uterus, some projecting from the external surface (sub-serous) and pendulous, others in the substance of the organ. Of the latter there are two shown in section, one at the summit of the organ 6 cm. in diameter, the other 2 cm., and situated beneath it. These tumours cause a great projection of the fundus upwards.

VII. 180. Multiple Interstitial Myomata; Mucous Polypus. Transplantation of Large Myoma to Omentum.

(Sir Wm. T. Gairdner.)

These two preparations from the same case illustrate one another. The first shows the uterus divided longitudinally, and buried in a

mass of tumour which measured 24 cm. by 16 cm. The section shows the cavity of the uterus, which is 11 cm. in length and about 10 cm. in transverse diameter at the fundus, the cervix (3 cm.), and the upper part of the vagina. The cavity of the uterus is surrounded by numerous rounded tumours of the regular myomatous appearance, and varying in diameter from less than 5 cm. to 10 cm. There are, for the most part at least, in the substance of the uterine wall, strands of tissue passing between the tumours, which are very distinctly encapsuled and often moveable in their beds. On the other hand, several project from the outer surface, and one hung from a narrow peduncle. It is notable that the cervix is free of tumours. At the fundus in the middle line a mucous polypus, 3 cm. in length, hangs into the cavity.

The other preparation shows a bulky oval tumour 17 cm. by 11 cm., which was found entirely dissociated from the uterus, and attached in two places to the great omentum. One attachment is broad and contains numerous small vessels. The other is narrow, and contains a few larger vessels; this attachment is markedly twisted, and although there is a considerable free interval between the two attachments, it is found impossible by doubling in the tumour to untwist. From this it is inferred either that the tumour has grown since transplantation, or that the attachments have approximated. The tumour has the structure of the myoma with some calcareous infiltration.

On the posterior aspect of the uterine mass there was a rounded, rough area, about 3 cm. in diameter free of peritoneum, from which the large tumour had presumably been detached.

Catherine F. (aet. 55) had a history of uterine myomata, numerous and of large size, extending over more than thirty years. Profuse catamenia occurred throughout the active period of the sexual system. The question of operation was entertained more than once, but abandoned (Dr. Keith). The abdomen diminished in size after the menopause, and the general health improved. Death occurred in connection with cancer of a bronchus.

Path. Reports, 6th June, 1889, No. 2114.

VII. 181. Uterus with Subserous Myomata, Two of Them Pedunculated. (Sir Wm. T. Gairdner.)

Besides these prominent pedunculated tumours, there are several others which can be distinctly felt under the peritoneum; one particu-

larly in the middle line anteriorly, which, although not pedunculated, can be moved freely between uterus and peritoneum. One of the pedunculated tumours is situated near the insertion of the right Fallopian tube, the other being near the middle line. Apparently in consequence of this, the uterus is inclined to the right; the axis of its cavity making an angle of 150° with the axis of the cervix.

Jane I. (aged 46) was affected with cardiac disease for some years. There is no note of the uterine condition during life.

Path. Reports, 13th Nov., 1883, No. 1059.

VII. 182. Gigantic Subserous Myoma. (Dr. A. Patterson.)

The preparation is a slice from a tumour, of which the following is a full description: This enormous tumour, which was removed during life, is of a generally oval shape, its long axis measuring 32 cm., and the shorter axis in one direction 22 cm., and in the other considerably less, the tumour being flattened. It weighed 9 kilograms. The surface presents numerous irregularities in the form of large round prominences. The tumour is covered by a distinct capsule about a line in thickness, and numerous tags of connective tissue, representing adhesions torn through, are attached to it. The tumour is of fleshy consistence. Its section is of a pinkish-grey colour, and with the appearance of more or less concentric strands of fibres. The colour and consistence are strongly suggestive of the uterus immediately after delivery. On microscopic examination multitudinous rod-shaped nuclei of a comparatively large size are seen. On steeping a portion in dilute nitric acid large spindles can be partly isolated, which resemble in size and shape muscle cells of the gravid uterus. The patient died, but no post-mortem was obtained.

Mrs. Y. (aged 33) had had five children, the youngest two years old. About twenty-two months ago she felt a lump in the abdomen. A large tumour was detected, moveable but not very freely so, and was regarded as ovarian. It was removed by operation; many adhesions were divided, some by the actual cautery. The patient died the same evening. *Path. Reports*, 2nd August, 1877, No. 245.

VII. 183. Large Myoma Removed from the Abdomen. (Dr. A. Patterson.)

The preparation is part of a large oval mass which weighed over 6 kilograms and measured 28 cm. by 18 cm. It has the usual microscopic and macroscopic characters of a myoma.

Isabella M. (aged 38), single, had felt a lump in the left side for seven years. It grew slowly till it almost filled the abdominal cavity. It was removed by operation, and was found adherent to peritoneum, bowels, and liver. The pedicle was attached in the left ovarian region. The operation lasted one hour and twenty minutes. The woman was dismissed well in twenty-two days.

Path. Reports, 16th December, 1881, No. 744.

VII. 184. Large Subserous Myoma of Uterus with Softening. (Prof. Murdoch Cameron.)

The tumour, which is shown on section, was pyriform in shape, measuring 22 cm. in long diameter. It consists of dense tissue having the usual structure of a myoma, and it contains an irregular cavity measuring 13 cm. in long diameter, which comes close to the surface along the greater part of the more convex aspect of the tumour.

Jeanie M'C. (aged 38), unmarried, was affected for $2\frac{1}{2}$ years with swelling of the abdomen. The tumour almost filled the abdomen. It was found attached by its apical part to the fundus uteri. There were no adhesions.

Path. Reports, 20th March, 1894, No. 3630.

VII. 185. Large Subserous Myoma of Uterus with Large Central Cavity from Softening. (Prof. Murdoch Cameron.)

The preparation has the general aspects of a large cyst measuring 23 by 17 cm., the cavity having a very irregular internal surface, with trabeculae and bridges almost like those of a tuberculous lung. The wall of the cyst is sometimes no thicker than cardboard, whilst in other places it attains a thickness of 4 cm. In these latter parts the tissue is composed of a dense white structure, in which interlacing bundles can be seen, the appearance being altogether that of the myoma. Such also is the microscopic structure. There was a circular raw surface about 5 cm. in diameter, by which the tumour was attached to the uterus, and about the opposite surface there is a piece of omentum firmly adherent.

Jessie M'K (aged 34) noticed the swelling only six months before the operation. The tumour, before the operation, was regarded as ovarian, and during the operation the fluid contents were withdrawn.

Path. Reports, 24th February, 1892, No. 2902.

VII. 186. Subserous Myoma of Uterus with Formation of Large and Smaller Cysts. (Dr. Dalziel.)

Only a small portion of the tumour has been preserved, showing in section the more solid part, including a small cystic cavity and a portion of the larger cyst. The whole tumour was nearly globular in shape, measuring about 27 cm. in diameter. The greater part of this is cystic, but the cyst has a firm fleshy wall, having a thickness generally of 1 to 2 cm., but sometimes, although rarely, becoming much thinner, the thinnest part being about 3 mm. The solid part, which corresponded with the lower part of the tumour, measures generally about 16 cm. transversely, and about 8 cm. from above downwards. It encloses a rounded cavity about 8 cm. in transverse diameter. This solid portion presents on section the appearance of concentrically arranged bundles, which one sees in the ordinary myoma. The fluid contained in the large cyst was deep chocolate brown in colour, neutral in reaction, and with a specific gravity of 1021. It amounted to 220 oz. The fluid in the smaller cyst was clear and yellow. Both cavities present internally a somewhat thick layer of shreddy material. The cyst was somewhat adherent externally, especially to the great omentum, and numerous blood-vessels, particularly veins of large size, passed from the omentum to the tumour.

Under the microscope both the wall of the cyst and the more solid part present most typically the characters of the myoma. The opaque stringy layer also presents muscular tissue, but it is extremely granular, and the nuclei stain very imperfectly.

Margaret M. (aged 38) first noticed a tumour in the left groin about fifteen months before operation. At the operation it was found attached to the fundus of the uterus, and the preparation shows an oval raw surface measuring 6·5 cm. in diameter.

Path. Reports, 23rd September, 1893, No. 3447.

VII. 187. Large Subserous Myoma of Uterus with Central Softening. Removed by Operation. (Dr. Patterson.)

The tumour is generally oval in shape, its long diameter being over 20 cm. There is a large central cavity 15 cm. in long diameter. The tissue has the usual characters of the myoma. In addition to this large tumour, an aggregation of smaller ones shown in next preparation was removed.

Mrs. M'N. (aged 31) first noticed a tumour two years before operation. At the operation the cystic tumour, which was supposed to be ovarian, was first removed. Afterwards the uterus, with adhering tumours, as shown in the next preparation, was removed. There were many adhesions, and the operation lasted two hours. The patient died of shock six hours after operation.

Path. Reports, 26th February, 1882, No. 781.

VII. 188. Numerous Myomata aggregated together. (Dr. A. Patterson.)

Along with the large tumour shown in preceding preparation there was removed this mass, consisting of an aggregate of about a dozen larger and smaller rounded tumours, weighing 31 oz.; the smallest tumour being about the size of a hazel-nut and the largest as big as an orange. Some of these are distinctly pedunculated. The Fallopian tube and ovary are attached to this mass, the former passing right into it where it is lost. No fimbriated extremity is found, and no distinct part of the uterus, but a raw surface beneath the Fallopian tube may possibly be fundus cut across.

VII. 189. Subserous Myomata of Uterus (one of huge size). Pregnant Uterus. (Dr. W. L. Reid.)

The preparation shows about the half of a huge tumour whose dimensions were 27 by 20 by 18 cm., and whose weight was 4260 grm. It had the usual characters of a myoma with central softening. At one side of the tumour there is a raw surface where the peritoneum is wanting, and this represents the place of attachment to the uterus, which had been cut at the operation. A smaller but still considerable tumour was also removed, which measured 15 by 9 by 11 cm. and weighed 750 grm. The enlarged and pregnant uterus is also preserved. It measures 14 by 11 cm., and there is a general thickness of the wall of from 2 to 2·5 cm. It contained a foetus of four months. The surface of the uterus shows two ligatured pedicles, and shows also several small myomata.

Eliz. M. (aged 32), a servant, gave the history of a swelling of the abdomen of a year's duration. A rapid increase during the last four weeks and cessation of menstruation for four months suggested pregnancy, but no positive evidence was obtained by examination before the operation. The parts were removed by abdominal section, and the patient was dismissed well in about two months.

Path. Reports, 8th July, 1897, No. 3121.

VII. 190. Very Large Myoma of Broad Ligament, Removed with Uterus and Appendages. (Sir Geo. H. B. Macleod.)

The portion of the tumour preserved is the part beneath the level of the os uteri, measuring from above downwards 10 cm., the lateral portion, measuring 9 cm. in breadth, having been removed. The whole tumour had a flattened pyriform shape, and measured 38 cm. from above downwards and 24 cm. transversely, and weighed with uterus attached 8 kilograms. The tumour is in the right broad ligament, the right border of the uterus being firmly adherent and incorporated with it, although the outline of the uterus can be partly made out. The cervix uteri has been cut through in removing the tumour, and in the preparation a piece of whalebone is inserted and passes freely upward for 8 cm. to the fundus. The right corner of the uterus is obviously carried considerably upwards, while the left, as indicated by attachment of the Fallopian tube, is only 5·5 cm. above the cut surface of the cervix. The left Fallopian tube and ovary are little altered, except that the ovary is flattened and slightly enlarged. The right Fallopian tube, ovary, and round ligament are stretched over the tumour. The summit of the tumour is occupied by an elongated solid body about 15 cm. in length, which is altered ovary. Beneath this and on the anterior surface of the tumour, and separated from it generally to a distance of 9 cm., is the greatly elongated Fallopian tube, which measures 22 cm. from the left corner of the uterus to the fimbriated extremity. Beneath this, again, is the enlarged round ligament which proceeds from near the same place as the Fallopian tube, and diverges from it in a downward direction.

The entire posterior surface of tumour is covered with peritoneum, and the anterior surface is similarly covered down to an inch above the divided cervix uteri. From this point downwards the peritoneum is awanting, and the surface is irregularly cut till near the lower border of the tumour. At the right border of the tumour the two folds of the broad ligament are distinctly visible, and the tumour is situated between them. A very large vein passes from the tumour here. The tumour tissue is somewhat soft, especially in the lower parts, and on section, while the characters are generally those of the myoma, there are tolerably wide spaces giving an almost cavernous appearance in some parts. In one or two places the tissue is infiltrated with blood.

Agnes M. (aged 32) first noticed a swelling three years before admission. Six months before admission the tumour began to grow rapidly, the feet and legs began to swell, and there was difficulty in micturition. Menstruation was never interfered with, and there was no flooding. The patient died about ten days after operation. There were evidences of acute peritonitis, and a large rupture in the posterior wall of the bladder. The truncated cervix uteri was found with a double ligature, but, apparently from shrinking, an aperture existed through which a probe could easily be passed.

Path. Reports, 31st May, 1882, 10th June, 1882, Nos. 824, 828.

VII. 191. Large Myoma of Broad Ligament, Removed with Uterus and Appendages. (Dr. Beatson.)

The mass, which weighed on removal 3750 grams, has been divided so as to show the relation of parts. The tumour is solid, and has the characteristic appearance of the myoma. It is adherent to the right side of the uterus, which is considerably distorted but without diminution of its cavity. The tumour itself is in the broad ligament, which it distends. The Fallopian tube is greatly elongated, measuring 16 cm., and the ovary is also elongated to the extent of 11 cm. These structures are flattened against the anterior surface of the tumour, and adherent. The uterine wall itself is much thickened; even the left wall, which is free from tumour, measures fully 1 cm. in thickness. The left Fallopian tube and ovary are quite free, but the ovary is rather large. The uterus has been cut through above the position of the internal os.

Ann C. (aet. 38) first noticed a lump in her abdomen four years before admission. The patient died on the day after removal of the mass. *Path. Reports*, 3rd October, 1889, No. 2180.

VII. 192. Subserous Myoma and Ovarian Cyst, Removed by Operation. (Dr. Patterson.)

The myoma is irregularly kidney-shaped, 16 cm. by 9 cm. It is generally covered with a smooth membrane, but shows a raw surface about 6 cm. in long diameter, where the attachment had been cut through. The tissue is very dense and tough. This tumour was removed from left side of the uterus at the fundus. The cyst is a single thick-walled cavity measuring 15 cm. in diameter. There

is no definable peritoneal coat, and the cyst has the general relation to Fallopian tube and broad ligament of an ovarian cyst. The cyst is generally free, and there is a narrow raw surface, which has been cauterised. There are small cysts in its wall and several smaller ones in broad ligament.

Mary S. (aet. 33). The abdomen was opened to remove a solid tumour, and the cyst was found impacted in Douglas's pouch, being attached on the right side. Patient died on the day following the operation, from what was considered to be septic peritonitis.

Path. Reports, 7th November, 1889, No. 2202.

VII. 193. Cauliflower Cancer of Os Uteri, Removed by Ecraseur. (Prof. Wm. Leishman.)

The preparation shows at one end an irregular, somewhat papillary surface, and at the other end the uterine tissue. Under the microscope the structure consists of infiltrating epithelial processes, with uterine tissue intervening, but infiltrated with round cells.

Mrs. R. (aged 38) has had four children. For six months there occurred frequent haemorrhages, generally every second day. She had venereal sores some years before. The mass was removed by the écraseur, and the patient made a fair recovery. At the end of seven months there was still constant discharge, and a hard ring was felt as if the disease had recurred.

VII. 194. Cauliflower Cancer of Os Uteri; Removal of Uterus. (Dr. W. L. Reid.)

The anterior lip of the os is replaced by an irregular granular surface measuring 4·5 cm. from side to side, and about 4 cm. from before backwards. The posterior lip is almost unaffected. The uterus has been divided longitudinally in the middle line, close up to the os, and no obvious penetration is revealed. Microscopic examination of a portion of the affected area shows collections of comparatively small epithelial cells, along with a considerable amount of leucocytic infiltration.

Mary M'G. (aged 39), married, and has three children, was troubled for a year with a white discharge; she lost flesh considerably. The anterior lip of the os was found nodular and greatly everted. There was no involvement of the vaginal wall or vault.

A considerable amount of anterior lip was removed by a sharp spoon on March 1st, and on March 20th the uterus was removed per vaginam. *Path. Reports*, 20th March, 1894, No. 3632.

VII. 195. Cauliflower Cancer of Os Uteri. (Prof. Murdoch Cameron.)

The specimen, which was removed by operation, is in the form of a hemispherical projection, with very irregular surface. It has an average diameter of about 7 cm. A section was made, from which it appears that the general thickness of the tumour tissue is about 1·5 cm., and at its deep margin it impinges on and infiltrates the uterine tissue. The os uteri is found with difficulty, and is shown by a piece of whalebone. It is pushed greatly to one side, the tumour having grown chiefly from the other side.

Microscopic examination shows epithelium sometimes of an elongated form and a somewhat sparse stroma.

Path. Reports, 28th November, 1894, No. 3953.

VII. 196. Cauliflower Cancer of Os Uteri. (Prof. Murdoch Cameron.)

The preparation shows the os uteri bulging into the vagina, of which a small rim is preserved. There is a prominent, somewhat friable, and partly ulcerated tumour. Microscopically the tissue shows epithelial masses occurring in a stroma richly infiltrated with round cells. It is superficial, not extending apparently into the substance of the cervix.

Mrs. A. (aged 41) presented a history of haemorrhage of two months' duration. The parts were removed by écraseur.

Path. Reports, 17th Sept., 1895, No. 4321.

VII. 197. Tubal Foetation with Haemato-salpinx. (Dr. W. L. Reid.)

The preparation was removed by operation, and was found buried in adhesions which were difficult to separate. It consists of the altered Fallopian tube, which, for convenience of description, may be divided into a markedly dilated proximal part, which was found occupied by partially coagulated blood, and a less dilated distal portion occupied by blood clot and the altered products of conception. The

anterior wall was removed to show the characters of the lesion. The dilated proximal part has its inferior portion covered with plicated mucous membrane, and the greater part of the dilatation is mainly an expansion from the upper border, and consists of a cyst with a dense, and in some places thin, connective tissue wall, retaining internally some brick-red pigmentation. This expansion has a general diameter of about 6 cm. The distal portion, which measures about 5 cm. in length, has a diameter of 1·5 to 2 cm. It has a tortuous course, more especially towards the extremity, which is somewhat gathered together and closed, but it is doubtful whether the whole length of the tube has been removed. Two hard rounded masses are found in this part of the tube—a smaller one about the size of a hazel-nut lying internally, and a larger one, 2 cm. in diameter, further out. The former is loose, and the latter is firmly attached to the inferior wall of the tube. In both of these masses chorionic villi were found by microscopic examination. A thorough search for foetal remains was not made, as the value of the preparation would be injured. The wall of the tube in the less dilated distal part is very markedly thickened as well as dilated, and the thickening is from new formation of dense connective tissue.

The course of events has probably been foetation in the distal part of the tube, followed by partial separation and haemorrhage, the blood accumulating mainly in the proximal part which was unoccupied and unaltered by the process of pregnancy.

Mrs. P. (aged 32) complained of abdominal pain and constant discharge of dark blood from the vagina. She had no children, but three miscarriages. Dilatation of the os, and the use of the curette, had been several times resorted to and there is a story of some operation in a private hospital. There are no distinct indications of the duration of the pregnancy. For full account of case see *Glasgow Medical Journal*, XLVIII., p. 130, also *Trans. of Glasgow Pathol. and Clin. Soc.*, VI., 105.

VII. 198. Perimetritis; Great Adhesion and Matting.
(Dr. Tennent.)

Preparation shows firm membranous adhesions passing from the lateral aspects of the uterus and from the broad ligaments to the posterior wall of the pelvis. The right Fallopian tube and ovary are entirely buried in these adhesions, and indistinguishable; the

left ones are drawn backwards and upwards. The lower extremity of the great omentum has been preserved, and is adherent to the anterior surface of the uterus. In the anterior wall of the uterus there is a myoma 2 cm. in diameter.

Ann M'K. (aged 45) was admitted with symptoms of heart disease, to which she rapidly succumbed. (See Series II., 92.)

Path. Reports, 24th Dec., 1889, No. 2247.

VII. 199. Perimetritis; Great Distortion of Uterus.

The parts are shown in median section, and the right half is preserved. The upper part of the vagina is seen, and above it the uterus, scarcely recognisable as such. It is covered by a veil-like connective tissue, which crosses Douglas's space, and is attached to uterus, Fallopian tube, and ovary, these parts being matted together by new-formed connective tissue.

Janet C. (aged 63) died after amputation of the right arm for sarcoma *Path. Reports*, 15th February, 1892, No. 2888.

VII. 200. Perimetritis. Obstruction and Dilatation of Fallopian Tube. (Dr. R. S. Thomson.)

The fimbriated extremity of the tube is adherent to the posterior aspect of the broad ligament and the ovary. Behind this the tube is dilated and tortuous, the condition tapering away to the uterine end of the tube.

Harriet D. (aged 43). There was no history pointing to the lesion. *Path. Reports*, 16th August, 1894, No. 3827.

VII. 201. Perimetritis and Salpingitis. Partial and Complete Closure of External Orifices of Fallopian Tubes by Inversion of Fimbriae. (Dr. Dalziel.)

On one side the ovary is preserved, but is attached by abnormal adhesions to the distal part of the tube and drawn towards it. The fimbriae of the tube are considerably inverted, but could be partially restored by pressure. On the other side the ovary is largely replaced by a cyst. It is attached to the more proximal part of the tube, being dragged upwards. The external orifice of this tube is almost closed, but indications of the fimbriae are still visible, and it is seen that they are inverted.

Mrs. J. (aged 31) had an attack which was regarded as pelvic inflammation after parturition six years before operation. She never quite recovered, and was subject to almost constant pain in the sacral region, aggravated during menstruation. It became much worse during the last three years, and was latterly almost intolerable. The parts were removed by operation.

Path. Reports, 27th August, 1895, No. 4290.

VII. 202. Pyosalpinx. (Sir Wm. T. Gairdner.)

The left Fallopian tube is expanded into a large convoluted cavity which curves round and applies itself to the posterior aspect of the broad ligament, where it is adherent. The expansion begins about 4 cm. from the uterine extremity of the tube. The cavity contained a creamy pus. The right Fallopian tube has its fimbriated extremity adherent to the posterior aspect of the broad ligament, but there is scarcely any distension of it.

The case was one of multiple abscesses in the liver, from sepsis of the portal vein, and there was septic peritonitis.

VII. 203. Pyosalpinx, Various Adhesions. (Prof. Leishman.)

To the left of the uterus there is a thick-walled cavity, which measures 6 cm. in diameter, and contained pus. It occupies approximately the position of the left Fallopian tube, and the round ligament passed down in front of it (removed to expose the cavity). The right Fallopian tube is buried in adhesions, but is not distended. The cervix uteri is the seat of a deep ulcer, especially towards the right. The sigmoid flexure and great omentum were adherent to uterus and abscess cavity.

Margaret R. (aet. 39) was admitted moribund, and no history was obtainable. *Path. Reports*, 27th June, 1891, No. 2720.

VII. 204. Double Tubercular Pyosalpinx. (Dr. Robert Bell.)

The two parts were removed by operation, and contained a yellow matter about the consistence of very soft putty, being partly inspissated pus. The lesion on either side is almost identical. There is a cavity forming a thin-walled cyst about 7 cm. in diameter, which tapers on passing inwards and ends in a thick prominent cylinder

about 12 mm. in diameter, consisting of the undilated proximal part of the Fallopian tube. Each Fallopian tube had been cut across in the operation, and the dilatation begins about 6 cm. from the cut extremity. Microscopically this thickened Fallopian tube is found to consist largely of smooth muscle with gland structures embedded. In addition to these, however, there are numerous typical tubercles with giant-cell systems. The thickening of the tube is essentially due to hypertrophy of muscle and gland tissue, this being very marked as compared with a normal tube. There is no appearance of adhesion of the tube either in its dilated or undilated part. The fold of broad ligament beneath the tube is preserved, and also compressed ovary with small cysts.

Path. Reports, 14th May, 1891, No. 2663.

VII. 205. Tuberculosis of the Fallopian Tubes and Uterus. (Sir Wm. T. Gairdner.)

The parts shown are—the uterus, nearly normal in appearance; the Fallopian tubes, greatly dilated and convoluted, especially the left; and the right ovary, the left being obscured by the very unusual condition of the tube. The external surface of the uterus in the recent state was roughened by numerous small tubercular nodules. The right Fallopian tube is seen to be considerably dilated, greatly thickened and twisted upon itself near its fimbriated extremity. In the recent state a large round white swelling was found attached to the left side of the uterus, which was at first taken to be the ovary. On further examination, as is seen in the specimen, this was found to be the left Fallopian tube, in which the same condition was present as in the right, but much exaggerated. The left ovary was found in part to have undergone caseous degeneration. The mesenteric glands of this case were also tubercular. See Dr. Lindsay Steven's paper on "The Pathological Anatomy of Tuberculosis of the Fallopian Tubes," *Glasgow Medical Journal*, Vols. XVII., pp. 411, 462; XIX., p. 1. *Path. Reports*, 18th July, 1881, No. 696.

VII. 206. Tuberculosis of Uterus, Tube, and Peritoneum. Myoma of Uterus. (Prof. Leishman.)

The wall of the uterus on the left side is occupied by a myoma, which distends the wall and pushes the cavity over to the right.

The distorted cavity shows an exceedingly irregular ulcerated internal surface. The right Fallopian tube is dilated and convoluted, and the fimbriated portion has its projections thickened and caseating, but is free from adhesion, as is also the ovary. The left ovary and Fallopian tube were involved in an irregular tuberculous cavity, and, as shown in preparation, are indistinguishably matted. The case was one of tuberculosis of the peritoneum with almost universal adhesion. There is a caseous mass attached to the anterior surface of the uterus. There were also tuberculosis of the lungs, and a general tuberculosis.

Eliz. R. (aet. 50), unmarried, showed symptoms of peritoneal disease for about three months before death. Great emaciation occurred. *Path. Reports*, 11th March, 1887, No. 1685.

VII. 207. Tuberculosis of the Fallopian Tube and Uterus. (Dr. Jas. Finlayson.)

The case was one of phthisis, with tubercular ulceration of the intestine. The distention of the Fallopian tubes, which are seen to be elongated and twisted, is due to an accumulation of cheesy material. An ulcer exists at the fundus of the uterus, which may have involved the orifice of the tubes.

Path. Reports, 17th December, 1876, No. 170.

VII. 208. Pyosalpinx and Abscess of Ovary. Removal of Uterus and Appendages by Operation. (Dr. Dalziel.)

The uterus is laid open from behind. The right Fallopian tube is considerably dilated, especially towards its extremity, where it is almost bulbous.

It has been laid open, and the mucous membrane shows a rugose or villous appearance. It was filled with thick creamy pus. The ovary on this side is unaffected.

The left Fallopian tube is slightly dilated, and contained creamy pus. The ovary on this side is replaced by an abscess, with thin walls. It has been laid open by removal of its posterior wall. The cavity was filled with thick creamy pus.

Both Fallopian tubes are variously adherent to the ovaries and parts around. *Path. Reports*, 8th April, 1894, No. 3655.

VII. 209. Ovary with Corpus Luteum.

The preparation was obtained from a woman 30 years of age who was affected with a cystic tumour of the abdomen of two years' duration. She was not pregnant, and menstruation had been regular.

VII. 210. Fibroma of Ovary with Cavity from Softening.
(Dr. Beatson.)

The tumour has an irregularly rounded shape, measuring 15 by 11 cm. On section a considerable cavity is exposed, measuring 9 by 5 cm., and partially divided by septa. The tumour is very smooth on the surface, as if surrounded by peritoneum, and a distinct layer can be separated from the surface all round. The Fallopian tube, measuring about 12 cm., is attached to the upper border of the tumour by a membrane similar to that which unites the tube to the ovary. At the cut end of the Fallopian tube there is a triangular raw surface measuring in its longest diameter 9 cm. The tissue of the tumour has a dull white colour, dense consistence, and slightly concentric lobulation. Under the microscope it shows wavy connective tissue. It is not a myoma.

Mrs. T. (aet. 54) first felt a tumour about thirteen months before operation. It was freely moveable, and she could feel it moving about like a ball. It grew slowly, and she was admitted after the supervention of a severe pain. On admission it was found that a tumour existed in the lower part of the abdomen. At the operation, the tumour, which was quite free from adhesions, was found to be connected with the left broad ligament, the uterus being entirely free. She made a fairly good recovery.

Path. Reports, 7th February, 1890, No. 2273.

VII. 211. Ovaries with Simple Cysts and Corpus Luteum.

The ovaries contain several small cysts, but only one large enough to hold a hazel-nut is seen in each ovary. In the lower of the two ovaries, and just above the cyst, is a corpus luteum. These cysts are lined with a smooth membrane, and at the post mortem examination were distended with a clear fluid.

Path. Reports, 26th October, 1886, No. 1614.

VII. 212. Two Small Ovarian Cystic Tumours.

The two tumours are of nearly the same size, being about 2·5 cm. in diameter. They have a somewhat lobulated outline, and consist of cysts with solid parts. The tumours represent altered ovaries and were removed from an unmarried woman of 29, who died from a malignant lymphoma of the mediastinum.

Path. Reports, 27th August, 1883, No. 1035.

VII. 213. Colloid Ovarian Cystoma Removed by Operation. (Sir G. H. B. Macleod.)

The tumour consists of a single thick-walled cyst about the size of a football, with smaller flattened ones in its wall. It is not possible to strip off a continuous peritoneal coat, and the surface is very rough with frequent tags. The cysts in the wall are very much flattened. The main cyst contained a turbid flocculent fluid, and its internal wall was coated with soft fibrine. The little cysts also contained a very thick fluid.

The tumour was found, during removal, to possess firm vascular adhesions to all parts around, and it was necessary to separate many of them with the actual cautery. The patient died of peritonitis. The tumour had been noticed only ten weeks before admission to the hospital. *Path. Reports*, 13th April, 1876, No. 88.

VII. 214. Portion of Colloid Ovarian Cyst, showing Internal Structure.

A slice has been taken from the midst of the tumour, and it is seen that there is one tolerably large thin-walled cyst, and a multitude of smaller ones of very varied dimensions, along with solid material. All the cysts were filled with colloid or grumous material.

VII. 215. Portion of Ovarian Cystoma with Numerous Smaller Cysts in Wall. (Dr. Patterson.)

The tumour consisted of one large cyst with various partitions and innumerable smaller cysts projecting internally. A group of these latter is shown. They are comparatively thin-walled bladders with clear contents, and they vary in size from that of a pea to about 4 cm. in diameter. The larger of them present indications of being formed of several smaller ones.

VII. 216. Colloid Ovarian Cystoma, with Part Forming a Pendulated Outgrowth. (Dr. Dalziel.)

A portion of the tumour is preserved, and seen on section to be composed of a congeries of cysts whose contents are now coagulated, but were originally for the most part clear fluid, some, however, containing blood. The general lobular form of the tumour is interrupted by a partially pedunculated outgrowth about the size of two fists, which, as seen on section, is also formed of multitudes of cysts. The border of this mass partly corresponds with the ala vespertilionis and the Fallopian tube is considerably stretched, attaining a length of fully 20 cm.

Mrs. D. (aged 48) first noticed a swelling on the right side of the abdomen eighteen months before the operation. The tumour on removal weighed 3 kilograms.

Path. Reports, 25th August, 1890, No. 2454.

VII. 217. Colloid Ovarian Cystoma, with Pedunculated Cysts and Elongated Fallopian Tube. (Sir G. H. B. Macleod.)

There is one large cyst, measuring 25 cm. in diameter, and a group of cysts and solid tissue, partially separated from the large cyst by a neck. These smaller cystic masses are highly lobulated and partially pedunculated, two of them especially so—one of them with a diameter of 8 cm. has a neck 4 cm. in thickness, another, 4 cm. in diameter, has a long neck of 6 mm. in thickness. The Fallopian tube is greatly elongated, measuring, from its fimbriated extremity to the place where it is cut across, 27 cm.; and in a part of its course it occupies the groove between the large cyst and the group of smaller ones. From the fimbriated extremity a roundish ligament passes for 15 cm., to terminate near the origin of the Fallopian tube, where it is inserted into the solid tissue of the tumour; the Fallopian tube and this ligament thus form a girdle round the tumour.

Lizzie D. (aet. 27), traced the growth of the tumour for four years. It began on the left side, and did not cause pain for a year before its removal. Menstruation has always been regular. At the operation the tumour was found free from adhesions. Patient made a good recovery. *Path. Reports*, 9th January, 1883, No. 901.

VII. 218. Colloid Ovarian Cystoma, with Uterus, etc. (Dr. A. Patterson.)

The tumour is about the size of a child's head, and consists of one large cyst of an oval shape, in the wall of which, especially towards the outer part, there is a bunch of smaller cysts and some solid tissue. The Fallopian tube is stretched over the cyst, and measures 24 cm.; it is not, however, embedded in or firmly adherent to the cyst at any part. The fluid in the cyst was brown in colour and of specific gravity 1022. The patient died after an operation for femoral hernia. *Path. Reports*, 1st July, 1879, No. 453.

VII. 219. Ovarian Cystoma with Cysts Projecting Outwards, and Mass of Solid Fibrous Tissue. (Prof. Murdoch Cameron.)

The tumour consists of a very solid portion measuring 5 by 4 cm., which presents the structure of fibrous tissue. From it diverge cysts of very various sizes, from exceedingly minute ones at its margin partially embedded in its substance, up to one which measures 11 cm. The contents of the cysts varied from a clear liquid fluid to a yellowish viscid material and a brown turbid fluid. The ovary from the other side also had small cysts in it.

Path. Reports, 20th August, 1895, No. 4281.

VII. 220. Colloid Ovarian Cystoma, almost Unilocular. (Dr. Patterson.)

The tumour forms an almost globular sac about 20 cm. in diameter, and with generally thin and comparatively translucent walls. There are no signs of partitions except at one place where there is a rounded bulging outwards about the size of half a small apple. On the internal surface of this there is a soft brownish tissue which on microscope examination presents the regular glandular structure of the developing cystoma.

VII. 221. Two Colloid Ovarian Cysts Removed by Operation. (Sir H. C. Cameron.)

The tumours consist each of a congeries of cysts of the usual colloid characters, and they have a generally oval shape, one measuring about 24 cm., and the other about 18 cm., in long diameter. They both

contain a considerable amount of tissue of a more solid character, with smaller cysts developing in it; but in the case of the smaller one this tissue is less in amount, and the fully formed cysts are larger.

Mrs. G. (aged 47) was the mother of two children, the youngest 12 years old. She had not menstruated for six years. She began to complain about a year before the operation, but an actual swelling was only observed for five or six weeks. At the operation the tumours were found non-adherent. The patient remained for seven days in a rather critical state, and then died.

Path. Reports, 29th March, 1883, No. 962.

VII. 222. Colloid Ovarian Cystoma—the second removed from the same person. (Dr. R. Pollock and Prof. Geo. Buchanan.)

The interest of this case is mainly that, although this is the second tumour of a similar kind removed, presumably from opposite sides, the patient since her recovery from the second operation, has menstruated. The tumour, when distended with water, measures 20×14 cm. It consists mainly of a single cyst with several partitions. At one part an oval pedunculated tumour, consisting of a congeries of cysts, is visible, projecting from the internal wall.

Path. Reports, 12th January, 1883, No. 914.

VII. 223. Colloid Ovarian Cyst: Partial Transplantation. (Sir H. C. Cameron.)

The preparation shows a cystic lobulated tumour $10 \times 8 \times 7$ cm. The omentum is attached to what has been the inferior aspect of the tumour, but the tumour has been carried upwards and inverted so that now its lower border is in connection with the broad ligament and Fallopian tube. This has caused a twist of these parts near the uterus, and at this twist the diameter is only 12 mm. The right side of the uterus is dragged upwards.

For history, etc., see Series I., 162.

VII. 224. Part of the Wall of an Ovarian Cyst with Papillary Ingrowths. (Sir Hector C. Cameron.)

Lining the internal wall of the cyst are numerous warty-like excrescences; they vary much in size and shape, some being filamentous in character, while others are like small tubercles.

The specimen was obtained from a patient who was operated upon for a double ovarian tumour. Both tumours were of the nature of colloid multilocular cystomata, and upon the surface of one were numerous papillomatous excrescences. A microscopical examination showed the solid portions of the cystomata to be of a distinctly carcinomatous character, while the warty projection seen in the specimen presented the appearance of a highly cellular fibrous tissue.

Path. Reports, 13th November, 1887, No. 1771.

VII. 225. Ovarian Cyst with Papillomatous Ingrowths. (Prof. Geo. Buchanan.)

The cyst is of oval shape, measuring $12 \times 9{\cdot}5$ cm. The Fallopian tube and ala vespertilionis pass along its summit, the former apparently unaltered, but the latter partially involved in the cyst. Running down the wall of the cyst there is a parovarian tubule slightly thickened, and some other parovarian tubules are also seen flattened against the cyst. The contents were of the consistency of syrup, slightly turbid, and had a specific gravity of 1032. The internal surface in the neighbourhood of the attachment of the Fallopian tube presents numerous small warty projections, none of them bigger than a split pea. These are found microscopically to be composed of fibrous tissue, covered by subcylindrical or cubical epithelium.

Margaret B. (aged 40). No very clear history was obtained. The tumour in the abdomen was discovered by a doctor four or five months before operation. The tumour was removed without drawing off its contents, and the patient made a good recovery.

Path. Reports, 30th May, 1890, No. 2382.

VII. 226. Ovarian Cystic Tumour, Unilocular and with Papilliform Ingrowth. (Dr. W. L. Reid.)

The tumour has sprung from the internal parts of the ovary, a considerable portion of the gland being left adherent but otherwise un-involved. The Fallopian tube and ala are well preserved, and there is a small cyst in the latter. The cyst is a bulky oval one, measuring 19 cm. in diameter. There are various partial divisions visible internally. Towards the attached base of the tumour there is visible a considerable layer of softer tissue, which on section shows partial cystic developments, and in various places presents apertures

as of cysts which have burst into the main cyst. This soft tissue extends in a somewhat irregular fashion over the internal wall of the cyst, and often assumes the aspect of papilliform projections. Examined microscopically, the tissue at the base shows the usual glandular structure with cystic development. Towards the surface the gland tissue is often distorted and drawn out, and the superficial papillae are mostly formed of a highly cellular connective tissue covered with a single layer of rather flat epithelium.

Catherine M'N. (aged 34) first noticed a tumour in the right side five years before operation. It grew slowly at first, but more rapidly during the last two years.

Path. Reports, 16th March, 1898, No. 5379.

VII. 227. Papillomatous Cyst of Ovary. (Dr. Beatson.)

The preparation is a portion of the wall of a large cyst about the size of a cocoa-nut. In its wall were a few smaller cysts, one of an elongated shape, and about 5 cm. in diameter. Attached to the cyst are the ala vespertilionis and Fallopian tube, apparently unaltered, and with the parovarium in its usual position. The internal wall of the cyst, especially in the neighbourhood of its attachment to the broad ligament (hilum of the ovary), presents the papillomatous projections shown in the preparation. Under the microscope this part of the wall has typically the appearance of arborescent papillae covered with cylindrical epithelium.

Mrs. M'E. (aet. 64) first noticed pain and a lump in the abdomen fourteen months before operation. Its growth was associated with nausea, and latterly with oedema of the feet and face, and dyspnoea. About three weeks before the operation, the tumour became more prominent, and rose higher in the abdomen, with marked relief to the symptoms generally. The growth was felt as a firm, elastic, smooth, and very mobile tumour. At the operation it was found to be filled with fluid resembling coffee-grounds. The tumour was non-adherent, and the pedicle was thick, broad, and rather fleshy.

Path. Reports, 2nd December, 1889, No. 2225

VII. 228. Papillomatous Cyst of Ovary. (Dr. Dalziel.)

The preparation represents the tumour laid open with the papillomatous contents projecting. It consisted of a very tense, thin-walled cyst with a lobulated surface. It was filled almost to bursting,

and the wall gave way in the process of removal. The papillae are in enormous numbers, the largest being about the size of a currant. There was only one cyst. There is no obvious penetration of the wall by the papillae, but the abdominal wall presented, where in contact with the tumour, small elevated patches.

Mrs. L. (aged 45) felt pain in the left iliac region twenty-two months before operation. The abdomen was noticed to swell four or five months later. There was ascites, and the fluid was removed by tapping several times, on the last occasion to the extent of 476 ounces. The tumour was removed, and the woman was dismissed well six weeks after the operation.

Path. Reports, 3rd September, 1891, No. 2748.

VII. 229. Papillomatous Cyst of Ovary. (Dr. Patterson.)

The cyst has been ruptured and turned inside out. The tumour, of which a part is preserved, was about the size of the two closed fists. To the thin, fragile wall are attached closely-set polypoid masses, so as to give a striking appearance. The individual papillae are branched, and were firm, tense, and translucent. They were found to be covered with cylindrical epithelium.

C. L. (aged 22).

VII. 230. Papilloma from Neighbourhood of Uterus. (Sir G. H. B. Macleod.)

The preparation is only a part of the tumour removed. It is composed of two small cysts which are adherent, and to the surface of which are attached shaggy, dendritic masses of a papillary character. In the inside of one of the cysts there is a small dendritic ingrowth. Under the microscope the papillae show a delicate, ramifying connective-tissue stroma, covered by a single layer of epithelium, which is sometimes columnar, like a palisade, but varies considerably in different parts.

Two years and a half before the operation the patient, a woman aged 46, first noticed a small lump in the left iliac region. On admission there was a large tumour in the abdomen, and the uterus was fixed. At the operation Douglas's pouch was filled with a large mass, of which the preparation is a part, and which was firmly adherent to the uterus.

26*th November—Operation.*—On opening the abdominal cavity, a quantity of ascitic fluid was removed by sponges. Tumour found

attached to upper and back part of uterus, surface of which was free in the cavity of abdomen, with a plaiting round its base, apparently the remains of an old cyst wall. The growth consisted of a warty, sessile mass, the size of one's fist, firmly adherent to the outer surface of uterus. On the right side, deep in the pelvis, and attached to the ovary, was a second cyst, as large as a good-sized orange, containing clear fluid, with another mass in all respects similar to first; adhesions were present between the cyst and the walls of the abdominal cavity, which prevented its being drawn out of the abdomen, and rendered it necessary to evacuate its contents within the peritoneal cavity. First growth severed by the écraseur, a long needle being first passed under its base; this was effected without difficulty and without bleeding. The second was twisted off with the hands, and any detached portions treated in similar manner. Haemorrhage slight throughout. Pelvic cavity thoroughly cleansed with carbolic solution (1 to 40); wound sutured, and drainage tube inserted. Shock was present after operation; patient rallied in an hour or so. Patient had some vomiting at intervals for a short period after the operation; otherwise a good recovery. Dismissed 26th December.

19*th February.*—Patient quite well up to present date. Recovered perfectly, and remaining well, April, 1885.

Path. Reports, 28th November, 1884, No. 1258.

VII. 231. Dermoid Cyst of Ovary.

The tumour is of an oval shape elongated from above downwards. It measures 6 cm. in length by 3·5 cm. in greatest breadth. It is situated in the position of the ovary, the ovarian ligament obviously passing from near its upper extremity to the uterus. The tumour has been divided longitudinally and presents three principal cavities. The upper and lower are largest, being each over 2 cm. in diameter, whilst the middle one is about 1·5 cm. The upper cavity contained an albuminous coagulum, the middle one was filled with fat, the lower one contained fat with which many hairs and a whitish débris were mixed. The two upper cavities are smooth internally and uniform. The lower cavity presents in its deeper parts projections and partial septa, and from these project fine reddish hair similar to that which was present in the cavity. In the wall outside the cavities, especially the middle and lower, there are a number of small cysts.

Mary C. (aged 30) died of phthisis pulmonalis.

Path. Reports, 5th November, 1891, No. 2798.

VII. 232. Dermoid Cyst of Ovary. (Prof. Leishman.)

The cyst is an elongated oval one 15 cm. in diameter, and is situated in Douglas's pouch. Its anterior wall is firmly adherent to the uterus, the adhesion extending from fundus to cervix. The internal wall presents a general warty appearance, and it is lined with flat epithelium. The cyst contained a solid mass, which had become detached from the wall, and which is composed partly of bone, along with one or two unerupted teeth. From part of the surface hairs are growing. Besides this, there were butter-like masses with hairs interwoven. The cyst had burst and there was an acute suppurative peritonitis. The pus amounted to about 100 oz., and it contained also buttery masses. The broad ligaments and Fallopian tubes are firmly adherent and the parts greatly matted. There were also some simple cysts in the broad ligament.

Mrs. H. (aet. 23) had been married for $3\frac{1}{2}$ years, and had borne two children, the last about six weeks before death. This one was born prematurely at the seventh month after a fall. After the birth of the child she had pains in the abdomen and fulness, which, however, became very decidedly greater three days before admission. During residence in hospital a tumour was detected in the abdomen. Four days before death there was a sudden renewal of pain, with faintness, vomiting, and almost inappreciable pulse; at the same time the tumour lost its definite outline, and dulness on percussion appeared in the flanks. *Path. Reports*, 17th February, 1888, No. 1838.

VII. 233. Solid Part with Teeth from preceding case.

VII. 234. Dermoid Cyst of Ovary. (Sir Hector C. Cameron.)

The specimen shows a section of the tumour which was about 15 cm. in diameter. It consisted of one considerable cyst 10 cm. in diameter, and a more solid portion in which are many larger and smaller cysts and other tissue. All the cysts, both the large one and the smaller ones, contained sebaceous matter, and many of them hairs. The sebaceous matter was for the most part semi-fluid; in some quite oily, and in others firm, and that immediately after the operation. In some of the cysts there is a distinct epidermic lining with abundant sebaceous glands. Bone is present in several places, and there are some teeth. One tooth is visible in the portion preserved at one side. One of the cavities contained an unattached

tooth. In another of the cavities a fleshy lobule the size of a large plum projected, and it was covered by many hairs. On dividing this lobule, it was found to be composed of adipose and fibrous tissues covered with the epidermic structures.

The other ovary contained a small cyst lined by an opaque epidermic-like membrane, and containing a small amount of sebaceous matter. It had a small rounded growth projecting into it.

Mrs. S. (aged 40) was married for four years without having children. The tumour and other ovary were removed by operation.

Path. Reports, 14th June, 1892, No. 3029.

VII. 235. Dermoid Cyst of Ovary. (Dr. W. L. Reid.)

The specimen shows in section a large single cyst which measures 16 cm. in diameter. It has attached at one border the Fallopian tube and the ala vespertilionis. The cyst is mostly thin-walled, but at a point nearly opposite the Fallopian tube there is a projecting area measuring 4 by 2 cm., and with a projection of 2 cm. This is almost covered with skin, which presents the usual pits of hair follicles and sebaceous glands, and from which project long dark brown hairs some of which are 30 cm. long. In this projection also masses of bone are detectable, and in one place the outline of a tooth is detectable covered with a smooth membrane, which may be mucous membrane. The cyst contained a large amount of oily or buttery matter, in the midst of which were numerous brownish hairs. The latter, separated by hot water and ether, are preserved in the preparation.

Christina Y. (aged 26), single, a servant, began to notice a swelling in the abdomen about three years before operation. It increased till at the time of operation it was about the size of an eight months' pregnancy. She did not notice its growth more on one side than the other, although at times she had slight pains on the left side. The right ovary, which contained a large corpus luteum, was removed along with the preparation.

Path. Reports, 24th March, 1897, No. 4997.

VII. 236. Piece of Dermoid Cyst with Bone, Teeth, Skin, and Hair. (Sir G. H. B. Macleod.)

The preparation is an irregular piece of tissue about 5 cm. square, chiefly of fleshy consistence, but with a bony part and a tooth

in the middle. The bone is covered with a tissue like mucous membrane, and the tooth is planted like an ordinary incisor; beside it there is an empty alveolus from which another tooth, which lies in the bottom of the jar, has probably been dislodged. There is another half tooth and piece of bone, which have been removed at the same time. The greater part of the piece of tissue is covered with skin, from which project somewhat numerous soft warty-looking structures, which are frequently pendulous, and at one place there is a group of brown hairs about 4 cm. in length.

Mrs. B. (aged 48) was the mother of several children. Eight years before operation pain commenced in left lumbar region, and a hard lump was noticed in the middle line below umbilicus. This burst two years afterwards, having attained a large size, and faeces began to come by the sinus. Hair and several teeth and a fleshy mass were discharged. Several teeth were removed in Edinburgh Royal Infirmary. The parts preserved were excised here by opening up the sinus. *Path. Reports*, 17th February, 1881, No. 628.

VII. 237. Portion of Dermoid Cyst which was Protruded at Groin and Inverted. (Sir Hector C. Cameron.)

The preparation is a pyriform structure, at the apex of which there is a group of four teeth protruding. Other parts of the surface have a cutaneous appearance, and in some places long hairs are seen, especially near the teeth.

The parts were removed from a young lady who for some time had had a discharge from the groin consisting of hairs, fatty matter, etc. On one occasion, during a fit of coughing, the structure shown protruded at the groin, the teeth pointing outwards, much to the consternation of the patient and her mother. The protruding mass was removed and the patient made a good recovery.

VII. 238. Dermoid Cyst of Ovary Transplanted to Abdominal Wall. Tearing of Fallopian Tube. (Dr. Johnstone, Town's Hospital.)

A nearly globular cyst measuring about 5 cm. in diameter is partly laid open and thus seen to be lightly stuffed with hairs. The wall is generally thin, and a portion of it removed showed hairs growing from its internal surface. In the upper parts the wall

is felt to be thicker, and there projects, but still covered with cyst wall, a tooth resembling a premolar with flat crown, which is loosely attached to bone below. Surmounting the cyst is a portion of the Fallopian tube, including fimbriated extremity and about 4 cm. of the tube. A corresponding portion of the ala vespertilionis is attached and the parovarium was visible in it. The cyst was found firmly adherent to the anterior abdominal wall slightly to the right of the umbilicus and there were adhesions also to great omentum and ascending colon. From the portion of Fallopian tube and ala there passes a long narrow cord 14 cm. in length which is attached to the right broad ligament. The Fallopian tube is visible, having its usual origin in the uterus, but it is truncated 1·5 cm. from the uterus, ending in a rounded smooth extremity. There was a marked perimetritis with adhesions on the left side.

Mary M. (aged 38) died of acute pneumonia and pleurisy. There was no history of abdominal complaint. She had borne children, the youngest of whom was 15.

Path. Reports, 23rd November, 1893, No. 3502.

VII. 239. Hair and Teeth Passed per Vaginam from a Dermoid Cyst. (Dr. W. L. Reid.)

The material received was a quantity of oily matter which set into a substance closely resembling lard, and which weighed altogether 300 grams. Entangled in this were numerous hairs of a brownish colour and measuring not more than 6 or 8 cm. A few were grey. The hairs as preserved were separated by washing with soap and hot water. Each hair is seen to have its bulb at the proximal extremity. Three teeth were also present, a small incisor and two bicuspid. To one of the latter a piece of bone is attached.

Mary M. (aged 41) suffered from an abdominal tumour which first attracted notice nine months before operation. At first there were pain and difficulty in micturition, but latterly the tumour was neither painful nor tender. The size of tumour when discovered was that of a child's head; afterwards it did not enlarge. It was found per vaginam pushed down in Douglas's pouch so as to cause the posterior vaginal wall almost to protrude outside the vulvar orifice. The uterus was pushed up into the right iliac region and was adherent to the tumour. The cyst was evacuated from the vagina.

Path. Reports, 16th June, 1896, No. 4672.

VII. 240. Dermoid Cyst of Ovary. (Colloid Cystoma on opposite side.)

The preparation here consists of a double cyst comprising an oval tumour 10 cm. in length. It is almost equally divided into two cysts, one of which contained clear fluid and the other fatty matter with hairs, and hairs have been growing from the septum into this latter cavity. On the opposite side there was a large multilocular cystoma of the usual characters.

Eliza M'A. (aged 22) began to be affected by pains and swelling in abdomen 11 months before the operation. She was dismissed well within a month of the operation.

Path. Reports, 25th July, 1888, No. 1919.

VII. 241. Adeno-Sarcoma of Ovary in a Child. (Sir Hector C. Cameron.)

The tumour is a massive one weighing 1260 grms. Attached to its surface are the ala vespertilionis and Fallopian tube in such relation as to demonstrate an ovarian origin. The tissue is very friable, and there is a general lobulated arrangement. Microscopic examination shows an exceedingly cellular basis substance, the cells being usually spindle-shaped, and embedded in it adenoid structures of considerable complexity. These are mostly lined with cylindrical epithelium, which is at places goblet-shaped. The gland structures are occasionally dilated into cysts visible to the naked eye, and there is sometimes intra-cystic projection; occasionally a rounded piece of very cellular cartilage appears.

Isabella M. (aged 8) experienced difficulty in micturition about three months before operation; a month later a tumour in the abdomen was discovered. On her admission a tumour was found occupying the central parts of the abdominal cavity from pubes to sternum. It was hard, elastic, and freely movable. At the operation the tumour was adherent to the omentum in front and the colon on either side. It seemed to spring from the right broad ligament.

Path. Reports, 3rd March, 1896, No. 4510.

VII. 242. Round-Celled Sarcoma of Ovary, with Cyst. (Prof. Murdoch Cameron.)

The tumour, which is a flattened sphere measuring 15 cm. in diameter, is in the form of a cyst with bulky walls formed of

tumour tissue. The upper part of the cyst is formed by a thin membrane, whilst the lower part has a thickness varying from about 1 cm. to 2 or 3 cm. The cyst was found after hardening to be filled with a coagulated mass of a brownish colour and about the consistency of jelly. The Fallopian tube runs along the lower and anterior part of the tumour, somewhat in the usual position of the round ligament, and it measures 20 cm. In its course it is much infiltrated with tumour tissue, and is continuous with the main mass of the tumour. The fimbriated extremity is well formed but slightly adherent. The tumour was somewhat prolonged upwards along the ureter, and the latter was somewhat obstructed, there being, however, only slight dilatation of the pelvis. Under the microscope the tissue is seen to be essentially round-celled tissue, but with an occasional tendency to spindle cell and fibrous development.

Mrs. H. (aet. 42) complained of swelling and pain in abdomen of two years' duration.

Path. Reports, 29th July, 1895, No. 4254.

VII. 243. Sarcoma of the Ovary, Removed by Operation.

(Dr. A. Patterson.)

The specimen shows one half of the tumour. It was a large oval one measuring 16 cm. in its longest diameter and 11 cm. in its greatest transverse diameter, the other transverse diameter being nearly the same. The tumour has a distinct external capsule of fibrous structure, as will be seen on the cut surface, but the bulk of its tissue is of a whitish colour, although in some parts more irregular and of a mottled red colour. There are also some small cysts in it. The tissue of the tumour is somewhat tough.

On microscopic examination the tissue is seen to be abundantly cellular, the cells are elongated and with very marked nuclei of an elongated and sometimes stellate shape.

Mrs. F. (aged 47), the mother of five children, menstruated three weeks before the operation, and the menses appeared at the regular time three days after the operation. In regard to the history of the growth, she first experienced inconvenience a year before operation, and a lump was first detected in the left iliac region five months before the operation. The patient made a good recovery. *Path. Reports*, 1st December, 1881, No. 740.

VII. 244. Spindle-Celled Fibro-Sarcoma of Ovary. (Sir Hector C. Cameron.)

The tumour, of which a portion is preserved, was a large fleshy one weighing 1700 grms. It has an irregular lobulated outline, and both from the surface appearance and on section is seen to be composed of an aggregate of rounded tumours, of which the largest, which is partially pedunculated, reaches a diameter of 11·5 cm. The cut surface of the tumours presents a fasciculated appearance suggestive of the myoma. Under the microscope, however, the tumour is seen to be composed of spindle-shaped cells with oval nuclei. There is a fibrous intercellular substance, usually sparse, but at places forming distinct parallel wavy fibres.[1]

Helen T. (aged 28) stated that about five years before, she noticed after the birth of her third child that her abdomen remained distended. Dr. Thomas Keith tapped her, and she remained free of any apparent swelling till six months before operation, when after the birth of her fifth child her abdomen was again distended. On examination, a solid tumour was found in the lower part of the abdomen which seemed to be floating in fluid. At the operation ascitic fluid was found.

Path. Reports, 21st March, 1892, No. 2934.

VII. 245. Spindle-Celled Sarcoma of the Ovary; Central Softening. (Mr. Maylard.)

The specimen consists of one half of the tumour. It is seen to be almost entirely solid with the exception of a large cyst at one part. This, when examined in the fresh condition, was filled with apparently pure blood. The tumour weighed 4½ pounds. On microscopical examination it was found to be a large spindle-celled sarcoma.

Margaret M. (aet. 30) is the mother of one child nearly two years old. She noticed the tumour a year ago. Although the tumour is a solid one, it caused great ascitic accumulation, for which she was tapped twice with great relief. At the operation nearly 500 ounces of fluid were found in the peritoneal cavity. The catamenia ceased three months ago. At the operation the

[1] At the periphery of the tumour an oval body 3 cm. in diameter is found, partially embedded in the tumour, which presents a congeries of small cysts filled with coagulated matter. This is evidently remains of ovarian tissue. One or two small isolated cysts were also discovered.

tumour was found entirely non-adherent. It was in the place of the right ovary, the left being normal. Patient made a good recovery, and was reported two months afterwards in excellent health. *Path. Reports*, 1st September, 1887, No. 1740.

VII. 246. Sarcoma of Ovaries, Secondary to that of Intestine. (Sir G. H. B. Macleod.)

This preparation shows the affected generative organs, the two bulky tumours being mainly the affected ovaries. The uterus is adherent to the left of these, which is much the larger of the two. This left ovary filled the greater part of the pelvis, and in extending upwards it carried the sigmoid flexure before it, stretching its mesentery in a remarkable way. In the preparation the sigmoid flexure occupies the summit and right margin of the tumour. The uterus is adherent to the anterior aspect of the mass, its left corner being drawn greatly upwards, and the ovarian ligament lost in the tumour. The Fallopian tube lies in front unaltered. The right ovary forms a lobulated pedunculated tumour, measuring 14 cm. by 10 cm., and the Fallopian tube is twisted in a remarkable way round the pedicle, the fimbriated extremity presenting forwards. Under the microscope all the tumours present round-celled tissue.

Path. Reports, 20th January, 1881, No. 616.

VII. 247. Colloid Ovarian Cyst, with Solid Part having Structure of Cylinder-Celled Epithelioma. (Dr. A. Patterson.)

Only a portion of the cyst, which was of large dimensions, is preserved. It was a single cyst with colloid contents, and presented in its wall occasional solid pieces, having the usual characters of developing ovarian cysts. At the base, however, and projecting outwards from the wall of the cyst, there is a bulky solid mass nearly as large as the two closed fists. In this there are a few developing cysts, but the greater part of it consists of a soft tissue which, under the microscope, has the characters of cylinder-celled epithelioma.

Mrs. M'N. (aged 36) has one child seven years old. Menstruation has been regular. She stated that the tumour had been growing five months, beginning in the left lumbar region. She was dismissed well six weeks after operation.

Path. Reports, 6th October, 1879, No. 475.

VII. 248. Large Ovarian Cyst with Intracystic Cancerous Growth. (Dr. A. Patterson.)

The tumour consists of a very large single cyst 25 cm. in diameter. There are no secondary cysts, and no solid structure representing developing cysts, as in the ordinary colloid form. On the other hand, there are abundant shaggy projections from the internal wall, at one place attaining considerable thickness. These are soft, and in the fresh state were somewhat gelatinous in appearance. Under the microscope they presented a typically cancerous structure —viz., masses of cells with large oval nuclei, embedded in the stroma.

Mrs. M. (aged 44) has had two children. She menstruated ten months before operation. She dated her illness eleven months back, when she experienced pain in the right side of the abdomen with swelling. The tumour was removed by operation. It had many adhesions and a broad attachment. She was dismissed "well" three weeks after the operation.

Path. Reports, 15th February, 1880, No. 526.

VII. 249. Cystic and Cancerous Tumour of Ovary. (Dr. Fergus.)

The preparation consists of the uterus and appendages. The left ovary is converted into a bulky tumour, measuring 22·5 cm. by 15 cm. It has the appearance of a congeries of rounded tumours of various sizes, the largest being about 10 cm. in diameter. Some of these are distinctly cystic, and others are solid; some contain a pultaceous material. They are all mutually adherent. This tumour occupied pelvis and lower part of abdomen, and the intestine was united to it by frequent adhesions. The Fallopian tube is partly stretched over the tumour, but is not very elongated, and the left corner of uterus is dragged upwards. The right uterine appendages are normal, the ovary being atrophied, as the patient was an old woman.

On microscopical examination of solid parts of tumour, which were of a greyish-white colour, there was found a distinctly cancerous structure in some parts, and in many places this was developing a cystic condition, apparently by colloid change of the cancer cells.

Path. Reports, 20th December, 1881, No. 747.

VII. 250. Colloid and Cystic Cancer of both Ovaries, with Peritoneal Infection. (Prof. Gemmell.)

Both ovaries are converted into a congeries of cysts, and in connection with the left there is a prolongation downwards behind the uterus and vagina in the form of a partially cystic and partially solid mass, the solid portion of which shows on section a distinctly colloid appearance. There is also considerable swelling on this side, both in front and behind the broad ligament, the Fallopian tube being involved in it. The other tumour presents no such adhesions, and there is nothing to distinguish it from an ordinary cystoma. The abdomen was found occupied by jelly-like matter to the extent of many pints, and there were numerous small cysts and colloid masses on the general peritoneal surface and in the gastro-colic omentum. Some of these were visible in the umbilical sac, which is preserved in the preparation.

Microscopical examination shows in the more solid structures a characteristic stroma mostly filled with clear colloid matter, but sometimes with remains of epithelial cells. There are also developing cysts, some of which are lined with a layer of epithelium, which has a generally columnar form.

Agnes P. (aged 45) suffered from great distension of the abdomen, of one year's duration. By puncture 300 ounces of thick gelatinous material were removed. She died suddenly.

Path. Reports, 5th September, 1895, No. 4303.

VII. 251. Cancer of Ovary. (Secondary tumour in omentum, next preparation.) (Dr. Jas. Finlayson.)

This ovary, which is the left, is converted into a tumour of the size of a hen's egg and of a fleshy consistence. On microscopical examination the tissue presents a cancerous stroma with large epithelial cells contained in it.

VII. 252. Cancer of Great Omentum with Large Cyst, Secondary to Cancer of Ovary. (Dr. Jas. Finlayson.)

The preparation shows great omentum with transverse colon attached, and at one side it is divided longitudinally so as to present a transverse section. A somewhat bulky tumour lies in front of and below the transverse colon, measuring 17 cm. from above downwards. This tumour had, at first, very much the appearance of a

great enlargement of the liver, but this organ was found behind and above the tumour, and readily separable from it; it contained a few rounded white tumours. The transverse colon, although attached to the tumour, presents no marked alteration of its mucous membrane. The lower part of the tumour is composed of a nearly globular cyst, 11 cm. in diameter, whose wall is formed of dense connective tissue. The cyst is firmly attached by its upper margin to the tumour, the tissue of which is traceable over its surface, but the defined connective-tissue wall of the cyst is everywhere traceable. The cyst contained a fluid in which were abundant cholestearine crystals. One or two small secondary cysts communicated with the large one. There were numerous nodules in the peritoneum.

The tissue of the tumour is whitish and moderately soft. Under the microscope it is found to be very cellular, the cells being often large and with large nuclei, like those in cancers, and there is frequently an alveolar arrangement.

Mrs. W. (aged 30) had repeated miscarriages in her earlier married years. She miscarried again about three weeks before death, about the fourth month of pregnancy, after a tapping for ascites, which was extreme; hard nodules were then detected in the abdomen, some of which were supposed to be connected with the liver. There were before death signs of obstruction of the bowels, with faecal vomiting.

Path. Reports, 21st January, 1884, No. 1111.

VII. 253. Large Cancerous Tumour of Ovaries. (Sir G. H. B. Macleod.)

The tumour, which is shown in section, is of an elongated shape, and weighed seven pounds. It occupied the pelvis and lower part of the abdomen, and in accordance with this it is somewhat pear-shaped, being narrow beneath. It is of very irregular outline, being obviously made up of a number of individual tumours, some of which project as globular appendages from the mass. The uterus is adherent to and partially imbedded in the tumour, and both Fallopian tubes are partially incorporated, their walls being infiltrated and their course elongated. The fimbriated extremities are recognisable, but exaggerated and thickened. There were also numerous smaller tumours on the peritoneal surface, these being particularly abundant on the surface of the diaphragm and in the right lateral region. (See next preparation.)

Microscopical examination shows abundant cells of an epithelial character, with large oval nuclei. There is extensive fatty degeneration evidenced in the tumour itself by a condition resembling soft cheese.

Ellen C. (aged 24). Tumour appeared in right iliac fossa 13 months before death. It gradually increased till it reached large dimensions. Catamenia ceased on its appearance. The tumour caused latterly great inconvenience to respiration and produced a well-marked cachexia. *Path. Reports*, 14th June, 1876, No. 107.

VII. 254. Cancerous Tumours on Peritoneal Surface of Diaphragm, Secondary to Cancer of Ovaries. (See preceding preparation.) (Sir G. H. B. Macleod.)

In one place there has been an extension to the pleura in the form of a tumour of considerable size.

VII. 255. Two Tumours, one from each Ovary; the one Cancerous and Sarcomatous, the other Sarcomatous and Cystic. (Dr. Patterson.)

A bulky solid tumour, part of which is preserved, was removed by operation. It measured in long diameter 20 cm., and in other diameters 14·5 cm. and 7 cm. On section, a lobular arrangement was visible, and the lobules had generally a distinct rather prominent margin, and were embedded as rounded isolated nodules in a more fibrous tissue. A large part of this tumour was necrosed and infiltrated with blood. Under the microscope, the lobules mentioned above have a distinctly cancerous structure, consisting of epithelial processes, etc. The tissue between the lobules is spindle-celled; the necrosed tissue presents the character of coagulated fibrine.

The other tumour was obtained after death along with the uterus. It shows on the right side the stump from which the large tumour had been removed. On the left side, in the position of the ovary, there is a tumour consisting partly of solid tissue and partly of a thin-walled cyst. Each of these forms an oval structure, about 7·5 cm. in diameter, and they are united along their proximal borders internally, diverging externally. The solid tumour has a convoluted appearance on the surface. On section, the tumour is dense. The cyst is unilocular, but with a partial partition internally. The

tumour consists of spindle-celled tissue, and shows no glandular or epithelial structure, except that the wall of the cyst is covered with epithelium.

Mary M'N. (aet. 55) had observed a swelling for four months. The tumour first described was removed by operation, and the patient died next day. During the operation, the other tumour was observed, but was not interfered with because of its supposed malignant character. *Path. Reports*, 29th November, 1889, No. 2224.

VII. 256. Cylinder-Celled Cancer of Ovary, Secondary to Cancer of Rectum. (Dr. Newman.)

The tumour which represents left ovary is a bulky mass measuring 21 cm. in long diameter, which diameter is almost at right angles to the uterus. The Fallopian tube is stretched over the summit, and there is some remnant of the ala vespertilionis. The tumour on section is, in general, solid but soft. There are many cysts of varying size but usually small, with one exception, the largest not exceeding 2 cm. in diameter. The exception is one at the extreme inner part of the tumour which measures 8 cm. The uterus is small, but the cervix prominent and bulky.

The primary tumour was an ulcer with distinctly cancerous walls in the rectum, just beneath the sigmoid flexure. There was great contraction, so as to produce obstruction. The colon was adherent to the jejunum, which was also greatly dragged on, and a communication was established between the two portions. Microscopical examination shows in both tumours the regular cylinder-celled structure, with tendency to cyst-formation in the ovary, where there was also very marked necrosis. A single tumour in the liver showed the same structure as the others.

Annie M. had been troubled with constipation for ten months. There was also blood passed per rectum. The tumour was detected three months before death. Latterly the obstruction of the bowels was extreme and the abdomen much distended.

Path. Reports, 2nd October, 1889, No. 2178.

VII. 257. Cancer of Ovaries, etc., Secondary to Cancer of Stomach.

The ovaries are converted into massive oval tumours, each about 8 cm. in diameter. They hang behind the broad ligament in the usual relations. The Fallopian tubes lie in front of them, and are

also somewhat infiltrated, especially the right. There are some white nodules on the anterior surface of the uterus, and a more continuous flat new-formation on the anterior surface of rectum and neighbouring parts of peritoneum. A cyst of the size of a hazel-nut is present just beneath the fimbriated extremity of the left Fallopian tube. See Series IV., No. 81.

VII. 258. Small Cyst of Broad Ligament (Parovarian). (Sir Wm. T. Gairdner.)

There is a small thin-walled cyst 4 cm. in diameter immediately beneath the outer part of the Fallopian tube and partly encircled by the fimbriated extremity. It is free of the uterus, but the usual ovarian fimbria passes round the cyst to the ovary. It contained clear fluid.

Ellen A. was affected with Hodgkin's disease.

Path. Reports, 14th January, 1889, No. 2012.

VII. 259. Cyst of Broad Ligament, Removed by Operation. (Dr. Dalziel.)

The cyst when distended is of a generally oval shape measuring 13 by 10 cm. It is unilocular. It presents a strong connective-tissue wall with somewhat irregular internal surface, suggesting in some places an epidermic covering and in other places distinctly trabeculated. The cyst proper is situated between the folds of the broad ligament, but the attachment is very loose, and the Fallopian tube, with broad ligament, can be readily lifted from the cyst. The ovary is virtually intact, and is sessile on the posterior aspect of the distended broad ligament. No trace of parovarium is discoverable. The usual girdle is visible around the cyst, viz.—Fallopian tube, much elongated, so as to measure about 14 cm., stretched over the summit; fimbriated extremity, somewhat elongated and flattened; ovarian fimbria, ovary, and ovarian ligament; the last, however, is truncated. The cyst is not symmetrically contained in this girdle, but has escaped to some extent forwards.

The cyst contained 350 c.c. of a clear water-like fluid, whose s.g. was 1006 and reaction neutral. There was no coagulation on boiling till acetic acid was added, when a slight opalescent cloud formed. Strong nitric acid showed a white junction line increased on subsequent boiling.

Helen C. (aged 33) was affected with dull aching pain in the

sacral region for three or four months; a movable fluctuant tumour was only detected a week before admission.

Path. Reports, 14th August, 1893, No. 3413.

VII. 260. Cyst of the Broad Ligament (Parovarian). Greatly Elongated Fallopian Tube. (Dr. A. Patterson.)

A large single cyst of a globular shape, and 26 cm. in diameter. The cyst is absolutely single, and internally there is no trace of partition or of intracystic new-formation. The wall is composed of two distinct coats—an inner of a densely interwoven fibrous structure, somewhat like the dura mater, but thicker, and an outer, much thinner, and very elastic. This outer peritoneal coat passes beyond the cyst, forming a fold in which a portion of the Fallopian tube and the ovary are contained. These two layers are very loosely connected, so that they are readily separated, and the cyst could easily be divided into two bags. The fluid which was removed from the cyst at the operation was clear and limpid, without any viscidity, and of a specific gravity of 1008. Its reaction was neutral, and there was no deposit on standing.

The Fallopian tube is enormously elongated, passing over the convexity of the cyst, and measuring from the fimbriated extremity to the point at which it has been divided in removing the tumour, 37 cm. A piece of whalebone has been passed through the tube in preparation. The fimbriated extremity is flattened out on the surface of the cyst, and the ovary is represented by an elongated fibrous structure.

Ann G. (aged 54) first noticed a swelling three or four years ago. At first it gave trouble, chiefly by causing sickness and vomiting; but this has been slight for the last year, and the general health has been good. At the operation the tumour was found a good deal adherent to the abdominal wall and slightly to the omentum. She had an uninterruptedly good recovery, and was dismissed within a month. *Path. Reports*, 22nd December, 1879, No. 506.

VII. 261. Cyst of Broad Ligament (Parovarian). (Sir Hector C. Cameron.)

The cyst, about half of which is preserved, was of the size of a cocoa-nut, measuring about 15 cm. in long diameter. There is the usual girdle visible here, composed of greatly elongated Fallopian

tube, which measures 18 cm., elongated ovarian fimbria, and ovary. The girdle does not surround the widest part, the cyst having escaped forwards. The ovary is much enlarged. The internal surface of the cyst presents numerous fibrous bands, and has a brownish colour, indicating haemorrhage. The peritoneal coat can be readily separated from the surface of the cyst.

The patient was a young lady, married three months, and at the operation the pregnant uterus was seen like a small melon.

Path. Reports, 24th Jan., 1893, No. 3244.

VII. 262. Cyst of Broad Ligament. (Sir Hector C. Cameron.)

The cyst is a thin-walled sac, oval in form and 7 cm. in diameter. The ala vespertilionis and Fallopian tube are attached and apparently normal. There is no appearance of ovary, but there is a cut surface which might correspond to its attachment. The contents of the cyst were a clear water-like fluid, with a specific gravity of 1008. At the lower part of the cyst there is a rounded area, in which the wall is thickened, there being some projection both outwards and inwards.

Mrs. R. (aged 64) had suffered for two years from abdominal pain, but latterly her sufferings much increased. On examination per vaginam and otherwise, the tumour was found tense and very tender. Parts preserved were removed by operation.

Path. Reports, 3rd July, 1895, No. 4222.

VII. 263. Cyst of Broad Ligament (Parovarian).

The cyst is single, and presents no signs of subdivision or of new-formation in its wall. The Fallopian tube has been cut across, but it is stretched over the tumour, and its distal part firmly adherent and partially imbedded in its wall. From the cut end to the fimbriated extremity it measures about 25 cm. The fimbriated extremity is flattened out on the surface of the cyst. At a distance of from 10 cm. to 12 cm. from the fimbriated extremity there is a flattened and solid body, obviously the ovary; the internal surface of the cyst is markedly wrinkled, and on examining the wall it is obvious that there are two distinct coats—a thin external one corresponding with the peritoneum and a thicker internal one; between these there is a very loose connective tissue—so loose that it would be quite easy to split the cyst wall into two separate layers.

VII. 264. Cyst of Broad Ligament (Parovarian). (Sir Hector C. Cameron.)

This cyst, which was removed by operation, is an absolutely unilocular one of very large size, measuring about 30 cm. in diameter. Its wall consists very clearly of two separable layers—an internal dense fibrous one and an external thinner and more transparent. These two layers can be very readily separated from each other, being united apparently by a minimum of soft connective tissue. Near the cut surface, which is very small, there is a somewhat large ovary adherent to the tumour. Near this also there is the cut extremity of the Fallopian tube, which is greatly elongated, passing over the convexity of the cyst for a distance of about 35 cm. (a piece of tubing has been placed in it). The fimbriated extremity is spread out on the surface of the cyst, and there is a wide open mouth. A ligament passes from fimbriated extremity to ovary, completing the girdle.

Nellie M'A. (aged 19) first noticed a swelling seven months ago. It produced no impairment of the general health, and she menstruated a week before operation. The tumour was found free from adhesion, and she made a good recovery, being dismissed three weeks after operation.

Path. Reports, 16th October, 1883, No. 1046.

VII. 265. Double Cyst of Broad Ligament (Parovarian). (Sir Hector C. Cameron.)

The preparation shows portion of a large cyst which measured 20 cm. in diameter and a smaller one measuring 7·5 cm. The large cyst has a girdle composed of the usual structures, but the diameter of this girdle is only 12 cm., the greater part of the cyst having escaped anteriorly; the unaffected ovary is loosely attached behind. The smaller cyst is in front of the ovary, and its posterior part is embraced between ovary and larger cyst. The peritoneal layer is readily separable.

VII. 266. Collapsed Parovarian Cyst. (Sir Wm. T. Gairdner.)

The cyst was found lying in the abdomen after death, its surface wrinkled and the cavity entirely empty. On opening it the internal wall was found corrugated in a remarkable manner. There was one part at which the cyst was thinner and the corruga-

tions absent. In this region the internal wall is defective at one point so as to form an oval aperture 4 mm. in length. Opposite this aperture the external layers are still present, but partially occupied by a cicatrix. The cyst was connected with the right ligaments of the uterus, and the right Fallopian tube is stretched over it and enormously elongated. At the base of the cyst is found the ovary considerably elongated and altered by pressure. The cyst is a single one, and the peritoneal coat could be readily peeled from its surface. The ovary of the other side presented several small true ovarian cysts. The right kidney presented a moderate degree of hydronephrosis, and both kidneys had the characters of parenchymatous nephritis.

The history pointed to a swelling of the abdomen of twelve years' growth, disappearing suddenly about seventeen months before death, the disappearance being accompanied by excessive discharge of urine for a week. This history was quite distinct from that of the fatal illness (Bright's disease), except in so far as the latter seemed to have supervened, with all the usual symptoms, not very long after the disappearance of the abdominal swelling. Nothing could be obtained during life to determine positively the nature of the latter, but a previous record in the Royal Infirmary Journals, under the late Dr. Steven, on 18th February, 1871, corroborated the fact of her being under treatment for a distinctly fluctuating tumour of the whole abdomen, dull to percussion in front, and clear at the sides. An examination *per vaginam*, revealed at this time no abnormality; but the catamenia were noticed to occur every fortnight instead of, as previously, every four weeks. There was evidently a suspicion of hydronephrosis, apparently founded on patient's statement as to a habitual retention of urine at a former period, requiring the catheter, and in her opinion the cause of the swelling; but it is expressly stated that the use of the catheter, when under observation, had no effect on the swelling. After leaving the Royal Infirmary in March 1871, in somewhat improved health, she married: but did not become pregnant. There was an impression conveyed to and left on Dr. Gairdner's mind in questioning the patient, that some kind of physical violence or ill-usage by her husband might have been more or less connected with the sudden dispersion of the abdominal tumour; but she referred to this with great reluctance and reticence as to the details. For two months before the sudden rupture above mentioned, the catamenia had been absent; and a suspicion seems to have been entertained when the abdomen "gave way" that there

might have been a miscarriage; but nothing came away except the large amount of urine, which she regarded as coming by the usual passage, and having on the whole a natural appearance. She was, however, by no means certain as to this. The excessive discharge ceased after about a week, the abdomen suddenly collapsing, and becoming quite flaccid; she was left in a very prostrate condition thereafter for many weeks, and it was during her slow convalescence from this state that the swelling of the feet, and other symptoms of Bright's disease, began to be apparent; caused, as she believed, by premature exposure and "taking cold." The progress of the case, when under treatment in the Western Infirmary, was altogether that of an ordinary case of severe acute, or subacute renal dropsy, in conformity with the post-mortem appearances.

[The preparation of the parovarian cyst in this case, when recent, was carefully examined by Dr. Thomas Keith, and Dr. Foulis of Edinburgh, and by Dr. Matthews Duncan, who at a later period referred to the case in his *Clinical Lectures*, 2nd edition, 1883, p. 341. The preparation was also submitted by Dr. Gairdner to the Medico-Chirurgical Society of Edinburgh and to the Pathological and Clinical Society of Glasgow.]

Path. Reports, 22nd December, 1875, No. 54.

VII. 267. Cyst of Broad Ligament with Papillomatous Ingrowths. (Dr. Patterson.)

The cyst measures 28 cm. in diameter. It is entirely unilocular, but there is a bulging-in in the form of a partial girdle, corresponding apparently with the ovarian region. The fimbriated extremity of the Fallopian tube is flattened out on the surface, and is shown in specimen by a piece of whalebone. The length of the tube to the point where it has been divided at the operation is 19 cm. The internal surface of the cyst is largely beset with dendritic or warty projections, some of which are of considerable bulk, being formed by a solid projection from the wall, covered with papillomatous projections. Where not occupied by papillae, the wall is generally smooth. The cyst wall is quite distinct from the external or peritoneal covering, and the two can be readily separated, as shown in preparation, being merely united by a very loose connective tissue.

Microscopical examination shows the papillae to be somewhat cellular in structure, chiefly spindle-cells, and they are covered with a single layer of low cylindrical epithelium.

Jessie R. (aet. 19), unmarried, first noticed a swelling seven months before the operation. There was great distension of the abdomen, but no distinct separable tumour was detected. At the operation six litres of clear fluid were removed from the sac.

Path. Reports, 18th February, 1891, No. 2591.

VII. 268. Cyst of Broad Ligament (Parovarian) and Fibroma of Ovary.

A small thin-walled cyst, measuring 3 cm., is present in the distal portion of the ala, almost in contact with the fimbriated extremity. The anterior aspect of the ala is scarcely distended, as the cyst projects chiefly backwards. The ovary is considerably elongated and flattened, and a small fibrous tumour projects from its upper margin. Microscopical examination shows this tumour to be composed of dense reticulated fibrous tissue.

Agnes P. (aet. 50-60) died from cerebral haemorrhage.

Path. Reports, 7th October, 1895, No. 4353.

VII. 269. Mamma with Drainage Tube, which had remained enclosed in the Wound for Three Years. (Dr. D. N. Knox.)

Suppuration of the breast occurred after the birth of a child. It was opened and a drainage tube inserted. When admitted to the Infirmary there was a discharging sinus which had remained open since that time, and the patient was under the impression that a piece of drainage tube had remained in. The tissue of the breast was much condensed, and there was retraction of the nipple; excision was performed. As shown in the preparation, a piece of grey drainage tube 5·5 cm. in length was found imbedded in the tissues, which are hard and thickened around.

VII. 270. Cystic Atrophy of Mamma. (Prof. Geo. Buchanan.)

From a patient aged 45, married, nullipara. Both glands similarly affected. The specimen consists of a median section of one gland, which is evidently diminished in bulk and somewhat indurated, and shows numerous cysts, the largest of which is of about the size of a bean.

Microscopical examination shows increase of the capsular fibrous

tissue, surrounding and interpenetrating islets of regular gland tissue. Cysts equally distributed throughout the gland, but rather preponderating towards the periphery, are seen in various stages of formation. They are evidently formed in some cases from dilated ducts, in others from dilated and coalescing acini. No intra-cystic growths can be seen. *Path. Reports*, 7th January, 1888, No. 1824.

VII. 271. Extrusion of Portion of Mamma. (Dr. Patterson.)

The preparation, which was removed by operation, consists of two attached portions, both considerably flattened. The larger is irregularly triangular, measuring 8 by 6 cm., and the smaller is nearly circular in outline, measuring 4·5 cm. in diameter. The tissue in the fresh state consisted of mammary gland tisue, and microscopically showed merely inflammation around the acini. On section a milky fluid escaped from several ducts.

Catherine M'Q. (aged 25) had an abscess in the breast three months before admission, which was opened at the time and again five weeks later. After the latter operation the gland began to protrude, and on admission the parts preserved were exposed. When pressure was made round the base of the tumour, milk was seen to exude.

Path. Reports, 22nd May, 1896, No. 4635.

VII. 272. Tuberculosis of Mamma (Chronic Mastitis). (Dr. Dalziel.)

A portion of the mamma including nipple is preserved. The nipple is considerably retracted, and beneath it the mammary tissue is infiltrated and partly softened, a distinct irregular cavity being visible. About the centre of the preparation occasional dilated ducts are seen almost like cysts.

Microscopical examination shows around the ducts generally a very marked round-celled infiltration, and the ducts are frequently dilated. Here and there a distinct tubercle appears with giant-cells.

Mrs. C. (aged 32). The breast had troubled her at times for four years, beginning after the birth of her first child. About a year before operation it became worse, and nine months afterwards a hard lump was detected. There were lancinating pains and enlarged glands in the axilla, so that the condition closely resembled carcinoma.

Path. Reports, 17th November, 1894, No. 3939.

VII. 273. Tuberculosis at Periphery of Mamma. (Prof. Geo. Buchanan.)

There were two well-defined masses, one of the size of a small apple, and the other of the size of a lymphatic gland, both of them distinctly encapsuled. The larger consists at one end of adipose tissue, in which are one or two solid nodules, while the rest of the structure consists of a caseous external part, with pultaceous matter internally, the whole presenting a striking resemblance to a strumous testicle. Under the microscope the structure is seen to be caseous, with a thin marginal part consisting of round cells with giant-cells.

The parts were removed from a woman 30 years of age. She first noticed a tumour near the breast four years before admission when nursing her second child. The swelling showed a slow, steady, and painless growth. It was situated at the upper and outer margin of the breast, near the anterior fold of the axilla. There were no enlarged glands in the axilla. The tumours were easily enucleated, being completely encapsuled.

Path. Reports, 20th November, 1883, No. 1066.

VII. 274. Small Adenoma of Mamma. (Sir Hector C. Cameron.)

The tumour is distinctly encapsuled, of an oval shape, and of about half the size of a hen's egg. It was readily shelled out of the substance of the mamma with the finger. Under the microscope it presents typical glandular tissue, with a somewhat cellular interstitial substance.

Path. Reports, 30th May, 1881, No. 669.

VII. 275. Adenoma of Mamma. (Dr. A. Patterson.)

The tumour forms a flattened oval 8 cm. long. It is completely surrounded by a smooth capsule, and on section the tissue is tough, and shows distinct lobulation. Under the microscope there are abundant glandular tubes and acini with a connective-tissue basis, the latter not being unduly cellular.

The tumour was removed from a young lady of 21, and had been observed for two years, the growth being more rapid latterly. It was found to be situated behind the mamma, which was stretched over it and pushed outwards. The edge of the mamma being cut through, the tumour shelled out without difficulty, being completely separate from the gland. *Path. Reports*, 3rd July, 1878, No. 347.

VII. 276. Adenoma of Mamma. (Sir Hector C. Cameron.)

The tumour as seen on section consists of two masses of a flattened lobular form, the larger measuring 5·5 and the smaller 3 cm. It is bounded by a fibrous capsule which extends inwards, separating the two masses. The cut surface is somewhat translucent, and there are markings suggestive of lobulation. Under the microscope the tissue was found highly glandular, and the stroma cellular, at parts with an approach to mucous tissue.

Mrs. S. (aged 23) only noticed the tumour three months before its removal. It was found very movable both under the skin and on the subjacent structures, and at the operation was easily shelled out of a capsule. *Path. Reports*, 30th June, 1896, No. 4688.

VII. 277. Cystic Adenoma of Mamma. (Sir Hector C. Cameron.)

The preparation is a slice from a bulky tumour of the breast. The tumour is to a large extent contained in a cystic cavity, being to a considerable extent free, growing into the cavity in some places in a papilliform fashion. The section shows many splits or divisions, so that the tissue has the appearance largely of isolated lobules.

Microscopically the structure is that of an adenoma, with a somewhat abundant but not very cellular stroma. The glandular tissue is in the form of lobules, lined usually with a more or less cylindrical epithelium, which not infrequently shows traces of the "goblet" form. There is occasional dilatation and partial cystic formation.

Mrs. L. (aet. 69) first noticed a tumour in the right breast two and a half years before admission. It was then nearly as large as a hen's egg. From that time it grew to large dimensions, and there was considerable pain, chiefly in the form of "stouns." The tumour was involved in the mamma and felt fluctuant.

Journal, Ward XVII., Vol. IX., p. 41.

VII. 278. Cystic Adenoma of Mamma. (Sir Hector C. Cameron.)

The preparation is a slice of a bulky tumour of the mamma, measuring about 12 cm. It presents a foliated appearance, with cavities and involuted growths presenting into them. There are also larger lobules, presenting on closer examination smaller spaces and cavities. Microscopical examination shows the tumour to contain

a sparsely cellular fibrous stroma with various glandular and cystic structures in it.

Mrs. W. (aged 52) noticed a small swelling in the right breast about the size of a small walnut five years before operation. It was not painful, but became so about a year afterwards. It did not trouble her much, however, till a year before the operation, when it commenced to disturb her considerably, chiefly from its weight, but also by causing anxiety. At the time of the operation there was a large tumour in the breast, which seemed of about the size of a new-born infant's head. There was no pain on pressure. It was freely movable on the tissues beneath, the nipple was not retracted, and the veins were not more distinct than they usually are.

Path. Reports, 4th April, 1893, No. 3304.

VII. 279. Bulky Adenoma of Mamma with Cysts and Intra-cystic Growths. (Dr. Nicoll.)

The tumour, of which only a portion is kept, was a bulky mass of the size of a child's head. It measured 15 cm. in diameter and weighed 1·5 kilograms, occupying the entire mammary region. The section shows isolated rounded masses occupied by tissue which is in great part separable from the wall on the under surface. Some of the cysts have been opened up, and some of them are seen to be of large size, with bulky ingrowing tumour-tissue.

Microscopically the cyst walls showed a single layer of epithelium, and the ingrowing masses were also covered with epithelium. The general stroma is fibrous, but there are many glandular processes and canals.

Mrs. G. (aged 49) had noticed the tumour growing steadily for two and a half years. It caused little or no pain, and produced inconvenience only by its bulk and by a slight sloughing of the skin. It was freely movable on underlying parts, and there were no enlarged glands in the axilla. Several points were fluctuant. At the operation the tumour was readily detached from surrounding parts. *Path. Reports*, 16th September, 1892, No. 3120.

VII. 280. Adeno-Fibroma of Mamma. (Sir Hector C. Cameron.)

The preparation is about half of a flattened oval tumour whose long diameter measures about 9 cm. The surface shows a fine

lobulation, comparable to the appearance of the granular kidney. The cut surface presents innumerable small openings which represent glandular structures in the constitution of the tumour. Under the microscope the basis of the tumour is a somewhat cellular fibrous tissue, with glandular structures consisting of dilated ducts and more or less distended acini scattered at considerable intervals.

Jane A. (aet. 15) noticed a tumour in her right breast only a few months before its removal. It caused no pain, was freely movable, and did not involve the skin. The tumour was enucleated without trouble. *Path. Reports*, 18th October, 1890, No. 2484.

VII. 281. Myxomatous Cystic Adenoma of Breast. (Prof. Geo. Buchanan.)

The tumour is a very large one, measuring 12·5 cm. in length by 9 cm. in depth. The nipple is unaffected, and, as shown in one of the sections, a considerable portion of mammary gland is apart from the tumour. The tumour skirts and impinges on the lower margin of the gland. The tumour came to the surface and pointed outwards to an extent of 1 cm. above the skin level. The area concerned measured about 5 cm. in diameter; it is partly shown in one of the pieces preserved. In its general outline the tumour is highly lobulated, and on section the lobulated appearance is also markedly present. In many places on the cut surface it is seen that the lobulation depends on the existence of cysts into which intra-cystic growth has occurred often in the form of papilliform masses. In the fresh state, and to some extent as preserved in the pieces hardened in Müller's fluid, the tumour tissue had a marked flickering and jelly-like appearance strongly suggestive of a myxoma, and the juice gave a characteristic mucin reaction. Microscopical examination shows the cysts and ingrowths to be covered with a cubical epithelium. The stroma of the tumour, including the ingrowths, shows commonly a myxomatous structure, but sometimes it is abundantly spindle-celled.

Margaret H. (aged 48) first noticed a lump in her breast three years before operation. It had been growing somewhat rapidly lately. The ulceration began about eight weeks before operation.

Path. Reports, 14th November, 1893, No. 3493.

VII. 282. Large Simple Cyst of Mamma. (Dr. John Adam, Forres.)

The preparation shows in section a cyst measuring 3·5 cm. in diameter situated immediately behind the nipple. The internal surface is smooth, and the mammary tissue around is somewhat condensed. A few smaller cysts are present outside of the main one.

Subsequently the other breast was removed, and presented numerous cysts from a small size up to 1 cm. in diameter. Microscopical examination of this breast showed the cysts to be lined with a stratified epithelium, and there are frequent dilatations of ducts and acini.

Path. Reports, May and August, 1898, Nos. 5459 and 5587.

VII. 283. Large Simple Cyst of Mamma with Intra-cystic Adenomatous Growth. (Sir Hector C. Cameron.)

The cyst comes close to the surface and extends deeply through the adipose tissue, having a diameter of 6 cm. The border is close to the nipple, and it is lined with a smooth membrane. Towards its deeper aspect, and on the side next the nipple, there is a somewhat bulky ingrowth with a projection of about 2 cm. It is lobulated, and on section shows small cysts. From the nipple down to this ingrowth strands of tissue are seen to pass. On microscopical examination the ingrowth consists mainly of elongated passages lined with cylindrical epithelium and frequently containing clear structureless matter. There is an occasional cystic dilatation of these passages, which are closely aggregated, there being merely a fibrous membrane between.

A maiden lady (aged 56) only observed the cyst six months before operation. It was tapped and bloody fluid withdrawn. At the operation it contained a fluid like porter with plentiful cholestearine crystals. *Path. Reports*, 31st March, 1897, No. 5005.

VII. 284. Cystic Tumour of Mamma with Papillomatous Ingrowth. (Dr. Walker, Peterborough.)

The tumour consists of a cyst which in section is round and measures 1·5 cm. in diameter. It is situated close under the nipple. Nipple and skin were freely movable over it. The cyst is a thin-walled sac; it is filled with a lobulated mass which under the microscope has a distinctly glandular appearance with numerous

cyst-like spaces. In the rest of the breast there are smaller cysts with similar ingrowths.

Patient first noticed a lumpy feeling in her breast nearly two years ago. The breast was removed with the idea that the tumour might be a duct cancer. Patient's mother died from cancer of the mamma.

Path. Reports, 18th May, 1894, No. 3703.

VII. 285. Cystic Fibro-Sarcoma of Mamma with Intra-cystic Growth. (Sir Hector C. Cameron.)

The tumour has been incised and spread out. It has a firm fibrous capsule, and presents a congeries of cysts of larger and smaller dimensions, so that the section has a complex appearance. Springing from the walls of many of the cysts are cauliflower-like masses. Under the microscope, the structure of a fibro-sarcoma with adenoid and cystic developments is presented.

Jeanie H. (aged 44) first noticed a small lump a year before operation. It had grown rapidly of late. The tumour occupied chiefly the upper and inner aspect of the mamma. There was no adhesion of skin or neighbouring parts, and the tumour was distinctly encapsuled. *Path. Reports*, 24th July, 1895, No. 4248.

VII. 286. Adeno-Sarcoma of Mamma. (Dr. A. Patterson.)

An oval tumour about 9 cm. in long diameter. It is markedly lobulated and surrounded by a distinct capsule. On section the cut surface presents numerous apertures in the form of slits or roundish openings; but there are no considerable cysts. Under the microscope the tissue consists mainly of spindle cells; there are also numerous gland ducts, but hardly any acini. The ducts are often considerably dilated, and the spindle-celled tissue projects into them.

The patient was a girl aged 21. The tumour was first noticed 2 years before its removal, but it never caused any pain. It was freely movable, and was found at the operation to be quite encapsuled. She was dismissed well in less than 3 weeks.

Path. Reports, 31st January, 1879, No. 419.

VII. 287. Adeno-Sarcoma of Mamma. (Dr. A. Patterson.)

The preparation is part of a bulky tumour which seemed to replace the mammary gland. The tumour is highly lobulated, and the

lobules are sometimes almost free within cavities, as if the cavities were cysts which had become filled up with intra-cystic growth. This kind of lobulation is so striking that the whole tumour hangs somewhat loosely together. Under the microscope the tissue consists mainly of spindle cells, with here and there the disturbed remains of gland tissue in the form of an aberrant duct or indication of acini.

Path. Reports, 9th December, 1880, No. 601.

VII. 288. Adeno-Sarcoma of Mamma. (Sir Geo. H. B. Macleod.)

The tumour is of about the size of a hen's egg, and of a flattened oval shape, but with a remarkably lobulated outline. It is surrounded by a capsule, and has evidently been readily removed from its bed. Under the microscope there is glandular tissue, separated by large spindle cells, the latter elements predominating.

The patient was a woman, 18 years of age. She first noticed a swelling in the breast three years before admission. It grew slowly until the last three months, and was always painless.

Path. Reports, 22nd October, 1878, No. 380.

VII. 289. Cystic Sarcoma of Mamma with Intra-cystic Growth.

The tumour laid open is seen to consist of a moderately thick wall with a cavity, whose internal surface is exceedingly irregular. In the fresh state the wall was exceedingly soft and almost gelatinous. The wall is composed mainly of spindle-celled tissue, and the projections are more or less papilliform, being also composed of spindle-celled tissue.

VII. 290. Round-Celled Sarcoma of Mamma of Rapid Growth. (Sir Geo. H. B. Macleod.)

The tumour is considerably larger than the closed fist, and occupies the substance of the mamma. Its tissue is grey in colour, resembling both in general appearance and consistence lymphatic gland tissue. Under the microscope there are chiefly round cells contained in a very coarse reticulum.

The tumour is said to have been only of a few months' growth; it caused great enlargement of the mamma, but did not infiltrate the skin or nipple.

Path. Reports, 5th April, 1879, No. 435.

VII. 291. Bulky Spindle-Celled Sarcoma of Mamma of Rapid Growth. (Sir Hector C. Cameron.)

The tumour, of which the preparation is a slice, was a bulky one of the size of the two fists, and 23 oz. in weight. On section while fresh, it had a succulent gelatinous appearance, but somewhat tough, and a few cysts were present. Under the microscope, the characters of the spindle-celled sarcoma were presented, with a few cavities lined with cubical epithelium.

An unmarried woman of 35, well nourished, had a bulky tumour of the right breast, tense and elastic. First noticed four months before removal.

Path. Reports, 5th August, 1889, No. 2155.

VII. 292. Primary Pigmented Sarcoma of Breast and Recurrent Tumours. (Dr. Walker, Peterborough.)

The primary tumour, which is the smaller specimen, was removed from the neighbourhood of the nipple. It is of a somewhat triangular shape, measuring 3 cm. As seen on section, various degrees of coloration are observable, some portions being almost uncoloured, and others shading to a deep brown. In the centre there is a softened area.

The other specimen, which was removed five months later, comprises the most of the breast with a piece of skin on the surface. There is a linear cicatrix in the skin from the former operation, and the posterior aspect of the preparation shows many tumours, mostly of a deep brown or black colour. These are in four principal groups, one which measures about 2 cm. in diameter is near the nipple, and shows very little coloration; one measuring 11 mm. in diameter is alone and outside the nipple, and is surrounded by numerous smaller nodules; a third measuring also 11 mm. is below the nipple, and alongside it there is a group of nodules generally about 5 mm. in diameter. Under the microscope, the tumour is chiefly composed of spindle-shaped cells, which are in a large part unpigmented. In the pigmented portions the cells are loaded with brown granules and greatly enlarged.

The parts were removed from a woman aged 30 years. She was only conscious of the presence of a tumour one month before the first operation. No tumour was discoverable in the skin or other part, and the surgeon asserts definitely that the primary tumour had

no connection with the skin, and for that reason chiefly it was, when first examined, thought to be probably an adenoma.

Path. Reports, 13th February, 1894, No. 3587. 21st June, 1894, No. 3755.

VII. 293. Cancer of Breast in immediate connection with Nipple. (Sir Hector C. Cameron.)

A section has been made immediately through the nipple, and it is seen that immediately beneath it, and connected by solid tissue and dilated ducts, there is a tumour of circular outline having a measurement of about 4·5 cm.

The tumour has all the structure of a scirrhous cancer. There is also involvement of axillary glands.

Mary R. (aged 45) first noticed a lump three months before operation, but the breasts being large and pendulous, the tumour in its earlier periods might easily have escaped observation.

Path. Reports, 10th July, 1895, No. 4234.

VII. 294. Cancer of Mamma Involving chiefly the Nipple. (Dr. Dalziel.)

The section has been made through the nipple, and it is seen that, continuous with and involving the tissue of the nipple, there is a rounded somewhat lobulated tumour about 2 cm. in diameter. This has connection with the general mammary tissue, which is highly fibrous in structure, but free from tumour.

There were enlarged glands, but these were not found to be cancerous. The tumour itself showed a somewhat glandular form of cancer.

Mrs. M. (aged 42), noticed a lump two years before operation, which had undergone little alteration in size, and latterly became painful. She had eczema of the affected nipple at the birth of her first child fourteen years before, but this had never recurred. The tumour was felt to be limited to the area of the areola.

Path. Reports, 23rd April, 1896, No. 4586.

VII. 295. Cancer of Breast with Deep Retraction of Nipple. (Dr. Dalziel.)

The tumour is a well defined and nearly circular one, measuring nearly 4·5 cm. in diameter. It is deeply seated, its upper limit

being about 2 cm. from the surface. There is, however, from the tumour to the nipple, a connecting structure in which dilated ducts are visible. The nipple was replaced by a somewhat deep puckered retraction.

The microscopic structure showed large collections of cells with a very cellular stroma.

Mrs. F. (aged 55), first noticed the tumour, which was ascribed to an injury, about a year before operation. She has been married thirty-two years, and had never been pregnant.

Path. Reports, 27th August, 1894, No. 3839.

VII. 296. Scirrhus of Mamma Involving Nipple and Skin.

(Prof. Geo. Buchanan.)

The tumour which is here shown in section is a somewhat bulky one. The main mass of the tumour has a projection which involves the nipple and neighbouring skin. The nipple is considerably retracted so as to be beneath the general level of the skin, this being obviously related to the connection with the tumour.

VII. 297. Cancer of Mamma with Paget's Disease and Destruction of Nipple; Cysts in the Tumour.

(Sir Geo. H. B. Macleod.)

The tumour was a somewhat bulky one. A considerable portion of the skin covering it is replaced by a reddish irregular tissue, which at one end forms a prominent nodulated projection. Outside this area there are little rounded tumours in the skin causing slight projections. Outside the area where the tumour-tissue replaces the skin, the epithelium is replaced by a thin irregular layer (eczema), in the midst of which the normal epithelium crops out occasionally. It looks as if the tumour were overflowing the surface and altering the epidermis. No trace of the nipple can be seen, but it seems to be involved in the tumour which replaces the skin. On cutting into the tumour from behind, two cysts are found whose walls present a grey scirrhous tissue. The glands from the axilla were enlarged, and presented the cancerous characters under the microscope.

The patient from whom the breast was removed was a married woman aged 63. She stated that about 16 years ago a little scurf appeared round about the nipple. This, in a week or two, would

fall off and leave a raw surface from which watery fluid exuded. This continued coming and going for two or three years. The skin round about the nipple then became inflamed and painful to the touch, subsequently breaking and exuding a greenish matter upon a raw surface. The pain she had been suffering became relieved after this exudation. No improvement, however, took place; the ulcerating surface gradually increased, and the discharge became coloured with blood. On admission to the infirmary she is described as being a pale, thin-looking woman, with a bleeding ulcerated sore involving the left nipple and surrounding parts. The breast, when manipulated, was felt to contain a dense firm mass which was freely movable over the pectoral muscle. The axillary glands were enlarged.

As regards her personal history, she had always been a very healthy woman; had been married 23 years; had had three miscarriages, but gave no history of syphilis. She could give no cause for her complaint, nor was there any history of tumour in her immediate relations.

This breast was amputated in order to free her from repeated and exhausting haemorrhages. She made a good recovery. (*Hospital Reports*, Ward XXI., vol. 15, p. 247.)

Path. Reports, 12th December, 1884, No. 1271.

VII. 298. Scirrhus of Mamma with Eczema of Nipple.
(Sir Geo. H. B. Macleod.)

The portion preserved is a small part of the tumour with a part of the skin around the nipple. The skin is partly occupied by dense cancerous tissue in the form of two nodules, one at the nipple and the other somewhat removed from it. There was also a hard cancerous mass in the substance of the gland. In a circular area around the nipple, about 2·5 cm. in diameter, the skin is excoriated irregularly, there being apparently parts where the epidermis is retained and parts where it is lost.

On microscopical examination the tumour presents the characteristics of duct cancer. The eczematous part shows inflammatory changes, chiefly round-celled tissue, with occasional cancerous processes.

Patient aged 42. Symptoms of a year's existence. Originated from injury. Breast removed. Axilla cleared out. Recovery.

Path. Reports, 17th March, 1882, No. 291.

VII. 299. Paget's Disease of the Nipple with Extensive Ulceration. (Sir Hector C. Cameron.)

The preparation is a slice from the centre of a somewhat bulky mass which was removed during life. It presented an extensive ulcerating surface measuring roughly 7 by 6 cm. This surface is very irregular, presenting nodular projections of a soft vascular tissue, in which numerous pearly-white areas were visible in the fresh state. The ulcerated surface shades off, as shown in preparation, into the surrounding skin, which has an irregular eczematous character. It is seen on section that the lesion is superficial and that the bulk of the mass removed is adipose tissue. The proper tissue beneath the ulcer nowhere exceeds 2 cm. in thickness. There is very little breast tissue recognisable, but the nipple is represented by a bulky prominence in the preparation which has a dimpled surface. A microscopical examination shows that the tissue concerned is composed of vascular granulation tissue with here and there persisting tracts of epithelium.

In the nipple region the structure is distinctly cancerous.

Mary M'N. (aet. 47) had an abscess in the breast 12 years before the operation. It burst and left a hard lump, and this became covered with a scab, which fell off and re-formed. From this, eczema and ulceration gradually spread outwards, slowly at first, but much more rapidly for the last two years, till it covered the greater part of the front of the chest, and even involved the skin of the arm over the head of the humerus. The excision included the central ulcerated part and portion of the non-ulcerated eczematous skin.

Path. Reports, 21st Dec., 1893, No. 3527.

VII. 300. Cancer of Mamma at Outskirts of Gland. (Sir Hector C. Cameron.)

The parts are shown in section. There is beneath the nipple some thickening and matting of the tissues and the nipple is retracted, but microscopical examination shows little beyond dilatation of ducts and increase of connective tissue. The tumour proper is a lobular mass measuring 3·5 cm. in section and lying in general superficial to the level of the gland. Its tissue is soft, and microscopically shows the characters rather of a soft cancer than a scirrhus, viz., comparatively small cells and a stroma which sometimes forms an intricate and characteristic network.

Jane M'C. (aged 56) gave the duration of the disease as two years. The glands in the axilla were hard and enlarged, and they were removed along with the mamma and were found cancerous.

Path. Reports, 30th March, 1898, No. 5400.

VII. 301. Cancer of Mamma at Periphery of Gland.

(Sir Geo. H. B. Macleod.)

The preparation shows on section a rounded mass having a diameter of 5 cm. which projects at the cutaneous surface. The epidermis is continued over it, forming a smooth pellicle except at two points, part of one of which is preserved. The tumour extends deeply into the substance of the breast. It was situated at the axillary border of the gland, and its nearest edge is about 9·5 cm. from the nipple. Under the microscope the tumour presents the characters of a very cellular cancer. There is little cicatrisation, and the stroma is highly cellular.

Mrs. T. (aged 44). The disease first appeared a year before operation as a small reddish pimple, which gradually got larger and became somewhat painful. The glands in the armpit were involved and were removed.

Path. Reports, 24th November, 1888, No. 1982.

VII. 302. Cancer of Mamma Localised in Outer Part.

(Prof. Geo. Buchanan.)

As seen in section the nipple and the mammary tissue beneath it are normal in appearance, but to the outer side of these there is a rounded tumour mass measuring 3·5 cm. in diameter. This tumour approaches closely to the skin and even has the appearance of sending processes to its under surface; it was noticed during life that the skin was dimpled and adherent. In the deeper parts the tumour is well within the boundaries of the breast, being separated from the external capsule by adipose tissue not less than 1 cm. in thickness. Several glands in the axilla were enlarged and cancerous.

Jane B. (aet. 47) discovered by accident a swelling in the left breast and soon after she began to feel darting pains. She blamed pressure of a piece of whalebone in her stays as the cause of it.

Path. Reports, 14th December, 1894, No. 3981.

VII. 303. Infiltrating Cancer of Mamma. (Prof. George Buchanan.)

The new formation is for the most part deeply in the substance of the gland and nowhere involves the nipple, which is prominent. There are small nodules generally, but near one extremity there is a considerable nodule, measuring 1 cm. in diameter, with some subordinate ones around. The tumour shows microscopically a rather cellular cancerous structure with sparse stroma.

Jane D. (aged 39) had noticed a tumour for a month. There were some enlarged glands at the apex of the axilla, which were removed and found cancerous.

Path. Reports, 7th August, 1895, No. 4266.

VII. 304. Cancer of Mamma with Marked Dilatation of Ducts. (Sir Hector C. Cameron.)

The tumour is situated for the most part deeply under the nipple, forming an irregularly elongated mass. It is connected with the nipple chiefly by a congeries of dilated ducts, which contained in the fresh state a butter-like material. Similar dilated ducts are present to a less extent in other parts of the tumour.

Microscopical examination shows a very abundant fibrous stroma with narrow epithelial processes.

Christina N. (aged 43) first noticed a tumour in the right breast more than a year before the operation.

Path. Reports, 26th March, 1894, No. 3638.

VII. 305. Cancer of Mamma Involving the Skin but without Ulceration. (Dr. Dalziel.)

The tumour pushes the skin outwards to a remarkable degree. It is situated below the nipple, the latter, as well as the mamma, being much atrophied by the usual involution of old age. The tumour is a somewhat bulky one and rather soft. It has reached the skin over a considerable part of the convexity, but the epidermis has remained intact.

Microscopical examination shows the epithelium to be in large masses.

The patient, who was 76 years of age, stated the duration of the tumour to be one year. *Path. Reports*, 3rd Sept., 1894, No. 3851.

VII. 306. Cancer of Mamma; Two Tumours in same Breast. (Sir Hector C. Cameron.)

Two portions are preserved showing in section the two separate tumours. One is immediately in contact with the nipple, involving the skin alongside, and extending about 2 cm. deeply. The other is a rounded mass, also about 2 cm. in diameter, which is planted in the adipose tissue, and extends partly to the pectoral muscle, a portion of which is adherent. This was separated from the other by a space of 1 cm. There were several enlarged glands in axilla.

Under the microscope the tissue is that of a typical cancer with a rather sparse stroma.

Jane B. was affected with a tumour of the breast, stated to have been of seven months' duration. There was a history of abscess during lactation some years before.

Path. Reports, 14th March, 1894, No. 3620.

VII. 307. Acute Scirrhus of the Mamma. (Sir Geo. H. B. Macleod.)

The tumour forms a very bulky mass and involves the skin, presenting prominent nodules on the surface, with some ulceration. On section the tumour is seen to be tolerably well defined, occupying only a portion of the mamma, and not apparently involving the nipple, close to which, however, it extends.

Under the microscope the essential constituents are cells, smaller and more numerous than those of ordinary scirrhus, but otherwise essentially similar.

This large tumour had only been noticed for five months, and was not painful. *Path. Reports*, 9th October, 1875, No. 375.

VII. 308. Acute Scirrhus of Mamma. (Dr. A. Patterson.)

The preparation is half of the mamma, including tumour, as removed by operation. There is a bulky tumour which seems to replace the entire mamma, affecting the nipple and neighbouring tissue. In the fresh state it was very firm, but scarcely so dense as an ordinary scirrhus, and the cut surface did not become concave. The tissue is grey in colour, with islands of adipose tissue in the midst of it. There is abundant fat superficial to the tumour and a thin layer beneath it. Processes from the tumour, however, seem to penetrate into the latter. Under the microscope there were the

usual large epithelial cells, with an abundant connective-tissue stroma.

Patient was a woman aged 31. She first noticed a tumour near the left nipple about ten weeks before admission, and soon after she began to have shooting pains in the breast. On her admission, the breast was found to be firm, especially in the nipple region. The skin was adherent, but the tumour, as a whole, was movable over the subjacent parts. *Path. Reports*, 6th August, 1883, No. 1022.

VII. 309. Scirrhus of Mamma. (Dr. A. Patterson.)

Only half of the tumour is shown. At the time of removal it was a hard, somewhat bulky tumour. On the surface there is a deep excavation, probably representing nipple.

Under the microscope the characters were those of a scirrhus.

Path. Reports, 28th March, 1887, No. 645.

VII. 310. Scirrhus of Mamma; Great Replacement of Skin by Exposed Cancerous Structure. (Dr. Patterson.)

The preparation is about half of the left mamma, which was entirely replaced by a firm tumour. On the cut surface about its middle is an elevation representing nipple. Over the greater part of the tumour the skin has been replaced by tumour tissue, which presents a red surface of a generally rounded shape and 6 cm. diameter. This surface is rather granular in appearance, but without apparent ulceration or excavation. This raw surface is directly continuous and on a level with the skin around, and it could be felt in the fresh state that infiltration of the skin extended all around for about 1 cm. outside the raw surface.

Microscopical examination shows a typical scirrhous structure, namely, elongated processes in a dense fibrous stroma. Towards this raw surface these processes are visible in the cutis vera beneath the epidermis, and at the raw surface they come close up to the surface.

Agnes T. (aged 42) first noticed the tumour in the mamma three years before death. At the time of her admission the legs and feet were oedematous, and after death marked mitral contraction was found. The liver was involved in the cancerous process, as shown in next preparation.

VII. 311. Secondary Scirrhus of Liver. (From above case.)

A portion of the liver is preserved, showing a larger and several smaller rounded tumours. The larger one, which is the largest that existed, measures about 2·5 cm. in diameter; it is distinctly umbilicated. The other tumours were all of them small, none of them exceeding 1 cm. in diameter, but sometimes very closely set. Most of the smaller tumours are umbilicated. Microscopical examination shows the usual characters, namely, narrow processes of cells in a fibrous stroma, which in the older central parts sometimes shows a special predominance.

Path. Reports, Nov. 17th, 1890, No. 2512.

VII. 312. Scirrhus of Mamma, Involving Skin and Muscle. (Sir Hector C. Cameron.)

The preparation shows in section a generally oval tumour which at either pole shades off into the adipose tissue. On either side also the skin is distinguishable, but for a distance of about 4 cm. the tumour involves and largely replaces the skin, the surface however merely showing superficial excoriation. At the deep surface the tumour projects in the form of lobular masses into the muscle, which it also replaces. Microscopical examination shows in the part advancing on the muscle considerable rounded spaces containing large epithelial cells with loose and somewhat cellular stroma. The epithelial masses have sometimes a lumen suggesting a duct. In the older part there is the regular appearance of scirrhus,—cells in narrow spaces with dense stroma.

VII. 313. Ulcerating Cancer of Mamma. (Dr. Patterson.)

To the inside of the nipple there is an oval ulcerated surface measuring 8 by 6 cm. and presenting at its edges marked projection. The whole aspect is that of a tumour undergoing ulceration by softening of its tissue. There was also great enlargement of the axillary glands.

The microscopical examination revealed the structure of a somewhat soft cancer.

Martha M. (aged 62) first noticed the growth 19 months before the operation. At the end of a year it was the size of a crown piece, and soon afterwards it ulcerated.

Path. Reports, 13th July, 1894, No. 3789.

VII. 314. Ulcerating Cancer of Mamma. (Dr. J. G. Lyon.)

The preparation shows the tumour and surrounding skin as removed. The tumour projects considerably, and obviously involves the skin at its margins, giving it a cicatricial appearance. Internally there is deep ulceration, the skin being gone and the tumour having been excavated in a crater-like fashion. The tumour seems to have been altogether of about 12 months' growth.

Path. Reports, 6th September, 1876, No. 128.

VII. 315. Bulky Cancer of Mamma with Softening. Recurrence in Cicatrix. (Dr. Dalziel.)

The original tumour is shown in section, and consists of a bulky tumour mass which penetrates deeply through the fat to the very deepest part removed. The nipple is invaginated and looks like an umbilicus. The tumour as a whole was soft, but the superficial parts are almost disintegrated, so as to form a softened mass of almost porridgy consistence. Under the microscope the tumour consists of collections of rather small epithelium with a stroma which is variable in amount. The softened tissue consists of fatty epithelium and débris.

The other part of the specimen shows the skin surface, traversing which there is a white cicatrix. Around this cicatrix there are two large bossy outgrowths, the larger of which is at the edge of the scar and the smaller is traversed by the latter. There is also a smaller prominence beneath the larger. The adipose tissue has been divided parallel to the surface, and it is seen that the larger growth penetrates deeply and that there are isolated rounded masses in various parts of the adipose tissue.

Mrs. B. (aet. 42) observed the right mamma enlarged about a year before the operation. There was no pain at first. Steady increase of size occurred till this breast was twice the size of the other. For the last two months considerable pain occurred in the shoulder and arm as well as the breast. The breast, with affected skin and glands in the armpit, was removed on 10th October, 1893. Healing by first intention occurred, but ere two months had passed two large nodules appeared near the scar. A second operation was performed on 20th December, and the parts shown in preparation were removed, these tumours being then of about two months' growth. There was no further local recurrence up to the patient's

death eight months afterwards, apparently from cancer of the lungs.

Path. Reports, 11th Oct., 1893, and 21st Dec., 1893, Nos. 3468 and 3528.

VII. 316. Scirrhous Tumour of the Mamma (Secondary Tumours in Liver, Lungs, Spleen, and Heart). (Dr. G. T. Beatson.)

The tumour is a large one, measuring about 7·5 cm. by 4 cm. It has the usual characters of scirrhus, replacing the gland and connecting itself with the nipple. Under the microscope it presented a coarse stroma with the usual large epithelial cells.

In this case, after removal of the primary tumour here shown, the disease recurred in the wound, spreading to the skin around. It also became generalised, tumours appearing in the other mamma, skin, heart, liver, lungs, kidneys, spleen, uterus, mesentery, etc. (See the following four preparations.)

Path. Reports, 30th June, 1881, No. 686.

VII. 317. Liver containing very Numerous Secondary Cancerous Tumours. (From preceding case of Cancer of Mamma.)

Only the upper surface and half of the organ is shown. The whole surface is seen to be studded over with light-coloured, round nodules varying in size from a millet seed to a hazel nut. Some of them tend to be umbilicated, and others have run together so as to form much larger areas, leaving traces of the point of union of the individual nodules.

VII. 318. Secondary Cancer of Lung. (From Cancer of Mamma, VII. 316.)

On the surface of the lung there are innumerable pale, flat elevations, mostly of small size and rather indefinite outline. These new formations are situated under the pleura, while in the lung itself there are few tumours, and these are associated with the large vessels and bronchial tubes, forming to the naked eye thickenings as if the vessels were enclosed in a solid sheath.

VII. 319. Secondary Cancer of Heart. (From Cancer of Mamma, VII. 316.)

The heart presents an excess of external fat, but occasionally, in the midst of the fat or on a surface free from fat, a pale rounded disc-shaped growth is visible.

VII. 320. Secondary Cancer of Spleen. (From Cancer of Mamma, VII. 316.)

The spleen, which is considerably enlarged, contains numerous pale tumours, generally about 1 cm. in diameter. There were also small tumours in the wall of the uterus, broad ligaments, and ovaries.

The appearances in these four preparations indicate that the secondary extension here has been by the systematic arterial system, the new formations in the lungs being related to the bronchial artery, which supplies the pleura and supporting connective tissue. Under the microscope the tumours in all regions present typically cancerous structure.

Path. Reports, 30th June, 1881, No. 686.

VII. 321. Colloid Cancer of Mamma. (Prof. Buchanan.)

The specimen consists of the whole mamma. On the skin surface about 7·5 cm. to the left (the observer's right) of the nipple, which is seen depressed, is an irregularly projecting mass about 5 cm. in diameter and 2 cm. in elevation. In the fresh state this projecting mass was extremely hard, resembling thick leather. The cut surface presented a gelatinous, glistening aspect, with white fibrous trabeculae interlacing so as to form dense meshes within which the solid jelly-like material was contained.

The patient was a woman aged 47. The tumour was first noticed about two years ago. There had been very little pain, her general health was good, and she had given birth to a child only six weeks previously. *Path. Reports*, 29th Sept., 1885, No. 1416.

VII. 322. Colloid Cancer of Mamma. (Sir Hector C. Cameron.)

Tumour was removed by operation. A portion of the mass has been preserved, including nipple. There is a rounded mass, which

was the size of a Tangerine orange, situated in the mamma, chiefly outside the nipple. It was somewhat hard and had a glistening surface. Visible to naked eye there are intersecting septa, and under the microscope the spaces were filled with colloid matter and somewhat abundant cells.

Miss M'L., aged 45-50. *Path. Reports*, 24th Dec., 1890, No. 2542.

VII. 323. Colloid Cancer of Mamma. (Sir Hector C. Cameron.)

As seen on section the main mass of the tumour is towards the edge of the mamma, where on one of the cut surfaces it forms a rounded mass 2·5 cm. in diameter extending from the skin to the muscle beneath. At one place the skin is directly involved, showing a smooth, somewhat depressed surface of about 1 cm. in area. The mammary fat is considerably encroached on. The cut surface showed in the fresh state the glistening appearance characteristic of the colloid condition. There were about a dozen enlarged colloid glands removed from the axilla, and these, as well as the mammary tumour, presented the reticulated stroma and colloid contents of colloid cancer.

Jeanie M. (aged 40) had noticed a tumour for nearly a year. It began in the external quadrant.

Path. Reports, 10th July, 1895, No. 4235.

VII. 324. Colloid Cancer of Mamma. (Dr. Dalziel.)

The specimen shows a section through the nipple, and again 2 cm. outside. The nipple is represented by a deep depression, ending in a fissure. The main mass of the tumour is to the one side of the nipple, extending outwards amongst gland and adipose tissue for about 7 cm. The tissue in the fresh state was glancing and translucent, and in the hardened state is whitish and still slightly translucent. Two greatly enlarged axillary glands are hung along with the specimen.

Microscopically the tumour tissue shows very markedly the colloid tendency. There is, in large part, the ordinary cancerous structure, but this regularly gives place to a condition in which colloid matter, with the epithelial cells in its midst, occupies the spaces. The glands show a precisely similar condition.

Path. Reports, 28th October, 1896, No. 4808.

VII. 325. Scirrhus of Left Male Mamma. (Sir Geo. H. B. Macleod.)

The preparation shows the mamma divided so as to exhibit the internal structure. The nipple is represented by a hard dry body which projects at the bottom of a depression caused by retraction of the tissue. Beneath this, and in the midst of a large amount of lobulated fat, a small tumour is seen in section which measures 1·5 cm. in depth and 2 cm. in greatest thickness. It has the dense feeling of scirrhus, and under the microscope shows a dense stroma, with numerous meshes in which large epithelial cells are present. A gland from the axilla presented similar characters.

The preparation was removed from a man aet. 77. Eight months' duration. No cause. Large growth, filling breast. No glands involved. Amputated. Recovery. Seen three years and three months afterwards with large scirrhous tumour in left axilla of six months' duration, which was not touched.

Path. Reports, 5th September, 1884, No. 1232.

VII. 326. Scirrhus of Male Mamma. (Sir Geo. H. B. Macleod.)

The tumour, which is surrounded by a fatty capsule, is about 4 cm. in length and 2·5 cm. in thickness. On section the appearance is like that of an ordinary scirrhus, a grey somewhat tough tissue, interspersed with orange-coloured portions. The arrangement of the tissue is somewhat lobular. The nipple is considerably drawn in, and around it the skin is adherent and presents rounded prominences. Under the microscope the usual structure of scirrhus was found.

Path. Reports, 10th February, 1880, No. 527.

VII. 327. Scirrhus of Male Mamma. (Dr. Patterson.)

The parts have been divided, and the cut surface shows a tumour about 2 cm. in lateral measurement and 1·5 cm. from the surface downwards. The nipple is shown in section, and is drawn in so that its surface is level with that of the skin; the cut surface of the tumour is somewhat concave. There is some excoriation around the nipple. The microscopical structure is that of an ordinary scirrhus.

Gilbert L. (aged 53), a joiner. The disease began as an ulcer of the skin around the right nipple a year before operation. Since

then it gradually increased in size, extending outwards in all directions; there was no glandular enlargement.

Path. Reports, 13th January, 1893, No. 3235.

VII. 328. Extensive Ulceration of Penis. (Prof. Geo. Buchanan.)

The prepuce is seen to be greatly thickened at its terminal parts, and the glans penis is stunted so as to be represented by a prominence which measures only 1·5 cm. from before backwards; a small area of mucous membrane remains on the dorsal surface.

Microscopical examination shows extensive tracts of granulation tissue, which replaces in various degrees the tissue of the penis. Nothing distinctive of tubercular disease was discoverable.

Neil L. (aged 50) had been under treatment for the last three or four years for a slowly spreading ulceration of the glans penis. He said it began as a small papule, which burst and began to discharge. There were scars on both sides of the neck and the groins as from tubercular glands, and there was some consolidation at the apex of one lung. *Path. Reports*, 10th May, 1895, No. 4150.

VII. 329. Coloured Drawing of Extensive Ulceration of Prepuce and Glans Penis. (From preceding case.)

Under this number is a painting of the appearances, by Mr. J. Campbell M'Lure. The end of the penis is replaced by an ulcerated surface in which the prepuce, with thickened, infiltrated, and prominent edges, can be recognised.

VII. 330. Cyst of Prepuce in Infant. (Dr. Geo. H. Edington.)

The preparation consists of the prepuce removed by circumcision so far as phimosis caused it to protrude beyond the glans. The structure has been split, and there is seen on the dorsal surface the anterior aperture of the prepuce, which measures about ·5 cm. Immediately beneath this is a cyst ·8 cm. in diameter which did not interfere with the retraction of the prepuce, that being entirely prevented by the small size of the aperture. The cavity was occupied mostly with clear fluid, but presented an irregular deposit of fatty material, but without cholesterine. Under the microscope the cyst wall consisted of fibrous tissue with a lining of stratified

flat epithelium, the inner layer of which was horny. The stratum granulosum showed by Gram's method cells with the eleidin granules, and this fact, along with the presence of the horny epithelium, indicates a cutaneous rather than a mucous origin.

Willie D., aged 1. The swelling was first noticed when he was three months old, and it increased in size till he was six months, when it ceased to enlarge but became harder. (See full account by Dr. Edington in *Glas. Med. Jour.*, Vol. XLIX., 422.)

VII. 331. Papilloma of Glans Penis.

The right upper part of corona glandis shows a dendritic wart about 1 cm. in diameter attached by a narrow peduncle. It was only discovered on reflecting the prepuce, which was unduly long, and a considerable amount of offensive matter lay around the wart and between prepuce and glans.

Microscopical examination shows a basis of rather cellular fibrous tissue containing large blood-vessels and covered with stratified squamous epithelium.

Wm. A. (aged 24), a clerk, died of tuberculosis of brain, meninges, and lungs. *Path. Reports*, 27th February, 1896, No. 4501.

VII. 332. Epithelioma of Prepuce. (Dr. Renton.)

There is a bulky cauliflower-like mass which surrounds but only slightly incorporates the glans penis. It also overhangs the body of the penis behind. Microscopical examination shows the tumour to consist of flat-celled epithelium.

Wm. M'D. (aged 58) first noticed the tumour as a small, hard lump; latterly he suffered pain in the penis, but he could pass his water well. The glands in both groins were enlarged. The structure as mounted was removed by operation. After operation a purulent infiltration of scrotum ensued. The wound in penis healed within three weeks. *Path. Reports*, 14th August, 1885, No. 1404.

VII. 333. Epithelioma of Prepuce and Glans Penis. (Sir Hector C. Cameron.)

The upper part of the prepuce and corresponding surface of the glans are occupied by a tumour with a rough, somewhat warty surface and of considerable bulk. The tumour invades the posterior

part of the glans, including the corona, and stops short by a well-defined margin 2·5 cm. from the tip of the glans.

James W. (aged 72) first noticed the growth three months before operation. There was no phimosis. The left inguinal glands were enlarged. *Path. Reports*, 19th December, 1894, No. 3988.

VII. 334. Warty Epithelioma of Penis Involving Glans and Prepuce. (Prof. Geo. Buchanan.)

The external aspect is that of a lobulated, cauliflower-like surface in which glans and prepuce are scarcely distinguishable. The individual lobules have a measurement up to 5 mm. On section it is seen that the greater part of the tumour is glans, but that at the upper surface it passes for a distance of 2 cm. on to the prepuce. The urethra is dilated, and the orifice is scarcely distinguishable through the mass of tumour.

The microscope showed abundant cylindrical epithelial processes containing numerous and well-formed laminated capsules. The stroma is generally cellular, but becomes fibrous more deeply.

David L., aged 45. The lesion began as a kind of wart on the dorsum "at the very point" and spread backwards four years ago. There was no congenital phimosis.

Path. Reports, 27th October, 1893, No. 3478.

VII. 335. Epithelioma of Penis (Glans and Prepuce) with Papilliform Projections on Surface. (Dr. A. Patterson.)

The right half of the glans and neighbouring part of prepuce are occupied by a tumour whose surface has a highly warty appearance. The papillae are generally long, and have often the appearance of hair-like projections. The tumour does not quite reach the meatus.

John M. (aged 50), a policeman. The disease began a year before operation as a small ulcer on the glans. Its growth has been accompanied by much pain. *Path. Reports*, 13th January, 1893, No. 3234.

VII. 336. Epithelioma of Glans Penis, Involving Prepuce; Phimosis. (Prof. Geo. Buchanan.)

As seen on section the glans is almost replaced by a friable epitheliomatous tissue. There is a marked phimosis and the internal

surface of the prepuce is visibly involved. The anterior aperture measures not much more than 5 mm. The extreme tip of the penis is occupied by a warty projecting surface 2·5 cm. in diameter. This belongs mainly to the prepuce, but there is a certain continuation of the glans into it. The urethra traverses the mass, and has been pushed markedly to the right, as the growth has been mainly to the left of the middle line. It is, however, surrounded by the cancer, and its wall, as it traverses the glans and prepuce, is formed essentially of crumbling epitheliomatous tissue.

Wm. B. (aged 51), a joiner, had always a long prepuce and had been troubled for years by accumulations of greasy material under it. Ten months before operation the skin at the free margin of the prepuce became thickened, and a few months later adherent to the glans. Within the past three months the entire glans became much swollen. There was latterly a purulent discharge from the urethra.

Path. Reports, 29th May, 1896, No. 4649.

VII. 337. Epithelioma of Glans Penis. (Mr. Maylard.)

On examination of the recent specimen extensive hard warty-like masses were seen on and around the glans; a number of punctiform orifices existed upon the preputial portion, which, when squeezed, exuded a sebaceous kind of material. The urethra, though deviated in its course at the gland portion of the canal, is in no way obstructed. The section shows a granular tissue which encroaches on the body of penis and glans. It has distended the prepuce, and at several points has burst through it. These features observed in the fresh state, are still very well preserved in the mounted specimen. A wax taper is seen passing through the canal.

Removed by operation from a man aet. 78. It had commenced about two years before. It caused no pain, but much inconvenience from its weight. *Path. Reports*, 19th September, 1885, No. 1417.

VII. 338. Adenoma in Prostate.

The prostate gland is shown divided in the middle line. It is considerably enlarged, and from the cut surface two rounded tumours project; these tumours, on microscopical examination, were found to be adenomata.

Robert G. (76) died in consequence of a fracture of the pelvis and ribs, sustained from being knocked down and run over by a cart.

Path. Reports, 27th April, 1894, No. 3679.

VII. 339. Prostatic Calculi.

The preparation shows the prostatic portion of urethra and neck of bladder opened up. Where the prostate is cut numerous dark brown bodies are visible, and a few are also seen in the exposed urethra, these being present at the mouths of ducts. The calculi show a concentric arrangement, and in the early stage before calcareous infiltration they give the amyloid reaction.

Wm. M. (aged 66) was affected with cancer of the tongue.

Path. Reports, 21st June, 1897, No. 5104.

VII. 340. Testicle Retained in Abdomen.

The testicle, which is that of the right side, lies on the posterior wall of the abdomen, with the free border of the gland inwards and the epididymis outwards. The vas deferens proceeds from the lower extremity of the organ and passes inwards in a tortuous fashion. Beneath the testicle, and externally, a fold of peritoneum indicates the commencement of the inguinal canal, which forms a somewhat wide channel 3 cm. in length. Into this there passes a loose fold of peritoneum 2 cm. in breadth, which proceeds from and is attached to the lower part of the epididymis. It contains vessels which are continuous up into the epididymis. A broad piece of whalebone is passed into the canal.

Oscar S. (aged 16) died of phthisis pulmonalis. The right side of the scrotum was empty. The left side contained a testicle similar in size to that shown in preparation.

Path. Reports, 7th October, 1895, No. 4352

VII. 341. Testicle Retained in Groin and Removed from Neck of Hernial Sac. (Prof. Geo. Buchanan.)

The testicle, with epididymis and part of spermatic cord, was removed in the course of an operation for strangulated hernia, being retained at the neck of the sac. The organ is obviously smaller than normal, measuring 2·5 cm. in its long diameter. On section it has the appearance of testicular tissue, but unduly compacted.

VII. 342. Undescended Testicle, Removed from Groin on account of Swelling and Pain from Torsion. (Dr. Patterson.)

The testicle and epididymis are highly hyperaemic. The testicle itself is small in size, measuring 3·5 cm. It is surmounted by the epididymis, which is bulky as compared with the testis.

John M. (aged 16) was aware of the presence of only one testicle in the scrotum, and only realised the existence of another when he received a violent blow in the groin. On admission there was a painful swelling of the size of a small hen's egg occupying the inguinal canal. The testicle was found in a sac, and twisted at its attachments. *Path. Reports*, 10th May, 1894, No. 3692.

VII. 343. Tuberculosis of Testicle. (Sir Hector C. Cameron.)

Preparation has been injected. On the surface, testis is indistinguishable from epididymis, the whole forming a smooth ovoid tumour of the size of a hen's egg. Large areas, involving the bulk both of testis and epididymis, are in a state of caseation. Microscopic examination of a growing part shows a structure composed of epithelioid and giant-cells, the latter very abundant.

VII. 344. Tuberculosis of Testicle. (Prof. M'Call Anderson.)

The right testicle is greatly enlarged, and its tissue very firm. Its epididymis is the seat of a caseous mass, and there is also caseous material at the hilum. There was tubercular disease in bladder and kidney, and disseminated tuberculosis of the lungs.

Path. Reports, 13th November, 1879, No. 485.

VII. 345. Tuberculosis of Testicle; Eversion. (Sir Hector C. Cameron.)

The preparation shows in section the testicle protruded through the skin and forming a large mass, which was globular in form and 6 cm. in diameter. The mass is somewhat granular on the surface, and the section shows that it is surrounded by a somewhat thick fibrous capsule, whilst the tissue within is variously granular and in part caseous.

Microscopic examination shows a thick fibrous capsule enclosing

a tissue containing seminal tubules, divided by fibrous tissue which, however, is very cellular. Abundant tubercles with typical giant cells are present both in the fibrous capsule and in the internal part, but most abundantly in the latter.

Rupert M'L. (aet. 42) was affected with haemoptysis, beginning six years before operation. He first noticed pain in the right epididymis about five months before operation. The testicle became enlarged, much inflamed, and very painful. It soon opened externally and the ulcer extended. The testicle and epididymis then pushed themselves outwards. During life the surface, both of the testicle and of the neighbouring parts of ulcer, was covered with granulations.

Journal, Ward XX., vol. 14, p. 63, 6th July, 1891.

VII. 346. Tuberculosis of the Testicle. (Prof. Geo. Buchanan.)

The central parts of the testicle show a cheesy material, which extends outwards in elongated masses to the periphery. Towards the periphery the cheesy masses are divided by a more transparent tissue, like granulation tissue both in its naked-eye and microscopic characters. *Path. Reports*, 14th January, 1878, No. 286.

VII. 347. Tuberculosis of Testicles,—two cases. (Drs. Renton and Dalziel.)

The two cases present varying degrees. In both the tuberculosis has apparently begun in the epididymis, but in one case it has remained limited to that structure, while in the other it has extended to the testicle proper. In the first case the greater part of the epididymis is condensed and homogeneous; there was softening in the central parts and a sinus communicated with the surface. A portion of the sinus is visible on the external surface of the specimen.

In the other specimen the cut surface shows the epididymis contracted and with a cavity in its central parts. A portion of the skin is preserved, and a sinus is shown passing in towards the epididymis. The body of the testicle is markedly involved, there being more or less rounded areas partly caseous, which are confluent in the parts next to the epididymis but extend in the form of isolated nodules through the whole thickness of the testicle, one being visible immediately under the tunica albuginea at the distal

aspect of the organ. The sac of the tunica vaginalis is partly occupied by a semi-gelatinous exudation, but there is also a certain amount of fibrous adhesion opposite the place where the tuberculosis has extended close to the surface.

In both cases the patients were aged 26. In the first or less advanced case, this testicle swelled and called for removal about two months after the other testicle had been removed. In the second case, both testicles were removed simultaneously, and both were almost similarly affected.

Path. Reports, 14th and 13th Aug., 1894, Nos. 3826 and 3825.

VII. 348. Tuberculosis of Left Testicle, Vas Deferens, and Vesicula Seminalis. (Prof. Gemmell.)

The whole testicle as shown in section is caseous, and the epididymis is also caseous in its posterior parts, but less completely, whilst anteriorly it shows considerable softening. The vas deferens is irregularly thickened so as to give a beaded appearance. The last part of the vas deferens is greatly thickened and dilated, and the vesicula seminalis of this side is similarly affected, whilst on the opposite side these structures are apparently unaltered. There was a tuberculosis also of the vertebrae, lungs, spleen and kidneys.

John G. (aged 46) was affected with a perforating ulcer of the duodenum as well as with the tubercular affections mentioned.

Path. Reports, 22nd March, 1893, No. 3297.

VII. 349. Tuberculosis of Testicle, Vas Deferens, Vesiculae Seminales, and Bladder. (Prof. Geo. Buchanan.)

The parts preserved are the left testicle and epididymis and lower part of bladder. The epididymis, greatly enlarged, surrounds about two thirds of the testicle as a thick rounded cord, which in the fresh state felt hard and was caseous on section. The vas deferens was also thickened, and on section showed caseous contents. In the other preparation the vas deferens and vesiculae seminales are shown in connection with the base of the bladder. On the left side there is great enlargement of these structures and they are closely adherent. On the right side the vas deferens before it reaches the bladder is unaffected, but at the bladder it, as well as the vesiculae, are enlarged, although much less so than on the left side. The structures concerned are highly caseous. Inside the bladder the

mucous membrane showed an ulcerated surface about 2·5 cm. in diameter immediately behind the internal orifice of the urethra. The lungs showed the usual appearances of fibroid phthisis.

Thos. A. (aged 73) complained of swelling on left side of scrotum of six months' duration. There was fluid in the tunica vaginalis. Pain existed in the right testicle, and there was swelling of the epididymis on both sides. He died in consequence of pulmonary haemorrhage.

Path. Reports, Oct. 26th, 1888, No. 1957.

VII. 350. Obsolete Tuberculosis of Epididymis. Extensive Tuberculosis of Genito-Urinary Tract. (Sir Hector C. Cameron.)

The affection here is limited to the lower part of the epididymis and does not affect the testicle at all. It is even in the epididymis probably obsolete, there being small cavities filled with pultaceous matter. There was tuberculosis of the other testicle and of both vasa deferentia. The left kidney presented the characters of a healed tuberculosis, and the right kidney was in a state of hydronephrosis.

Archibald L. (aged 28) dated the commencement of his illness 13 years back, when he had obstruction at the neck of the bladder and pain. Three years later haematuria supervened, and after six years incontinence of urine occurred. The affection of the testicles was first noticed only two years before death.

Path. Reports, 5th November, 1890, No. 2505.

VII. 351. Syphilitic Gumma of Testicle. (Dr. T. J. Walker, Peterborough.)

The organ is greatly enlarged, measuring 8 cm. by 7 cm., and the skin is firmly adherent over its anterior surface. There is a cicatrix and a sinus on the skin surface, the latter communicating with softened tissue within. No remains of testicular tissue are visible, but this is replaced by strands of fibrous tissue in which are embedded considerable masses of a yellow necrosed structure which is less brittle than the caseous matter of tubercular disease. The epididymis is little if at all affected, but above this there are various lobulated masses along the spermatic cord, which on section have a grey or yellowish homogeneous appearance.

H. B. (aged 33) first noticed swelling of right testis three years before operation. No history of syphilis was obtained, but he had had gonorrhoea some years ago. *Path. Reports*, 1st Aug., 1893, No. 3406.

VII. 352. Syphilitic Disease of Testicle, Extending up Vas Deferens. (Prof. Geo. Buchanan.)

The parts preserved are testicle, tunica vaginalis, and a piece of spermatic cord, as removed by operation. All of these are greatly enlarged—the testicle measuring 7 cm. in long diameter, the epididymis even larger in proportion, and the spermatic cord greatly thickened. The testicle presents on section the appearance of the normal tissue exaggerated, lobules and appearance of tubules being visible; but the whole of the gland, and also the epididymis and cord, have a general fleshy transparent appearance, except in one or two places where there is more opacity. Under the microscope the prevailing elements everywhere are well-formed round cells. In the testicle the tubules are visible in the midst of these, generally with fatty epithelium. The tunica vaginalis is considerably thickened.

About seven months before the operation the patient noticed his testicle getting enlarged, and it was first treated by strapping, the swelling being regarded as due to chronic orchitis. The question of syphilis could not be accurately determined. The tumour began to extend up through the external ring, and some time after admission a second little tumour made its appearance in the canal. The testicle was removed, and the cord was drawn as far out as possible and ligatured, when the secondary tumour was enucleated. See *Glasgow Medical Journal*, Dec., 1883, p. 470.

VII. 353. Soft Sarcoma of Testicle. (Dr. Patterson.)

The tumour is a bulky oval mass measuring 11 cm. from above downwards. It entirely replaces the testicle, whilst the epididymis and the cord are flattened over its upper part, there being, however, some invasion of the epididymis at its lower extremity. The tunica albuginea is tightly stretched over the tumour and is smooth and glistening. The tissue is exeedingly friable, and there is some haemorrhage.

On microscopic examination the tumour consists essentially of large round cells of somewhat varying size along with numerous areas of necrosis.

Francis R. (aged 30) first noticed a swelling of the testicle eighteen months before admission. There was no pain until a fortnight before, and since then a severe aching pain was complained of. It was tapped a week before removal, but only blood came away. *Path. Reports*, 23rd January, 1896, No. 4454.

VII. 354. Round-Celled Sarcoma of Testicle. (Sir Hector C. Cameron.)

The preparation, which is less than half the original tumour, shows testicle inside the smooth and stretched tunica albuginea. The testicle is entirely replaced by a soft white tissue which is somewhat lobulated on the cut surface and is haemorrhagic in places. The epididymis is flattened over the surface of the tumour, but not obviously involved.

Under the microscope the tissue is seen to be composed of cells with large round nuclei and comparatively little protoplasm. There are intersecting bands of dense connective tissue bearing vessels.

David S. (aged 30) was affected with a tumour of the left testicle which was hard, inelastic, slightly lobulated, and not tender or painful. It had been growing slowly for two years. The cord and epididymis could be distinguished from the tumour, and were not enlarged. *Path. Reports*, 6th April, 1896, No. 4564.

VII. 355. Sarcoma around Testicle. (Dr. Walker, Peterborough.)

The preparation shows in section three distinguishable masses, the upper and lower of which are tumours and the middle one is the testicle flattened between them. The lower tumour is the larger, measuring about 4·5 cm., and is rounded in form; the upper is shaped somewhat like a chestnut, and is 2 cm. in diameter. The relations of the tumour suggest an origin from the epididymis. The vas deferens runs into the lower tumour and is lost in it. On the other hand, the upper tumour is not apparently continuous with the lower one. On microscopic examination the tumours are found to be composed essentially of spindle-shaped cells without any definite indication of tubular tissue.

Geo. C. (aged 38) had a tumour of the size of a hen's egg removed from the left inguinal region about three years before the removal of the present preparation. This was diagnosed in Cam-

bridge as a spindle-celled sarcoma. The present tumour was first noticed seven months before operation in the form of a small lump above, and quite separable from, the left testicle. This growing downwards seemed to join on to the testicle, the mass gradually and without much pain increasing in size. There is a history of a blow from a cricket ball on this testicle six months before the discovery of the small lump. For many years he has had a right irreducible scrotal hernia. *Path. Reports*, 10th Sept., 1893, No. 3112.

VII. 356. Cancer or Alveolar Sarcoma of Testicle. (Dr. Patterson.)

The tumour, which is a somewhat bulky one, involves testicle, epididymis, and vas deferens, all of which are indiscriminately infiltrated. The tunica albuginea is highly stretched but apparently intact, except above. On section the tissue is somewhat tough, and to the naked eye there are visible bands of connective tissue enclosing rounded or polygonal spaces.

Microscopic examination shows masses of cells with a stroma strongly suggestive of cancerous structure. The relation of the cells to the stroma, however, is more intimate than is usual in cancers, and there occurs occasionally in the midst of the cells as well as stroma some remains of the tubular structure which seems to take no part in the tumour formation.

Francis H. (aged 40), a mason, was supposed to be affected with syphilitic disease of the testicle. The tumour had been observed for over two years. *Path. Reports*, 5th March, 1896, No. 4515.

VII. 357. Cancer of Testicle. (Sir Hector C. Cameron.)

The testicle, which is converted into a bulky tumour, retains its pyriform shape, but measures 13 cm. by 8 cm. The spermatic cord and vessels pass into the tumour at its upper (narrower) end; but in the tumour itself it cannot be said that any distinct traces of proper testicular tissue are discoverable. The enlarged organ fills and distends the tunica vaginalis, whose visceral and parietal layers are quite distinct except at the posterior part, where under normal conditions there is no sac. Under the microscope, the tissue is typically that of a cancer, there being a very loose stroma with masses of epithelial cells in it.

Path. Reports, 12th February, 1884, No. 1130.

VII. 358. Cancer of Testis. (Dr. Patterson.)

Removed from a patient aet. 52. No cause could be ascertained for its origin, which dates back about three years. It had gradually and painlessly increased, the only inconvenience was due to its weight. The cord was not thickened, nor the inguinal ring obviously enlarged. The specimen shows the testicle greatly enlarged, still maintaining its normal shape. The surface of the organ is quite smooth, and at the upper part, the parietal portion of the tunica vaginalis is turned down into its normal position to show freedom from any adhesion between the two layers of the tunic. The preparation is suspended by the vas deferens and the other constituents of the cord, and shows also complete absence of any extension of the growth upwards.

Microscopically the appearances were those of an encephaloid carcinoma. *Path. Reports*, 14th January, 1886, No. 1468.

VII. 359. Cancer of Testicle with Mucous Stroma, in Infant. (Dr. Patterson.)

The tumour, which is shown in section, highly distended the tunica albuginea, and on section it bulged out so as to form a markedly convex surface. This has been partly preserved, and fresh sections have been made to show the character of the tissue. The tumour represents the testicle, enlarged so as to measure 7 by 5 cm., and the epididymis, which is also much enlarged. In the fresh state it was distinguished that the basis substance was translucent and somewhat gelatinous, whilst grey opaque tissue was interspersed. Under the microscope a regular cancerous stroma abundantly supplied with mucus was distinguished, with the usual enclosed masses of cells.

James M'F. (aged 13 months) was admitted with a swelling of the left testicle of six or seven months' duration.

Path. Reports, 2nd February, 1894, 3575.

VII. 360. Cystic Cancer of Testicle with Intracystic Haemorrhage. (Dr. Patterson.)

The tumour is shown in section, and it consists of a mass of a flattened and lobular shape measuring about 7 cm. The cut surface is seen to be divided up by partitions into loculi which are largely

occupied by blood, but a few towards the surface have the character of cysts with clear contents.

Microscopic examination reveals in the superficial parts many cysts of various sizes lined with epithelium, often in a single layer. In addition, and in the deeper parts forming the principal part of the tumour, there are cavities containing blood and irregularly lined with epithelium, which is often in several layers and very irregular in shape.

Arch. P. (aged 42) suffered from a painful hard swelling replacing the left testicle, which was first noticed about five months before operation. *Path. Reports*, 10th May, 1894, No. 3691.

VII. 361. Cancer in a Retained Testicle. (Dr. Beatson.)

The preparation shows the half of a bulky solid tumour of a flattened oval shape and measuring 11 cm. by 10 cm. by 6 cm. In the fresh state it had a soft almost fluctuant character, and the tissue had very much the appearance, both in colour and in consistency, of brain substance.

Under the microscope it consists of a very sparse stroma, which is frequently very cellular, including masses of large epithelial cells having various outlines, sometimes in elongated processes, and sometimes in rounder and more circular collections.

James D. (aet. 41) had always a small movable lump in right groin. There was no testicle in the right scrotum, which was undeveloped. The left testicle was normal. About nine months before the operation, he first noticed a lump in the groin, which in four months had almost assumed its full size, and was compared in bulk to a cocoa-nut. *Path. Reports*, 18th November, 1889, No. 2211.

VII. 362. Cystic Disease of Epididymis. (Spermatocele.) (Dr. Dalziel.)

The parts have been injected and a longitudinal section made. Above the testicle a collection of cysts is displayed, a large one above, then a congeries of small ones which partly impinge on the testicle and lastly a medium-sized one below. The cystic mass represents epididymis; the cysts are thin-walled and the mass of smaller ones has a honeycomb-like appearance. There is no solid tumour. The cysts contained an opalescent fluid with spermatozoa in it.

Joseph H. (aet. 60) first noticed a tumour of the size of a sparrow's egg twelve months before admission. The mass was tapped by a doctor, and reduced to half its former size.

Path. Reports, 19th August, 1891, No. 2737.

VII. 363. Cystic Disease of Epididymis. (Spermatocele.)

This case is like the immediately preceding one, but there is one very preponderating cyst, and a number of smaller ones, the latter in a group in the position of the epididymis. The testicle and tunica vaginalis are apparently unaltered.

The specimen was found *post mortem* and no history is known.

VII. 364. Fluid from a Spermatocele.

It was opalescent, and was found under the microscope to teem with spermatozoa. *Path. Reports*, 4th Jan., 1879, No. 409.

VII. 365. Varicocele.

The preparation is a section of testicle and parts above. The testicle is at the lower extremity. From its hilum, which is directed upwards, a congeries of veins passes. Above this, there are numerous veins filled with blood and greatly dilated and tortuous. These form a mass 5 cm. in diameter.

Path. Reports, 10th November, 1887, No. 1768.

VII. 366. Small Hydrocele of Tunica Vaginalis.

The slightly distended cavity is displayed with testicle behind and epididymis above and behind.

VII. 367. Hydrocele of Tunica Vaginalis. (Sir Hector C. Cameron.)

The tunica vaginalis on one side is shown distended, the testicle projecting into it. In the other preparation it is shown in section that the cavity of the tunica vaginalis is obliterated, there being scarcely even a fissure to indicate its position.

John S. (aged 71) was operated on for hydrocele three months

before death by injection with iodine. He was being re-admitted for operation on the other side when he suddenly died from cerebral haemorrhage. *Path. Reports*, 21st Nov., 1892, No. 3186.

VII. 368. Scrotal Hydrocele.

The sac of the hydrocele is laid open and the testicle divided, the latter being incorporated in the wall of the sac. A portion of the skin of the scrotum is preserved.

VII. 369. Hydrocele of Tunica Vaginalis. Compression of Testicle.

The hydrocele, which is of the left side, forms a large oval tumour 14·5 by 10 cm. On its posterior wall near the lower end is the testicle greatly flattened and condensed. It measures on section only 1 cm. in thickness. The history is not known.

Path. Reports, 10th Sept., 1889, No. 2165.

VII. 370. Hydrocele with Thickening of Wall and Alteration of Fluid (Haematocele).

The preparation shows half of the cavity of the tunica vaginalis, which is greatly enlarged; it also shows in section the flattened testicle which forms a part of the wall of the cyst. The cyst wall is generally less than a line in thickness, and very irregular in its internal surface, which presents a pretty frequent brown deposit.

Path. Reports, 14th Feb., 1882, No. 775.

VII. 371. Hydrocele with Greatly Thickened Wall and Contained Blood-clot (Haematocele). (Sir Hector C. Cameron.)

A bulky tumour as large as the fist, which has been excised. It is in the form of a cyst, which has a typically pyriform shape, brought out characteristically by removal of the various outer tunics. The wall of the cyst is generally 3 to 12 mm. in thickness, and composed of dense fibrous tissue, the internal layer of which forms a distinct thick membrane. The contents are a brown material, like broken-down clot, in which the microscope revealed shrunken corpuscles and numerous cholesterine crystals. The

testicle was found lying behind and below; but it has been removed with the tunics.

The case was that of a man (aged 32) who had a solid tumour —supposed to be of the testicle—for several years. The whole structure was removed by operation.

Path. Reports, 28th February, 1882, No. 784.

VII. 372. Inflamed and Greatly Thickened Hydrocele, Removed by Operation (Haematocele). (Dr. J. C. Renton.)

The preparation, which consists of the altered tunica vaginalis, forms a thick-walled cyst, composed generally of dense fibrous tissue, but lined with a soft red structure, like granulation tissue. The cyst forms a bulky tumour as large as the two closed fists. At one part the testicle is shown in section, greatly flattened against the cyst wall. *Path. Reports*, 17th August, 1883, No. 1026.

SERIES VIII.

INTEGUMENTARY SYSTEM.

VIII. 1. Tatooing.

The piece of skin, measuring about 10 cm. by 15 cm., has a tatooed figure of a Highland chief, with kilt, claymore, and shield on which the Scotch thistle is represented.

VIII. 2. Tatooing from Breast of a Man.

It represents something like a coat of arms with two serpents and a bird, done in two colours.

VIII. 3. Lightning Mark on Skin. Photograph.

For description of this case, see paper by Dr. Yule Mackay, in *Glasgow Medical Journal* for November, 1883.

VIII. 4. Abdominal Wound in case of Abdominal Section for Tumour. (Dr. A. Patterson.)

There is a long wound which is glued together both on the cutaneous and peritoneal surfaces.

VIII. 5. Piece of Skin Undermined and Necrosed from Fracture of Ribs. (Dr. A. Patterson.)

The injury was inflicted by the revolving handle of a winch which struck the patient in the right sub-clavicular region. The

skin in this situation was carried inwards, and impelled against the ribs, a fracture being produced of the second rib, while a piece was broken off from the lower edge of the first. In the midst of the piece of skin preserved there is a circular portion of a red colour, and dried. Behind this there is a cavity, which formed part of a larger cavity communicating with the fractured ribs. The pleural cavity contained a large quantity of bloody fluid. There were two apertures in the lung with a communication through its substance. Surgical emphysema existed as far down as the hands and the calves of the legs. *Path. Reports*, 7th March, 1883, No. 949.

VIII. 6. Portion of Lacerated Lung. (From same case as preceding.)

The piece of lung preserved is the extreme apex, which has been divided longitudinally. It is seen that on either side there is a ragged wound, and joining these through the midst of the lung tissue there is an irregular channel. Around this channel the lung is completely condensed with infiltrated blood, and this infiltration extends right up to the apex, and for a shorter distance below the level of the channel.

VIII. 7. Brawny Oedema of Hand and Arm. (Dr. G. T. Beatson.)

The skin and subcutaneous tissue of the hand and lower part of the forearm are greatly thickened, and the thickening is obviously due largely to oedema, although there is some new formation of connective tissue and epidermis. The hand, as a whole, is puffed out and enlarged, both from before backwards and transversely. The fingers project from the palm like broad-based pyramids, there being a deep transverse sulcus at the base of each finger. This condition extends about 10 cm. up the arm, gradually merging into the sound skin. During life the member hung as a heavy mass, which the patient had great difficulty in supporting.

VIII. 8. Chronic Ulcer of Foot of 18 Years' Duration. (Sir Hector C. Cameron.)

The foot shows a distinct talipes varus. On the outer and dorsal surfaces, from the external malleolus to the base of the little toe,

there is an irregularly ulcerated surface, in some places with sinuous margins. Microscopic examination showed only a vascular granulation tissue containing giant-cells, but without definite tubercles.

Mary C. (49) stated that she had an ulcer on the dorsal surface of the foot 18 years ago. It used to break out during each labour and then heal up. Her last child was born six years ago, and she was free from trouble until six months ago, when abscesses formed and burst, leaving the extensive ulceration shown. The foot was amputated. *Path. Reports*, 28th July, 1894, No. 3808.

VIII. 9. Extensive Ulceration of the Dorsum of the Foot. (Dr. Patterson.)

The ulcer extends across the whole breadth of the dorsum and on to the roots of the toes. It occupies the dorsum of the great toe only about the outer third, the inner third escaping. The second toe is awanting, and the ulcer extends between these toes to the plantar surface. Upwards the ulcer extends to about the middle of the dorsum. The ulcer has a granular surface and prominent, somewhat cicatricial margins. The skin around is variously affected, that of the toes on the dorsal aspect being distinctly thickened. On the dorsum above the ulcer and around the ankle generally there are more or less prominent nodules, as well as a baggy condition suggestive of elephantiasis. There are also a few cicatrices. The knee-joint presented a tubercular condition of its synovial membrane.

Under the microscope the ulcer presents the usual characters of a granulating wound, viz., at the surface large masses of cells, mostly round, with capillary loops running up, and in the deeper layers strands of spindle-shaped cells. No proper tubercles were discovered in connection with the ulcer or the nodules in the skin.

Mary J. (aged 22) suffered from ulcers of the leg and foot for 15 years. She had anti-syphilitic treatment for six years without much effect. *Path. Reports*, 5th May, 1893, No. 3332.

VIII. 10. Perforating Ulcer of Foot. (Dr. Dalziel.)

The specimen shows the plantar aspect of the feet, and in it, nearly in the middle, there is an opening measuring 13 by 4 mm. It passes somewhat deeply into the tissues, and on section the entire extent of the sinus was found to be 13 mm. It is directed towards the middle of the os calcis, but its bottom is separated from the

bone by a dense fibrous tissue measuring 1 cm. in thickness, which fills up the entire concavity of the inferior surface of this bone. The lateral walls of the sinus are covered with a thick epidermis similar to that of the heel, but even thicker. But its floor presents no such covering, and there is to the naked eye very little appearance of activity.

Viewed from the surface, the ulcer is surrounded by a zone of altered epidermis having a diameter of about 4·5 cm. There is further a furrow passing outwards from the perforation and extending in a branching fashion to the outer aspect of the foot, where the epidermis is divided up by many grooves, and has in some places a warty character.

Examination of the nerves at some distance above the visible lesion shows marked thickening of the perineurium around the individual bundles. In addition the nerve stems are accompanied by many arteries which show a very striking endarteritis obliterans. Thickening of the intima is visible even in the dorsalis pedis and external plantar artery.

Mrs. A. (aged 47) was affected with this condition for three years. For six years the leg had been swollen and useless. There was a history of a severe wrench to the ankle 20 years before; an anaesthetic area existed along the outer half of the leg from about the middle of the calf downwards and on the outer aspect of the foot, but including most of the heel. The foot was amputated through the ankle joint.

Path. Reports, 21st Aug., 1895, No. 4283.

VIII. 11. Piece of Scrotum showing Large Prominent Nodules. (Prof. Macewen.)

The nodules vary in size from a millet-seed up to that of a horse bean. A pale matter shines through the epidermis. Many of them show simply a superficial prominence, while others are pedunculated, distinctly overhanging the base. The latter have a thin and generally a smooth covering of skin. Many of them have cretaceous contents.

John M'D. (aged 52) died after an operation for strangulated femoral hernia. He had stated that the scrotal tumours had been there for an indefinite period, and had caused him no inconvenience.

Path. Reports, 1st June, 1896, No. 4652.

VIII. 12. Ecthyma Cachecticum from Back of Hand.

The eruption was thus described in the recent state. On the dorsal aspect of both hands, but especially the right, there is an eruption of groups of elevations, having a superficial resemblance to warts, and varying in size from minute points up to 1 cm. in diameter. They have generally a pinkish colour, and the larger of them give a sense of fluctuation.

Microscopical examination shows that the eruption consists in an accumulation of leucocytes in the superficial layers of the true skin, forming in the extreme cases distinct abscess cavities, which, however, remain covered by almost unaffected epidermis. The portion of skin preserved is from the dorsum of the right hand, and shows larger and smaller elevations.

Catherine M. (aet. 24) died in a state of extreme emaciation, with deep bedsores, and the post-mortem revealed an old-standing phthisis pulmonalis, recent and old pericarditis, with dilatation of the heart, etc. *Path. Reports*, 2nd May, 1892, No. 2978.

VIII. 13. Epidermic Cast of Soles of Feet Desquamated after Scarlatina. (Dr. J. W. Nicol, Belvidere.)

The preparation represents the horny epidermis from the whole plantar aspect of one foot and of a great part of the other. The parts were separated on the 20th day after the onset of the illness.

VIII. 14. Epidermic Casts of Hand and Foot Desquamated after Scarlet Fever.

The cast from the hand shows the entire palmar aspect, a portion of the dorsal aspect, and the fingers almost completely; the palmar markings are strikingly visible. That from the foot presents the whole plantar aspect, part of the dorsal, and portions of the toes.

The casts were obtained by carefully bandaging the parts with cotton-wool till they separated.

VIII. 15. Scleroderma with Gangrene of the Fingers. (Dr. A. Patterson.)

There was marked hardness and thickening of the skin, particularly of the face, front and upper part of chest, fore-arms, and the legs up to the middle of the thighs. In both hands there was

dry gangrene affecting the fingers to the extent of the last two phalanges, and the thumb to that of the last phalanx; the gangrenous portions had a black colour as shown in the preparation. The toes in both feet were also gangrenous. The vessels have been injected with carmine and gelatine.

Path. Reports, 8th May, 1882, No. 814.

VIII. 16. Extreme Thickening of Pleura, and Condensation of Lung. (From preceding case.)

Both lungs were adherent by means of tissue of extreme density; the adhesion extending even to the periosteum of the ribs. In the portion of lung preserved there is a more localised thickening of the pleura, which extended over a quadrilateral surface. The pleura is about 6 mm. in thickness, and has an exceedingly dense structure of cartilaginous consistence; beneath this the lung tissue is occupied by a slaty grey condensation which gradually diminishes in passing inwards, being distinctly localised in the neighbourhood of the thickened pleura. The lung tissue generally, however, presented pretty frequent slaty indurations.

Path. Reports, 8th May, 1882, No. 814.

VIII. 17. Tuberculosis of Skin in the Form of Scrofuloderma Verrucosum. (Prof. Geo. Buchanan.)

The parts affected are the leg and foot. The appearances are in many respects suggestive of elephantiasis or leprosy. There are various ulcers, and also a thickening of the skin, which sometimes has a warty character.

Microscopic examination shows typical tubercles with giant-cells, especially in connection with the ulcers. The smoother elevations, on the other hand, show fewer tubercles but considerable thickening of the cutis. It is noteworthy that a specimen of tuberculosis of the skin resembles elephantiasis and leprosy, the causative agent in the three probably belonging to allied groups.

Rebecca J. (aged 31) was admitted to the hospital four years before the date of amputation of the leg, with lupus in the cheek and warty growths on the leg. The foot and ankle were much swollen, presenting a condition of hard oedema. During the four years which followed the condition became aggravated and pain developed. *Path. Reports*, 9th December, 1892, No. 3203.

VIII. 18. Tuberculosis of Skin in the Form of Scrofuloderma Verrucosum. (Prof. Geo. Buchanan.)

On the outer aspect of the foot there is a flat surface measuring 5 cm. by about 3 cm., in which the surface is raised in the form of numerous warty projections. In other parts also there are various alterations of the skin, partly raised and partly simply thickened. The heel is contorted by the removal of the os calcis. There were also tubercular sores over the knee and neighbouring parts.

Alex. M. (aged 18) had the os calcis removed for tuberculosis nine years before. The wound healed slowly, but the disease lingered in the part. *Path. Reports*, 5th September, 1894, No. 3855.

VIII. 19. Syphilitic Gumma of Leg. (Prof. Geo. Buchanan.)

The preparation forms the half of the tumour, which had the shape of a flattened sphere. The tumour was partially pedunculated, and in the preparation the subcutaneous fat appears on the inner surface. On the lateral aspects of the tumour the skin appears normal; but towards the summit it gradually gives place to granulation tissue. The section shows that the tumour is composed of a variously coloured, nearly homogeneous, tissue; and on microscopic examination little was to be found besides round cells, which presented a marked tendency to degeneration.

Path. Reports, 11th February, 1876, No. 70.

VIII. 20. Overgrown Toe Nails.

Two of these nails are preserved. They are about 3 cm. in length and curved upwards, one of them being spirally twisted. They are hard horn-like structures. *Path. Reports*, No. 1637.

VIII. 21. Large Mass Removed from Nose Composed of Hypertrophied Skin and Sebaceous Glands.

There are two attached masses, one measuring 6 by 4 by 3 cm., and the other nearly globular, measuring 2·3 cm. in diameter. The whole is covered with skin, except a raw surface on the larger mass measuring 4 by 2·5 cm. The surface presents numerous pits, and, especially on the smaller mass, occasional cicatricial surfaces.

Under the microscope there are numerous and large sebaceous

glands in a somewhat cellular cutis. The glands contain many acari folliculorum.

Alex. B. (aged 80) stated that the condition began with acne eighteen years before the removal of the parts.

Path. Reports, 6th July, 1896, No. 4699.

VIII. 22. Pigmented and Hairy Surface from Wall of Abdomen and Soft Wart.

There was a rounded area measuring 2·5 cm. on the anterior wall of abdomen beneath the umbilicus. There is no projection, and section shows that the cutis vera is unaffected, there being merely an excess of epidermal pigments. Long silky hairs project from the surface.

A soft pedunculated wart, 13 mm. in diameter, is also preserved. It was situated over the middle cervical region in the same patient. There was also a smaller wart over the scapula.

Wm. L. (aged 54), a miner.

Path. Reports, 16th August, 1894, No. 3828.

VIII. 23. Molluscum Contagiosum in a Scar. (Sir Hector C. Cameron.)

An oval piece of tissue divided in two, across the middle of which stretches a slightly puckered cicatrix 5 cm. in length. The cicatrix stands out above the general level as if infiltrated, and at one end there is a diffuse swelling with some appearance of yellow material. Beneath the cicatrix there is one isolated mushroom-shaped body of minute size. The section shows a well-defined structure impinging on the true skin and about 3 mm. in diameter, and this microscopically has typically the characters of molluscum contagiosum, viz., a lobulated mass with layers of typical epithelium externally, this becoming replaced by the regular swollen bodies of molluscum, but without much of the fully developed glancing character in these bodies.

A child nine months old had a tumour removed from the left side of the thorax in the posterior axillary line. The tumour was called a lipoma or a fatty naevus. The cicatrix after a time showed signs of irritation, and pustules appeared in it. There was also infiltration around it. The parts were removed under the impression that this might be the recurrence of a sarcoma, and the diagnosis of molluscum was much of a surprise.

VIII. 24. Multiple Fibromata of Skin. (Sir G. H. B. Macleod.)

The preparation is a transverse section through skin and tumour of one of a large number of similar growths. These were present in every region of the body and limbs, and were evidently seated in the skin or under it. Some of them made a very slight projection, others projected considerably, but none were distinctly pedunculated. In the preparation, the tumour is intimately connected with the deep surface of the skin, which is partially thinned over its surface; and although it projects into the subcutaneous tissue, it is not incorporated with the latter. The tumour presented the structure of soft connective tissue.

Path. Reports, 23rd November, 1881, No. 733.

VIII. 25. Molluscum of Hand. (Dr. A. Patterson.)

The tumour forms an exceedingly bulky nodulated mass, whose chief prominence is over the distal parts of the metacarpal bones, but which involves the whole dorsum. The nodulated appearance is due to numerous rounded prominences of very various sizes. Over the tumour the skin is involved; but outside the main mass of it there are several isolated rounded projections, surrounded by normal skin. A few isolated tumours exist under the skin of the arm, the highest being in the internal aspect of the upper arm, just above the elbow. On dividing the tumour longitudinally its tissue is found to be tough and dense and fibrous. The skin is thoroughly incorporated with the tumour.

On microscopical examination stiff interlacing fibres are found alternating with masses of cells, the latter showing an intimate relation with the fibres. The cells themselves are rounded or spindle-shaped and of small size.

The disease began eighteen months before the date of amputation with a swelling over the knuckle of the middle finger. This slowly increased for months, but latterly severe pain occurred and a rapid increase. *Path. Reports*, 12th June, 1878, No. 340.

VIII. 26. Molluscum of Foot. Amputation. (Prof. Geo. Buchanan.)

There is great thickening of the skin of the foot, but not a general thickening, the disease being localised as follows: The dorsal aspects

of the foot and great toe are most obviously affected. The great toe forms a massive bulbous lobulated protuberance, the surface being very irregular, often with a papillary appearance. The skin of the dorsum is not so prominent, and there is here an occasional cicatrix. The inner aspects of the foot and ankle are greatly affected, and a band of affected skin, about 5 cm. wide, passes across the sole about its middle. Otherwise the skin of the sole as well as that of the four lesser toes is perfectly normal. The disease also extends above the ankle, but here it is frequently in the form of larger and smaller projections, occurring in groups or singly. These rounded projections are most distinct on the inner aspect of the ankle, there being considerable cicatrisation on the outer aspect. This appearance of rounded projections is also visible to a certain extent in the parts already described, although there the prominences are continuous. The prominences are frequently dimpled at their summits, and there is in some even a deep depression approaching occasionally to actual ulceration.

Under the microscope the more recent projections are found to consist—(1) of true skin in a condition of inflammatory hyperplasia, there being multitudes of round cells and spindle cells with newly formed connective tissue; (2) of hypertrophied epidermis which is sometimes of considerable thickness; and (3) of sebaceous glands which appear to play an important part here. The dimpling at the summits and the larger depressions are connected with these glands, being, in fact, altered sebaceous glands, sometimes containing fatty matter and epidermic débris.

The patient was a girl aged 16. The disease is stated to have been of eight years' duration, and appears to have existed partially in the leg, on which there were cicatrices. Amputation was performed on 20th December, 1879. Secondary haemorrhage occurred repeatedly, and patient died on 31st December.

VIII. 27. Two Photographs of Molluscum Fibrosum. (Dr. H. E. Jones.)

The face and trunk are beset with projecting tumours of various sizes, the largest being on the anterior surface of the abdomen. This one hangs down, and is of about the size of the fist. There are also tumours on the legs, but though numerous they are much less so than on the trunk and face. The tumours are described by Dr. Jones as soft to the touch.

The case was seen in the leper hospital, Calcutta, in November, 1893, where the man had been for twenty-four years. Francis Dovis, 84 years of age, a native, Roman Catholic, married, has had three children, who are dead, but had no similar disease. No relatives were so affected. He suffers no pain, and the general health is good. The disease is said to be of 44 years' standing.

VIII. 28. Massive Cutaneous Outgrowth (Soft Fibroma) of Scalp. (Prof. Geo. Buchanan.)

The mass as removed by operation has a roughly oval outline measuring 8 cm. by 15 cm. It presents a markedly lobulated or convoluted surface, suggestive of the cerebral surface. The lobulation is so marked as almost to isolate quadrangular portions of the growth. The growth is of firm fleshy consistence, and the surface is pale. It is beset with long black or grey coarse hairs at intervals, but the hairs are much less frequent than on the normal scalp. The basal or attached surface measures only 8 cm., so that the growth overhangs its base and was in its posterior parts especially pendulous. The projection from the surface is in general over 3 cm.

The microscopical examination shows a somewhat cellular connective tissue as the main element of the growth. There are well-developed hair follicles and sebaceous glands. In the superficial parts of the cutis vera there are occasional collections of cells with brown pigment. These are mostly round but occasionally stellate or elongated. The cells are sometimes in defined groups and have somewhat the aspect of epithelial cells, but always with connective tissue fibrillae running amongst them. The pigment cells are connected with these groups.

Mrs. R. (aged 38) stated that the tumour was present at birth, being then of the size of a walnut. It only began to increase after her first parturition at the age of 20, and she believed that its growth was more rapid after succeeding pregnancies. The tumour was situated at the posterior part of the left parietal region and overhung the neck. *Path. Reports*, 15th May, 1896, No. 4613.

VIII. 29. Soft Fibroma of Subcutaneous Tissue of Leg. (Dr. A. Patterson.)

There is visible externally a considerable swelling of the calf of the leg, the skin over it being somewhat rough and folded. On

section, an elongated tumour is visible, measuring about 18 cm. from above downwards, and lying between the skin and the underlying muscles. On the surface, the skin and a layer of fat can be seen, but the fat, although forming a distinct layer, is somewhat indefinitely demarcated deeply and is succeeded by the tumour tissue. This is of a whitish colour and somewhat soft consistence, considerably softer than tendon and almost like moderately firm fat. It shows also on section an indication of lobulation, like fat. It does not involve the muscle unless it be very slightly at the upper extremity, and it is separated from the bones by the whole thickness of the muscles of the calf.

Under the microscope the tumour is found to consist of soft fibrous tissue, with a considerable amount of adipose tissue. The fibrous tissue shows the usual wavy bundles, and it is more cellular than normal, there being a good many round cells as well as spindle cells. Here and there centres are met with in which the cells are specially abundant. The number of cells does not approach to that of a sarcoma. The adipose tissue is often in clusters of well-formed fat cells, but sometimes these are isolated by the growth of fibrous tissue between them.

VIII. 30. Lipoma from Subcutaneous Tissue in Lumbar Region. (Sir Hector C. Cameron.)

The tumour weighs 100 grms. and measures 14 by 7 cm. It is irregularly oval in shape and flattened; its edges are markedly lobulated, and one of the lobules projects downwards alongside the main mass for a distance of 4·5 cm.

Agnes H. (aet. 32) first noticed the tumour nine years before the operation. It was situated in the subcutaneous tissue on the right side between last rib and crest of ileum. At the operation the tumour was easily enucleated.

Path. Reports, 28th July, 1894, No. 3807.

VIII. 31. Lipoma of Shoulder. (Sir Hector C. Cameron.)

The preparation is a lobulated mass of fat, 11 cm. in longest diameter. It is smooth on the surface as if it had shelled out from a capsule.

Mrs. F. (aged 29) first noticed a swelling over the right shoulder seventeen years before operation. It never caused her any uneasiness till six weeks ago, when she began to experience sensations

of weakness with swelling in the arm and hand. It was situated over the outer two-thirds of the clavicle, partly overlapping the pectoralis major. It was not adherent to the skin, and it was freely movable on the subjacent parts.

Path. Reports, 12th May, 1892, No. 2994.

VIII. 32. Fatty Tumour. (Prof. Geo. Buchanan.)

VIII. 33. Fatty Tumour.

An oval tumour, about 9 cm. in long diameter. It is finely lobulated, the lobules varying in size up to 1 cm. in diameter. It presents a distinct capsule on the surface. Under the microscope it is seen to be composed of adipose tissue.

Path. Reports, 5th July, 1881, No. 688.

VIII. 34. Pendulous Fatty Tumour. (Dr. A. Patterson.)

A large pendulous pyriform tumour, 11 cm. in length by about 7·5 cm. in breadth, attached by a narrow neck about 3 cm. in diameter. The tumour is covered by delicate skin, and is composed of adipose tissue, with a considerable amount of connective tissue.

Path. Reports, 25th February, 1880, No. 528.

VIII. 35. Pendulous Fatty Tumour.

A tumour having very much the same characters as the preceding one, except that, although generally pyriform, it presents a number of smaller rounded prominences, surrounding which there are occasionally deep fissures. This tumour has been divided longitudinally, and it is seen that, while mainly composed of fat, it shows, especially in the superficial parts, considerable induration caused by the new formation of dense connective tissue.

VIII. 36. Large Subcutaneous Lipoma with Typical Lobulation. (Dr. Jas. H. Nicoll.)

The lobulation displayed was brought out by dissection after removal of the tumour. The tumour is a somewhat flat structure, measuring in general 16·5 by 14·5 cm.

Mary M'D. (aged 34) was affected with the tumour for several years. It was situated in the posterior axillary line over the ribs, extending from about the sixth to the tenth rib. No very clear margin was detectable, and the tumour was so soft as to give almost a fluctuant feeling.

Path. Reports, 7th September, 1894, No. 3859.

VIII. 37. Lipoma of Thigh which Resembled a Sarcoma in its History. (Dr. Beatson.)

The tumour, of which half is preserved, was a large oval mass of homogeneous structure, and without lobulation. It consists of ordinary adipose tissue. In the central parts there is a well-demarcated necrosed portion about 6 cm. in length which is partly infiltrated with blood.

Walter D. (aged 64) only noticed a swelling in the upper and posterior part of the thigh about six months before the operation. During the last two months it had grown rapidly. It felt soft to the touch. In view of its alleged rapid growth and its general characters, the tumour was regarded as a sarcoma. At the operation it was found to be encapsuled and was readily removed.

For full account see *Glas. Med. Jour.*, October, 1891.

Path. Reports, 23rd September, 1891, No. 2760.

VIII. 38. Vascular Naevus from an Infant. (Sir Hector C. Cameron.)

The tumour is a flat elevation of the skin of an ovoid form measuring 5 by 3·5 cm. It has an abrupt edge with a sudden elevation to the extent of 7 mm. There is a thin covering of epidermis in the fresh state. A purplish colour was transmitted through this. The cut surface shows a somewhat substantial tissue from 8 to 10 mm. in thickness, which impinges on and to a considerable extent infiltrates the subcutaneous fat, which beneath the tumour is visibly replaced by more solid tissue.

Under the microscope the tissue is found to consist of vessels which are remarkable from the cellular character of their walls, so that they frequently resemble gland-ducts. The vessels are everywhere very abundant, but in some places are aggregated into masses which are so cellular as to resemble sarcomatous tissue.

The infiltration of the subcutaneous fat is very striking, and the appearances show that apparently single vessels first develop by penetration, and that these multiply so as to encroach upon and replace the adipose tissue.

Jeannie S. (aged 10 months) was affected with a naevus which had undergone marked increase since birth. It was situated on the right side of the trunk near the costal margin about 5 cm. below the nipple. It is described as of about the size of a hen's egg and as projecting 2 cm. above the skin level. It was removed along with an edge of skin.

Path. Reports, 29th October, 1894, No. 4370.

VIII. 39. Angioma from Bend of Elbow. (Dr. Robert Kennedy.)

The preparation, which was excised as shown, has been injected with paraffin with indigo in suspension. It has the aspect of a congeries of dilated veins and measures about 4·5 cm. It is single above and bifid below. The surface has been cut in one region, and the cut surface shows not proper veins but larger and smaller spaces, which in the case of the smaller ones have a distinctly cavernous appearance. Microscopically there were connective-tissue trabeculae lined with a single layer of squamous cells. The tumour was fed by several fine arteries, and it had no apparent connection with the superficial veins.

John K. (aged 17) first noticed a small swelling at the bend of the left elbow five years before operation. It gradually enlarged, but gave no trouble till two months before operation, when he received a blow over it. This was followed by increasing weakness of the arm, and the swelling increased in size and became tender. The skin over the swelling was quite natural. Its consistence was rather softer than that of a lipoma, but without fluctuation, and there was no pulsation.

See *Glas. Med. Jour.*, XLIX., p. 128.

VIII. 40. Congenital Cyst of Neck. (Dr. Renton.)

It is a thin-walled cyst of about the size of a turkey's egg. In general the wall is almost like tissue-paper, but there is a somewhat thicker portion extended over a considerable part of the wall, as well as two smaller areas of a similar appearance. The

contents were a thick yellow fluid, which presented microscopically large epithelial cells containing fat granules and much fatty débris.

Daniel Y. (aet. 32), a surfaceman, had always had a lump in his neck, but recently it had been increasing in size. He suffered no pain nor discomfort of any sort from it. It lay quite superficially in the upper portion of the right anterior triangle of the neck in front of the sterno-mastoid.

Path. Reports, 18th July, 1894, No. 3796.

VIII. 41. Congenital Cystic Tumour of Scalp. (Sir G. H. B. Macleod.)

The tumour, which is now collapsed, was of the size of a pigeon's egg, and consists of loose-walled cysts, which contained a clear fluid. It was removed from a child six months old, its situation being above and to the outside of the right eye, part of it occupying the eyelid. *Path. Reports*, 18th November, 1875, No. 43.

VIII. 42. Hygroma of Neck.

The preparation is a thin-walled cyst consisting of one cavity of a diameter of 10 cm. The wall is everywhere thin, but in some places almost as thin as tissue-paper. The internal surface presents innumerable bands and bridges. These sometimes form partial septa, as if the cyst might have been at one time multilocular. At one place these are specially abundant, and there is something like a cavernous tissue produced. At this part the cyst seems to have been specially attached, and there is a projection of tissue forming a kind of pedicle.

Margaret M. (aged 50) noticed the tumour for five years before its removal. It was pendulous over the inner end of the clavicle on the left side. It was easily dissected out, and had a narrow pedicle on the deep surface.

Path. Reports, 19th September, 1891, No. 2758.

VIII. 43. Mushroom-shaped Adenoma of Skin. (Dr. Patterson.)

The specimen presents half of the tumour, which has a greenish colour from hardening in bichromate. The tumour measured 3·3 by 2 cm. and projected 1·5 cm. from the surface. It has a broad base, and a rounded, well-defined edge overhangs this somewhat.

In the fresh state it was strikingly pale in colour, as seen on section, and was covered by a pearly white, thin epidermic layer. The consistence of the tumour was almost like that of fine jelly, and the cut surface suggested the appearance of a gland, there being opaque areas surrounded by rather translucent areas. The tumour is well defined, and at its interior border is encapsuled, showing no infiltrating tendency.

Under the microscope the tissue consists essentially of somewhat bulky glandular masses which have peripherally a continuous layer of cylindrical cells closely set on a basement membrane. In the midst of these glandular masses a clear secretion frequently appears. At the edge of the growth an elongated duct is observed which expands further down into proper tumour tissue. This and the general structure suggest a sebaceous origin.

Louisa M. (aged 45) first noticed a little projection just below the knee about eighteen months before operation. She noticed no difference for six months. Growth has been gradual for the last year. *Path. Reports*, 31st March, 1897, No. 5004.

VIII. 44. Atheromatous Cyst or Wen from the Hairy Scalp.

A small rounded tumour is exposed by cutting through the skin, of which it has formed a rounded elevation. The tumour has a thick, dense connective tissue wall, and soft yellowish atheromatous contents.

VIII. 45. Atheromatous Cyst or Wen, from Scalp. (Sir Hector C. Cameron.)

The specimen has been divided, and one half emptied of its contents. It is seen to consist of a thin membrane, which, under the microscope, shows a very thin external connective-tissue layer, with a comparatively thin, stratified layer of epidermis, having the characters of the malpighian layer of the skin. This is succeeded by a horny layer which at first is comparatively compact, forming part of the cyst wall, but internally becomes disintegrated and merged in the contents. The cavity of this cyst is filled with crumbling masses of epidermis.

Frank M'G., aged 62. This is the second wen removed, the first five years before, from the temporal region, and this from the right

occipital. The latter had been of many years' duration. In removing it an incision was made in the scalp, exposing the lump, which readily shot out, requiring almost no dissection. It seemed to be in the subcutaneous areolar tissue.

Path. Reports, 13th September, 1892, No 3116.

VIII. 46. Atheromatous Cyst of Scalp. (Sir Hector C. Cameron.)

The tumour is shown in section with a portion of skin. It is generally oval in shape with a diameter of 4 cm. It consists of a thin sac lined with stratified epithelium, and it contains a somewhat fatty substance, which, towards the surface, shows some brown pigmentation. This fatty substance is found microscopically to show numerous squamous cells arranged in a reticulated network.

Cornelius B., aged 63. The wen was situated at the nape of the neck and was of three years' duration. There was also a myxosarcoma of the parotid of six years' duration removed at the same time. *Path. Reports*, 30th June, 1896, No. 4691.

VIII. 47. Dermoid Cyst from Root of Neck in Front. (Prof. Geo. Buchanan.)

The cyst, which is generally oval in shape and measures 2 cm. in length, has been turned outside in. It is in part thin walled and smooth, but at one end there is a distinct skin surface measuring 14 by 11 mm. Long hairs protrude from this surface, and these are mostly white. There are also hairs sticking to the walls of the cyst.

Rose S. (aged 25) began to experience a sensation as of something in her throat, which she was continually trying to swallow, about $2\frac{1}{2}$ months before the operation. The tumour was found in the middle line lying in the suprasternal notch. It was fluctuant and non-adherent to the skin or underlying tissues.

Path. Reports, June, 1895, No. 4199.

VIII. 48. Cutaneous Horn from Cheek. (Dr. A. W. Russell.)

This consists of a pyramidal protuberance measuring 1·5 cm. in length and 6 mm. transversely. It is almost black on the surface but yellow inside. The section shows on a soft basis longitudinally arranged collections of horny epithelium. The surface shows

closely-set transverse striations which are more marked than the longitudinal ones.

Under the microscope the mass is seen to be composed of horny epithelium, mostly compacted so that the individual cells are indistinguishable, although their nuclei still retain slightly their differential staining. There are also longitudinal clefts containing loose epithelium. Most of these spaces contain one or more delicate hairs devoid of pigment.

VIII. 49. Photograph of Cutaneous Horn on Cheek. (See preceding specimen.)

VIII. 50. Cutaneous Horn with Epitheliomatous Base. (Prof. Geo. Buchanan.)

The specimen, half of which is preserved, was nearly circular in form, and measured from 4 to 4·5 cm. in diameter. It is in the form of a raised margin of skin constituting the base, on which rises a brownish conical horn. The base has an elevation of about 1 cm., and the horny part of from 3 to 3·5 cm. The basal part on section shows a white, somewhat crumbling tissue, which in the central parts extends higher than at the periphery. The horny part, on the other hand, is dense, and presents a stratification perpendicular to the surface, but with occasional red streaks.

Under the microscope the horny portion presents cylinders of regular horny epidermis, the cells, however, retaining their nuclei to a considerable extent. The basal parts are composed of flat-celled epithelium, which in the deeper portions has the penetrating characters of the epithelioma, laminated capsules being occasionally present.

William R. (aged 60), a miner, noticed about fifteen months before a thing like a "wart" on the back of the left hand. This was excised three months afterwards. [Since then it has gradually grown to its present size.] There has never been any ulceration. It occupied the middle of the dorsum of the left hand. It was painful and hard, except for a soft area at the base, which was red and painful on manipulation. This soft basal portion had only appeared during the last three months. It required slight dissection to remove the growth from the extensor tendons.

Path. Reports, 18th February, 1896, No. 4487.

VIII. 51. Epidermic Tumour of Subcutaneous Tissue.

The tumour is a rounded mass, measuring about 2·2 cm. in diameter, and projecting from the cutaneous surface for a distance of 7 mm. The skin is carried over it for the most part, but is thinned, and at the surface is interrupted at places. The tumour tissue here and in the central parts is dense, horny epidermis, which is partly arranged in masses passing deeply at the periphery. The horny epidermis is covered by a softer layer, which microscopic examination shows to be well-preserved, flat epidermis. The tumour pushes against the subcutaneous fat, but has a perfectly defined border, and does not infiltrate in a malignant fashion, producing its effects merely by pressure. The tumour was removed from the leg of a patient on whom it had been growing for six years.

Path. Reports, 5th July, 1895, No. 4225.

VIII. 52. Soft Wart from Groin.

The outgrowth has the form of a flattened hemisphere, with a diameter of 2 cm. and an elevation of 1·5 cm. It has a lobulated surface. Microscopic examination shows a layer of epidermis not generally thicker than that of the normal skin, but between the lobules projecting somewhat inwards. The main mass of the tumour is highly cellular, and in many places assumes the characters of a spindle-celled tissue, the cellular masses being sometimes aggregated so as to suggest the name alveolar sarcoma.

No history is known.

VIII. 53. Soft Wart of Pinna of Ear.

In the upper part of the pinna, corresponding generally with the bifurcation of the anti-helix, there is a flattened rounded tumour measuring 2 cm. in diameter. It overhangs its base considerably. The microscopical examination shows that the tumour is entirely subcutaneous, there being a substantial cutis with normal epidermis over it. The tumour is highly cellular, most of the cells being spindle-shaped, and with a marked tendency towards an alveolar arrangement.

Alex. M'I. (aet. 70) died from fracture of the skull. The tumour of the ear was well known as a distinguishing mark, and had probably existed for many years.

Path. Reports, 10th January, 1896, No. 4440.

VIII. 54. Sarcoma of Scalp. (Prof. Geo. Buchanan.)

The tumour is of about the size of a small apple, and of an irregularly oval shape. It has partly overhung its base. The cut surface formed in its removal consists at its periphery of skin and fat, with a loose membrane (probably pericranium) in the central parts, the tumour being entirely superficial to this. The tumour is generally covered by thinned skin, but at its summit there is an irregular prominence devoid of skin and partly fungating. On section the tumour shows a general red or brown tissue, with whitish bands and areas. The red parts are due to interstitial haemorrhage. The white structure presents a network of thick fibres, with cells in its meshes. The loculi so formed are not like the alveoli of cancers, being less definite, and there are masses of cells also without alveoli.

The tumour was removed from the front of the scalp of a woman aged 55. It had been present for about 20 years, and then more rapid growth having set in, it attained its present size in about four years. *Path. Reports*, 9th October, 1882, No. 857.

VIII. 55. Pigmented Sarcoma of Scalp. (Sir Hector C. Cameron.)

The tumour, of which about a third is preserved, was composed of a flattened disc-shaped mass 6 by 6·5 cm. in diameter and 2 cm. in thickness. It was of firm consistence, and on its upper or convex surface presents a distinct capsule. On section the tissue is seen to be of a generally grey colour marbled with a deep brown. There is an isolated portion near the lower border entirely free of pigment. Microscopically the structure is that of the spindle-celled sarcoma, with a very slight interstitial basis. The pigment-holding cells are somewhat irregular in form.

Peter G. (aged 17) was affected with a tumour of the scalp adherent to the skull. Its occurrence was traced to a fall on the head 10 months before operation. He was affected with vomiting, paresis, and other head symptoms. The tumour was found adherent to the skull, and communicating with the cavity of the cranium by a small aperture.

Path. Reports, 5th January, 1897, No. 5285.

VIII. 56. Pigmented Sarcoma of Cheek which originated in a Mole. (Sir Hector C. Cameron.)

The tumour is a lobulated and projecting one which measures about 3 cm. in diameter. There is a thin glossy covering of epidermis, through which a certain pigmentation is visible. On section it is seen that the main mass of the tumour is but slightly pigmented, whilst partially separate from it and lying deeply there is an almost coal-black nodule measuring about 5 mm. in diameter. The skin around, which was removed along with the tumour, shows deeply pigmented patches of a bluish-black colour. On section the pigmentation in these patches seems limited to the epidermis.

Microscopic examination shows the tumour to be composed essentially of spindle-shaped cells. The pigment is in the form of brown granules in the protoplasm, and it is present in almost all the cells of the deeply-coloured portion, but only occasionally in the other. In the less pigmented portion the tissue is largely infiltrated with leucocytes.

The tumour was removed from a patient aged 63. A pigmented mole on the left cheek was the starting-point, and during the past 10 years it had been repeatedly "cut" in the country. There was widespread pigmentation around.

Path. Reports, 12th July, 1893, No. 3394.

VIII. 57. Sarcoma of Neck. (Sir Hector C. Cameron.)

The tumour in size and shape resembles a small hen's egg. On one part is seen an elliptical piece of skin, and near this the only portion of the growth which does not seem definitely encapsuled. Microscopically it was found to be composed of a mass of small round cells with little or no stroma. In some parts there appeared a tendency for the round cells to become spindle-shaped.

The patient was a boy (aet. 16), and the tumour had been growing for two years. It was situated rather to the left of the middle line of the neck, extending from just below the thyroid cartilage to the episternal notch. It was freely movable beneath the skin and upon the deep-lying structures.

Path. Reports, 4th August, 1885, No. 1421.

VIII. 58. Spindle-celled Sarcoma from Neck. (Prof. Geo. Buchanan.)

The specimen is a somewhat oval tumour weighing about two ounces; it was removed from the neck below the angle of the jaw. On being removed the tumour was fleshy-looking and soft, without any defined capsule, and was coarsely fibrous in structure. On microscopic examination it was found to be a spindle-celled sarcoma.

Path. Reports, 20th July, 1881, No. 698.

VIII. 59. Spindle-celled Sarcoma from the Back of an Infant. (Dr. A. Patterson.)

The tumour is of a flattened oval form, measuring $10 \times 7{\cdot}5$ cm. and 3 cm. in thickness. It has a somewhat lobulated form, and is surrounded by a rather indefinite capsule. The tissue is of a grey colour, and under the microscope presents spindle-shaped cells of moderate size, the oval nuclei of which are large in proportion to the size of the cells.

The case was that of T. J. (aged 7 months), from whom the tumour was removed by Dr. Patterson. Three months before, the mother of the child first noticed a small tumour of the size of a bean, situated in the upper dorsal region, in the middle line. Growth was at first slow, but latterly very rapid. Before removal it was freely movable and painless. *Path. Reports*, 17th December, 1879, No. 404.

VIII. 60. Spindle-celled Sarcomata of Shoulder, with Recurrence. (Prof. Geo. Buchanan.)

There are here three tumours, a large one and two smaller. The larger one is of a flattened circular shape, and measures 9 cm. in diameter. It was removed from the shoulder of a lady, from whom a tumour in the same situation had been removed 18 years before. On microscopical examination the tissue was found to consist of large spindle cells with oval nuclei, the cells being somewhat loosely connected.

The other two tumours were removed from the same person two years subsequently, one of them being from the anterior fold of the axilla, and the other from the front of the shoulder. Both were very soft and presented areas of haemorrhage. The tissue here also is composed of spindle-cells.

Path. Reports, 12th September, 1876; 22nd October, 1878, Nos. 132 and 381.

VIII. 61. Spindle-celled Sarcoma of Skin from Axillary Region. (Dr. Macartney.

The preparation consists of a diamond-shaped piece of skin, in the midst of which there is a group of rounded prominent tumours, which are partly coalesced. The originally rounded masses measure from 1 to 2·5 cm. They are completely covered with epidermis, except the largest and most prominent one, in which the tumour tissue is partly exposed. There is another tumour mass not visible at the surface, but displayed on section behind, which measures about 3·5 cm.

Under the microscope the tissue is seen to consist of well-formed spindle-cells of considerable size arranged in bundles. The intercellular substance is scanty, but there are many thin-walled vessels.

John M. (aged 20) first noticed a small lump like a bean about nine months before operation. It grew steadily but rather rapidly, and was painless. It was freely movable with the skin over the deeper tissues. *Path. Reports*, 10th September, 1892, No. 3111.

VIII. 62. Round-celled Sarcoma of Skin of Forearm, with Ulceration. (Dr. A. Patterson.)

A somewhat prominent tumour, consisting of a raised marginal part and depressed central ulcer, giving the whole structure somewhat of a crater shape. The entire diameter of the tumour is about 7·5 cm. The prominent marginal part shades gradually into the skin, which in the preparation is preserved around it. In the fresh state the tumour was found, on section, to present a homogeneous grey medullary appearance. Under the microscope the tissue was seen to be composed essentially of round cells of about the size of leucocytes.

The tumour was removed from a man aged 32. It began four months before as a small boil, which was burst by a fall on the part. Ulceration then began, and spread till a more or less circular ulcer was formed, with prominent margins. The skin for a considerable distance around was red, and there was considerable pain in the tumour. *Path. Reports*, 6th February, 1882, No. 769.

VIII. 63. Sarcoma of Thigh. Recurrence in Skin. (Sir Hector C. Cameron.)

The preparation is a nearly circular piece of skin measuring about 14 cm. in diameter. It is largely beset by rounded projections of

various sizes. They are mostly covered with smooth epidermis, but there is one group where the epidermic covering seems lost. The tumours involve somewhat the subcutaneous tissue, but do not appear to penetrate beyond the adipose tissue. Microscopical examination shows a highly vascular spindle-celled tissue with a considerable amount of fibrous interstitial substance.

John G. (aged 41) had a tumour removed from the upper and inner aspect of the thigh 19 years before the present operation. Recurrence took place two years later slowly, but increased more rapidly of late. *Path. Reports*, 29th June, 1895, No. 4220.

VIII. 64. Spindle-celled Sarcoma of the Skin of the Leg, Originating in a Soft Wart. (Dr. Borland, Kilmarnock.)

The tumour is very prominent, having the form of a truncated cylinder about 4 cm. in diameter, and projecting nearly 2·5 cm. from the general surface. On its lateral aspects it is covered with skin, but its summit is occupied by a dark brown material.

On section, the superficial parts are found to be occupied by blood clot variously altered. Deeply, there is a grey, softish tissue, which occupies about half the bulk of the projection. Under the microscope this grey tissue is found to consist of spindle cells.

Mrs. C. (aged 52) had a soft wart for 30 years on the left leg, inside and below the knee. Six years ago, when her menses ceased, it began to increase in size, and became rounded, red, and like a cherry, but larger. It was covered by a thin skin. About six weeks ago, when about two-thirds of its present size, it broke, and a watery fluid exuded. A clot gradually formed on the surface, bringing it up to its present size, but she never lost any blood by it.

Path. Reports, 10th February, 1879, No. 424.

VIII. 65. Spindle-celled Sarcoma of Subcutaneous Tissue of Calf of Leg. (Sir Hector C. Cameron.)

The preparation shows a bulky tumour projecting from the surface of the skin to the extent of 3 cm., and measuring about 8 cm. in diameter. It extends down through the subcutaneous fat close to the aponeurosis of the muscle, to which it was adherent. The altered skin covers the ascending part of the projection, but is

awanting at the summit, where there is a hard crust formed partly of altered blood.

Microscopical examination shows typical spindle-celled structure, especially at the advancing borders where spindle cells are insinuated between the cells of the adipose tissue. In the older parts there is sometimes a more fibrous development.

Mary L. (aged 45) had noticed a small nodule in the subcutaneous tissue of the calf for seven or eight years. Six months before operation there was a rapid increase in size, with great pain. About two weeks before operation it burst through the skin, and there was severe haemorrhage. For this perchloride of iron was used, and partly accounts for the crust.

Path. Reports, 10th June, 1897, No. 5089.

VIII. 66. Pigmented Sarcoma of Great Toe. (Sir Hector C. Cameron.)

A bulky tumour occupies the distal end of the great toe, completely replacing skin and nail on the dorsal surface of the distal phalanx for nearly its entire length, and extending on the plantar aspect for about half the length of this phalanx. On section the tumour is seen to replace the soft parts in the regions involved, but it stops short at the bone, from which its tissue has somewhat the appearance as if it radiated. The tumour presents in some parts a deep brown or black colour, but in other parts is considerably paler or even white. Under the microscope the tissue is found to be mainly spindle-cells, with other variously shaped cells. In the pigmented parts the shapes and sizes of the cells vary much, there being round, spindle-shaped, and even giant-cells. The pigment is contained in the cells.

Path. Reports, 19th April, 1882, No. 806.

VIII. 67. Melanotic Sarcoma of Great Toe. (Sir Hector C. Cameron.)

The ungual region is occupied by a prominent tumour mass having a nearly circular shape and a diameter of 2·7 cm. The nail is almost entirely replaced, but on the inner aspect there is a piece of loosened nail 2·5 cm. in length. The margins of the tumour are abruptly raised, and the epidermis is continued a short distance from the edge, but soon gives place to an irregular tumour tissue, which is markedly pigmented. A section perpendicular to the

surface shows a certain penetration downwards of the tumour, which at its thickest measures 7 mm. There is, as usual in melanotic tumours, a marked irregularity in the pigmentation as seen in section.

Microscopical examination shows the tumour to be essentially spindle-celled. The pigment is contained in cells which in general are considerably larger than the general cells of the tumour. The epidermis shows no special activity and no connection with the tumour tissue. It is noticed that isolated pigmented cells of irregular form are present in the epidermis near the edge of the tumour. *Path. Reports*, 30th June, 1894, No. 3774.

VIII. 68. Fasciculated Spindle-celled Sarcoma of Foot.
(Sir Hector C. Cameron.)

The specimen is the anterior part of the left foot. From the outer aspect of the little toe there projects a somewhat bulky tumour along the whole length of the toe. It extends round to the plantar aspect as a flat tumour and thence to the sole of the foot, reaching nearly to the base of the great toe. This plantar extension consists of a nearly circular portion measuring about 5·5 cm. in diameter, to which is added at its proximal edge a smaller oval extension measuring 3 cm. in long diameter. The tumour has everywhere an abrupt margin, and the epidermis extends slightly beyond the top of the rise, where it gives place to a smooth, grey, homogeneous tissue, having nothing suggestive of the warty character.

Microscopically the tissue consists of interlacing bundles of spindle-cells, so as to present a somewhat alveolar appearance, which sometimes closely resembles that of cancer. The sarcomatous character is determined by the fact that the walls of the alveoli have apparently similar structure to the contents, and that, as seen in sections stained by Biondi's method, fine fibrillae frequently exist between the cells.

A man (aged 45) dates the first trouble in the foot five years back, when a blister appeared on the sole from wearing an ill-fitting boot. A distinct round ulcer of the size of a shilling ultimately formed, and continued enlarging slowly for over a year after that time. It nearly healed, but soon afterwards broke out again. After this he had an attack of erysipelas, and subsequently two other attacks during the next three years. In this period the lesion seems to have been nearly stationary. When first seen by Dr.

Mercer, of Manchester, it had the aspect of a perforating ulcer, but there was no ataxy. The condition ultimately extended, as shown in preparation, and amputation was performed.

According to Dr. Mercer, the first appearances of malignant action were probably about six months before amputation. Writing a year after the operation, Dr. Mercer states that the patient is sinking. The stump is perfectly sound, but there is a large tumour in the groin which began about three months after the amputation, and there are also tumours in the abdomen. *Path. Reports*, No. 3979.

VIII. 69. Multiple Melanotic Sarcomata—Primary Tumour.

(Dr. G. P. Tennent.) (See also next four preparations.)

An oval piece of skin is hung highest in the preparation, and this is believed to contain the primary tumour. It consists of a circular pigmented spot, 2 cm. in diameter, and was situated on the posterior aspect of the right forearm. It is scarcely at all raised above the surface, and the central parts have a cicatricial appearance, being nearly free from pigment. According to the statement of patient during life, this spot had existed for years, and was present long before any of the secondary tumours.

VIII. 70. Multiple Melanotic Sarcomata. Tumours in Subcutaneous Tissue and Brain.

Here are shown three black tumours in section, their seat being the subcutaneous tissue. The lowest of the three was excised during life. Besides these subcutaneous tumours there were very many others in different parts of the face, neck, body, and limbs. Some of these were very large, one particularly on the right side of the neck projecting very prominently.

Beneath the subcutaneous tumours are hung four small pieces of the brain, in each of which is shown a small black tumour. These were all in the superficial parts of the convolutions, except one which occupied the surface of the caudate nucleus of the corpus striatum.

VIII. 71. Multiple Melanotic Sarcomata. Tumours in Pharynx, Larynx, and under Skin.

The posterior wall of the pharynx shows a massive brown tumour, which projects towards the base of the tongue, covering up the

upper aperture of the oesophagus. The laryngeal mucous membrane, including the vocal cords, is involved in a pigmented tumour which is partly ulcerated. This tumour was seen during life to be much more prominent than is shown in the preparation. Beneath the skin in front is shown in section a small part of the large prominent tumour already mentioned.

VIII. 72. Multiple Melanotic Sarcomata. Tumours in Intestine.

Two pieces of intestine are preserved. One shows a bulky tumour which, having its centre at the mesenteric attachment, bulges to each side, involving the coats of the intestine. It surrounds the gut, except for a space of 12 mm. The other tumour is much smaller, but it also nearly forms a girdle. There were a few black tumours of small size in the mesentery.

VIII. 73. Multiple Melanotic Sarcomata. Tumours in Heart and Muscles.

The preparation hung uppermost represents half of the auricles of the heart divided from above downwards. A bulky black tumour occupies and distends the inter-auricular septum. There were other tumours in the heart's substance, one in the wall of the auricle, and one in that of each of the ventricles.

Beneath this are hung two pieces from the muscles. The left arm was greatly swollen, and on cutting into it the muscles generally were found infiltrated with, and partly replaced by, black tumour tissue, which was often very soft. The right arm also presented tumours in the muscles, and as they were here swollen it could be seen that they often followed the muscles and tendons, one elongated mass in particular curving round the radius in the position of the tendon of the extensor pollicis.

There were no tumours in the lungs, and none in the substance of the kidneys, although a large one existed in front of the hilum of the right kidney. There were no tumours in stomach, spleen, liver, uterus, or ovaries, although the left ovary contained a considerable cyst.

Under the microscope the tumour tissue is seen to consist of masses of cells, mostly of large size and of various shapes, many being spindle-shaped. These are not arranged in alveoli, nor is

there any definite stroma. The cells have oval nuclei. (This case is fully described in the *Glasgow Medical Journal*, August, 1885, and photo-prints showing the appearances during life are hung in the Museum.) *Path. Reports*, 12th June, 1884, No. 1203.

VIII. 74. Spindle-celled Sarcoma of the Skin.

The preparation consists of the half of the tumour, and exhibits both the cutaneous and the cut surfaces. The tumour forms an oval flat elevation 2·5 cm. in diameter and 12 mm. in thickness. Its margin is abrupt and somewhat overhanging, and the epidermis, although continuous for some distance on its surface, does not completely cover it. On section the tumour tissue is seen to replace that of the skin, and it shows a markedly fasciculated appearance. The history of this case is unknown.

VIII. 75. Malignant Ulcer of Skin over Sternum. (Dr. Dalziel.)

The lesion, of which about half is shown, consisted of an excavated ulcer nearly circular in shape and 2·7 cm. in diameter. The edges are quite abrupt, and the floor has an irregular, almost sloughing appearance. The skin surrounding the ulcer is somewhat infiltrated, but the section does not show any distinctly demarcated tumour edge.

Microscopically the tissue in the floor of the ulcer is highly cellular, there being round cells, which might possibly be sarcomatous, and leucocytes.

VIII. 76. Cancer which developed in an old Sinus through the Cheek. (Prof. Sir Geo. H. B. Macleod.)

Viewed from the cutaneous surface there is a pale rounded projection about 2 cm. in diameter from which project a few stiff hairs, the skin around being that of the beard. The projection is in continuity below with a more bulky tumour which undermines the skin for a distance of over 1 cm. from the margin of the projection. This bulkier tumour also extends deeply and is in considerable part continuous with the mucous membrane of the cheek, a portion of which is preserved on the outer surface of the preparation. Under the microscope the tissue is typically

cancerous, but the details vary somewhat. The more recent parts show somewhat wide elongated columns resembling tubules, whilst the older parts have an abundant stroma and even resemble scirrhus. There is no appearance of flat epithelium of horny character, and the cutaneous portion of the tumour has the appearance of recent growth. It is therefore supposed that the tumour has had a deep origin from mucous surface or mucous glands.

James H. (aged 68), a fisherman, suffered two years before operation from two decaying teeth. An abscess formed which burst inside the mouth, and he then had two teeth extracted. A year later an abscess formed in the same situation, and this burst externally and left a discharging sinus. About six or eight months before operation the skin began to get hard and thickened, and on admission the tumour had developed as shown. It was situated just above the right angle of the mouth and had a deep purple colour. It did not slide freely over the jaw, and there were two enlarged glands below the angle of the lower jaw. *Path. Reports*, 23rd October, 1889, No. 2188.

VIII. 77. Epithelioma of Buttock, Developing from Chronic Irritation. (Sir G. H. B. Macleod.)

The tumour is a flat oval one covered with skin. The skin is furrowed by cicatrices and penetrated by sinuses. The tumour itself is rather irregular, being interrupted by sinuses, etc. Its structure is cellular, and the cells have epithelial connections and a tendency to the epithelial form.

There had been sinuses in the buttock for six or seven years, and latterly a distinct and prominent tumour developed.

Path. Reports, 24th June, 1876, No. 110.

VIII. 78. Epithelioma of Leg in an old Cicatrix. (Sir Hector C. Cameron.)

The specimen shows the whole of the left leg from the upper to the lower end of the tibia. Healthy skin, as indicated by the presence of hairs, is seen above and below, and between these parts the leg is surrounded by a tense white, hairless, smooth cicatrix, more extensive in front than behind. In the centre of

the cicatrix, and situated over the middle of the anterior edge of the shaft of the tibia, is seen a circular ulcer of about the size of a two-shilling piece. Its edges are much thickened and coated with dense epithelial elements. The floor of the ulcer is formed by bone, so soft as to be easily removed by the point of a knife. Microscopical examination of this soft bone shows it to consist of masses of epithelial cells, with small spicules of bone interspersed.

The leg was amputated from a man aged 36, who, when ten years old, was severely burnt on both limbs. It was ten years before the sores healed. Six years ago he injured his left leg about the centre of the shin; this cicatrised in about three months. Six months back a warty growth appeared at the seat of the present ulcer, into which it gradually developed. The ulcer was extremely painful, both on its surface and in its neighbourhood for some distance round. *Hosp. Reports*, Ward XX., Vol. VI., p. 48.

VIII. 79. Bulky Epithelioma in a Cicatrix of an old Ulcer of the Leg. (Sir Hector C. Cameron.)

It is mainly the shin surface and proximal parts which are involved in the growth, which measures 13 cm. from above downwards and 12 cm. from side to side. For the most part there are prominent heaped-up masses of a pale friable tissue, having a more or less warty surface. Beyond the limits of the growth there is an extensive cicatrix passing upwards beyond the growth for 8 cm. and below it for 5 cm., while its lateral extension is also considerable but indefinite.

A section of the bone from before backwards shows that it is little if at all involved, but there seems a slight erosion in the midst of the tumour. On the other hand there is a slight thickening of the bone and a very marked condensation of it, so that in the greater part of its course there is no medullary cavity. There is some trace of medullary cavity below and above, but the probe can only be passed about 2 cm. at either end, and that with difficulty. At the upper extremity of the portion preserved, and 5 cm. above the margin of the tumour, there is a cavity in the anterior part of the tibia, containing a sequestrum and communicating by sinuses with the surface. The microscopic structure of the growth is typically that of the flat-celled epithelioma. A gland from the groin also presented a cancerous structure.

Kenneth C. (aet. 49), a fisherman, has had for thirty years an

ulcer on his leg. It healed in parts from time to time, but was never healed all over. About a year before operation he noticed a little warty growth in one part, and the whole massive tumour has grown since then. During the last few weeks there was considerable pain, particularly at night, and a copious discharge.

Path. Reports, 3rd February, 1897, No. 4923.

VIII. 80. Large Epithelioma of Leg Developing in a Burn Cicatrix. (Dr. Renton.)

The leg from the knee-joint downwards (about 22 cm.) is preserved. The outer aspect is largely occupied by a flat prominent growth which measures from side to side 15 cm. The growth is chiefly in the upper part of the specimen, but there is an offset downwards and there is also some thickening near the lower part. Below the main tumour there is an ulcerated surface, in the midst of which the downward projection is protruded. Besides this there are two excavated ulcers below the principal one. Beyond the ulcer and tumour the skin is replaced by cicatricial tissue which extended almost continuously from knee to ankle, the greater part of the inner aspects being cicatricial.

The microscopic structure was typically epitheliomatous.

Stephen C. (aged 56) sustained a burn of the right leg when four years of age. It healed very slowly, but gave no further trouble till about thirty years before operation, when it received an injury and opened up; it has remained open ever since. Fifteen months before operation he noticed that it was growing out, and three months afterwards he was in Ward III. with a raised flat tumour about 8 cm. in diameter. He then refused amputation. The tumour grew rapidly after that, and the knee joint became fixed. The inguinal glands became enlarged. After amputation the patient did well, and the inguinal glands returned to the normal condition.

Path. Reports, 7th August, 1894, No. 3819.

VIII. 81. Epithelioma in an old Scar over Skin Surface of Tibia; Marked Invasion of Bone. (Sir Hector C. Cameron.)

The preparation shows the skin dissected from the subjacent bone, and the bone placed separately. The skin shows an extensive scar, the central parts of which are occupied by a prominent tumour

of a generally oval shape and a diameter of about 10 cm. At some parts of the edge the tumour projects abruptly, but in others there is a more gradual prominence. The tumour tissue shows a somewhat granular and rather crumbling substance. Viewed from behind the tumour tissue is seen to have penetrated through the skin so that it presents irregular shaggy projections where it impinged on the bone. The portion of bone corresponding shows a marked erosion, and the soft tumour tissue was picked out from the recesses shown in the preparation.

Microscopic examination of the deeper parts shows strands of epithelium with a considerable amount of rather cellular stroma.

Alex. M'I. (aged 60), crofter, Skye, sustained an injury to the leg twenty years before operation from rocks falling on it. On its healing an adherent scar remained. About a year before operation an ulcer formed at the lower part of the scar, at first about the size of a sixpence but gradually increasing to the dimensions shown.

Path. Reports, 3rd August, 1897, No. 5144.

VIII. 82. Stereoscopic Photograph of Old Scar with Epitheliomatous Growth. (From preceding case.)

VIII. 83. Epithelioma of Leg, Developing in the Cicatrix from a Compound Fracture. (Sir Hector C. Cameron.)

The leg presents an extensive brown granular surface occupying fully the middle third, chiefly on the inner aspect, but extending considerably to the posterior and slightly to the anterior surface. It has an average vertical extent of 10 cm. and a transverse measurement also of 10 cm. The affected surface has a sinuous margin, and the skin is slightly raised and has a pearly-white aspect. The smooth epidermis extends a very short distance over the affected surface. The surface is intimately connected with the skin surface of the tibia, and the latter is somewhat eroded by it (see next preparation) above and below the affected surface. The skin shows an extensive cicatrix, which is largest above. The cicatrix is in some parts the seat of a blackish-brown pigmentation.

Microscopic examination shows the typical characters of the flat-celled epithelioma.

Charles F. (aged 37) was treated thirty years ago by Prof. Lister for compound fracture of the leg. Hospital gangrene set in, which

was vigorously treated by caustics and recovery left a large cicatrix. Since then pieces of dead bone have come away at intervals. A blow on the scar eight months ago started ulceration, which went on to the present condition.

VIII. 84. Portion of Tibia and Fibula Eroded by Epithelioma. (From preceding case.)

The tibia is divided longitudinally, the skin surface is somewhat expanded by new formation of bone and is markedly irregular, the irregularity is largely in the form of little pits which contained epitheliomatous tissue. The medullary canal is interrupted for a short distance, and the bone is here narrowed from before backwards, whilst there is some appearance of riding of the fragments. The outer aspect is firmly incorporated with the fibula, the union extending a distance of 6 cm.

Path. Reports, 8th October, 1895, No. 4354.

VIII. 85. Epithelioma which originated in a Dermoid Cyst of Buttock. (Sir Hector C. Cameron.)

The specimen shows a deeply excavated ulcer with raised and overhanging edges, the latter to some extent undermined, and greatly so at one place. The lesion has a general diameter of 5·5 cm. A section through the middle showed a penetrating epithelial growth extending inwards from the floor of the ulcer for about 2 cm., the ulcer and growth entirely replacing the subcutaneous fat, which otherwise forms a very thick layer.

Microscopical examination shows cylindrical masses of epithelium with laminated capsules of the ordinary flat-celled epithelium. The history of the case is incomplete, but it is stated that a dermoid cyst of the buttock fungated and was repeatedly scraped.

Path. Reports, 5th July, 1893, No. 3390.

VIII. 86. Rodent Ulcer of Inner Canthus, Involving Eyelids. (Sir Hector C. Cameron.)

A flat ulcerated surface is shown, which at one side (the inner) is abruptly demarcated from the skin, and in the other involves the upper and lower lids of the right eye. The outline of the growth is irregular, and it has a general diameter of from 3 to 4 cm.

At its inner side the tumour rises abruptly from the skin for about 0·5 cm. On the outer aspect the growth extends chiefly along the upper eyelid, which it involves to the extent of about 1·5 cm., but leaving the tarsal margin and eyelashes free. The lower lid is less involved, but is partly embedded in the tumour. Towards the central parts of the tumour the surface is distinctly ulcerating, but otherwise the general surface is granular, the smooth skin surface extending a short distance from the margins. Microscopical examination shows the typical structure of rodent ulcer.

Jessie B. (aged 43), a housewife, first noticed a small wart on the side of the nose near the upper eyelid twenty years before operation. The wart was removed seventeen years ago, but it returned in about eighteen months. Since then it slowly increased in size till it assumed its present dimensions.

Path. Reports, 13th July, 1898, No. 5538.

VIII. 87. Rodent Ulcer of Nose. (Sir Hector C. Cameron.)

The preparation is the entire nose and a small portion of upper lip. The nose is largely occupied by a flat ulcer which is situated chiefly to the left of the middle line, but extends as far as 1 cm. to the right, the extension to the left being about 2 cm. Its lower boundary is near the lip, and its upper about the root of the nose, giving a total measurement of over 5 cm. The edges are defined all round, but not markedly prominent, there being, however, occasionally a trace of the "rolling over" of the edge. The central parts are somewhat deeply excavated, and the septum nasi is exposed in the midst of it, the cartilage being considerably eroded. The microscopical characters are those of the rodent ulcer.

Donald R., aged 70. The disease had existed for seventeen or eighteen years.

Path. Reports, 1st December, 1894, No. 3958.

VIII. 88. Epitheliomatous Ulcer of Pinna of Ear. (Sir Hector C. Cameron.)

The lesion is in the form of a somewhat extensive ulcer which has destroyed the lower third of the anti-helix and extends to the helix outwards and to the concha inwards, as well as downwards to anti-tragus and upper part of lobule. At the lower part of the ulcer the lower extremity of the cartilage of the

helix is exposed and projects markedly outwards. The ulcer has no prominent margins, but for some distance beyond it the skin is infiltrated beneath the epidermis. Under the microscope the structure was seen to be that of the flat-celled epithelioma with abundant laminated capsules.

VIII. 89. Epithelioma of Cheek. (Prof. Geo. Buchanan.)

The tumour is seen as a rounded mass, covered by the skin of the face, and it is slightly ulcerated at its lower part. A portion of the malar bone is also seen, to which the tumour was attached.

The tumour was removed by Dr. Buchanan from the cheek of R. B. (aet. 59) on the 25th of June, 1881. The clinical history and appearances were those of epithelioma. As it was found to implicate the malar bone beneath, a portion of it was also removed.

Path. Reports, 28th March, 1881, No. 645.

VIII. 90. Epithelioma of Cheek. (Dr. P. H. Murray.)

There is a rounded, well-defined tumour, having a general diameter of 2·5 cm. The edges rise abruptly from the skin surface, and the flat summit is ulcerated and somewhat warty. The tumour is stated to be from the cheek, and must have been from the hairy part of it.

Under the microscope the characters are those of an ordinary flat-celled epithelioma, with penetrating cylinders and pearl nodules.

Thos. H. (aged 55) stated that the condition had lasted for a period of two and a half months.

Path. Reports, 12th May, 1893, No. 3341.

VIII. 91. Crateriform Ulcer. Epithelioma of Face. (Sir Hector C. Cameron.)

The tumour, which was removed by operation, is rather larger than half a walnut. It rises sharply from the skin so as to form a prominent boss, in the centre of which is an excavation with abrupt margins and ragged floor. On transverse section it was seen that the new tissue was abruptly demarcated, and was found under the microscope to consist of flat epithelium with numerous pearl bodies at the margin, and the offshoots passed into the lymphatic spaces.

The tumour was removed from a woman. The whole affection is said not to have been of more than six weeks' standing. A few days before this the patient had been spattered on the face by some hot grease. She felt herself struck at two points, and two small elevations formed. One disappeared, and the other grew to the present tumour. *Path. Reports*, 11th May, 1892, No. 3006.

VIII. 92. Epithelioma of Scalp. (Prof. Geo. Buchanan.)

The tumour, which is shown in section, was nearly the size of a hen's egg. The surface is lobulated or convoluted, and on section, whilst there are septa dividing larger lobules, there is also a finer subdivision with cyst-like spaces. The tumour consists of flat epithelium, which forms bulky processes with occasional "cell nests." Between the processes there is a vascular, evidently soft stroma. There are occasional considerable spaces filled with blood.

Abraham B. suffered from a supposed wen on the left side of his head. It had existed for a number of years, growing slowly, but had lately increased quickly in size till it had reached the dimensions of half an orange. He also had a wen on the other side of the head, which softened and finally disappeared.

Path. Reports, 17th July, 1888, No. 1929.

VIII. 93. Extensive Epithelioma of Lip, of Six Weeks' Growth. (Dr. Renton.)

The preparation is the right half of the lower lip, which presents an indurated, ulcerated sore with everted and thickened edges. The surface is exceedingly irregular and frequently granular. The ulcer has a lateral extension of 4·5 cm. There is also hung below the primary tumour a portion of the submaxillary gland and the tissue superficial to it, along with a portion of skin. There was an aperture in the skin leading to a sinus, which leads into a matted piece of tissue with a cavity. This is a portion of a large hardened and suppurating mass evidently originating from a gland beneath the jaw.

Microscopic examination shows the usual structure of the epithelioma. In the neighbourhood of the gland, under the jaw, there is considerable inflammatory exudation, but the epithelial cylinders also penetrate.

Nicholas Hay (aged 58), a labourer, was positive that the disease

originated only six weeks before the operation by a spark from the scum on the top of a galvanising tank falling on his lip. A small ulcer formed and rapidly increased in size. The swelling and suppuration below the jaw occurred a few weeks before the operation.

Path. Reports, 8th August, 1893, No. 3411.

VIII. 94. Ulcerating Epithelioma of Lower Lip. (Dr. Dalziel.)

The lesion is in the form of an excavated ulcer which involves the whole thickness of the lip from external cutaneous to internal mucous covering. The extent of the ulcer is 3·5 cm. from side to side, and 1·5 from before backwards. It was covered with a foul greenish-black sloughing material. Microscopic examination showed a marked inflammatory infiltration, the epithelial elements being considerably obscured by leucocytes.

John M'F. (aged 45), seaman, stated that for nine years there had been a fissure in the lip, sometimes healing under a scab, and then opening again. About a year ago a small ulcer formed, which slowly enlarged, till four months ago, when it took on more rapid growth. He was a heavy smoker, and the lower incisors presented a sharp edge to the lower lip. *Path. Reports*, 11th August, 1894, No. 3823.

VIII. 95. Epithelioma of Lip, with deep Ulceration. (Dr. Patterson.)

The specimen consists of almost the entire lower lip, which has been removed along with a wedge-shaped piece of skin. The lesion consists of an ulcer which in its central parts penetrates deeply, and which possesses markedly prominent and partially undermined walls. The latter condition is most prominent at the cutaneous margin, the buccal margin being less prominent generally, but presenting irregular nodular projections.

Microscopic examination shows a typical flat-celled epithelioma with laminated capsules.

Murdoch M'L. (aged 52), a teacher. The disease began a year before operation as a small sore on the lip. Patient thought it was started by smoking. *Path. Reports*, 20th December, 1895, No. 4429.

VIII. 96. Epithelioma of Lip, with Ulceration.

VIII. 97. Ulcerating Epithelioma from Temporal Region. (Prof. Geo. Buchanan.)

The specimen, which is one-half of the lesion, presents a somewhat circular outline, the small tumour being of about the size of a crown piece. There is a narrow margin of skin from which the tumour rises abruptly and then presents a nearly level surface, which seems devoid of epidermis and has a granular appearance.

Microscopical examination gives the characteristic appearances of epithelioma with numerous laminated capsules. The stroma is very cellular.

John M. (aged 80), a slater, ascribed the disease to his abrading the head of a pimple five months before the removal of the tumour.

Path. Reports, 15th May, 1894, No. 3698.

VIII. 98. Cancer of Skin in Temporal Region. (Dr. Dalziel.)

The tumour, half of which is shown in section, was nearly circular in outline. It had about the bulk of a Tangerine orange, and measured about 5 cm. in diameter. As shown in section, the tumour is a bulky one, having a thickness measured from the surface downwards of about 2 cm., to which extent also it projected from the general surface of the skin. The mass thus revealed is a nearly homogeneous structure, composed of pale somewhat friable tissue, and it has a well-defined outline. The epidermis is continued over the greater part of the tumour, but there is slight ulceration at the summit.

Microscopically the tissue here resembles glandular rather than flat-celled epithelial tissue, but in certain parts there are globular masses resembling the laminated capsules, but apparently composed of softer, less horny epithelium.

Mrs. M. (aged 74) had a tumour of the forehead over the right orbit. It began as a wart, which she partially snipped off with scissors fifteen months before its removal by operation.

Path. Reports, 4th December, 1894, No. 3965.

VIII. 99. Portion of a Large Cancerous Tumour of the Neck and Face. (Sir Geo. H. B. Macleod.)

The tumour was a very prominent one, with abrupt overhanging edges, the surface of the tumour being in many places about 2 cm. above the general level, and the margins frequently overhanging

the skin for 1 cm. or more, as shown in the preparation. The surface of the tumour has a rough warty appearance, and on section it is seen to penetrate somewhat deeply among the soft parts. The cut surface shows a somewhat glandular appearance, and under the microscope a typically cancerous structure is found, masses of large epithelial cells, in variously shaped spaces, forming the structure of the tumour.

The tumour was an exceedingly bulky one, replacing the skin over a large extent of surface, and producing a very ghastly appearance. It occupied almost the entire right side of the neck, from the middle line in front to a considerable distance behind the ear. It passed somewhat on to the face over the edge of the lower jaw.

The tumour was first noticed by patient a year before death as a hard nodule below the jaw. On admission of the patient to the hospital about four months afterwards, a hard irregular growth, to which the skin was adherent, red and tense was found, and there was already some interference with mastication. It increased greatly in size and became extremely painful. Latterly it interfered somewhat with respiration and deglutition, and before death patient was excessively emaciated. *Path. Reports*, 25th January, 1882, No. 762.

VIII. 100. Cancer Involving Skin: Secondary to Epithelioma of Auricle. (Sir Hector C. Cameron.)

An irregularly circular piece of integument is preserved, the greater part of which is occupied by a prominent knob-like outgrowth which measures 4 by 3·5 cm., and projects 2 cm. It infiltrates an equal distance below the skin level, and apparently involves muscle. Under the microscope a somewhat cellular cancer is revealed, and the appearances, both microscopic and macroscopic, indicate an origin beneath the skin, presumably in a lymphatic gland.

Gilbert H. (aged 77) had a small epithelioma removed from right ear nine months before the operation for this tumour. The present growth began three months before the latter date as a lump at the back of the ear. On his admission, the tumour shown was found situated over the mastoid process where it was adherent to the bone. It extended forward almost to the angle of the jaw, penetrating deeply into the parotid region. Numerous small epitheliomatous nodules are stated to have been present on the face.

Path. Reports, 20th September, 1893, No. 3449.

VIII. 101. Sloughing Cancer of Skin in Occipital Region, Following a Blow. (Prof. Geo. Buchanan.)

The preparation shows a circular piece of skin with a central irregular cavity containing dark sloughing tissue. The skin is partly undermined and overhangs the sloughing cavity. On examining the under surface and a section through skin and tumour, it is seen that, chiefly beneath the skin, there is a mass of soft grey tissue which has been cut through in the operation, and which infiltrates the skin from below, and renders it prominent around the cavity. Under the microscope this tissue is seen to consist of nests of epithelial cells, separated by connective tissue, probably remains of skin.

The case was that of a woman aged 24. Three years before admission she received a blow from a stick in the occipital region. After this the part gradually swelled, till eleven months ago it attained the size of a duck's egg. An incision was made and a good deal of matter escaped. About nine months after this another swelling appeared a little below and inside the former, and about three weeks ago burst and discharged matter. On admission it discharged a very foetid matter in small quantity.

Path. Reports, 14th February, 1884, No. 1132.

VIII. 102. Scirrhous Cancer of Skin over Shoulder, Cyst and Haemorrhage. (Sir Geo. H. B. Macleod.)

The preparation is a slice of a bulky tumour which occupied the right acromial region. It is of dense consistence, and involves skin and subjacent parts in a nearly homogenous mass. At one end there is a large cavity filled with brown matter which is partly blood. Over a surface of 4 cm. in length the tumour tissue comes to the surface, entirely replacing the skin. Microscopically the tissue consists of typical epithelial masses, sometimes collected into lobules. The stroma is everywhere abundant and fibrous, and in many places the epithelium is in narrow passages like a typical scirrhus. There is also a tendency to dilatation of the epithelial or gland-like structures in some places.

A female (aged 68) had a tumour over the right acromial region growing for five years, but more rapidly for six months. Bleeding occurred frequently from the exposed surface. The tumour nearly reached the size of the patient's two fists.

Path. Reports, 17th June, 1891, No. 2697.

VIII. 103. Epithelioma of Back of Hand.

The tumour is in the form of an ulcer, with granular surface and markedly raised edges. It occupies a space of about the size of a crown piece on the back of the hand, being specially elongated at the junction of the index and middle fingers. On section it is not found to penetrate very deeply, although it involves, to a certain extent, the subcutaneous tissue. The tissue of the central parts of the growth is soft, while the raised margin is of somewhat firmer consistence. The raised margin is covered with epidermis, and between this and the granular surface of the ulcer there are crusts.

Under the microscope the tissue of the tumour is found to be epithelial, but on examining the marginal parts it is seen that the surface epithelium, although slightly exaggerated, does not take part in the new formation, the latter extending from below, and evidently originating in sebaceous glands. In accordance with this the epithelium of the tumour has a marked tendency to fatty degeneration, and to the formation of cholesterine crystals.

VIII. 104. Epithelioma of Back of Hand. (Sir Hector C. Cameron.)

The preparation is an oval piece of skin 5 cm. by 4 cm. It is occupied by an ulcer measuring 2·5 cm. by 2 cm. The ulcer is surrounded by a raised zone 6 mm. to 12 mm. broad, which merges gradually in the normal skin. The skin is preserved over the zone, but is smooth and pale, and presents a number of pits representing hair follicles. The raised margin is not quite continuous, there being a small gap in the circumference. The surface of the ulcer is markedly granular. Under the microscope the tissue has the usual characters of the flat-celled epithelioma with pronounced pearl nodules. At the ulcerated part there is a very great infiltration of lucocytes.

Wm. N. (aet. 60), a carter, had noticed a sore on the back of the left hand opposite the web between thumb and index finger for nine months. It began as a small pea-like body, gradually extending. It ulcerated three months after its origin, and during the last few months grew rapidly.

Path. Reports, 24th February, 1893, No. 3271.

VIII. 105. Epithelioma of Back of Hand. (Sir Hector C. Cameron.)

There is a raised surface occupying about two-thirds of the dorsum of the hand, the area corresponding in general with the metacarpal bones of the index and middle fingers and the edge of the ring fingers. It is generally quadrilateral in outline, and measures 7·5 cm. by 6 cm. Its edges are abrupt, and the surface has a granular appearance. There is no excavation in any part, but there is a general absence of the appearance of horny epidermis, except in some irregular patches.

Under the microscope the structure of an epithelioma is displayed in the form of masses of squamous epithelium, which seldom forms proper laminated capsules.

The hand was removed from a gentleman 75 years of age. For many years an insignificant and excoriated surface had been present, and it was only within a comparatively short period that definite malignant characters appeared.

Path. Reports, 21st September, 1892, No. 3122.

VIII. 106. Epithelioma of Back of Hand. (Sir Hector C. Cameron.)

The dorsum of the hand, corresponding with all the metacarpal bones except that of the thumb, is occupied by the tumour, which extends somewhat to the bases of the fingers. The tumour shows irregular elevations, which shade off without abrupt margin. In the middle there is a deeply excavated ulcer.

Under the microscope the structure is that of an ordinary squamous-celled epithelioma, with abundant laminated capsules. There is also at the marginal parts an unusual predominance of elongated papillae.

The hand was removed from a lady 80 years of age. The disease had existed for two or three years. It recurred in the axilla, and the patient died therefrom. The date of operation was 31st May, 1887.

VIII. 107. Small Prominent Epithelioma from Back of Hand. (Dr. Kelso, Broxburn.)

The tumour, half of which is preserved, was rounded in shape, measured 2 cm. in diameter, and formed a somewhat bulky pro-

jection, with steep sides and an elevation of 8 mm. The sides are covered with thin epithelium continuous with the cutaneous surface, whilst the central parts show superficial ulceration.

Under the microscope the appearances are those of the flat-celled epithelioma, with considerable deep penetration.

Mrs. O. (aged 63) had a small wart on the back of the right hand six years before operation. She was in the habit of picking the wart, but it did not give her further trouble till six months before its removal, when it began to enlarge and get painful.

Path. Reports, 23rd January, 1894, No. 3568.

VIII. 108. Malignant Ulcer of Back of Hand.

The hand, as amputated, is preserved, and the greater part of the dorsum is occupied by a flat ulcer, whose greatest measurement transversely is 7·5 cm. and longitudinally 6 cm. Its margins, especially the lower, are elevated, and present generally a sinuous outline.

VIII. 109. Epithelioma Involving the Soft Parts of the Thumb. (Dr. Patterson.)

The thumb is greatly enlarged, having about its middle a circumference of about 14 cm. Near the point it has a diameter of 3·5 cm., and there projects an elongated incurved nail having a transverse diameter of 1·5 cm. The internal aspect shows an unhealthy-looking ulcer with a warty surface, which measures 3·5 cm. from before backwards. The ulcer extends to the dorsal aspect and even to the outer, the greatest measurement over these surfaces being 7·5 cm. The ulcer is chiefly on the palmar aspect, the skin is much infiltrated, and there are obvious prominent nodules. Even where cut through for amputation, the deeper parts show rounded spaces, evidently from cancerous infiltration.

Microscopical examination shows a typical flat-celled epithelioma, and this tissue is also present in the infiltrations mentioned above.

Eliz. B. (aged 72), a washerwoman, first noticed a wart on the inner side of the first phalanx twelve months before operation. It remained nearly stationary for nine months, when a rapid extension occurred, ascribed to the irritation of the laundry-irons.

Path. Reports, 26th April, 1894, No. 3698.

VIII. 110. Melanotic Cancer of Axilla, secondary to Tumour of Thumb. (Sir Geo. H. B. Macleod.)

The tumour is a mass of a flattened oval shape about 11 cm. long and 6 cm. broad. It is almost coal-black in colour both on the surface and on section. The tissue is exceedingly soft and friable, and the cut surface gives off a dirty brown fluid, and is very slippery. On microscopical examination there are abundant cells of various shapes, but mostly large, and with large oval nuclei. Most of them are colourless, while many are full of deep brown pigment. The stroma consists of beautiful trabeculae, the thicker of which bear blood-vessels.

About a year before removal of the tumour, the patient, a man of 52, saw Dr. Macleod, with a fungating ulcer on the extremity of the last phalanx of the thumb, caused by a chip of wood being driven below the nail. This healed after removal of the nail, with improvement of the general health; but in a few months he returned with the thumb still worse, and the last phalanx was amputated. A tumour of the size of a walnut was first noticed in the axilla two months before operation, and it rapidly grew to its present size, when it was excised. Within six weeks the growth recurred. Nothing further was done. He fell in getting over a wall, the tumour burst, and he died as a result of the profuse bleeding.

Path. Reports, 10th February, 1879, No. 422.

VIII. 111. Mushroom-shaped Epithelioma from Lumbar Region. (Dr. Walker, Peterborough.)

The tumour is a flattened spheroidal structure measuring about 2·3 cm. in diameter. It is attached by a comparatively narrow base which measures about 1 cm. in diameter, the skin around which is apparently normal. The convex upper surface is granular in appearance, and at its margins shows an epithelial covering continuous with that of the skin. On section the tissue of the tumour is seen to penetrate more deeply than the peduncle, and therefore below the level of the skin surface. The microscope shows a somewhat rich stroma largely consisting of spindle cells, leaving spaces in which cellular masses resembling those of rodent ulcer are present. At the margin there is no apparent connection with the surface epithelium, which immediately gets greatly thinned and soon tapers off. The deep penetration is also well displayed.

Mrs. S. (aged 62) first noticed a small wart above the middle of the iliac crest 20 years before. Two and a half years before operation it became so irritable that she actually rubbed it off. It shortly reappeared, however, increased in size, and she described it as being like a raspberry. Its surface was broken, and considerable bleeding and discharge of offensive pus occurred.

Path. Reports, 1st Oct., 1892, No. 3130.

VIII. 112. Epithelioma of the Abdominal Parietes. (Sir Hector C. Cameron.)

The tumour has an irregular, somewhat ulcerated surface. It measures 2·5 cm. in diameter, and overhangs its base all round to the extent generally of about 5 mm. The microscopic examination shows masses of cells having somewhat the character of those in rodent ulcer. There is, however, a great development of spaces amongst the epithelium, frequently taking the form of cyst-like cavities, in which case the epithelium is flattened and forms a pavement lining the cavity. The cyst-like character is visible on section to the naked eye, there being some considerable spaces in the deep parts.

Donald M. (aged 79), a forester, was stated to have had a simple fibrous tumour about the size of a bean in the skin of the abdomen in the left axillary line. A year ago it began to itch, and he scratched it until it broke. It then fungated and spread. Six years ago he had an epithelioma removed from the right angle of the mouth. *Path. Reports*, 13th July, 1895, No. 4239.

VIII. 113. Epithelioma of Lymphatic Gland, Secondary to that of Vulva. (Prof. Geo. Buchanan.)

This preparation and the next one are from the same case, of which the following is a brief account. There was primarily an epithelioma of left side of vulva which was excised, the wound healing perfectly. At the *post-mortem* it was seen that the vulva was awanting on the left side, the parts presenting a smooth, scarcely perceptible cicatrix. There was a distinct swelling in the groin, on cutting into which the conditions shown in this preparation were found. There is a large flattened oval tumour 7·5 cm. in diameter. Externally, it is formed of a grey tissue having all the characters,

microscopic and other, of an epithelioma. This tissue forms a wall about 6 mm. to 12 mm. in thickness, and encloses a very irregular cavity filled with crumbling débris. In this preparation we have a lymphatic gland completely replaced by epitheliomatous tissue which has broken down in the central parts.

VIII. 114. Multiple Tumours in the Heart. (From preceding case.)

We have here pieces of the heart showing in section a few of the tumours which existed in its muscular substance. These are pale and somewhat granular in section, and of various sizes, the largest being half-an-inch in diameter. These were found in every region, including the auricles, but more abundantly at the basal parts of the ventricles.

There were also subcutaneous tumours in various parts of the body, some of considerable size, at least an inch in diameter, and the larger ones with cavities in their central parts. The lungs, spleen, and kidneys also contained tumours.

Path. Reports, 22nd February, 1884, No. 1137.

VIII. 115. Soft Cancer of Sacral Region. (Sir Geo. H. B. Macleod.)

The tumour is of about the size of an orange, and protrudes through the skin in the form of an oval fungating projection. On section the tissue is found to be very soft and superficially infiltrated with blood. Under the microscope there are abundant flattened cells of large size and with oval nuclei. The tumour was removed from the sacral region of a woman over 40 years of age. A tumour like a wen was originally removed, and the present growth returned in the cicatrix. It grew rapidly and latterly formed a bleeding fungating mass. *Path. Reports*, 25th December, 1878, No. 407.

VIII. 116. Flat Epithelioma of Skin immediately below Buttock. (Drs. Patterson and Kirk.)

The growth, which has a somewhat lobular outline, occupies a considerable area of skin measuring from 7·5 to 8·5 cm. The central parts are depressed even below the level of the skin, whilst the border rises abruptly from the skin level, having a projection

which reached in the fresh state over 2 cm. From the skin inwards a smooth epidermis covers the edge to the summit of the projection. This is followed by a granular surface which gives place further in to excavation. The surface of the ulcer shows numerous warty or papilliform projections. There is no deep infiltration. Microscopic examination shows a typically epitheliomatous structure with abundant laminated capsules.

Mrs. W. (middle-aged) first noticed the tumour two years before operation and it was then very small. It was situated on the outer side of the left thigh below the left trochanter, and latterly had grown rapidly. *Path. Reports*, 11th Nov., 1897, No. 5223.

VIII. 117. Subcutaneous Cancer of Thigh and Secondary Involvement of Glands in Groin. (Sir Hector C. Cameron.)

The tumour, which was freely removed with a large portion of skin and subcutaneous tissue, is in the form of a nearly globular mass, measuring 6 cm. in diameter. The skin is thinned over it and pushed outwards as a rounded protrusion. The tumour entirely replaces the subcutaneous fat, which is here very thick, but it is bounded deeply by a distinct fascia. The tissue is soft, and in its central parts has broken down so as to form a cavity. The cutaneous surface shows a small aperture and a small raw surface. Near the former, active haemorrhage occurred. The gland mass measures 6 by 4 cm., and formed a bulky tumour in the groin. Microscopical examination shows a highly cellular cancer with large cells and sparse stroma.

The structures were removed from a woman 48 years of age.

Path. Reports, 3rd March, 1896, No. 4514.

VIII. 118. Soft Cancer of Skin of Thigh. (Sir Hector C. Cameron.)

The half of the tumour is shown in section with attached skin. It was nearly globular, and almost of the size of an orange. Its general diameter is about 10 cm., whilst at the attachment to the skin it measures 5 cm. The skin is traceable to the edge of the tumour, but does not appear to pass on to its surface. The surface is generally smooth, but at one part (hung separately) the surface presents a congeries of finger-like processes. The tissue is dense and

generally pale, but there are considerable areas of a deep brown or black colour, generally in streaks passing to the surface. The microscopic structure is that of cancer with a sparse stroma. Brown pigment is present in the epithelial cells of the pigmented part.

Mr. T. (aet. 40) had a tumour on the outer side of the thigh which had been observed growing for four years. There were enlarged glands in the groin.

Path. Reports, 28th April, 1890, No. 2349.

VIII. 119. Soft Cancer of Thigh. Recurrence in Inguinal Gland. (Sir Hector C. Cameron.)

The tumour, which is in the midst of fat, is oval in shape, and measures 2·5 cm. It is distinctly circumscribed by a fibrous capsule, and on section it presents a mottled appearance of white and brown, the latter from vascularity or haemorrhage.

Under the microscope the structure is like that of the primary tumour, viz., large cells with a sparse stroma.

The date of this operation is seven and a half months subsequent to the first. *Path. Reports*, 22nd October, 1896, No. 4801.

VIII. 120. Cancer of Skin of Leg. (Dr. Campbell.)

The tumour, which has a general diameter of 5·5 cm., is shaped something like the head of a mushroom, the surface of attachment being considerably overhung by the tumour. There is a granular surface and no appearance of proper skin is visible, even at the edges. Under the microscope a very regular stroma is presented, leaving spaces such as recall a cavernous tissue. These spaces are closely packed with comparatively small epithelial cells of various shapes, but sometimes cylindrical. There is no appearance of horny transformation.

The tumour was removed by écraseur from a woman aged 75. It was first observed as a small scab about two years before the operation, and had grown very rapidly during the last three months. It was situated on the front of the leg midway between the knee and the ankle. *Path. Reports*, 11th July, 1894, No. 3785.

VIII. 121. Epithelioma of Ankle. (Prof. Geo. Buchanan.)

The foot is seen to be much deformed, and the inner aspect of the ankle is occupied by a tumour of a generally circular outline.

Its general diameter is about 8 cm., but there is an extension backwards measuring 3 cm. The surface of the tumour has a granular irregular appearance suggestive of the surface of an ordinary wart. In addition, there are irregular prominences which project from the general surface for about 1 cm. The tumour forms thus a flat elevation, whose edges are somewhat abrupt. The skin around has a partially cicatricial appearance.

The deformity consists mainly in a flexion of the foot, so that the dorsum is nearly in a line with the anterior surface of the leg. Extreme flexion produces an appearance as if the heel was almost absent. The muscles of the calf presented abundant fatty infiltration. The tumour consists mainly of flat-celled epithelium.

The patient, a middle-aged man, was in hospital in February, 1878, for an extensive ulceration of the inner ankle, dating from an injury twenty-four years back. A piece of os calcis was removed, and he left the hospital with the operation wound healing. He was re-admitted on 16th October, 1878, with a condition of matters very similar to that shown in preparation, and the leg was amputated above the knee.

Path. Reports, 2nd November, 1878, No. 384.

VIII. 122. Warty Epithelioma of Skin. (Sir Geo. H. B. Macleod.)

The specimen shown is an oval piece of skin, in the midst of which is a flat prominence of a circular shape, nearly of the size of a shilling. The growth overhangs its base considerably, is irregular on the surface (somewhat like a soft wart), and is tolerably soft in consistence.

On microscopic examination the structure is found to be essentially epithelial, even the deeper parts consisting of epithelial processes, in some of which laminated capsules appear.

Path. Reports, 5th April, 1880, No. 544.

VIII. 123. Paraffin Epithelioma of Leg and Arm. (Prof. Geo. Buchanan.)

A massive growth, measuring 15 cm. transversely and 11 cm. from above downwards, occupies the skin of the inner and posterior aspects of the left ankle. It projects from the general surface 2 to 3 cm., and as seen on section the growth penetrates deeply and is

firmly anchored to the underlying tibia. The surface has a generally lobulated and warty character, and the cut surface shows cyst-like spaces with ingrowth. Around the tumour the skin presents numerous cicatrices, most of them surrounded by pigmentation. There are also numerous firm white elevations apart from the tumour, which, however, are rather obscure in the preserved specimen.

A similar tumour from the arm is hung separately. It is in the form of a prominent outgrowth, measuring 6·5 by 5·5 cm. It has a striking warty or papillary surface, and it overhangs its base markedly.

The microscopic structure is that of an epithelioma. The small independent nodules present a very exaggerated thickening of the epidermis, but without definite penetration deeply. An enlarged lymphatic gland removed from the popliteal region showed no epitheliomatous structure.

J. T. (aged 52) had worked for 25 years in the Pumpherston Oil Works. While performing his duties he had to stand for long hours with his clothes soaked in crude paraffin. This appears to have been very irritating to the skin, often causing pustules and sores to appear. The growth on the leg dated 2½ years back, and began like a wart; that on the arm was of nine or ten months' duration. The femoral glands were enlarged, but they diminished in size shortly after the operation. See *Glasgow Medical Journal*, Vol. XLIII., p. 146.

VIII. 124. Epithelioma of Scrotum in an Asphalt Worker.

The tumour is a flattened oval projection measuring 3·5 by 2·5 cm. It has abrupt margins, and at the summit the greatest elevation is 1 cm. There is considerable ulceration in the central parts, but elsewhere there is a granular or nodular aspect, sometimes with considerable rounded and partially isolated projections. The skin around the tumour is generally of a darkish colour, and there are also numerous deep brown patches.

Under the microscope the tissue is formed essentially of large epithelial cells which are arranged in considerable masses, which have somewhat of a glandular appearance, and there are no pearl nodules visible.

J. M'G. (aged 48) stated that the disease began seven years before as a small wart, the top of which would scale off from time to time.

It increased slowly for a time, but has been growing more rapidly during the last twelve months. It was situated on the anterior aspect of the scrotum about the middle line. One of the inguinal glands was enlarged and painful.

Path. Reports, 20th June, 1894, No. 3758.

VIII. 125. Cancerous Tumour from a Dog. (Dr. D. Macphail.)

The tumour is of a flattened oval form, and measures 8·5 cm. It is encapsuled, and has a tolerably firm texture. On section a somewhat lobulated appearance is visible. Under the microscope the structure is that of a highly cellular cancer with a sparse stroma.

The tumour was removed after death from the groin of an aged toy-terrier dog. It had been present about two years, and appeared to be subcutaneous. *Path. Reports*, 24th May, 1895, No. 4171.

VIII. 126. Actinomycosis Tumour from Subcutaneous Tissue of a Bull.

The preparation is half of an oval tumour measuring 13·5 by 7 cm. It consists of a solid capsule formed externally of dense connective tissue, whilst internally there is a somewhat gelatinous layer of granulation tissue. This is generally thin, but in some places, as shown in the section, it attained to a thickness of 2 cm.

In the fresh state the granulation tissue showed small yellow points and streaks consisting of the colonies of the parasite. The cavity was filled with a rather turbid pus, in which also yellow bodies were seen, having the usual characters.

The preparation was obtained from a bull. The tumour was situated in the flank, and there was another similar one under the tongue. *Path. Reports*, 1st June, 1892, No. 3020.

VIII. 127. Madura Foot. (Dr. Blaney.)

This is the foot of a Hindoo, sent from Bombay by Dr. Roland Blaney, the leg having been amputated by him. The foot has been divided across the middle of the heel, and the anterior and posterior parts placed in different jars. (See next preparation.) The skin surface shows a number of rounded apertures which are pale as compared with the general dark skin. The subjacent tissue pouts at

some of the apertures, which have some resemblance to the openings of sinuses in strumous disease of bones. On the cut surface it is seen that somewhat wide canals traverse the tissues, not excluding the bones, and that the canals contain a granular black material.

VIII. 128. Madura Foot—portion of preceding preparation.

VIII. 129. Mouse with a Favus Crust on its Head.

The crust occupies the forehead and vertex, and has completely closed the right eye. Microscopic examination showed this to be true favus.

VIII. 130. Polypus of Ear. (Removed by Dr. Thos. Barr.)

VIII. 131. Sarcoma of Choroid, Extending Outside the Eyeball and to the Ciliary Body Inside. (Dr. Thomas Reid.)

The preparation shows the eyeball divided longitudinally, and placed so as to show the external configuration in one half and the internal relations in the other. Viewed from the outside, the lower part of the eyeball appears as if prolonged into a bulky tumour nearly as wide as the eyeball itself, the mucous membrane being continuous over the tumour. On section this tumour is seen to be directly continuous with the eyeball, whose coats are to a considerable extent lost in it. The sclerotic, however, can be traced, and from this it can be seen that the tumour, while most bulky outside the eyeball, also occupies the choroid inside, where it involves the ciliary body, forming a somewhat prominent mass at its lower part. Under the microscope the tissue of this tumour was found to be very cellular, the cells being mainly spindle-shaped or stellate, with occasional fibro-cellular interstitial substance.

Path. Reports, 6th March, 1882, No. 786.

SERIES IX.

NERVOUS SYSTEM.

IX. 1. Amputation Neuromata from the Thigh.

The parts dissected show the great sciatic nerve dividing into its two main branches, the external and internal popliteal, the latter again splitting up into a larger and smaller division. At the extremity of each of the two there is a bulbous enlargement, that of the external being oval and of about the size of an olive, and that on the internal being rounded and of about the size of a cherry. The smaller division of the external popliteal is also slightly enlarged, and is adherent to the bulbous extremity of its main stem. The swellings have a fibrous aspect, and are intimately connected with the dense fibrous tissue of the pad of the stump.

Microscopical examination showed the greater part of the bulbous enlargements to consist of nerve fibres arranged in bundles of various sizes, separated by sparsely nucleated fibrous tissue. Towards the distal extremities the fibrous tissue is more abundant. The great majority of the nerve fibres are undulated, but there is much variation in the thickness of the myelin sheaths, and there is a somewhat similar but less evident variation in size of the axis cylinders. A careful examination of many sections shows that a marked new formation of nerve fibres has occurred, along with a production of fibrous tissue.

The preparation was obtained from a man aged 23. The amputation had been performed ten years previously for tuberculosis of the knee-joint, and he was also affected with rickets. He died of pulmonary tuberculosis, and the preparation was obtained after death. Enquiry of the relatives elicited the fact that no definite complaint of pain or tenderness in the stump had been made.

Path. Reports, 10th October, 1893, No. 3466.

IX. 2. Pen and Ink Sketch of Amputation Neuromata (see preceding specimen). (Dr. A. Macphail.)

IX. 3. Spindle-Celled Sarcoma, Attached to Sciatic Nerve. (Dr. A. Patterson.)

The tumour is an oval-shaped one 7·5 cm. in long diameter, and with a generally lobulated outline. It was enclosed in a capsule (a portion of which lies at the bottom of the jar), which surrounded both tumour and sciatic nerve. On opening this capsule the tumour was readily isolated, and was found to have a very limited attachment to the nerve. The tumour is a soft one, its tissue being generally grey, but with a good deal of haemorrhage. Under the microscope, it shows mainly large spindle-cells.

The tumour was first noticed by the patient a year before its removal. On his admission, it was found freely movable and painless on pressure, but the patient complained of occasional pain darting down the limb. *Path. Reports*, 15th February, 1883, No. 934.

IX. 4. Spindle-Celled Sarcoma, Attached to Sciatic Nerve. (Sir Hector C. Cameron.)

The specimen shows a large tumour situated principally on one side of the nerve, but extending into and separating the fibres of the nerve itself. The nerve is seen at the upper and lower part of the tumour, and between the two extremities can be traced the connecting strands. The actual length of nerve removed at the operation measured 10·5 cm.

The patient was a boy aet. 17.

Path. Reports, 18th March, 1887, No. 1692.

IX. 5. Portion of Brain of a Deaf Mute. (Dr. Finlayson.)

The part preserved is the left half of the brain. The first temporo-sphenoidal convolution, especially in front, is distinctly atrophied, so that the anterior border of the lobe is nearly 6 mm. further from the anterior aspect of the brain than it is on the other side. A camera lucida sketch of the two sides made in the fresh state will be found in the report book. There was considerable oedema of the membranes as a whole, with widening of the sulci,—the usual appearances of atrophy of the brain.

James M., aet. 55. The patient died from bronchitis and emphysema.

IX. 6. Extreme Chronic Hydrocephalus in a Child at Birth. (Dr. Macfarlane, Glasgow.)

This preparation shows the head, and the following the brain. The face is nearly normal, but the eyes are prominent, especially the right, and the right ear is reduced to little more than the lobe, whilst the meatus is only represented by a dimple. The cranium is extraordinarily distended, and the sutures and fontanelles widely dilated. The two frontal bones are separated by a distance of 4 cm., and there is on the right side an almost entire absence of the squamous portion of the temporal bone, so that there is a membranous expansion between temporal and parietal which reaches 5 cm. The circumference of the cranium at a point about 3 cm. above the supra-orbital ridge is 47 cm., and the measurement over the vault from ear to ear is 38 cm. The base of the skull is somewhat expanded at front and behind and at either side, but the basilar portion and sella turcica are little altered. The occipital bones are united, but there is indication of division in the form of a groove.

IX. 7. Brain in Chronic Hydrocephalus. (From preceding case.)

The brain from the preceding case shows very extreme dilatation of its cavities, which has taken place in large measure posteriorly. The frontal lobes, fissures of Sylvius and basal parts of cerebellum are close together anteriorly, and it cannot be said that for a newly born infant they are greatly altered. The two cerebral peduncles are well developed, and between them and the optic tracts the dilated infundibulum of the third ventricle has been cut across. The dilatation is essentially of the lateral ventricles, the third ventricle opening directly into the general cavity with only two narrow bands consisting of fornix. The basal ganglia are seen on looking into the cavity to be well preserved in the front parts. They consist of two obvious masses on either side; one, which is posterior, is substantial and rounded in form, and is taken for optic thalamus. The other, which is much elongated, lies in front of and outside the former, round which it curves and passes to meet its fellow in front of the third ventricle and below the

attachments of the fornix. The choroid plexus is present in the form of papilliform structures considerably spread out, and in addition, towards the posterior end of the fornix, there are two substantial bodies which look as if composed of blood-vessels. They are pedunculated and attached to each other, and to the choroid plexus in the middle line by narrow necks. The substance of the cerebral hemispheres, which is tolerably thick in front, thins away behind, and is represented posteriorly by a fragile diaphanous membrane having a breadth of 8 or 9 cm. The dilated ventricles are lined with a distinct, somewhat tough membrane.

Besides the hydrocephalus there was a deficiency of the inter-ventricular septum of the heart, and the head of the pancreas was in the form of a ring round the duodenum.

The child was the second of a woman aged 20. When called in the practitioner found it born except the head, and the volume of the latter had to be reduced by craniotomy before parturition could be completed. *Path. Reports*, 25th December, 1897, No. 5278.

IX. 8. Great Dilatation of the Cerebral Ventricles in General Paralysis. (Dr. D. Yellowlees.)

The case was a very chronic one, and the ventricles are dilated to a very unusual extent. *Path. Reports*, 8th May, 1882, No. 815.

IX. 9. Extensive Laceration of the Brain by contre coup. (Dr. A. Patterson.)

The inferior surfaces of the right frontal and tempero-sphenoidal lobes are extensively lacerated, and there is slight laceration of the left frontal lobe. There was no fracture at the base or elsewhere, and no external wound, but the lambdoidal suture was loosened and gaping, the violence having been applied at the posterior and upper aspect of the cranium, while the brain is lacerated in its anterior and inferior parts. There was a considerable amount of blood inside the dura mater, especially on the right side. *Path. Reports*, 10th January, 1884, No. 1107.

IX. 10. Thrombosis of Cerebral Sinuses and Veins. Extensive Cerebral Haemorrhage. (Dr. M'Call Anderson.)

The parts displayed are the longitudinal and lateral sinuses of the dura mater with the falx cerebri. The ends of the veins passing into the longitudinal sinus are also partly shown. The

longitudinal sinus is distended throughout with clot, which in the middle parts had a greyish colour, and presented some softening. The thrombus extends down to the torcular Herophili, and thence partially into the lateral sinuses, but chiefly into the left, stopping short, however, of the exit of the internal jugular from the skull. At the summit of the cerebral hemispheres, the veins coming off from the longitudinal sinus were found enormously distended with firm clot, which was mostly dark in colour, but occasionally with a grey or white piece in it. Sometimes the vein was accompanied on either side by a yellow streak, and frequently there was punctiform haemorrhage around the vein.

There was extensive cerebral haemorrhage in three areas. The largest one occupied the left cerebral hemisphere, having its seat in the corona radiata, near the summit of the hemisphere. Immediately around the cavity occupied by blood clot, the brain substance presented innumerable spots of capillary haemorrhage, and beyond these there was considerable staining. The other two haemorrhages were in the right cerebral hemisphere, a somewhat large one in the posterior and upper part of the frontal lobe, and a small one about the upper end of the ascending convolutions. These haemorrhages, while mainly in the corona radiata, also involved the deeper parts of the convolutions, whose substance generally showed punctiform haemorrhages.

The remaining organs presented nothing noteworthy except a slight hypertrophy of the heart, which weighed $13\frac{3}{4}$ ounces.

Path. Reports, 18th September, 1882, No. 849.

IX. 11. Thrombosis of Longitudinal and Lateral Sinuses.
(Sir Wm. T. Gairdner.)

The longitudinal sinus (laid open in the preparation) is occupied by a coagulum of dark colour with grey patches here and there; there was an almost white piece at the summit. Thrombosis extends into the lateral sinuses and into the veins, these latter being visible on the other side of the preparation as worm-like bodies. (See next preparation.)

IX. 12. Thrombosis of Cerebral Veins; Haemorrhage.
(See preceding specimen.)

The portion of brain preserved is from the middle part of right hemisphere. It shows two veins with their branches distended with

thrombus, which is usually dark, but at intervals is interrupted by pale material. The veins were affected in both hemispheres, the thrombosis extending to the base. There were also punctiform haemorrhages, in particular one area on the right side, partly shown in preparation, and a limited area on the left. The left side also showed, at the fissure of Sylvius, some yellow exudation around the plugged veins.

Bella C. (aged 16 years) was ill for only five days, complaining chiefly of headache on left side and pain in left ear. Vomiting and semi-coma ensued. There was also some paralysis of the right limbs, and possibly of the left side of face. Death was by coma after the manner of a slowly developing apoplexy.

Path. Reports, 11th November, 1889, No. 2204.

IX. 13. Circle of Willis, showing Thrombosis of Cerebral Vessels. (Sir Wm. T. Gairdner.)

The specimen shows the right internal carotid laid open, and exhibiting great thickening of its wall. A thrombus is seen at the origin of the right middle cerebral, and so completely was this vessel occluded, that a bristle could not be passed through it at the time of the post-mortem. In connection with this there was extensive softening of the nucleus caudatus and corona radiata, the softening in the nucleus caudatus having given rise to a cavity containing a milky fluid.

The specimen was obtained from a patient aged 44, who was admitted to hospital suffering from left hemiplegia, the attack having come on—probably suddenly—five days before. Eight years before he had a similar attack, from which there was complete recovery. The paralysis on his admission to hospital was complete in the left arm, incomplete in leg, distinct in mouth and tongue, also in buccinator muscle on left side. There was no aphasia or paralysis of articulation. Tactile anaesthesia existed in the paralysed limbs to a great extent, but common anaesthesia and analgesia were not present in proportion. For three weeks after his admission the temperatures were absolutely normal, and the condition of the lower limb appeared to improve slightly, but progressive rigidity occurred in the paralysed arm. Two months after admission a gradual deterioration of the mental faculties was observed, with occasional lethargic, but not comatose attacks; and three weeks later an apoplectiform attack took place, with a rapid rise of temperature from 99°

to 104°. For nine hours the temperature scarcely abated. Two days afterwards the patient died comatose. It is worthy of note (from the clinical point of view) that no *new* lesion of the brain substance could be verified as corresponding in date with this last attack, which had in all respects so much the clinical characters of haemorrhagic apoplexy as to have been treated as such, the pathology of the original paralytic attack being regarded as doubtful, and there being no cardiac lesion to indicate embolism. The patient had been of very intemperate habits, but so far as could be discovered there were no venereal or syphilitic antecedents. *Path. Reports*, No. 919.

IX. 14. Embolism of Middle Cerebral Artery. (Localised Softening of Brain, Involving Corona Radiata on Left Side, but not Broca's Convolution.) (Sir Wm. T. Gairdner.)

On exposing the left middle cerebral artery in the fissure of Sylvius, it was found to be distended by a solid plug just before it divides into two large branches. Just before the plug a small branch is given off, and, as shown in the preparation, this has a somewhat long course. It was found first to give off a branch to the temporal lobe, passing on to be finally distributed to the operculum and its neighbourhood.

On laying open the cerebral hemispheres an extensive softening was found in the corona radiata on the left side. The softened part corresponded generally with the distribution of the middle cerebral artery. It is noted, however, that the corpus striatum is not involved, and that the lower parts of the ascending frontal convolution with the operculum are not softened. [*N.B.*—The plug is distal to the origin of the lenticulo-striate arteries, and of the long branch going to the region of the operculum, as mentioned above.]

There was acute endocarditis, chiefly of the mitral valve, with warty vegetations, one of which had a broken appearance, as if recently lacerated. (See next preparation.) There were emboli in spleen and kidneys, and large white kidneys.

The case was that of a girl, aged 15, who had in childhood an angular curvature of the spine, but without any evidence of other organic changes up to seventeen days before admission, when she became affected with acute dropsy, evidently of renal origin, which was the principal, if not the only disease of any importance recognised as actively present. Eight days afterwards a sudden

and complete attack of right hemiplegia occurred, without involving in any way the mental faculties, and without aphasia. Extension of the praecordial dull percussion was noted, but with an entire absence of cardiac uneasiness of any kind, and with murmurs so doubtful in quality as to have at first suggested an exocardial origin, though more probably mitral and endocardial. The pulse was very feeble as compared with the heart's action, but regular—108 in the minute (counted with difficulty at the wrist). Coma in the end occurred, but only for a few hours before death, which took place eleven days after the paralytic attack.

Path. Reports, 15th June, 1883, No. 997.

IX. 15. Endocarditis of Mitral Valve (from preceding case).

It shows thrombi, one of them somewhat projecting.

IX. 16. Left Middle Cerebral Artery with a large Embolus in one of its Branches. (Professor M'Call Anderson.)

The specimen shows a distinct swelling at the origin of the second terminal branch of the middle cerebral, the swelling being caused by the presence of an embolic mass. At first it was thought that the main stem of the artery was plugged, but, as is seen in the preparation, a bristle can easily be passed from the one end of the main trunk to the other. The area of brain substance, supplied by the occluded vessel, lying in the corona radiata external to the corpus striatum, was distinctly softened.

The preparation was obtained from a patient who had been treated during several months in Ward II. for very severe mitral regurgitation. Throughout his entire residence in hospital he suffered from haematuria, and latterly from an extensive purpuric eruption, affecting chiefly the legs. The hemiplegia of the right side set in about 14 days before death, being preceded by profound coma for 24 hours, and followed by indistinct articulation, which, however, could not be pronounced as distinct aphasia. There was also embolism in the spleen. (See II. 64 and VI. 9.)

Path. Reports, 12th June, 1883, No. 996.

IX. 17. Embolism of Internal Carotid and its Branches. Cerebral Softening. (Sir Wm. T. Gairdner.)

The terminal part of the left internal carotid is distended by a bulky yellow plug which extends into the middle and anterior cerebral and one of the two posterior communicating arteries (there being here two). The source of the embolism was thrombosis on the mitral valve. There was also a small vessel, a branch of the middle cerebral, plugged on the right side. Extensive softening of the brain substance existed in its middle regions, including the basal ganglia. The softened brain substance showed under the microscope fatty degeneration, particularly in the grey substance where the ganglion cells were obviously affected.

Christina R. (aged 17) was attacked with hemiplegia on May 31st, 1887, and died on June 6th.

Path. Reports, June 7th, 1887, No. 1724.

IX. 18. Haemorrhage into Medulla Oblongata, Rupturing Floor of Fourth Ventricle. (Dr. M'Cracken.)

The fourth ventricle is exposed, and the clot is seen to occupy the substance of the medulla, presenting itself in the floor of the ventricle. In addition to this lesion, there was extensive softening of both corpora striata, involving also the optic thalami, and there were patches of softening in the white substance of both hemispheres. The vessels were in an extreme degree of calcareous degeneration. The left ventricle was much hypertrophied, and the heart weighed 17 oz.

The case was that of a woman, aged 51, who was under treatment on several occasions in Abergavenny Asylum, with acute mania, the first attack dating back to 1862. Her last admission was in January, 1877. In June she had an apoplectic attack, and another in December. In January, 1878, an apoplectic seizure completely prostrated her, and, after lying in a semi-comatose state for 10 hours, she died. The cause of death was apparently the recent clot in medulla oblongata. [Presented to the Museum by Dr. M'Cracken.]

IX. 19. Large Apoplectic Cyst in Temporo-Sphenoidal Lobe. (Dr. D. Yellowlees, Gartnavel.)

The cyst is nearly globular in shape, and measures 4 cm. in diameter. It is lined with a distinct membrane and contained serous

fluid. It had produced considerable bulging externally. Posteriorly to it the brain substance is somewhat soft, and there are several hæmorrhagic areas.

The patient was a man, aged 67, who had been 22 years in Gartnavel Asylum. He became partially paralysed a month before death, and continued restless and only half conscious till death.

Path. Reports, 8th May, 1882, No. 814.

IX. 20. Aneurism of Middle Cerebral Artery. Rupture. (Prof. M'Call Anderson.)

The aneurism, which is about the size of a small hazel-nut, is situated about 5 cm. from the origin of the middle cerebral, and just where the vessel is divided into several large branches. It is tolerably thick-walled, and there is a patch of atheroma in its wall. There is a rent in the aneurism about 6 mm. in length, and from this a large quantity of blood had escaped. Blood was found mainly in the cerebral substance, where it had formed a cavity for itself in the frontal lobe and corpus striatum. There was also blood infiltrating the membranes in the fissure of Sylvius, and a thin layer covered the convexity and the surface of the membranes. In addition to the cerebral condition, there was some enlargement of the left ventricle of the heart, and also slight contraction of the kidneys.

The case was that of a woman, aged 45. She had fallen down suddenly, and was admitted in a state bordering on unconsciousness, but without paralysis. She survived a few days and then sank rapidly. *Path. Reports*, 6th March, 1877, No. 200.

IX. 21. Large Compound Aneurism of Sylvian Artery. Rupture, and Cerebral Haemorrhage. (Dr. D. Yellowlees, Gartnavel.)

The following is the description sent with the specimen by Dr. Yellowlees. "A male, aged 52, epileptic and insane for many years, has been getting gradually feebler and more demented of late, helpless and unable to stand or walk, but not more affected on one side than the other. He became suddenly much worse, and died in three or four hours. The post-mortem reveals a very large haemorrhage outside the left lateral ventricle, destroying the outer half of left corpus striatum and optic thalamus. There was

a large *recent* blood clot, and the blood had also burst into the ventricle, and passed over into the other ventricle. At the bottom of this huge cavity is found this compound aneurism."

The structures preserved are well described as like a bunch of hazel-nuts. There are three on the bunch, one larger than a hazel-nut and more elongated; it is also paler than the others and feels hard and calcareous. One of the others is of a brown colour and nearly globular, just the size of a hazel-nut. The third one is like this in size and shape, but paler. On cutting into the brown one it is found to consist of a thin wall, and to contain red clot inside. The largest of the three is with difficulty cut into, as its wall is quite calcareous, and it contains brownish débris with calcareous matter.

This bunch of aneurisms is attached to the left Sylvian artery just at its commencement, and it lay mainly internal to the fissure of Sylvius, being partly covered by the optic commissure. On passing a probe into the artery, it emerges at a large gap at the base of the aneurism.

Path. Reports, 17th April, 1882, No. 808.

IX. 22. Aneurism of the Right Middle Cerebral Artery.

(Dr. Jas. Finlayson.)

The specimen was obtained from the body of a female patient, aged 18 years, who was admitted to hospital suffering from cough, dyspnoea, and oedema of the legs, the dyspnoea having been present since she was five years of age. There were loud A.S. and V.S. murmurs; the urine was albuminous and bloody. At the post-mortem, the mitral curtains were found to be extensively fringed with large vegetations. There was effusion of blood beneath the pia mater over the right hemisphere, and this extended downwards to the base. In the substance of the right hemisphere was a large excavation filled with clot, from which blood had passed into all the ventricles of the brain. Besides the recent haemorrhage, several old apoplectic cysts were discovered. On tracing up the right middle cerebral, the cause of the haemorrhage was found to be the aneurism seen in the specimen. It was situated on one of the posterior branches of the vessel, and, as is seen in the specimen, just where the vessel bifurcates. The cause of the aneurism has probably been embolism. A bristle has been passed through the main stem and out at the rupture in the aneurismal sac.

The girl had an alarming convulsive seizure on 31st May, from which she recovered almost completely, till a fatal recurrence of convulsions and coma on 6th June. In view of the old lesions, it is remarkable that this girl had never before had any nervous symptoms whatever, so far as her friends had recognised.

Path. Reports, 7th June, 1884, No. 1200.

IX. 23. Aneurism of Left Middle Cerebral Artery. Rupture.
(Dr. Finlayson.)

The artery has been dissected out, and a small aneurism is displayed in the fork between two branches about 4 cm. from the origin of the vessel. The aneurism is of about the size of a split pea, and has a soft, whitish wall. It was found torn open and in communication with a large clot of blood, situated chiefly in the white substance of the temporo-sphenoidal lobe, but also present in the subarachnoid space over the pons and medulla on both sides and in the fissure of Sylvius and neighbouring sulci on the left side.

There were prominent thrombi on the mitral valve and hypertrophy of the left ventricle. The association with thrombosis on the mitral valve and the position of the aneurism at a bifurcation suggest that it was due to embolism.

The patient was a girl aet. 15, who was affected with palpitation and breathlessness. She was suddenly seized with headache on the left side, followed by convulsive seizures, which recurred several times; she died in about 12 hours.

Path. Reports, 22nd January, 1886, No. 1473.

IX. 24. Aneurism of Right Middle Cerebral Artery. Rupture.
(Sir Wm. T. Gairdner.)

The preparation shows a conical-shaped aneurism about 6 mm. in diameter, projecting from the deep surface of the Sylvian artery, just where it divides into three branches. The aneurism projected towards the brain substance, and there was a cavity about 12 mm. in diameter in the corona radiata filled with blood and débris. Blood also infiltrated the meninges somewhat extensively, occupying the sulci of the anterior and middle parts towards the base. There was also some bloody fluid in the lateral ventricles. The arteries were atheromatous.

Mrs. M. (aet. 44) was found two days before death in a comatose

condition, from which she did not recover. There was ecchymosis over the left eyebrow. She was an inveterate drunkard, and for seven weeks had scarcely been sober.

Path. Reports, 23rd Dec., 1884, No. 1275.

IX. 25. Aneurisms of Left Middle and Right Anterior Cerebral Arteries. Haemorrhage. (Sir Wm. T. Gairdner.)

The preparation shows the circle of Willis, with the principal branches. An aneurism about 12 mm. in diameter projects from the left middle cerebral, lying in the fork formed by its first division; at its summit there is a small tear. A second aneurism of the size of a split pea projects backwards from the first part of the anterior cerebral. Extensive haemorrhage occurred from the larger aneurism, both into the membranes and brain substance. In the latter there were fresh clot and also some brown altered blood.

Mrs. M. (aged 59) had an attack of pain on Jan. 7, and fell to the ground but did not lose consciousness. Admitted Jan. 13th with aphasia and slight hemiplegia of right side. Considerable improvement till 31st, when she fell into unconscious state, with rigidity of right arm. Spasmodic twitching of right arm, leg, and side of body noticed some time before death. Death occurred in about three hours from the onset of this seizure.

IX. 26. Aneurism of Anterior Cerebral and Anterior Communicating Arteries. Haemorrhage. (Dr. G. P. Tennent.)

The aneurism, which is pyramidal in shape, and of the size of a pea, occupies a position between the two anterior cerebral arteries, being connected chiefly with the communicating artery, but also to some extent with the right anterior cerebral. It projects more inferiorly than superiorly. From the apex of the aneurism a small clot projects, and this communicated with collections of blood having the following distribution. There was blood, not abundant but widely extended, in the subarachnoid space over the convexity, most abundant anteriorly. At the base the blood was much more abundant, but still only in a thin layer, extending from the front backwards over pons and medulla. A large quantity of blood was found in the lateral ventricles, but very little in the midst of the

brain substance. The communication with the ventricle was anterior, and the channel from the aneurism to the right ventricle was by a comparatively narrow passage. There was no disease of the heart or other organ. *Path. Reports*, 28th February, 1881, No. 632.

IX. 27. Aneurisms of Basilar and Posterior Cerebral Arteries. Haemorrhage. (Dr. Tennent.)

The preparation shows a large rounded body of the size of a small plum, with a small body of the size of a pea attached to it. The former is an aneurism of the basilar, and the latter one of the right posterior cerebral. The large aneurism is connected with the basilar near its termination; it lay to the right of the artery pressing on the right half of the pons. It measures about 2·5 cm. in diameter and is nearly spherical. The right posterior cerebral was stretched over the upper part of the aneurism, and the third nerve passing between aneurism and vessel was much compressed and had for a considerable part of its course a ribbon-like character. The aneurism shows a rupture at its extreme apex, and there was extensive haemorrhage in the meninges, extending over the base and into the Sylvian fissures. The other aneurism is connected with the right posterior cerebral, and is firmly adherent to the large one.

Mrs. M. (aged 70) was admitted to the Infirmary semi-conscious, with paralysis of left side of face and to a slight extent of left arm. She only lived till next day.

Path. Reports, 23rd June, 1890, No. 2406.

IX. 28. Aneurism of Anterior Part of Basilar Artery in a Child. Cerebral Haemorrhage. (Dr. Finlayson.)

The parts preserved are mainly the circle of Willis and adjoining arteries. A bulky aneurism obtrudes itself in front of the basilar artery. It measures 2 cm. transversely and 1·2 cm. from before backwards. The posterior cerebral arteries on either side emerge from the sac, and are presumably obstructed, as the posterior communicating arteries are unduly large, and form almost a direct continuation with the posterior cerebrals. The aneurism was found lying between the two crura cerebri and penetrating deeply in the posterior perforated space, the infundibulum presenting itself in front of the aneurism. The 3rd nerve on either side is spread out on the surface of the aneurism and adherent, that on the right

side is, however, more intimately connected with it. Haemorrhage had occurred, and a dark clot was found distending the 3rd and 4th ventricles and extending into the lateral ventricles. There was little change visible on the convexity, but some blood had escaped by the great transverse fissure so as to present itself beneath the cerebellum, and there was a new layer on the anterior part of the pons.

There was very marked disease of the aortic valve in the form of chronic thickening with vegetations.

James G. (aged 10¼ years) had rheumatism two years before death. The more definite cerebral symptoms dated from about six weeks before death. They consisted at first of dulness and peevishness, followed a week later by pain in the head, sickness, and vomiting. During his residence of nearly a month the signs of marked aortic disease with hypertrophy of the left ventricle were found. There were occasional high temperatures. Three days before death drooping of the right eyelid and slight strabismus of right eye were observed; there was also double vision. Two days before death convulsions suddenly ensued, with sickness and vomiting. The spasms came and went to some extent. They affected chiefly the legs, to a slight extent the arms, and slightly the face. Just before death the temperature rose to 107·2°.

See *Path. Reports*, Sick Children's Hospital, Vol. II., No. 166.

IX. 29. Aneurism of Middle and Anterior Cerebral Arteries. Rupture. Meningeal Haemorrhage. (Sir Wm. T. Gairdner.)

The aneurism lies between the anterior and middle cerebrals, so as to form, as it were, a continuation of the internal carotid. It is somewhat cylindrical in shape, and measures about 6 mm. in length by about 4 mm. in breadth, having about the same diameter as the internal carotid. Its distal extremity is somewhat infiltrated with blood, and an aperture is present here. There was extensive haemorrhage in the meninges covering optic chiasma, pons, and upper part of medulla oblongata, and extending into the fissures of Sylvius and the anterior longitudinal fissure. There was a considerable amount of blood in the membranes on the upper surface of the cerebellum, and blood was present in the 4th ventricle and posterior parts of the lateral ventricle. There was no blood in the

brain substance proper. There were hypertrophy and dilatation of the left ventricle of the heart, but without any valvular disease.

Geo. M. (aged 41) was admitted about a month before death with severe headache which had followed a sudden attack of giddiness with unconsciousness for an hour. The headache passed off in a few days and he returned to his work. Sudden unconsciousness supervened and he was re-admitted. The pupils were at first contracted but afterwards dilated, and there was some external strabismus of the left eye. He died a few hours after the attack.

Path. Reports, 18th March, 1893, No. 3295.

IX. 30. Atheroma of Cerebral Arteries. Cerebral Haemorrhage.

The circle of Willis is preserved, and the preparation is mounted in a fluid containing glycerine to render it more transparent. Numerous opaque patches are seen on all vessels, and this condition was present in even the finer arteries. A large blood clot occupied the left cerebral hemisphere.

There was great hypertrophy of the left ventricle, with an aneurism of this ventricle. The aorta was moderately atheromatous, but the smaller arteries in the abdomen were highly so. The kidneys were granular on the surface, but not much reduced in size.

Path. Reports, No. 858.

IX. 31. Abscess of Cerebrum. (Sir Wm. T. Gairdner.)

The parts preserved show the irregular walls of an abscess which had its seat in the white substance of the left hemisphere. The cavity had a generally oval shape, and measured 6 cm. from before backwards. The fluid in the abscess was very thin, and only on standing did it deposit a distinct layer of pus.

The patient was a man, aet. 36, who, from his being a house painter, and suffering from drop-wrist (on the right side only), came under suspicion of lead-poisoning, but had never suffered from colic, though there had been constipation. He was quite intelligent on admission, and had no decidedly cerebral symptoms; but there was weakness of the right lower limb, as well as of the upper, and in the latter slight rigidity of the flexors, with well-marked paralysis of the extensors; movements of left side unimpaired. [In connection with the entire absence of aphasia throughout, it may be noted that

the patient was originally left-handed.] There was a history of localised convulsive attacks in the right upper extremity, without any loss of consciousness, but followed by left frontal headache and transitory loss of memory. General sponginess of the gums obscured the evidence as to the presence or absence of the characteristic lead-line; the temperatures were normal or sub-normal; digestion and general nutrition unaffected; no further evidences of lead cachexia. The symptoms, on admission, had lasted for about seven weeks. Under these very perplexing diagnostic conditions, the administration of iodide of potassium was commenced as for lead-poisoning, but "was followed by very intense and prolonged sickness and giddiness, associated with such continuous pain in the left frontal region as to lead to a constantly renewed suspicion that the original diagnosis might have been an error, and that the case might be a purely cerebral one." This opinion gained ground all the more as it was found that the complete discontinuance of the iodide did not at all remove the symptoms which at first were naturally supposed to have been caused by it. It was then found that the left frontal headache, which had been both severe and persistent, extended from the superciliary ridge to the coronal suture, but not to the vertex; there was no ocular paralysis, or any anaesthesia of the fifth nerve; the pupils were equal and natural, as was the facial expression. There had never been any vomiting prior to the administration of the iodide. These symptoms (especially the pain) continued for nearly six weeks after admission, and were not at all relieved by remedies, except by morphia hypodermically injected on two or three occasions. At this date a sudden attack of unconsciousness, following a peculiarly severe exacerbation of the pain (but without change in the symptoms otherwise), was followed by some apparently spasmodic movements in the non-paralysed limbs, and by dilated pupils, with deep coma, fatal in eight hours; up to the very moment of this sudden attack the intelligence had been apparently perfectly preserved. There were no rigors or other feverish symptoms; and the temperatures, regularly noted in the earlier part of the case, were absolutely normal. *Path. Reports*, 27th December, 1876, No. 172.

IX. 32. Abscess of Cerebrum from Ear Disease. (Sir. Wm. T. Gairdner.)

The preparation shows an abscess cavity measuring about 4 cm. in diameter, and situated in the left tempero-sphenoidal lobe, its

middle point being 6 cm. from the anterior extremity of the lobe. The superior tempero-sphenoidal convolution is free from the abscess, but the middle and inferior are largely undermined. The abscess contained a thick flocculent and very foetid pus, and was lined with a fairly firm yellow layer, which was found microscopically to consist chiefly of granulation tissue. The abscess at one point almost touched the surface, and at this point the brain was adherent to the dura mater, and the latter presented a shreddy perforation. This perforation was over the petrous bone, whose upper surface was irregular and covered with semi-purulent matter. At the internal margin of this there was a perforation of the bone just in front of the superior semi-circular canal, and a probe introduced here could be readily passed till it issued at the external meatus. The brain presented in addition a considerable amount of pus in the sub-arachnoid space, especially over the superior surface of the cerebellum and the optic chiasma, but also extending slightly into the fissures of Sylvius.

John Q. (aet. 54) had suffered from disease of the left ear for at least five years. Cerebral symptoms showed themselves three weeks before death, chiefly pain in the head and lethargy developing into coma. There was no paralysis, but sluggishness of volition and intelligence, and patient could speak and walk thirty-eight hours before death. The day before death the temperature, hitherto normal, rose to 105°.

Path. Reports, 22nd December, 1886, No. 1651.

IX. 33. Abscesses in both Hemispheres of Brain in a Case of Scarlatina. (Dr. Scobie, Belvidere.)

A portion from each hemisphere is preserved, that from the left being the larger. In the left hemisphere there is an irregular cavity with ragged walls which is situated slightly behind the fissure of Rolando. It was visible from the surface as a pale greenish area, and an incision revealed a greenish but not foul pus. The abscess in the right hemisphere is smaller, but occupies a position similar to that in the left. Both abscesses were surrounded by a firm and dark red tissue which gradually merged in the brain substance. It is found microscopically to present a highly cellular layer composed largely of leucocytes, beneath which there is a more fibrous layer having the aspect of condensed neuroglia. In the

brain substance around there is a marked congestion of the blood-vessels.

James K. (aged 27) was admitted to Belvidere with symptoms of scarlatina. Three weeks after admission hemiplegic symptoms were noticed for the first time in the form of paralysis of the right side of the face with deviation of the tongue to the right, considerable difficulty of speech, and some paresis of the right hand. There was also some anaesthesia of the fingers of the right hand. There was no aphasia. A few days later there supervened attacks consisting of movements of the left arm and leg, and ending with quivering in the left side of the face.

Path. Reports, 3rd January, 1898, No. 5283.

IX. 34. Abscess in Temporo-Sphenoidal Lobe from Penetration of Bullet. (Sir Hector C. Cameron.)

The cavity of the abscess is exposed from below, and is somewhat torn, as the parts were adherent to the membranes at the base. It is of irregularly oval shape, measuring 6 cm. in long diameter. In the cavity, which contained pus and communicated externally through the bullet wound, two pieces of bone were found; the piece of bullet was discovered in its posterior part. It is to be noted that the bullet was found in the extreme posterior part of the cavity, and partly embedded in brain substance, while the line of the bullet wound corresponded to the anterior part of the cavity. The bullet had evidently been at first in front, and had gravitated backwards as the patient lay, producing the cavity as it progressed. There was considerable exudation on the surface of the arachnoid generally.

The bullet wound was immediately in front of the left ear and at the level of the orbit. The aperture in the skin measured 2 cm., and that in the bone 6 mm. in long diameter. The aperture in the bone was in the temporal fossa, its anterior extremity being 3 cm. behind the edge of the sphenoid, and its external border 5 cm. from the middle line.

The case was that of a woman (aged 38), who was shot from a few feet distance by a man who afterwards shot himself (see Series I., No. 10). When admitted she was able to walk and speak, but in 24 hours she became aphasic, and this continued till death, three weeks after. About 36 hours after admission she had violent twitchings of the face, especially on the right side,

followed by general convulsions. Twitchings and convulsions were repeated every few minutes for more than a day, then gradually became less frequent and disappeared in three days, leaving paralysis of the right arm and leg, and left side of face. Consciousness returned, and she did well till a few days before death, when, suppuration having set in, the temperature rose, and she died comatose. *Path. Reports*, 21st March, 1883, No. 961.

IX. 35. Abscess of Cerebellum following Disease of Middle Ear. (Prof. Macewen.)

The left lobe is excavated by a ragged cavity which is exposed by removing part of the superficial tissue, which was partly gangrenous. It penetrates inwards rather beyond the middle line, and contained a very foul-smelling greenish pus. There were thrombi in the sigmoid sinus, one on either side of the knee of the sinus, and some thin purulent fluid lay between the thrombi. There was a slight meningitis at the base of the cerebellum, chiefly on the left side. The petrous portion of the temporal bone was found considerably broken down.

Wm. C. (aged 19) was admitted with a view to operation, but died suddenly on the morning when the operation was to have been performed. *Path. Reports*, 9th November, 1895, No. 4379.

IX. 36. Abscess in Cerebellum from Caries of Temporal Bone. (Sir Wm. T. Gairdner.)

The right cerebellar hemisphere is largely replaced by a cavity which does not go appreciably beyond the middle line, and in its outer part has so undermined the nervous tissue as to leave a gap. The inside of the cavity in the fresh state was shreddy and discoloured, and it contained a grumous fluid with flakes of solid matter and with intensely foetid odour. The cerebellum was considerably adherent to the dura mater.

There was extensive caries of the temporal bone, with destruction of the membrana tympani, and in three places an actual gap in the internal bony wall, so that the dura mater was in immediate contact with carious cavities. In these places the dura mater was much discoloured and adherent. These three places were—upper surface and posterior aspect of petrous bone, and the angle between the petrous bone and the wall of the calvarium. The tympanic cavity,

with its various communications, contained foetid matter, and a brown polypus projected from its mucous membrane.

The patient was a woman (aged 26), who had suffered from severe pain in the head and vomiting for about a fortnight, with supervention of coma only a few hours before death. There was no paralysis, but considerable dysphagia and cerebral respiration, approximating to the Cheyne-Stokes type. There had been a purulent discharge from both ears since childhood, following on scarlet fever. *Path. Reports*, 30th July, 1883, No. 1016.

IX. 37. Abscess of Cerebellum from Disease of Petrous Bone. (Dr. G. P. Tennent.)

The abscess, which is exposed in the preparation, is situated in the left cerebellar hemisphere, in its external and inferior part. Its cavity is about large enough to contain a walnut, and in the recent state was filled with very offensively smelling pus of a yellow colour. The corresponding portion of cerebellum was found adherent to the dura mater over the petrous bone, and the dura mater had a greenish coloration. The lateral sinus on this side was filled with a greenish decomposing pus which extended beyond the torcular Herophili to the sinus of the opposite side.

There were pyaemic abscesses in the lungs and an infarction in the spleen.

The case was that of a girl, aged 20. There had been a discharge from left ear for eighteen months, but four weeks before admission the discharge ceased and pain in the head began, accompanied with various nervous symptoms. During her residence in hospital temperature was high, and successive crops of rose spots were stated to have occurred. *Path. Reports*, 20th January, 1883, No. 917.

IX. 38. Brain in Cerebro-Spinal Meningitis.

IX. 39. Cerebro-Spinal Meningitis (Epidemic ?). (Dr. Jas. Finlayson.)

This preparation consists of two water-colours by Mr. Innes Dunlop, showing the appearances in the fresh state; one is of

brain, the other of the spinal cord. The following is the description of the parts, chiefly from the report made at the time of the post-mortem. An abundant yellow exudation exists on the convexity of the cerebrum; it occupies mainly the sulci, but to a certain extent covers even the summits of the convolutions. Although not limited to any region of the cerebrum, it is much more abundant anteriorly, where in some places it is almost continuous: it is much less abundant at the base, although it forms a tolerably thick layer over the optic commissure and neighbourhood, and causes a glueing of the fissure of Sylvius. Both on the convexity and at the base the exudation is symmetrical. There was no excess of fluid in the lateral ventricles or softening around.

A similar yellow exudation occupies the greater part of the posterior aspect of the spinal cord. It is continuous in the lower part of the cord as high as the middle of the dorsal region, where there is a slight interval, above which it is again continuous to the lower part of the cervical swelling, where it stops short. The exudation is entirely sub-arachnoid, and does not extend at all into the substance of the cord. The anterior aspect of the cord is entirely free of exudation.

The case was that of a lad aged 18, of irregular habits, who came from the West Indies to study engineering a year before his fatal illness. This illness seems to have lasted about 8 days, and was characterised chiefly by weakness of arms and legs, pain in back, limbs, and neck, with retraction of the head, fever, and delirium. During his residence in hospital, which extended to 4 days, the temperature was usually about 104°; there were delirium and twitching of the muscles, and slight convulsion of left arm. See *Glasgow Medical Journal*, Vol. xx., p. 220. Several cases of a similar nature occurred about a year later in Ayrshire, and another case in the Western Infirmary in March, 1885. (*Path. Reports*, No. 1328.) See also paper by Dr. Frew, of Galston, in *Glasgow Medical Journal* for July, 1884. *Path. Reports*, 22nd February, 1883, No. 941.

IX. 40. Pachymeningitis Chronica Haemorrhagica. (Dr. Jas. Finlayson.)

The dura mater is lined with a soft membrane in several layers. Between the layers there is frequent haemorrhage, but not any very bulky clot.

The patient, a man, 49 years old, died from a haemorrhage in the substance of the brain, due to the rupture of an aneurism. See *Glasgow Medical Journal*, Vol. xvii., p. 423.

Path. Reports, 12th January, 1877, No. 176.

IX. 41. Tubercular Tumour of Pons. (Dr. Finlayson.)

The tumour is a somewhat bulky one of a rounded shape, measuring 4 cm. in transverse diameter and 3·5 cm. from before backwards. It occupies the posterior parts of the pons, so that on dividing and turning aside the cerebellum it is seen projecting in front of the fourth ventricle. The anterior part of the floor of the ventricle was stretched over the tumour posteriorly, and the corpora quadragemina were impinged upon and softened in front. The pons varolii and peduncles were found much softened, especially on the right side. The lateral ventricles were considerably distended, but there was no appearance of tubercular meningitis. Under the microscope the tumour has the usual character of caseous tubercle, namely—round cells with giant-cells superficially, and indefinite caseous matter forming the bulk of the mass. The other organs were normal, except that there was a small irregular cavity in left kidney.

The case was that of a boy (aet. 7) who six months before death began to be unsteady in his gait, with squinting, headache, and crying out at nights. He had something like a fit about three months afterwards. During his residence in hospital of two months the following facts were noted: double paralysis of sixth nerve, optic nerves apparently normal (Dr. Thos. Reid), saliva dribbles from side of mouth, movements erratic and unsteady, walking possible at times with assistance, anaesthesia of uvula, epiglottis, etc., movements of tongue unaffected; weakness and helplessness increased, and death occurred without convulsions.

Path. Reports, 30th June, 1885, No. 1383.

IX. 42. Tubercular Tumour of Optic Thalamus. Tubercular Meningitis. (Dr. Tennent.)

The lateral ventricles are exposed from above, and on the left side a bulky lobulated tumour is seen to occupy the position of the thalamus opticus, extending beyond the middle line and into the deeper parts of the right thalamus. It measures 3 cm. from before

backwards and 5 cm. from side to side, and it projects considerably upwards, its summit being about 2·5 cm. above the general level of the floor of the ventricle. The choroid plexus is stretched over its surface. The tumour is very firm to the touch, and has the microscopic character of a tubercular mass. The base of the brain shows marked opacity and thickening of the membrane over the pons varolii and the parts in front, and there is also an extension of the exudation into the fissures of Sylvius.

A boy (aet. 3½ years) was admitted with right hemiplegia. The history showed an illness beginning with vomiting and diarrhoea two years before death. A year afterwards he lost the power of walking for two months, but this gradually returned. Six months before death there were first noticed tremulous movements of the right hand and spasmodic movements of the right leg in walking, also stammering in speech. In the later stages there were convulsive movements, with double strabismus. *Tâche cerebrale* was very distinct, the respirations became irregular in rhythm and volume; the temperature was markedly febrile.

Path. Reports, 18th December, 1885, No. 1457.

IX. 43. Large Tubercular Mass in Temporo-Sphenoidal Lobe. Formation of Cysts. (Dr. Tennent.)

A horizontal section has been made through the left hemisphere. About 2·5 cm. from the base a bulky tumour of irregular shape is exposed. It is situated superficially in the temporo-sphenoidal lobe, corresponding in general with the second temporo-sphenoidal convolution, coming to the surface at the posterior part of this convolution. It extends deeply, however, in the form of a bulbous mass about 2·5 cm. in diameter, which projects into the lateral ventricle behind the nucleus lenticularis. It also extends downwards into the deeper substance of the lobe. The tumour is surrounded by softened brain tissue, and a section carried through the basal part of the lobe exposes two cysts with smooth walls—one, 4 cm. in length, situated laterally, and another, of smaller dimensions, towards the middle line. The bulk of the tumour was caseous, but it presented peripherally a transparent zone which had the usual characters of tuberculosis. The soft membranes showed evidences of acute inflammation, with irregular distribution of tubercular meningitis, and the ventricles were distended with clear fluid.

Archibald T—— complained chiefly of pain in the head and dimness of vision. There was also pain in the left scapular region and arm. There was no paralysis, but tactile sensation was deficient on the right side. Latterly there were serious nervous symptoms referable to meningitis. *Path. Reports*, 17th May, 1887, No. 1714.

IX. 44. Tubercular Tumour of Cerebellum. (Sir Wm. T. Gairdner.)

The right half of the cerebellum is almost entirely occupied by a bulky oval tumour, measuring about 5 cm. from before backward, and about 4 cm. from side to side. The only parts of the right half of the cerebellum uninvolved by the tumour are the most internal and anterior portions. The middle lobe is free. The tumour consists of a dense cheesy material, surrounded by a film of grey tissue. There was well-marked tubercular meningitis (cerebro-spinal), and an old cysticercus was present in the corpus striatum.

The patient was a girl, aet. 7. Paroxysms of headache began 18 months before admission, but without vomiting or convulsions. Seven months before death paralysis began, first in right arm and leg, then in left leg, afterwards complete loss of sight and diminished hearing. Nystagmus, but no squinting. Intelligence, memory, and most of the higher cerebral functions appeared on her admission quite unaffected, and it was only gradually that, for about four weeks, lethargic symptoms, deepening into coma but without convulsion, took the place of the condition above indicated. The case was observed with specially curious interest in respect of these details, in consequence of an apparent enlargement of the head, which (with the mother's assent) seemed to have been either congenital or to be referred to the earliest infancy, and was regarded as probably hydrocephalic, as it was indeed found to be after death, eight ounces of fluid being taken from the ventricles. The clinical and pathological relation of the cysticercus to the other facts remains obscure; but, from its evidently obsolete character and calcareous surroundings, it has probably had nothing to do with the recent facts of the case. *Path. Reports*, 27th March, 1877, No. 208.

IX. 45. Large Tubercular Tumour of Cerebellum. (Sir. Wm. T. Gairdner.)

There is a very striking enlargement of the left cerebellar hemisphere, so that, the raphe of the medulla oblongata being taken as the

middle line, this hemisphere extends 2·5 cm. to the right of the middle line, and 1·2 cm. further outwards than the other lobe, the total transverse measurement being—right, 2·5 cm.; left, 6 cm.; it also extends backwards 2 cm. farther than the other. The medulla oblongata is pushed forwards and flattened from before backwards, the restiform body on the left side especially being greatly shrunken; but there is no great displacement from the middle line. The pons varolii is also flattened in its left half, and considerably shrunken or pushed over, especially in its posterior portions. As shown on section, the greater part of the left lobe of the cerebellum is occupied by a dense caseous tubercle, with a grey circumferential zone which comes to the surface inferiorly, where the dura mater was adherent to it. In its posterior and upper aspects the tumour is still covered with cerebellar tissue, which, however, was very oedematous and soft.

The lateral ventricles were much distended, but there was no softening around them, and no meningitis.

The case was that of a boy aged 3. The principal symptoms were lethargy without coma, and partial or complete amaurosis, complete inability to stand or walk, but without definite paralysis or convulsions. There were present loss of control over sphincters, slight nystagmus, but no strabismus. The condition of the retinae was not considered characteristic of a cerebral tumour. The temperatures, with rare exceptions, were normal or sub-normal. Later on there were contractures, but no convulsions and no well-defined paralysis. Death occurred by almost pure asthenia, with progressive emaciation, and coma only existed during the last day or two.

Path. Reports, 15th July, 1882, No. 841.

IX. 46. Tubercular Tumour of Cerebellum. (Prof. Macewen.)

The preparation shows the cerebellum divided in the middle line and with the two halves attached to the pons. The dura mater is adherent over the upper surface, and is pushed upwards by a prominent bulky tumour. On section this tumour is seen to have an extension from above downwards of 3·5 cm. There is no cerebellar tissue between it and the adherent dura mater, but on the under surface the cerebellar tissue measures about 1 cm. As judged of by palpation and by the adhesion of the dura mater, the tumour extends much further to the left than to the right, the extension in the former direction being 3 cm., and in the latter

about 1·5 cm., giving a total transverse measurement of 4·5 cm. The measurement from before backwards is 4 cm. The tumour as seen in section is composed mainly of a dense yellow caseous mass. There is however a grey transparent marginal portion all round and in the deeper parts; this attains to a thickness of 4 or 5 mm. The fourth ventricle is seen to be dilated, as were also the lateral ventricles.

John G. (aged 17) was affected with double otitis media of four years' duration. For five months he had been affected with vomiting, staggering gait, and loss of vision. There was complete blindness one and a half months after onset, and latterly there was complete inability to stand. Double optic atrophy was observed.

Path. Reports, 7th May, 1898, No. 5447.

IX. 47. Tubercular Meningitis. (Dr. Fraser, Paisley.)

The central parts of the base of the brain are preserved, and an exudation is seen to cover many of the structures there, the optic chiasma being completely concealed, and the exudation extending back over the pons, etc.

Path. Reports, 26th March, 1877, No. 209.

IX. 48. Tuberculosis in an Organised Blood Clot on the Internal Surface of the Dura Mater. (Dr. Dalziel.)

A portion of the dura mater has been kept. At the post-mortem the appearances were somewhat as follows: The brain in general presented the usual appearances of tubercular meningitis. Besides these usual conditions the internal surface of the dura mater presented a brown layer evidently of altered blood limited to the right side. This brown layer almost corresponded with the entire lateral aspect of the hemisphere, but increased somewhat in lateral extent and thickness posteriorly. It was much less considerable at the base, but extended into the anterior part of the middle fossa, giving place however to a more ordinary red coagulum. This brown layer was dotted over with white translucent tubercles, for the most part closely set.

Under the microscope the brown layer was found to be an organised membrane containing wide capillaries, and with some

remains of blood pigment. It contained tubercles of typical structure.

Thos. G. (aged 50), a labourer, was admitted to the Western Infirmary on account of an injury received by a fall while cleaning windows. He was unconscious when admitted, but gradually recovered, and was doing well when, five weeks after admission, a sudden change for the worse occurred. The symptoms developed were such as to suggest compression of the brain. Pupils were dilated, patient was stupid, and there was a loss of conjunctival sensation on the right side. It was thought that the symptoms of compression must be due to the presence of blood, and the skull was therefore opened by trephining, but without result. Patient died 44 days after the occurrence of the fall. See *Journal of Pathology*, Vol. I., p. 460.

Path. Reports, 5th September, 1891, No. 2750.

IX. 49. Tuberculosis of Dura Mater of Cord by Extension from Bones. (Sir Wm. T. Gairdner.)

The dura mater is seen to be extensively thickened both on the anterior and posterior surfaces. In the upper parts it is chiefly the anterior surface, the involvement extending in a longitudinal direction for about 13 cm. The upper extremity was at the level of the lower border of the third cervical vertebra. About 5 cm. from this position the infiltration extends round to the posterior aspect of the cord, the extension being round the right lateral aspect. From the point mentioned there is an extension downwards for a distance of 13 cm., so that it reaches 6·5 cm. below that on the anterior aspect. The infiltration on the posterior aspect is generally more bulky and more dense than that on the anterior aspect, and a transverse section near the lower end shows that the infiltrated tissue occupies about double the transverse area of cord itself. The infiltration seems to extend somewhat along the emerging nerves.

There was a tuberculosis involving the heads of the first three ribs and the corresponding parts of the laminae of the vertebrae, but with very slight involvement of the bodies.

Robert C. (aged 28), a tailor, presented a most instructive history. There was a sudden loss of power in the lower limbs preceded by some weakness. He had been in bed for some time with supposed rheumatic pains in his arms. There was never any pain in legs

or back. On his admission the lower limbs were quite powerless, and the muscular substance soft and flabby, plantar reflexes exaggerated. Thoracic movement during respiration was almost absent, and latterly completely so. The abdominal movement was unduly prominent. There was distinct loss of sensation in the lower limbs and trunk up to the umbilicus.

Path. Reports, 20th June, 1894, No. 3756.

IX. 50. Syphilitic Gumma of Brain: Formation of Cysts beneath it. (Dr. G. P. Tennent.)

The parts preserved are two horizontal sections of the posterior part of the left cerebral hemisphere. A tumour is present at the surface and in the substance of the brain, in a position corresponding with the anterior part of the occipital lobe, and slightly above the level of the roof of the lateral ventricle. The section of the tumour is somewhat irregular and lobulated, but with a generally quadrilateral shape and an area of about a square inch. It penetrates to the extent of an inch into the brain substance, replacing it. In the fresh state it had a generally grey colour, with a central caseous appearance. The dura mater was firmly adherent over the tumour and for some distance around, and the brain substance showed distinct softening beneath the adherent dura mater and around the tumour. In the white substance beneath the tumour two cysts are present, one of them elongated and the other rounded in shape; they contained a loose oedematous connective tissue. The left hemisphere was found distinctly larger than the right.

Under the microscope the fresh marginal parts of the tumour showed chiefly round-celled tissue; the structure of the central parts was very indefinite, with evidences of fatty degeneration.

Path. Reports, 28th October, 1891, No. 721.

IX. 51. Gummata of Dura Mater, Pons, and Medulla. (Dr. Finlayson.)

The parts preserved are sections of the frontal convolutions and of the pons and medulla. Over a patch at the extreme anterior border of the brain the dura mater is greatly thickened, and was adherent with both bone and to the brain substance beneath. This patch measures about 5 cm. transversely, and 4 cm. from above downwards. On section it is seen that the thickened dura mater forms a white

tendinous looking layer about 6 mm. in thickness. Projecting from its under surface near the upper extremity of the thickened patch two rounded tumours are seen projecting towards the brain, these have a reddish grey colour and a diameter of about 1·2 cm.; they are united by their proximal ends. In the part of the dura mater stripped these two projections are seen to be associated with a third, which is in contact with the other two. Towards the lower extremity of the patch there is another inward projection but scarcely of such a definite character. The brain substance is impinged on by the tumours, and in the case of the lower one is considerably softened. On viewing the pons and medulla in the fresh state, rounded patches of a grey colour were observed on the left lateral aspects and inferior surface, apparently confined to the left of the middle line. There were two such patches on the pons, and one on the medulla at its extreme upper part. On section these patches are seen to extend into the substance of the pons and medulla, while under the microscope round-celled tissue with occasional caseation replaces the proper nervous substance. The arteries in the pia mater and, to some extent, in the substance of the gummata show extreme thickening of the internal coats.

The fauces and soft palate showed evidence of a healed syphilitic lesion, the fauces being adherent and the soft palate perforated.

Patient was a married woman (aet. 24) who was admitted complaining of sore throat, frontal headache, loss of sight, etc. The sore throat had existed a year before. Some time after admission twitchings developed on the right side of the body, followed by slight paralysis of the right side of the face. There was pain in left frontal region followed by a rigor and rise of temperature. Following on a similar attack a few days afterwards death occurred.

Path. Reports, 21st January, 1888, No. 1813.

IX. 52. Peculiar new Growth in Dura Mater, affecting Calvarium. Periosteal Sarcoma of Vertebrae. Tumours in Kidneys, Spleen, Supra-Renal Capsules, etc. (Dr. Jas. Finlayson.)

The parts preserved are the calvarium, No. 52, corresponding dura mater, No. 53, portion of vertebral column, No. 54, kidney with supra-renal capsule, No. 55, and spleen, No. 56. The description here given applies to all these preparations. The pericranium was partly converted into a soft pulpy tissue, part of which, in the

preparation, remains adherent to the skull. The internal surface of the calvarium and the external surface of the dura mater were irregularly covered by a pale soft tissue, in some places as much as 6 mm. in thickness. The internal surface of the bone is seen to be very irregular; this irregularity depending partly on erosion and partly on projections of new-formed spicules of bone. It is not apparent whether the new-formed tissue grows mainly from the dura mater or from the bone, it being intimately connected with each of them in different places. The internal surface of the dura mater, IX. 53, also presents considerable irregularity, and is generally covered by a layer of soft tissue which, however, is smoother on this surface than that external. Under the microscope this soft tissue presented masses of round cells which were well preserved. The surface of the brain presented indentation, corresponding with the thickenings of dura mater and calvarium.

The external aspects of the last two dorsal and first lumbar vertebrae, IX. 54, were occupied on both sides by soft tumours, those on the right side being shown in the preparation. There are at two places rounded swellings, not corresponding definitely with individual bodies of vertebrae, and found on section not to involve the bone, although, perhaps, slightly eroding it. These tumours were symmetrical, but did not extend across the middle line.

In addition there were numerous comparatively small tumours in the kidneys, IX. 55, enlarging them to such an extent that one weighed 15 oz. The supra-renal capsules were also occupied by numerous tumours, IX. 55, the spleen had a large one, IX. 56, and the liver several small ones. All these tumours were composed of round-celled tissue.

The patient was a man aged 27, who had been in the Afghan and Egyptian campaigns. There was a history of some obscure bowel and kidney complaint before admission, and for some time there had been severe pain in the back, with a little tenderness in lower lumbar region. The urine was albuminous and contained tube casts. On his admission, a fortnight before death, paralysis of the left leg, without loss of sensation, was observed. There was diplopia with internal squint on several occasions. Latterly there was tendency to delirium and coma, with general hyperaesthesia and occasional contraction of the neck.

Path. Reports, 28th March, 1883, No. 960.

IX. 53. Dura Mater with Peculiar Sarcomatous Growth. (See IX. 52.)

IX. 54. Vertebrae with Secondary Sarcomata. (See IX. 52.)

IX. 55. Kidney and Supra-renal Capsule with Secondary Sarcomata. (See IX. 52.)

IX. 56. Spleen with Large Sarcoma. (See IX. 52.)

IX. 57. Psammoma of Dura Mater. (Dr. Fraser, Paisley.)

There is shown a small rounded tumour like the third part of a sphere, placed sessile on the inner surface of the dura mater. It has a somewhat irregular surface, and measures about 6 mm. in diameter.

Under the microscope it shows connective tissues with calcareous masses in the form of rods and globes, but chiefly the former. It produced no symptoms during life.

IX. 58. Psammoma of Brain Substance. (Dr. Wallace, Greenock.)

The tumour is a small one, situated in the substance of a convolution, and elongated from without inwards. Its section is oval in shape and about 1 cm. in long diameter by 6 mm. in short diameter. The border of the tumour is at the surface of the convolution, but there is no prominence, and the arachnoid is not obviously thickened over it. The tumour has a yellowish colour, and is cut with difficulty on account of the presence of gritty particles. It replaces an equal amount of brain substance, and at its margins seems to shade into the brain substance, having no distinct limiting capsule. On microscopical examination, the tumour consists largely of calcareous particles, having mostly a globular shape and concentric arrangement. These are so abundant as almost to monopolise the tissue, but between them can be seen a loose somewhat cellular tissue. On adding HCl the lime salts dissolve with evolution of gas.

IX. 59. Pedunculated Osteoma on Internal Surface of Dura Mater. (Dr. Marr, Woodilee Asylum.)

The growth is an irregular tuberculated mass about 1·5 cm. in diameter and 6 mm. in thickness or prominence. The dura mater is partly non-adherent behind the tumour, but at certain of the edges it is united to the bone. The membrane was not adherent in the slightest degree to the internal surface of the skull. The growth formed a depression in the left superior parietal lobule of the brain, but there was no appearance of any irritative lesion.

Christina C., aged 44, was highly maniacal, and died of exhaustion. *Path. Reports*, March, 1893, No. 32,877.

IX. 60. Tumour of Pineal Gland, Pressing on Cerebral Peduncles. (Dr. M'Vail.)

The tumour is a bulky lobulated mass, consisting of two generally rounded portions united together. There is one on either side, but the right one is nearer the middle line than the left. The right mass measures 5 cm. from before backwards, 4 cm. transversely, and 3 cm. in thickness. The left mass measures 3·5 cm. from before backwards, and 3 cm. transversely, and the same in thickness.

The relations of the tumour have been made out partly by removal of brain substance and partly by a section in the middle line. By this latter section it is seen that the tumour is attached chiefly in the transverse fissure, its attachment corresponding with the middle line and parts adjoining. Elsewhere the tumour is surrounded by loose connective tissue, and can be readily separated, but it has produced by its bulk marked dislocation and atrophy of neighbouring portions of the brain. Immediately beneath the deep attachment is the "iter," and beneath this again there is a distinct softening of the upper portions of the pons. The peduncles are separated and considerably distorted on both sides. The tumour projects into the lateral ventricles, occupying their posterior parts and pushing forward and outward the optic thalami, which are flattened and atrophied. The corpus callosum was attached to the tumour and considerably raised. The corpora quadrigemina are flattened out against the posterior aspect of the tumour, and softened and atrophied.

Under the microscope the tumour presents chiefly round and spindle-shaped cells, the former sometimes in alveoli. In addition,

there are duct-like processes of pretty frequent occurrence, lined with a distinct flat epithelium, their lumen usually containing granular matter.

A boy, aged 13, was admitted in a drowsy state. Cerebral symptoms seem to have begun only about three weeks before death, and consisted in drowsiness, erratic gait, and drawing of the mouth to the right. After admission drowsiness increased, and he was difficult to arouse, vomiting became prominent, the left eyelid was slightly drooped, but no hemiplegia was noticed. He had several epileptic fits; the drowsiness deepened and passed into coma, in which he died. *Path. Reports*, 15th October, 1886, No. 1612.

IX. 61. Glioma of the Floor of the Fourth Ventricle.
(Prof. M'Call Anderson.)

In the specimen the floor of the fourth ventricle is exposed by an incision carried through the cerebellum in the middle line, and a bulky tumour is observed projecting from it. It occupies the greater part of the floor of the ventricle, its greatest length and its greatest breadth being about 2·5 cm. Its middle is slightly below the middle of the cerebellum, and the tumour is much more bulky on the right than on the left side, the posterior median fissure being carried somewhat to the left. The surface of the tumour is nodulated, and in the fresh state it was of a bluish colour. It is somewhat firm, and under the microscope it is seen to have the structure of a glioma. *Path. Reports*, 15th June, 1881, No. 679.

IX. 62. Circumscribed Glioma of Right Cerebellar Peduncle and Arbor Vitae, Projecting into 4th Ventricle.
(Dr. Finlayson.)

The preparation shows a slice transverse to the longitudinal axis of the body, including the cerebellum and pons, with fourth ventricle between. The tumour, which has a generally circular outline, and measures from 3·2 to 3·4 cm. in diameter, occupies the right cerebellar peduncle and proximal parts of the arbor vitae. It projects into the fourth ventricle, and, as seen on one surface, it has a distinct bulging portion extending beyond the middle line, and pushing over to the left as far as 1·3 cm. It is seen also that the tumour greatly enlarges the right lobe of the cerebellum, and that it almost inter-

rupts the white fibres on that side. The tumour consists of a greyish tissue, with a number of small cysts, and it is accurately defined but without a distinct capsule.

Under the microscope the tissue is typically that of the glioma, consisting of a rather coarse network, with somewhat abundant cells, especially numerous around the vessels.

A series of transverse sections of pons and medulla oblongata showed that the tumour pressed somewhat on the posterior portions of the pons, somewhat dislocating the raphe, but that it hardly interfered with the medulla. The spinal cord, carefully examined by Weigert's and other methods, showed no degeneration.

Helen M'D., aged 36, was admitted with headache and loss of vision. The pain was in the left occipital region, and was accompanied by occasional giddiness and vomiting. There were slight paresis of left external rectus and of the left facial muscles and tongue, and marked nystagmus. The gait was staggering, and the right arm showed tremors and wasting of the muscles. Marked paralysis of the right external rectus developed later, and the loss of vision became complete. Optic neuritis was markedly present. There was no alteration in general sensation.

Path. Reports, 13th January, 1897, No. 4888.

IX. 63. Glio-Sarcoma of Pons Varolii. (Sir W. T. Gairdner.)

Viewed externally, the whole pons is seen to be enlarged, both transversely and longitudinally, and its surface has a peculiar wrinkled appearance as if thrown into transverse folds. The raphe in the middle line is still distinguishable, and it is seen that the left side is rather more enlarged than the right. In order to discover the full relations, a longitudinal and a transverse section were made, and the former is shown in preparation. From this it is seen that a tumour occupies the pons and upper part of medulla oblongata in their entire thickness. It projects somewhat into the fourth ventricle, pushing the cerebellum to some extent backwards. In its central parts the tissue is brownish in colour and soft. In transverse section it was seen that the longitudinal bundles of nerve fibres in the anterior parts of the pons were less interfered with on the left side than the right, although not completely destroyed on either.

Under the microscope the tumour was found to be very cellular, the cells being round and spindle-shaped. At places there is a finely reticulated intercellular substance like that of a glioma.

The patient was a well-nourished girl, aet. 8, who was about eight weeks under observation in the Western Infirmary during her fatal illness. She was partially hemiplegic (right) on admission, and had convergent squint on both sides (paralysis of external rectus), the motor oculi nerves not being distinctly affected, and the irides being active and normal. These symptoms were of gradual invasion, and had not been noticed for more than a few weeks before admission; although, owing to circumstances too complicated to be here stated, there arose a suspicion that a change in disposition, attributed at the time to other causes, and headaches, which occurred three months before admission, but which afterwards ceased, might have indicated the real starting point of the cerebral disease. On admission intelligence was apparently perfect, vision quite distinct; nothing remarkable in the retinae, except slight atrophy of the right optic nerve in its outer segment; slight nystagmus of both eyeballs. She appeared to have suffered from headache at times, but when examined had no pain whatever; and her quiet and pleasant ways when amusing herself with her doll throughout her illness, together with the certainty that existed of some very serious organic cerebral disease, made her a peculiarly interesting little patient. Temperatures were absolutely normal till iodide of potassium was administered some days after admission; then there occurred slight feverish symptoms, with vomiting, which entirely subsided after the drug was discontinued, the temperatures being rather sub-normal than otherwise during the rest of the illness. All the above-mentioned facts were frequently tested in detail, and it may be taken as clearly established that the apparent immunity of the oculo-motor and sympathetic, with almost complete paralysis of both 6th nerves, continued to be characteristic features of the case up to a late date; while complete and spastic paralysis of the fingers of the right hand, incomplete paralysis of the corresponding arm and leg, and slight but constant deviation of the tongue to the paralysed side, remained equally persistent, if not increasing, throughout the treatment. In the later stages there was a degree of incontinence of urine, and also difficulties in micturition, which had, however, a possible explanation in a local injury the child had suffered many months before. It was only occasionally that she vaguely admitted of feeling any pain in the head. The incontinence of urine, however, became more marked, and it is difficult to be sure that there was not a gradual though almost imperceptible deterioration in the cerebral condition during the

seven weeks to which the above description applies. At the end of this period there was an attack of vomiting, and also of something like gasping for breath, observed distinctly as a change from her previously tranquil condition. Even at this date it is noted that, while convergent strabismus was absolute in both eyes, the other movements of the eyeballs were apparently intact, and the pupils perhaps even abnormally mobile and equal. Pain in the tube of the right ear led to a strict investigation as to any history of disease in the temporal bones, with negative results. After this there was manifestly both impaired respiration and deglutition, leading to attacks of "choking," with imminent risk of suffocation in taking food. Coma supervened gradually on the fourth day of these symtoms; the respirations, which had been notably accelerated, became slower, and the pupils dilated. Immediately before death the respiration inclined to the Cheyne-Stokes type, and the pupils became strongly contracted. It is worthy of note that there was no facial paralysis throughout the disease; also no ptosis. The altered expression of countenance noted was partly due to the strabismus, and partly to a languid and somewhat lethargic condition, quite distinct from the coma of the last period.

Path. Reports, 5th February, 1881, No. 624.

IX. 64. Glio-Sarcoma of Thalamus Opticus, and Corpora Quadrigemina. (Dr. Jas. Finlayson.)

The left thalamus opticus is replaced by a tumour having its general shape and is twice as large as that of the opposite side. The tumour is situated chiefly in the posterior half of the thalamus, and it is specially observed that the nucleus caudatus and nucleus lenticularis, as well as the internal capsule of the corpus striatum, are entirely free, and not even exposed to special pressure. On the other hand, the enlarged thalamus presses against the crus cerebri, but there is no apparent softening of the latter. The left corpora quadrigemina are also occupied by tumour and much enlarged. The tissue of the tumours in both situations is generally reddish-grey in colour, but in the thalamus there are occasional caseous appearances.

Under the microscope the tumour in the corpora quadrigemina presents more of a simple gliomatous structure—viz. a fine reticulated network with cells of various shapes, mostly large and frequently elongated. In the thalamus opticus the cells are more

abundant, and there is, in addition, the degeneration already mentioned.

During life there were headache on left side and vomiting at intervals, with progressive loss of sight in both eyes, but more rapid in the right (optic neuritis). There was no localised paralysis or anaesthesia, but great unsteadiness and a tendency to lurch to the right, and ultimately great generalised weakness and incontinence of faeces. Before death the temperature rose to 106·5°. The patient was a young woman, aet. 22.

Path. Reports, 5th March, 1877, No. 198.

IX. 65. Round-celled Sarcoma of Cerebral Hemisphere.
(Dr. Finlayson.)

The preparation is a horizontal section of the brain at the level of the corpus callosum. In the outer part of the right hemisphere there is a tumour of a circular outline, measuring 6 cm. in diameter. The outer edge of the tumour is at the surface, where it caused considerable bulging, and here it replaced the ascending parietal convolution. The tumour has caused marked enlargement of the hemisphere as a whole, so that in section it is considerably larger than the left. The edge of the tumour is abrupt, and its tissue was in the fresh state generally grey, but interrupted somewhat by haemorrhages and cavities due to breaking down of tissue. A small rugged cyst is present in the occipital lobe.

Under the microscope the tumour is seen to consist essentially of large round cells. It is very vascular, and the cells are sometimes arranged like a mantle round the vessels, sometimes forming in the actual wall of the vessel. There are extensive areas of necrosis, in which the cells, though visible, refuse to take on the carmine staining. There are also collections of blood.

David B., 46, complained of partial loss of power and sensation in left arm and leg, with drawing of mouth and tongue to the left, and thickness of speech without aphasia. Illness began four months before death, with twitching of tongue and left angle of the mouth. In a few days paralysis of left arm and tongue occurred, with inability to speak for a time. There was pain in head, chiefly in right frontal region. The patient emaciated greatly before death.

Path. Reports, February 13th, 1888, No. 1832.

IX. 66. Spindle-cell Sarcoma of Right Cerebral Hemisphere, with Great Enlargement of the Hemisphere.

(Dr. Geo. H. Edington.)

The tumour is a bulky one, and on section shows a lobulated character with spaces filled with gelatinous material. It is situated in the upper and median parts of the right hemisphere, almost reaching the median surface, and actually presenting itself on the upper surface. This latter presentation is in the form of an oval cyst-like area, measuring about 1·8 cm. from before backwards, 1·4 cm. laterally, and with its inner border 1·8 cm. from the median surface. Vertical sections have been made, and two slices of brain preserved. One of the sections is immediately in front of the oval surface referred to, and may be regarded as the centre of the tumour, which here shows probably its greatest extension. This section nearly corresponds with the anterior border of the pons. This section also corresponds very closely with the middle of the fissure of Rolando as is determined readily in the left hemisphere, the convolutions of the right being flattened and distorted so as to make identification difficult. On this cut surface the tumour measures 6·5 cm. laterally, and 3·7 cm. vertically in one part, but with a special bulging 4·7 cm. Whilst the upper border is close to the superior surface, the lower border is 4·5 cm. from the lower surface; the total antero-posterior measurement of the tumour is 7·6 cm. At its anterior extremity it retains very much of its bulk, so that within 5 mm. of its extremity it still measures 6 cm. laterally. This anterior extremity is 6·5 cm. from the anterior border of the brain. As shown on the various cut surfaces, the right hemisphere is much larger than the left, the median fissure is displaced, and there is considerable distortion of the corpus callosum. At the level of the principal section the lateral measurement of the right hemisphere is 8·5 cm. at its widest part, whilst at the same level the left hemisphere is only 5·3 cm. This difference in the hemispheres extends much beyond the extremities of the tumour, so that slightly in front of the tumour there is a difference of 2 cm., and 2·5 cm. in front of the tumour there is still a difference of 1·5 cm. The difference on the two sides is less marked posterior to the tumour, but in the measurement from above downwards there is even to the posterior extremity a distinct increase on the right side as compared with the left. The tumour as shown in these sections is situated entirely above the level of the corpus callosum, and this structure is only touched by a bulging lobe at the

outer part of the tumour, the convolution of the corpus callosum being preserved even where the tumour is largest. At the same time the corpus callosum and its convolution are visibly pushed downwards and pressed against the floor of the right lateral ventricle, which is visibly pressed as compared with the left. The cavity of the ventricle is almost abolished, whilst that on the left side is rather dilated.

Microscopical examination shows the tumour to be composed of an almost uniform spindle-cell tissue. The nuclei are mostly oval in shape, and the cells run in parallel bundles.

There were tumours in the lung and intestine as well as that in the brain. Two of the intestinal ones are preserved in the jar. Those in the lung presented the structure of the spindle-celled sarcoma.

A young man, aged 30, had his right leg amputated at the thigh, five years before death, for sarcoma at the knee. Six months before death enlarged glands were removed from the groin and pelvis. Three months before death left-sided twitchings were observed, and these were followed by paralysis; two months later unconsciousness supervened and continued till death.

Path. Reports, 10th November, 1897, No. 5221.

IX. 67. Sarcoma of Brain, Involving Basal Parts. (Dr. Tennent.)

The preparation shows a median section, and it is seen that immediately in front of pons there is a somewhat bulky tumour, which extends from this base upwards, and projects into the lateral ventricles, the fornix being adherent at its summit. The tissue was very soft, and there was considerable haemorrhage.

John G. was afflicted chiefly with vomiting and pain in the head for 11 weeks before death. For the last four or five days swallowing was difficult, and there was marked lividity of face, eyes, and mucous membrane of mouth. The respiration was slow, sighing, and intermittent. No squint, spasmodic movement, or paralysis was noted. The patient was dreamy and stupid.

Path. Reports, 13th January, 1886, No. 1467.

IX. 68. Sarcoma of Brain, removed by Operation. (Prof. Geo. Buchanan.)

The tumour is a soft fleshy piece of tissue of a generally triangular shape and rather brittle. The largest diameter is 4 cm., and its

other diameters 2·5 cm. and 1·2 cm. It has no proper capsule, but the surface has a granular appearance, almost papillary. The cut surface has a grey colour and is homogeneous. Under the microscope the structure is that described as plexiform sarcoma, that is to say, the tissue is mainly composed of cells, mostly round or oval, but sometimes spindle-shaped, while the vessels are accompanied by a mantle of clear tissue, giving a reticulated appearance.

IX. 69. Sarcoma of Cerebellum. (Dr. G. P. Tennent.)

The left lobe of the cerebellum is occupied in its anterior part by a tumour, which measures 4 cm. from before backwards. The tumour is bounded posteriorly by the glosso-pharyngeal and pneumogastric nerves, where they pass over the cerebellum, and these nerves are much stretched by the prominence of the tumour. Its anterior extremity corresponds with the anterior border of the pons. The tumour has pressed aside neighbouring parts, and the left side of the pons and medulla oblongata are considerably atrophied. The fifth nerve and the facial, passing up between pons and tumour, are much pressed upon and flattened, so as to be reduced to thin tape-like bands. The anterior portion of the tumour is nearly in contact with the fourth nerve, where it curves round the peduncle, but there is no apparent pressure on it or on the third or optic. Under the microscope the tumour is seen to consist essentially of spindle cells.

Path. Reports, 17th June, 1882, No. 832.

IX. 70. Spindle-celled Sarcoma in Anterior Part of Cerebellum. (Dr. Wallace, Greenock.)

The tumour is an irregularly oval one, measuring 4·5 cm. in its longest diameter, which is transverse, and 2·5 cm. in its shortest diameter, which is from before backwards. The tumour is firm in texture and somewhat nodulated on the surface. In lies immediately in front of the right lobe of the cerebellum, the anterior part of this lobe being to some extent destroyed and replaced by the tumour. Its inner border presses against the pons and medulla oblongata, whose right half is distorted or atrophied. Under the microscope the structure is essentially spindle-celled tissue. In the account of the post-mortem it is noted that the inner surface of the skull presented numerous sharp ridges, especially in the neigbourhood of the

temporal bones, particularly the right. The bone was eroded by the tumour to the extent of about 1 cm., the part pressed upon being the petrous bone behind the internal ear. The lateral ventricles were much distended with fluid.

The case was that of a man aet. 25. The first symptom was dimness of vision, which gradually increased until he was almost totally blind. The pupils were dilated. Taste was absent. There was no paralysis and no convulsions, merely at times a slight twitching of left side of face. Severe pains in head were present, but not limited to any particular region. The day before death there was an attack, apparently of paralysis of respiration. This was got over by the aid of artificial respiration, but he succumbed to a similar attack next day.

IX. 71. Round-celled Sarcoma of Cerebellum: Great Dilatation of Ventricles. (Dr. R. S. Thomson.)

This specimen is the half of the brain, whilst IX. 72 is a drawing of the condition in the fresh state. The cerebellum in the middle line and in its lower part is the seat of a tumour, which exhibits on the under surface prominent lobules. It extends superficially to above half the diameter of the cerebellum, viz. 4 cm. On section its penetration inwards is seen to be considerably greater, reaching somewhat in the form of a wedge for about 5·25 cm. into the substance of the cerebellum. The cerebellum, as a whole, is considerably enlarged. There was great dilatation of all the ventricles, but without any softening around them. Microscopic examination shows the tumour to be a round-celled sarcoma.

John P., aet. 23, a clerk, complained of intense occipital headache and disturbance of vision of one year's duration. It seems to have begun after an exposure to cold and wet, with an attack of fainting, and, according to his own account, he was about five weeks unconscious. After that the principal complaint was of intense pain in the head. When admitted he had obvious optic neuritis, and there was considerable difficulty in speaking and swallowing. The head was retracted constantly, but with paroxysms of increased intensity. There was no paralysis of the limbs.

Path. Reports, 29th September, 1893, No. 3455.

IX. 72. Water-colour Painting of Sarcoma of Cerebellum. (From preceding case.) (By Dr. Alex. M'Phail.)

IX. 73. Spindle-celled Sarcoma of Cerebellum. (Dr. Finlayson.)

The cerebellum, shown in section, is the seat of a tumour of the size of a small apple, which is situated in the middle line, but extends rather more to the right than to the left. Its superior margin is some distance from the upper surface of the cerebellum, but it projects into and distends the fourth ventricle. The tumour is grey in colour and very soft. Under the microscope it presents spindle-celled tissue, the cells running in bundles. At the margin it invades the cerebellar tissue. The lateral ventricles were very greatly distended with fluid, and were lined with a tough membrane. The calvarium showed the condition exhibited in next preparation.

James D., aged 25, began to be troubled with pain in head and vomiting six months before death. Dimness of vision, followed by total blindness, occurred. Engorgement of both optic discs with haemorrhages. Deviation of tongue, divergence of eyes—both tending outwards—weakness of left arm, etc., etc.

Path. Reports, July 24, 1886, No. 1582.

IX. 74. Calvarium from Case of Tumour of Cerebellum. (From preceding case.) (Dr. Finlayson.)

The internal surface is remarkably indented, as if by the convolutions, and it is also beset by innumerable fine bony projections, giving the bone an appearance as if the internal table were defective. The calvarium was also very diaphonous. The lateral ventricles were greatly distended, and this distension was obviously chronic, as they were lined by tough membrane.

IX. 75. Cancer of Cerebral Peduncles and Pons, Projecting into 4th Ventricle. (Sir Wm. T. Gairdner.)

The specimen is a section of the central parts of the brain in the middle line. A considerable tumour is seen lying immediately above the pons, but apparently growing from the peduncles, especially the right, the substance of the pons being scarcely involved. The tumour is oval in shape, and measures 4 cm. from before backwards, and 2 cm. from above downwards. It consists of a somewhat crumbling whitish tissue, which is softened anteriorly so as to have given in the recent state the impression of a cyst. The tumour projects very much into the fourth ventricle, but lies altogether

behind the third ventricle, which seems indeed to be normal. The first part of the iter for a distance of about 6 mm. is in front of the tumour, but in the greater part of its course the iter curves over the convexity, being pushed upwards and greatly compressed, while the corpora quadrigemina are only distinguishable as an elongated arched layer of nervous tissue about 1·5 mm. in thickness. The ventricles were slightly distended. The tumour was visible from the surface, projecting between cerebrum and cerebellum.

Mrs. G., aet. 32, was admitted with pain in head, dimness of vision, which came on about a year before death. At that time she had a "weak turn," and ever afterwards she had defective power in her muscles generally, so that she was accustomed to drop things that she was holding. Dimness of vision and pain in head were early symptoms, and difficulty of hearing came on subsequently. On admission, nine months after the onset, there were ptosis of both eyelids and slight external deviation. During her residence in hospital a progressively increasing lethargy was the most prominent symptom along with pain which was to a large extent located in the eyes. Towards the end a slight degree of left facial paralysis was observed. Microscopical examination shows a cancerous structure, the arrangement of the tissue being suggestive of gland tissue, the cells being largely cylindrical.

Path. Reports, 21st September, 1887, No. 1744.

IX. 76. Multiple Cancer of Brain, partly Cystic. (Sir Wm. T. Gairdner.)

The preparation shows two principal tumours, one in cerebrum and one in cerebellum. That in the cerebrum is in the form of a cyst 4 cm. in diameter, situated in the right frontal lobe, its anterior extremity being close to the surface in front. It caused considerable bulging both at the middle line and outwards. It contained a somewhat glairy fluid, and its internal surface is composed of a membrane which is granular on the surface. The section also exposes a small cyst on the same side, corresponding with the ascending parietal convolution, and several other smaller ones were found, composed rather of a soft tissue than cystic. The tumour shown in the cerebellum is of an elongated shape, and is situated in the lower part of the left lobe near the middle line posteriorly. Its posterior extremity is at the surface, and its long diameter measures 3 cm. It is a solid tumour, but the central part has a

homogeneous granular character, while the peripheral parts are more translucent, as if formed of tissue.

Microscopical examination of the large cerebellar tumour shows cylindrical epithelium as the most characteristic constituent, and this is arranged as if on the surface of branching vascular papillae. These papillary structures leave occasionally spaces, in which granular matter and desquamated epithelium are present. The central part of this tumour is also composed of finely granular matter with some desquamated epithelium. The large cyst in the cerebrum presents in its wall a similar structure, but rather less regular, the epithelium being looser, but still frequently cylindrical and similarly arranged. In the smaller tumours there are masses of loose epithelium, with an occasional cylinder-celled structure as before. There was limited condensation of one lung, which microscopic examination showed to be tubercular.

Janet M'K., aet. 34, showed a history of cerebral disease of about four months' standing, characterised by headache, paresis of left side of mouth, and of left external rectus; probably also partial paralysis and sensory affections of the hands and forearms. Double optic neuritis was present. Great emaciation occurred.

Path. Reports, 30th June, 1890, No. 2412.

IX. 77. Multiple Cystic Cancer of Brain: Secondary to Cancer of Lung. (Sir Wm. T. Gairdner.)

IX. 78. Cancer in Upper and Lower Ends of Femur and in Ribs. Spontaneous Fractures. (From same case as preceding.)

The section of brain shows a number of cysts, one in each hemisphere being of large dimensions. There were in all 22 separate cysts discovered; one of these was partly solid, and it presented cylindrical epithelium often in the form of goblet cells, as well as small developing cysts. The cysts were mainly in the cerebrum; but one of considerable size existed in the posterior part of left lobe of cerebellum. The bones presented numerous tumours. The upper and lower extremities of the right femur are preserved. The upper end is swollen by a bulky new formation to the extent of about 10 cm. of the shaft, and there is a fracture which separates the head and neck and great trochanter. The head is depressed, so that the neck

forms an acute angle. The lower end is distended by a bulky, partially cystic tissue, which reaches to the cartilage. There is a complete fracture about 7·5 cm. above the condyles. Under the microscope the tumour in the bone also showed cylindrical epithelium, with a cystic tendency. Two of the ribs show swellings, and in one of them there is an elongated swelling 9 cm. in length, which has produced a fracture. The tumours in the ribs were all of them in the axillary line. The primary tumour was presumed to be in the lung. There was a large ragged cavity, whose wall was formed of grey tumour tissue, and the bronchial glands were the seat of cancerous new formation.

Peter H., aged 17, showed on admission chiefly amaurosis, with some weakness of the lower limbs. Bodily weakness and emaciation were prominent features, but there was no distinctive paralysis. For several months tumours appeared in the bones, the first observed being at lower end of right femur. Intelligence remained fairly good to the end, convulsions occurred for the first time a day before his death. (See *Path. Transactions*, Lond., 1888, page 326.)

Path. Reports, June 19th, 1888, No. 1806.

IX. 79. Great Thinning of Calvarium in a Case of Multiple Cysts of Brain. (Sir Wm. T. Gairdner.)

The brain and some of the bones are preserved in Series IX., 77 and 78. The calvarium is exceedingly diaphanous, a certain amount of opacity being manifest only in the midst of the parietal and frontal bones.

IX. 80. Sarcoma of Pituitary Body, occupying Sella Turcica and impinging upwards on Brain. (Prof. Macewen.)

The tumour, as shown on median section, can be divided into the part which occupied the sella turcica and still retains a covering of dura mater, and a greatly expanded upper portion. The former which was placed in the dilated sella turcica, is nearly globular in shape, and measures in general from 2·5 to 3 cm. in diameter. It is composed of a greyish tissue of about the consistence of the brain substance, sparsely interspersed with haemorrhagic areas. The sella turcica was found expanded, more particularly in the antero-posterior direction, but also downwards, and the clinoid processes,

more particularly the anterior, were thinned. The surface of this portion shows some lobulation. It is not generally incorporated with the dura mater, although there is firm union in some parts, and there is not any trace of actual involvement of the bone. The rest of the tumour is connected with the anterior and upper portion of that already described, the connection being nearly as wide as the widest part of the latter. This portion of the tumour is somewhat pear-shaped, the narrowest portion being below, where it is continuous with the part from the sella turcica. The measurement from below upwards is 5·7 cm., and from before backwards in the lower part 2·3 cm., and in the upper part 4 cm. The lower part has the same grey appearance, as it is continuous with the portion from the sella turcica. The upper part is of similar consistence, but is greatly interspersed with haemorrhagic areas. The expanded upper part of the tumour protrudes into the third ventricle, but more particularly into its anterior parts. There is in some places, however, a distinct layer between tumour and third ventricle, more particularly in the posterior parts, as if the tumour had carried before it the walls of the ventricle. The fourth ventricle, the iter, and the posterior part of the third ventricle are not appreciably dilated, but the anterior part of the third ventricle and the lateral ventricles are greatly so. The optic commissure and optic nerves were greatly expanded over the lower part of the tumour anteriorly, more particularly on the right side, but not incorporated. The tumour in impinging on the brain seems to have a lateral expansion somewhat similar to its antero-posterior. As shown in a partial transverse section, its tissue is directly in contact with and is apparently incorporating the brain substance, the parts involved being in general the anterior and inferior parts of the optic thalamus. The cerebral peduncles are not directly incorporated in the tumour, but there is a marked haemorrhagic infiltration as seen on section in the middle line. Microscopical examination of the tumour shows it to be composed essentially of slightly elongated cells, with lenticular nuclei. The cells are generally arranged in groups, sometimes with a radiating arrangement, so that the section has a distinctly alveolar appearance. The blood-vessels are thin-walled capillaries, which run between the groups. There are frequent smaller and larger haemorrhages. There are also haemorrhages in the peduncle, but no tumour tissue, although around the arteries there is a marked cellular new formation. The right optic nerve is found microscopically to be completely degenerated, no proper nerve fibres remaining.

Alex. G., aged 38, draper. For several years he had a gradually progressive failure of vision of both eyes, but more particularly of the right, which became more particularly affected about a year before death. About six months before death paresis of the left arm appeared, and very soon this extended to the left side of the face and the left leg. This paresis gradually increased, but does not seem to have extended to the right side. It was also more marked in the arm than the leg. Examinations of the eye showed no ocular paresis and no diplopia; the retina was congested in both eyes and the disc blurred, but without definite neuritis. There was well-marked right temporal hemianopsia. For some months before death there were severe vomiting and constant headache.

IX. 81. Sarcoma of Base of Skull, extending to Base of Brain. (Dr. Jas. Finlayson.)

A very partial examination only was allowed in this case, but it appears that the base of the skull was the seat of a tumour which could be easily cut with the knife, but contained spicules of bone. The tumour was adherent to the base of the brain, and part of it was removed along with brain, as shown in the preparation. The optic chiasma is completely occupied by tumour and converted into a somewhat massive growth, out of which the optic nerves emerge, the left being, however, much freer than the right. On examining this left optic nerve, its outer fibres seem to be continued directly into the optic tract, its middle or decussating fibres being completely destroyed. The tumour also involved both third nerves and the left fourth, but it is not known to what extent the nerves were impinged on at the foramina by the tumour of the bone. Under the microscope the tumour presents mainly large spindle-shaped and stellate cells, with pretty frequent haemorrhage.

The case was that of a man aged 23, the first pronounced symptoms in whose case were in the form of impaired vision and diplopia, along with some headache and giddiness, beginning about six months before death. He was treated in the Eye Infirmary and afterwards in the Western. The power of vision and motion of the eyes and upper eyelid showed considerable variations, loss of vision and paralysis of the muscles of the eyeball becoming latterly extreme, but less so on the left side. Severe headache occurred latterly and persistent vomiting, and death occurred by failure of respiration.

Path. Reports, December 23rd, 1878, No. 405.

IX. 82. Cyst of Taenia Coenurus from Brain of Sheep. (Mr. Jas. Watson, Student.)

This preparation consists of a very thin-walled cyst, which has been turned outside in and tied over a glass ball. At certain places on the surface are small projections in groups. These under the microscope present all the characters of tapeworm heads, there being four sucking discs and a circle of hooklets in each. This cyst was contained inside the cavity in the brain shown in next preparation.

IX. 83. Part of Brain of Sheep with Cavity which contained Cyst of Coenurus.

There is an oval cyst on basal surface of temporal lobe, which separates the structures considerably. The cyst is composed of connective tissue. The sheep was affected with "staggers."

SERIES X.

CALCULI.

X. 1. Uric Acid Calculus. (Prof. Geo. Buchanan.)

An oval stone 2 cm. in length, composed of uric acid in variously coloured layers. The stone is one of two removed by Prof. Syme, Sept., 1861. There were several others subsequently removed by lithotrity, and the patient ultimately made a good recovery.

Mr. B., aged 64, resided in Glasgow and Irvine. Symptoms of several months' duration. Operation lateral. Tube used, but removed in 24 hours in consequence of pain. Result—cure. (See paper in *Edinburgh Medical Journal* for July, 1868, Case 2.)

X. 2. Uric Acid Calculus. (Prof. Geo. Buchanan.)

A small oval stone weighing 1·6 grm. and measuring 1·5 cm. There was also a smaller one weighing 1 grm.

A boy, aged 2½ years. Operation at Glasgow Royal Infirmary, on 17th August, 1865, by rectangular staff and scoop. Result—cure.

X. 3. Uric Acid Calculus. (Prof. Geo. Buchanan.)

An oval reddish-brown stone, with softer nucleus, weighing 1·2 grm. and measuring 8 mm.

J. L., aged 6 years. Operation in Glasgow Royal Infirmary, 25th November, 1865, by rectangular staff. Symptoms said to have existed for years. Discharged well, 6th December.

X. 4. Uric Acid Calculus. (Prof. Geo. Buchanan.)

A large oval stone of reddish-brown colour, weighing at first 31 grm., and measuring 4·5 cm. in long diameter. Composed throughout of uric acid, which burns away gently with blow-pipe.

A man, aged 60. Operation, February, 1870, in Glasgow Royal Infirmary, by rectangular staff. Result—cure.

X. 5. Uric Acid Calculus. (Prof. Geo. Buchanan.)

An oval stone 3·5 cm. in long diameter, weighing at first 15·5 grm. and four years afterwards 11 grm. Composed entirely of uric acid.

T. B., aged 65. Operation, 20th February, 1871, in Glasgow Royal Infirmary, by rectangular staff; tube used. Symptoms of six months' duration; no crystals in urine. Result—profuse bleeding, slight erysipelas; 25th Feb.—urine passed by urethra; 8th March, dismissed cured.

X. 6. Calculus of Uric Acid Coated with Phosphates. (Prof. Geo. Buchanan.)

An irregular stone weighing 9 grm. and measuring 2·8 cm. Composed of layers of uric acid.

Mrs. M., aged 51. Operation, 25th June, 1871, in Glasgow Royal Infirmary, by rectangular staff. Result—cure.

X. 7. Uric Acid Calculus. (Prof. Geo. Buchanan.)

An elongated oval stone 4 cm. in length by 2 cm. in breadth. It has a general reddish-brown colour, but at one place is coated with phosphates.

From the same case as No. 1. This stone was removed by lithotomy, and the patient recovered.

X. 8. Small Uric Acid Calculus. (Sir Geo. H. B. Macleod.)

An irregularly shaped calculus measuring 1 cm. in longest diameter.

J. M., aged 7. Ward XII. November, 1876. Symptoms of three and a half years' duration, but not severe. Urine neutral,

1012, with pus and blood. Lithotomy—rectangular staff. Stone quite concealed between the blades of the forceps as it was withdrawn (so that for a time it was not found). Recovery.

X. 9. Uric Acid Calculus. (Sir Geo. H. B. Macleod.)

A flattened oval stone 2 cm. in long diameter. It is reddish in colour, and slightly irregular on the surface.

J. W., aet. 6. Admitted 18th December, 1882. Phimosis. Symptoms since he was a baby. Brought into hospital with retention, calculus being impacted in neck of bladder. Lithotomy—rectangular staff. Dismissed well.

X. 10. Uric Acid Calculus. (Dr. Patterson.)

A very small irregularly oval stone, about 1·2 cm. in length, and weighing ·6 grm. It is smooth on the surface and tolerably hard. The calculus is almost pure uric acid; a fragment of it disappears almost entirely under the blow-pipe, and it gives the murexide test.

It was removed from a boy, aet. 5, on 7th August, 1876.

X. 11. Uric Acid Calculus. (Dr. Patterson.)

A small stone of irregular quadrilateral shape, and with several facets. It resembles considerably a gall stone, and presents a somewhat similar dull grey colour. It weighs about 1 grm. With the blow-pipe a fragment of this stone chars and disappears, except a very small powdery ash. It gives the murexide test well.

Removed from a boy 6 years of age, on 22nd October, 1879.

X. 12. Uric Acid Calculus. (Mr. Maylard.)

Removed from a man at one sitting by Bigelow's method.

X. 13. Uric Acid Calculus with Blood-Clot as Nucleus. (Prof. Geo. Buchanan.)

An irregular stone weighing 60 grm. In central part there is an irregular partly disintegrated mass, a part of which when moistened showed shrivelled blood-corpuscles under the microscope. The

main body of calculus is uric acid, and there is a thin rind of phosphates.

John G., aged 55. Operation, 13th February, 1875, in Western Infirmary, by rectangular staff. Two and a half years before, he accidentally noticed blood in his urine; but there was no pain at that time. Since then, occasionally noticed drops of blood at commencement of micturition. At Christmas, 1874, all the symptoms of stone developed. The urine, on his admission, contained pus and triple phosphates.

X. 14. Uric Acid Calculus with Urates Outside. (Prof. Geo. Buchanan.)

A small oval stone 1·5 cm. in diameter. The central part is reddish-brown and close in texture, and composed of uric acid. The rind is looser and paler and composed of urates.

J. B., aged 6. Operation by rectangular staff on 13th June, 1881, in Western Infirmary. Symptoms, crying and incontinence. Result—cure.

X. 15. Small Uric Acid Calculus passed by Urethra.

An oval stone measuring 1 cm. by ·6 cm. It is reddish in colour and tuberculated on the surface.

It was passed spontaneously by D. G., aged 36, who was admitted on 12th January, 1878, into Western Infirmary.

X. 16. Small Calculus removed by Lithotrite. (Sir G. H. B. Macleod.)

An irregularly oval stone, 1·5 cm. in long diameter. The surface is tuberculated and slightly red in colour.

W. M., aet. 39, policeman, admitted 25th February, 1876. Symptoms of stone of two months' duration. Came to hospital with retention of urine, caused by impacted urethral calculus. It was pushed back into bladder, and afterwards grasped and removed by lithotrite. Good recovery.

X. 17. Two Facetted Calculi. (Sir G. H. B. Macleod.)

Two reddish coloured stones, with facets. The largest stone measures 2·5 cm. in largest diameter, and the smaller 1·5 cm.

The red material forms a thin layer on the surface, and where it has broken off there is a polished whitish surface visible.

T. H., aet. 21, admitted 4th December, 1876. Symptoms of stone since he was a boy. Urine, sp. gr. 1020, faintly alkaline; contained muco-pus, crystals of triple phosphate and blood. Cut on rectangular jointed staff. Dismissed 12th January, 1877, well.

X. 18. Three Small Calculi. (Sir Geo. H. B. Macleod.)

Removed by lithotrite from a boy of 18.

X. 19. Phosphatic Calculus. (Prof. Geo. Buchanan.)

Composition, phosphates 60 per cent., urates 30 per cent. Removed 16th November, 1861. Broken pieces of a calculus are preserved. There were two removed together by lithotomy.

S. E., aged 11, Bridgeton, Glasgow. Symptoms of nine years' duration. Operation by rectangular staff. Result—cure.

X. 20. Calculus of Mixed Phosphates. (Same case as previous.)

Nearly circular in outline, weighing 9 grm., and measuring 2·5 cm. in diameter. The surface on section has a spongy appearance, and the substance fuses readily.

James C., aged 71. Operation, 13th December, 1874, in Western Infirmary, by rectangular staff. There was a recurrence three months after former operation, with ropy urine, and occasional drops of blood. The urine was alkaline, pale-red, and cloudy, with white sediment. Albumen in moderate quantity, with blood cells, pus cells, and triple phosphates. General health good. Dismissed well 9th February, 1875. There was slight bleeding after operation; checked by plugging. Urine came by urethra on 24th December. Grit of uric acid and phosphates was passed by wound.

X. 21. Phosphate of Lime Calculus. (Prof. Geo. Buchanan.)

A bulky oval stone, weighing 44 grm., and measuring 4·5 cm. There are layers of a white colour, sometimes spongy. The centre has disintegrated, leaving a dry residue in a cavity.

Wm. G., aged 43. Operation 3rd March, 1877, in Hospital Street, Glasgow, by rectangular staff. Stone fractured in extrac-

tion; tube and plug used owing to tendency to bleeding. Symptoms of three years' duration, there being symptoms of renal abscess in September, 1874, which latterly were much reduced. Urine on admission excessive and pale, and of specific gravity of 1005, with pus, stringy mucus, and triple phosphates. There was slight haemorrhage after operation; then on 6th day arterial bleeding, checked by ligature passed by a needle. He died on 10th March.

X. 22. Fragments of Phosphatic Calculus. (Sir G. H. B. Macleod.)

These fragments were the débris after lithotrity, the nucleus of the stone being afterwards removed.

D. I., aet. 24, clerk, admitted into Royal Infirmary, July, 1874, and afterwards into Western in November, 1874. Symptoms of six months' duration. Urine highly alkaline, with triple phosphates, sp. gr. 1022.

Lithotrity in October, two sittings. A portion could not be broken with lithotrite. Dismissed by desire; and re-admitted into Western Infirmary.

X. 23. Fragments of Phosphatic Calculus. (Sir G. H. B. Macleod.)

The fragments were removed by lithotrity. Another calculus was afterwards removed by lithotomy. (X. 68.)

D. M., aet. 26, engineer, admitted 4th February, 1875. Symptoms of five months' duration. Three sittings; lithotrity; dismissed improved, but some fragments were known to remain. His general health was so feeble that he was dismissed for a time.

X. 24. Six Phosphatic Calculi, Facetted. (Sir G. H. B. Macleod.)

The largest of these stones measures 2 cm. in diameter, and some of them have been considerably broken. They form together a bulky mass. The stones show flat facets like gall-stones.

J. S., aet. 67, admitted 11th June, 1875. Symptoms of five or six years' standing; had heart affection. Urine alkaline. Sp. gr. 1017, with thick deposit of muco-pus and triple phosphates. Operation on 22nd June, with jointed rectangular staff. Good recovery. Dismissed 27th July, 1875.

X. 25. Phosphatic Calculus and Débris. (Sir G. H. B. Macleod.)

The specimen is composed of an oval stone 3·7 cm. in diameter, and a large quantity of débris. The stone is very rough from adhesion of débris.

J. T., aet. 30, admitted 9th September, 1875. Symptoms of 15 months' duration. Had been treated in Edinburgh Infirmary; general health bad. Urine, sp. gr. 1014; blood, albumen, triple phosphates. Operation by jointed rectangular staff. Large quantity of débris spooned out of bladder. Grit continued to come by the wound for some time. Dismissed well 29th October, 1875.

X. 26. Phosphatic Calculus. (Sir G. H. B. Macleod.)

An irregularly shaped stone, with a diameter of 2·7 cm. along with some débris. The stone is externally composed of phosphates, but has probably a heavier central part.

J. C., aet. 78, admitted 24th January, 1876. Suffered for ten years—prostate much enlarged. Urine neutral, with much pus and blood. Cut on 1st February on jointed rectangular staff. Dismissed 26th February well.

X. 27. Débris of Phosphatic Calculus. (Sir G. H. B. Macleod.)

There are many small pieces and a quantity of grit.

H. M., aet. 63, admitted 16th February, 1877. Bright's disease. Symptoms of a year's duration. Blood and albumen abundant in urine. Lateral lithotomy—jointed rectangular staff. Large quantity of soft, gritty, phosphatic débris removed by scoop; fragment with uric acid nucleus. The dropsy from the Bright's disease was entirely removed by the drainage from the wound. Dismissed well 4th May, 1877.

X. 28. Phosphatic Calculus in Several Pieces. (Sir G. H. B. Macleod.)

There is one long piece like a cylinder and several smaller ones.

A. C., aet. 40, admitted 27th April, 1878. Symptoms of two years' standing. Lateral lithotomy—rectangular jointed staff. Phosphatic calculi, with much sand in bladder, removed by scoop. Recovery.

X. 29. Large Phosphatic Calculus from a Female. (Sir G. H. B. Macleod.)

A flattened oval stone, measuring 5 cm. in long diameter. It was removed from the bladder after death.

Isabella D., aged 16, admitted 1st July, 1875, in a dying state. There had been symptoms of urinary irritation for six months, also disease of knee and hip joints. The urinary bladder was firmly contracted on the stone, and was much diseased. There was a large abscess in front of, and connected with, the bladder, which was quite lined with phosphatic deposit.

X. 30. Large Calculus from a Female. (Sir G. H. B. Macleod.)

A large nearly globular stone, measuring 4 cm. in diameter. The surface is porous and coloured with blood.

Mrs. R., aged 60. November, 1879. Ward 12. Symptoms of a year's duration. Stone encysted. Removed by incision in roof of vagina. Recovery.

X. 31. Phosphatic Calculus from a Female. (Sir G. H. B. Macleod.)

The stone forms a flattened sphere 2 cm. in diameter. It is white and tuberculated on the surface.

Mrs. M'F., aet. 54, admitted 7th November, 1884. Symptoms of two or three years' standing. Uric acid with phosphatic coat removed by dilatation of urethra. Dismissed well.

X. 32. Phosphatic Calculus from the Female Bladder. (Dr. J. G. Lyon.)

The stone, which has been divided longitudinally, is oval in shape, and composed of irregular layers of a white salt (phosphatic) with occasional gaps, as if there had been organic matter which decayed. It measures 4 cm. in long diameter, 2·5 cm. transversely and rather less than 2 cm. in thickness.

The patient, a woman aged 32, had suffered from urinary symptoms for three years (supposed cystitis). Very urgent symptoms developed a few weeks before operation. The urethra was dilated and the calculus removed by Dr. Lyon on 19th August, 1879. The

diameter of stone and forceps, as they were withdrawn from the bladder, was 3 cm. Three days afterwards the woman had complete control of urine. See Journal 2, Ward II., p. 284, and Journal D, Ward V., p. 199.

X. 33. Two Phosphatic Calculi. (Sir G. H. B. Macleod.)

They are nearly cylindrical in shape, and measure 2·2 cm. and 1·2 cm. respectively.

J. D., $2\frac{1}{2}$. 26th July, 1879. Ward XII., Vol. 7, p. 144. Lithotomy. Recovery.

X. 34. Mixed Phosphatic Calculus. (Dr. Patterson.)

The stone is an irregular, flattened oval. It measures in its long diameter 4 cm., and at broadest part in short diameter, 3 cm. It weighs 20 grm. The greater part of the stone consists of a white substance in layers, but there is a thin darker rind. The outer layer fuses readily with the blow-pipe, and the central part less readily. The calculus is entirely phosphatic, but the internal layers are probably more of the ammonio-magnesian phosphates.

The stone was removed from a man, 69 years of age, who was the subject of chronic phthisis. The rectangular staff was used.

X. 35. Phosphatic, Fusible Calculus. (Prof. Geo. Buchanan.)

An irregularly oval stone weighing 15·5 grm. and measuring 3 cm., composed chiefly of phosphates, which fuse readily in blow-pipe flame.

J. G., aged $6\frac{1}{2}$. Operation at G. R. I., 7th November, 1863, by rectangular staff. Symptoms for one year, aggravated during last month. Prolapsus ani. Result—12th November, urine by urethra —4th December, cure.

X. 36. Calculus of Uric Acid and Phosphates. (Prof. Geo. Buchanan.)

An oval calculus, weighing 7 grm. and measuring 2·5 cm., with a nucleus of uric acid 1 cm. in diameter, then a layer of mixed urates, and finally a coating of fusible phosphates.

J. S., aged 3 years. Operation at G. R. I., 6th January, 1864, by rectangular staff. Symptoms for one year. Result—17th January, cure.

X. 37. Fusible Phosphatic Calculus. (Prof. Geo. Buchanan.)

A blunt oval stone 4·5 cm. in length and 3 cm. in breadth. It presents externally a few projections. Internally it is nearly white and in layers. With blow-pipe it fuses readily into a grey bead.

R., aged 65. Operation in July, 1880, at Paisley, by rectangular staff. Previous symptoms were long continued and the patient was bed-ridden. Result—cure.

X. 38. Fusible Phosphatic Calculus. (Sir Hector C.Cameron.)

Ward XX. Suprapubic operation. 28th June, 1890. Weighs 30 grm., and measures 4·5 × 4 × 2 cm.

X. 39. Oxalate of Lime Calculus. (Prof. Geo. Buchanan.)

A very irregular calculus, the greatest diameter 2·8 cm. Externally it has the regular mulberry characters, and on the cut surface a brown colour.

Wm. P., aged 54. Operation 6th November, 1875, in Western Infirmary, by rectangular staff. Typical symptoms for 3 years. Result—death.

X. 40. Dark Oxalate of Lime Calculus, with Uric Acid Nucleus. (Prof. Geo. Buchanan.)

A very characteristic stone with rounded projections externally, and a deep brown colour on section. It measures 3 cm. in diameter, and weighed 33 grm. In the centre there is a small pale nucleus 8 mm. in long diameter, composed of uric acid.

David J., aged 32. Operation by rectangular staff on 1st November, 1884, in Western Infirmary. Case came from Johnstone. Symptoms of three or four years' duration; pus in urine occasionally, blood twice at interval of two years. Result—cure.

X. 41. Oxalate of Lime Calculus. (Sir G. H. B. Macleod.)

A small, generally oval stone, measuring 2·2 cm. in its long diameter. It has the characteristic knobbed projections on the surface.

H. H., aet. 13, admitted 11th December, 1874. Symptoms four years' duration. Urine slightly ammoniacal, sp. gr. 1010, much mucus, some phosphates; phimosis. Operated on, 6th February, 1875, by rectangular staff. Good recovery. Dismissed 5th March, 1875.

X. 42. Oxalate of Lime Calculus. (Sir Geo. H. B. Macleod.)

An irregularly shaped stone, 4 cm. in longest diameter. On one surface it presents rounded nodules, some of them pointed, while the other surface is smooth. The stone is a very dense and heavy one, weighing in the dry state 41 grm.

A lad, aged 16. Symptoms of 4½ years' standing. 1877. Lithotomy—rectangular staff. Recovery.

X. 43. Oxalate of Lime Calculus. (Sir Geo. H. B. Macleod.)

A large stone in the form of a flattened sphere, measuring 4·5 cm. in diameter, and weighing 53 grm. It is dark in colour, and presents the highly characteristic protuberances of the mulberry calculus.

A boy, aged 13. Ill with urinary symptoms for many years. Lithotomy—ordinary staff. Rapid recovery.

X. 44. Oxalate of Lime Calculus. (Dr. Patterson.)

An irregularly oval stone with a projecting neck or peduncle. It measures in its longest diameter, including the projecting portion, 3 cm. and weighs 5 grm. Its surface is nobbed, but without the hedgehog projections of the ordinary oxalate stone. The calculus is mainly composed of oxalate of lime, but the neck referred to above is different from the stone itself in structure, being composed of porous phosphates, and evidently superadded.

The stone was removed in 1877, from a boy aet. 2 years. He was dismissed well.

X. 45. Oxalate of Lime Calculus. (Dr. Patterson.)

An irregularly globular stone, measuring on an average about 1·2 cm. in diameter. Its surface is minutely nobbed. It weighs 2 grm. It presents the reactions of oxalate of lime, giving a strong alkaline ash with the blow-pipe, insoluble in acetic acid.

Removed from a boy aet. 4, on 28th August, 1879.

X. 46. Oxalate of Lime Calculus. (Sir Hector C. Cameron.)

The specimen is that of a typical "mulberry stone" with accretion of phosphates between the brown spinous projections of oxalate of lime. It is almost uniformly round, 2·5 cm. in diameter, and weighs 12 grm.

The stone was removed from a boy, aged 15. The symptoms appeared to date back only a fortnight, his attention being first called to his trouble by inability to retain his urine. Since that time frequency of micturition had much increased, and the urine when examined was found to be alkaline; sp. gr. 1023, pale yellow, turbid, with muco-purulent deposit. The stone was removed by lithotomy, and the boy made a rapid recovery.

Hosp. Reports, Ward XX., Vol. 2, p. 102.

X. 47. Oxalate of Lime Calculus from the Female Bladder. (Dr. Patterson.)

A characteristic mulberry calculus. It forms an irregular quadrilateral, having a general diameter of about 2·5 cm. The surface is provided with large prominent nobs. It weighs 13 grm. On section there is seen to be a small pale nucleus, but the greater part of the stone is deeply brown in colour, but with a thin white rind. The centre is uric acid, the brown part oxalate of lime, and the outer layer is oxalate; it chars into grey ash, which gives an alkaline reaction.

It was extracted from a woman aet. 20, on 29th December, 1879. The urethra was dilated, and the stone extracted by a medium-sized lithotomy forceps.

X. 48. Calculus of Uric Acid Coated with Phosphates (Prof. Geo. Buchanan.)

An oval calculus, one of five, the whole of which weighed 19 grm. A reddish central part with coating of phosphates.

Mr. W., aged 65. Operation at Cambuslang, by lateral incision; tube left in for forty-eight hours. Symptoms for several years, with great vesical irritation. "There were five calculi, each about the size of a Spanish nut, which I removed without difficulty. The patient rapidly regained health and strength." (*Glasgow Medical Journal*, April, 1867.)

X. 49. Calculus of Uric Acid and Phosphates. (Prof. Geo. Buchanan.)

An irregular stone, weighing 15·5 grm., and measuring 4 cm. in longest diameter. It seems to be composed mainly of uric acid, with coating of phosphates of magnesia and ammonia.

Wm. A., aged 70 years. Operation in Glasgow, on 7th January, 1868, by curved staff. Symptoms of several years' duration—patient worn out by pain and incontinence of urine; urine muco-purulent. Catheter used regularly for many weeks and at intervals for months back. Case seen by Dr. Wm. Lyon one year before, and by Mr. Lister six months before, but no stone detected. Result—death from exhaustion without complication on fourth day.

X. 50. Calculus of Uric Acid and Phosphates. (Prof. Geo. Buchanan.)

An oval stone weighing 23 grm., and measuring 4·5 cm. in long diameter. There is a central part in layers composed mainly of uric acid, and an external part of triple phosphates which fuse readily.

Wm. P., aged 24. Operation 21st August, 1872, in G.R.I., by rectangular staff. Symptoms of six years' duration. Result—cure. Wound quite closed three weeks after operation.

X. 51. Calculus of Uric Acid Coated with Phosphates. (Prof. Geo. Buchanan.)

An oval stone, weighing 15·5 grm. and measuring 3 cm., the central part composed of uric acid, with coating of mixed phosphates. The outer part fuses readily with blow-pipe.

W. M., aged 7. Operation at G.R.I., 7th November, 1863, by rectangular staff. Symptoms for one year. Result—12th November, urine by urethra; 5th December, cure.

X. 52. Uric Acid and Phosphatic Calculus. (Prof. Geo. Buchanan.)

Weight, 10 grm. An oval stone, 3·2 cm. in diameter, with central nucleus of uric acid in layers, and larger superficial portion of white phosphates. Removed 20th February, 1862, in Royal Infirmary, Glasgow.

Jessie W., aged 6. Symptoms, one year. Operation by rectangular staff, through nymphae. Result—cure. (For particulars see *Medical Times and Gazette*, 3rd May, 1862.)

X. 53. Uric Acid and Mixed Phosphatic Calculus. (Prof. Geo. Buchanan.)

Weight, 17 grm. An irregular oval stone, 3·7 cm. in diameter, with nucleus of uric acid, and principal part of mixed phosphates. Removed 19th March, 1862, by rectangular staff, at Royal Infirmary.

R. K., aged 16. Symptoms for six years. Result—cure. After operation there was some haemorrhage, necessitating use of tube and plugging.

X. 54. Phosphatic and Uric Acid Calculus. (Prof. Geo. Buchanan.)

A nearly round stone, weighing 15 grm., and measuring 3·3 cm., with a minute nucleus of uric acid, the rest being phosphates.

C. F., aged 74. Operation at G.R.I., July, 1862, by rectangular staff. Patient much exhausted before operation; haemorrhage after each sounding; enlarged prostate. After operation, bleeding from vascular urethra. Death in one hour from shock and haemorrhage.

X. 55. Uric Acid Calculus Coated with Mixed Phosphates. (Prof. Geo. Buchanan.)

An oval stone, weighing 35 grm., and measuring 4·5 cm. Composed mainly of uric acid, with coating of mixed phosphates, which fuse readily.

Jas. C., aged 70. Operation, 3rd December, 1873, in G.R.I., by rectangular staff. Symptoms of three years' duration. Result—cure in 14 days.

X. 56. Uric Acid and Phosphatic Calculus. (Prof. Geo. Buchanan.)

An oval stone 2·2 cm. in diameter, with a light brown internal part 1·6 cm. in diameter, and a still lighter somewhat spongy external layer. The internal part is uric acid; it burns away gently under the blow-pipe with an odour of burnt feathers. There is a very slight ash, which is alkaline, probably from trace of urate of sodium. The external part is readily fusible, consisting of fusible phosphates.

Robert J., aged 9 years. Operation by rectangular staff on 13th May, 1876, in Western Infirmary. Symptoms were typical, with albuminous alkaline urine. Death occurred from peritonitis.

X. 57. Uric Acid and Phosphatic Calculus. (Prof. Geo. Buchanan.)

The calculus is oval, with a diameter of 3·7 cm. There is a central nucleus 1·6 cm. in diameter, composed of uric acid. The bulk of the stone is composed of white phosphates.

M. D. L., aged 12. Operation by rectangular staff, in Western Infirmary. There had been pain in bladder since two years of age. Death occurred in two days, apparently from peritonitis.

X. 58. Uric Acid Calculus Coated with Phosphates. (Sir Geo. H. B. Macleod.)

An oval stone 2·5 cm. in diameter. Where the external crust of phosphate has been removed the reddish uric acid stone is visible.

Boy, aged 7. Not known how long symptoms existed. Lithotomy—rectangular staff. Recovery.

X. 59. Large Uric Acid Calculus partially Coated with Phosphates. (Sir Geo. H. B. Macleod.)

The stone is of a flattened oval shape, measuring 5 cm. in long diameter. The surface is rather irregular, in some places tuberculated. It has mostly a yellowish colour, but the yellow substance obviously forms a thin crust, the reddish colour of the stone beneath appearing in two or three places. The stone weighs 62 grm.

Patient aged 28. Symptoms of three years' duration. General health much impaired. Lithotomy—rectangular staff. Recovery.

X. 60. Small Calculus Coated with Phosphates. (Sir Geo. H. B. Macleod.)

The stone is in shape like a nail, weighing 1·3 grm., and measuring in length 2·2 cm. Its surface is rough and covered with phosphates.

J. L., aet. 33. Ward XVIII. *Journal* 2, p. 218; and 3, p 13. Symptoms of two years' duration. Urine contained crystals of oxalate of lime, with traces of blood and albumen. With the sound the bladder was found to be fasciculated, and contained some grit; there was a rough spot below on the left side where a "lump" could be detected from the rectum. Cut on 30th June, 1885, on rectangular staff. A stone was found encysted in the floor of the bladder. It was covered with the mucous membrane except a small portion of the surface of the larger end on which the sound grated. It was removed with the scoop after the mucous membrane over it had been divided.

X. 61. Uric Acid and Phosphatic Calculus. (Dr. A. Patterson.)

A small oval stone consisting of a central brown part and a broken external coating. The central part is mainly uric acid, and the external parts fusible phosphates. The weight was 2·7 grm.

The patient was a boy two years of age, who was operated on, 7th August, 1876.

X. 62. Uric Acid and Phosphatic Calculus. (Dr. A. Patterson.)

The stone is in two pieces, but when placed together it forms a bulky stone of an elongated shape, and bent so as to form a segment of a ring. Its entire length is 5·3 cm., and at its thickest part it measures 2·5 cm. in diameter. It weighs 16 grm. Its surface is rough, and its texture exceedingly porous and crumbly. It consists of a central oval nucleus 1·6 cm. in diameter, composed of uric acid, and an irregular bulky external part probably of ammonio-magnesian phosphate.

It was removed from a boy, aet. 5 years, in 1877.

X. 63. Uric Acid and Phosphatic Calculus. (Sir Hector C. Cameron.)

The specimen presents on one surface a round smooth projection of uric acid which appears to represent the original stone, and forms the nucleus of an incrustation of phosphates which almost completely imbeds it. It is oval in shape, measuring in its longest diameter about 3·7 cm., and its shortest 2·5 cm. Weight, 26 grm.

The stone was removed from a boy aged 13. His symptoms commenced six months back, at which time he was troubled with pain in the hypogastric region. Four months later his trouble became much increased, and on admission to the hospital he was suffering from frequent painful micturition, and much supra-pubic pain. The stone was extracted by lithotomy, and the patient recovered. (*Hosp. Reports.* Ward XX. Vol. 4, p. 113.)

X. 64. Uric Acid and Phosphatic Calculus. (Sir Hector C. Cameron.)

From a man aged 52, on whom Dr. C. had twice performed lithotrity (Bigelow's) 4 years, and 18 months ago. After the second operation the patient had renal colic, and the symptoms pointed to the descent of a calculus into bladder. The putridity of the urine had persisted ever since the first stone. Pain in penis and above pubes; sudden interruption of stream began on present occasion two months before admission. Supra pub. op., 23*rd Sept.*, 1890. Uric acid nucleus oval, 5 mm. in long diameter; whole stone 4 cm. × 3 cm. Weight, 22 grm. The phosphatic part does not show a uniform constitution, but is stratified, the white crumbling substance alternating with a rather brown purplish material. The whole of this, however, fuses in the blow-pipe flame.

X. 65. Uric Acid and Phosphatic Calculi. (Sir Hector C. Cameron.)

X. 66. Uric Acid Nucleus of Calculus with Fragments, removed by Lithotomy. (Sir Geo. H. B. Macleod.)

The principal piece here is oval, and measures 2·5 cm. in diameter. There are still phosphates adhering, but through them the tuberculated surface of a uric acid calculus is visible. These parts were removed by lithotomy, and the patient made a good recovery.

X. 67. Fragments of Phosphates removed by Lithotrity. (Sir Geo. H. B. Macleod.)

These fragments are composed of fawn-coloured phosphates.

T. B., aet. 26, admitted 14th February, 1881, pale and weakly lad—bad constitution. Urine, sp. gr. 1020—acid; little sediment, slight albumen, some pus. Lithotrity—stone breaking down easily. The passing of fragments caused so much pain, and his condition was so unsatisfactory that lithotomy was performed. See X. 66.

X. 68. Fragments of Calculus. (Sir G. H. B. Macleod.)

These pieces, composed partly of phosphates and partly of uric acid, the latter forming the central part of the larger calculus, were removed from the same patient as No. X. 23.

D. M., admitted 13th July, 1875. Symptoms returned. Operated on with Dr. Macleod's jointed rectangular staff. Dismissed well, 18th August, 1875.

X. 69. Fragments of Phosphatic and Uric Acid Calculus removed by Lithotrity. (Sir G. H. B. Macleod.)

There are many fragments, chiefly white, but some of a brown colour.

W. A., aet. 25, admitted 12th January, 1878. Symptoms of six years' standing. Bad general health for fifteen years. Large quantity of phosphatic débris with uric acid nucleus removed at two sittings by lithotrity.

X. 70. Uric Acid and Oxalate of Lime Calculus. (Dr. Patterson.)

A small regularly oval stone, measuring 1·4 cm. by 1·2 cm. It has a markedly nodulated surface. It weighed 2·3 grm. On section it is seen to be composed of a central light brown part, and a peripheral deeper brown layer, less than 3 mm. in thickness. The former gives uric acid reaction, charring and disappearing; the latter gives the reaction of oxalate of lime, chars readily, gives a burnt-wood smell, and leaves a powdery white ash which is highly alkaline.

It was removed from J. N., a boy 6 years of age, on 16th November, 1878. The symptoms had been of two years' duration.

X. 71. Mixed Oxalate and Urate Calculus. (Prof. Geo. Buchanan.)

A nearly globular stone 2·5 cm. in diameter, and with hedgehog projections on surface. Both on surface and on section it has a remarkable brownish red colour. It gives the murexide reaction of uric acid readily, and chars in the blow-pipe, leaving a non-fusible glowing ash of highly alkaline reaction, showing oxalates.

Mr. R., aged 76. Operation on 28th May, 1872, in private, by rectangular staff, was easy and free from bleeding. Tube was used. He did well for two days, when tube was removed; thereafter rigor and fever occurred and he died.

X. 72. Oxalate (Mulberry) Calculus Coated with Uric Acid. (Prof. Geo. Buchanan.)

An oval calculus weighing 16 grm. and measuring 3 cm. In the centre there is a partly disintegrated irregular nucleus of uric acid. This is succeeded by a dark brown part, which has the regular warty outline of the oxalate of lime calculus. This is succeeded by a thin layer of uric acid which to some extent fills up the spaces between the projections, and so renders the surface less warty. The centre and outer parts burn away in the blow-pipe flame; the intermediate part expands into a white mass which effervesces with nitric acid.

John C., aged 10. Operation 4th June, 1872, in G.R.I., by rectangular staff. Symptoms for one year. Result—cure.

X. 73. Oxalate of Lime Calculus Coated with Mixed Phosphates. (Prof. Geo. Buchanan.)

A nearly globular stone about 3 cm. in diameter. The central part, to the extent of about 2 cm., is composed of oxalates, and has the irregular surface of the mulberry calculus. The external parts are composed of white phosphates, which fill up the irregularities.

Robert P., aged 31. Operation 16th June, 1875, in Western Infirmary, by a rectangular staff with a groove on left side, so that right lithotomy might be performed, a cut for fistula, which had been made on right side two weeks before, being taken advantage of.

Symptoms were of seven years' duration. He passed a small red stone a year before admission. There was frequency of micturition with pain and frequent stoppage of stream, and the urine contained pus, blood, uric acid crystals and vibrios.

X. 74. Oxalate Calculus slightly Coated with Phosphates. (Sir G. H. B. Macleod.)

A very large stone of an irregularly oval shape. It measures in long diameter 5·5 cm. and weighs 108 grm. The proper surface of the stone is dark brown, with rounded projections, but colour and outline are somewhat obscured by a thin crust of white phosphates.

Patient 84 years of age. A distinguished London surgeon having failed to discover this stone after its presence had been detected both in Edinburgh and Glasgow, the patient refused all assistance, and died unrelieved. It was removed from his bladder after death.

X. 75. Oxalate and Phosphatic Calculus. (Dr. Patterson.)

A very large oval stone measuring 9·5 cm. by 4·5 cm. The surface is somewhat nodulated, and occasionally roughened by phosphates. It weighs in the dry state 88 grm., but in the recent condition, it is noted as having weighed 108 grm.

On section it shows a central brown nodulated part, about 1·6 cm. in diameter, which gives the reactions of oxalate of lime. The greater part of the stone is white, and consists of phosphates, which are with difficulty fusible.

It was removed from a man, aet. 26, by the supra-pubic operation, on 27th November, 1879.

X. 76. Oxalate and Phosphatic Calculus. (Dr. J. G. Lyon.)

The stone has the form of an elongated oval, measuring 4·5 cm. by 3 cm., but flattened so that the third diameter is only 2 cm. On one of the flattened surfaces the stone is generally smooth and yellowish in colour, but occasionally roughened by phosphatic deposit. On the other flat surface it is nearly completely coated with a thick layer of porous phosphates. It weighs 29 grm. in the dry state, but is noted as having weighed 36 grm. at time of removal.

The stone shows on section a central brownish part 2 cm. in diameter, the rest being white with a yellowish rind. The central part, after exposure in the blow-pipe, leaves an alkaline ash which dissolves in HCl. It does not give the murexide test, and is therefore oxalate. The white part is readily fusible, and the external part less so.

It was removed on 6th September, 1878, by the lateral operation on Cheselden's staff. Patient aged 17.

X. 77. Oxalate and Phosphatic Calculus. (Dr. Patterson.)

An elongated stone nearly cylindrical in shape. It measures 4 cm. by 1·6 cm. It is broken into several pieces, and is seen to be composed of a somewhat nodulated nucleus, with a capsule of porous phosphates. It weighs 10·6 grm. The central part gives, with blow-pipe, reactions of oxalate of lime; it glows and leaves a bulky white ash of alkaline reaction and insoluble in acetic acid. The outer crust is not fusible, consisting of phosphate of calcium.

It was removed from a boy, aet. 11, from Rothesay. The symptoms had been of twelve months' duration. Date of removal, 10th October, 1878.

X. 78. Phosphate of Lime Calculus, Oxalate of Lime Nucleus. (Prof. Geo. Buchanan.)

The calculus is broken into many pieces of a white flaky character. There is, however, a solid oval nucleus 2 cm. in diameter, which presents several layers of a brownish colour and somewhat wavy outline. The white part is quite fusible and is soluble in acetic acid. It chars slightly with the blow-pipe, but the ash is not alkaline. The nucleus is mainly oxalates.

Colin B., aged 32. Operation 22nd February, 1879, in Western Infirmary, by rectangular staff. The calculus broke in the forceps during extraction. There had been long-continued cystitis. After the operation the wound healed slowly, but ultimately did so, and the patient was dismissed with cystitis remaining. He lingered on after going home, and ultimately died from exhaustion due to the cystitis.

X. 79. Phosphatic Calculus formed round Fragments of Oxalate of Lime Calculus. (Prof. Geo. Buchanan.)

A rather soft porous stone, which shows on section two irregular pieces of a brown colour. There was a third piece which has broken away. The brown part is oxalate, the porous portion fusible phosphate. The calculus, which was nearly globular, measures 4 cm. in diameter and weighed 19 grm.

Jas. L., aged 27. Operation by rectangular staff on 10th November, 1883, in Western Infirmary. Symptoms in all of $4\frac{1}{2}$ years' duration, pain at point of penis, stoppage of urine, etc. A large calculus was crushed in Liverpool in 1882, and the fragments shown in this stone were left in the bladder. Present symptoms had lasted two months.

X. 80. Oxalate of Lime Calculus with Nucleus of Clot, and External Coating of Phosphate of Lime. (Prof. Geo. Buchanan.)

A rounded calculus about an inch in diameter. It is white externally and not nodulated. On section, the bulk of the stone is brown and gives reaction of oxalates. In the centre is a small cavity in which a clot was found. Externally there is a rind less than 3 mm. in thickness composed of phosphate of lime.

John R., aged 20. Operation by rectangular staff on 11th July, 1882, in Western Infirmary. Result—cure.

X. 81. Uric Acid and Oxalate Calculus with Coating of Phosphates. (Prof. Geo. Buchanan.)

A regular hedgehog calculus, with the hollows between the projections partly filled by a coating of white fusible phosphates. There is a lighter central nucleus which gives the murexide reaction of uric acid, while the greater external brown portion gives that of oxalates. The calculus is nearly globular, and measures in its greatest diameter 3 cm.

J. B., aged 19. Operation by rectangular staff on 19th February, 1881, in the Western Infirmary. There had been long-continued agony, so that he could not lie in recumbent position. Result—cure.

X. 82. Uric Acid, Oxalate of Lime, and Phosphates. (Prof. Geo. Buchanan.)

Nearly round, 2·5 cm. in diameter, weighing 10 grm. Nucleus of uric acid, surrounded by thick layer of oxalate, and with external white layer of phosphates, which fuses with difficulty.

R. C., aged 9. Operation 11th July, 1868, in G.R.I., by rectangular staff, no tube. Symptoms of one year's duration. Result—13th July, water by urethra—31st July, cure.

X. 83. Cystine Calculus in Fragments. (Sir G. H. B. Macleod.)

These pieces were removed by lithotrity.

A. C., aet. 63, admitted 28th January, 1881. Thin, pale, nervous man. Symptoms of sixteen years' standing. Had been operated on by Dr. Macleod in 1866, when a calculus was removed by lithotomy. Symptoms recurred in June, 1880. Urine, sp. gr. 1029; pus, phosphates, tube casts—lithotrity twice—crystals of cystine. Dismissed 11th February, 1881, well. Returned 23rd February with slight return of symptoms. Lithotrite again introduced, and some small fragments removed. Remained well when last heard of.

X. 84. Vesical Calculus. (Mr. Maylard.)

Removed by lateral lithotomy from a boy aged 14.

X. 85. Vesical Calculus. (Mr. Maylard.)

Removed by lateral lithotomy from a boy aged 9.

X. 86. Urethral Calculus. (Mr. Maylard.)

Removed from the urethra of a boy aet. 18. It was impacted in the canal about 2 cm. from the meatus. The latter was cut towards the fraenum to permit of its extraction. He had had one removed a few months previously.

His symptoms were solely those connected with the obstructive

effect of the stone. In order to micturate, he would pinch the penis near the meatus in such a way as to allow of the urine passing the stone.

X. 87. Urethral Calculus. (Mr. Maylard.)

Removed from the urethra of a boy about 5 cm. from the meatus. He had symptoms for the last year, consisting more recently of retention with frequency of micturition.

SERIES XI.

MALFORMATIONS.

XI. 1. Anencephalous Foetus with Partial Hernia Cerebri, and Open Spina Bifida.

The head and greater part of the trunk of a male foetus are preserved. The gap in scalp and skull is a large one. It begins about 2 cm. behind the supra-orbital ridge. It has a general transverse measurement of 6 cm. and it is continuous below with an open spina bifida which ends somewhat abruptly in the upper part of the dorsal region, the whole measurement of the exposed area from above downwards being 7 cm. The cranial portion is covered by an irregular mass consisting of membrane and soft matter (probably brain substance). This mass measures 7 cm. from side to side, 4·5 from above downwards, with a general projection of about 2 cm. There is no cranial vaulting, and the exposed base of the skull ends in a prominent transverse ridge slightly concave downwards, the spina bifida below this being represented by a broad and rather deep depression. The skin on either side is continuous with a membrane, and in the midst of the spina bifida there is a considerable aperture in this membrane which obviously passes into the spinal cord. Viewed from the front the head is seen to be planted deeply between the shoulders, the chin, which is double, passing directly on to the chest wall; the tongue protrudes.

XI. 2. Anencephalous Foetus with Gap about Interparietal Region and Slight Hernial Protrusion.

The gap here is a small one measuring about 2 cm. transversely and only about 5 mm. from above downwards. It seems to occupy

the position of the apex of the occipital bone. There is a protruding mass measuring about 3 cm. in length and 2·5 cm. in breadth. There is some cranial expansion and the eyes do not show the marked protrusion of most cases. There is a distinct neck, although it is short.

XI. 3. Anencephalous Foetus with Exposure of the Greater Part of the Base of the Skull.

The head and upper part of the trunk of a female foetus are preserved. The scalp is awanting over a quadrilateral area measuring about 4·5 cm. in each diameter. There is a membrane covering the bones, and this is somewhat loose behind where the bones of the skull end in a semicircular ridge with the convexity downwards. The gap in the skin ends just at the beginning of the neck, which latter is much shortened. There are the usual absence of the cranial vault and frog-like protuberance of the eyes.

XI. 4. Anencephalous Foetus with Gap Posteriorly.

The head and upper part of the trunk of a male foetus are preserved. The gap in the scalp is limited to the occipital region, where it has an irregular quadrilateral form measuring 3·5 cm. transversely and 2·2 cm. from above downwards. This gap is occupied by an irregular lobulated but very slightly prominent mass which may be brain substance. The cranial vault is greatly deficient, but the frontal and parietal bones can be approximately made out markedly flattened, but probably along with some brain substance. The eyes have the usual prominence and frog-like appearance. The neck is much shortened, and there is a double chin.

XI. 5. Anencephalous Foetus (Cranioschisis) with Open Spina Bifida (Rachischisis). (Dr. Kirk.)

The foetus is well developed except the head and neck. Viewed from the front the neck appears to be absent, and a large double chin rests on the breast. The face is terminated above by prominent eyes which have rounded oedematous lids, and there is no forehead rising above the eyes, but merely a flat triangular piece of hairy

skin between them. The vault of the cranium is entirely awanting, and instead there is a red, slightly convex, exposed surface with hairy skin at its marginal parts. The exposed surface measures 5·5 cm. in the middle line and 5 cm. transversely. It represents both the exposed base of the skull and the upper cervical vertebrae, these two being separated by a transverse ridge of bone. The cranial part is covered with loose membrane in which in the fresh state a transverse aperture was visible, leading into a membranous sac which was situated anteriorly. The spinal part, which is triangular in shape, presents in the middle line a narrow gutter lined with membrane and with a fleshy band on either side. Outside these bands there is again a depression, and then a ridge of bone representing aborted arches of vertebrae of which four or five can be distinguished. These diverge greatly above where they are about 2·5 cm. apart, and converge below where they are less than 1·2 cm. (For full description see *Glasgow Medical Journal*, September, 1890.)

Path. Reports, No. 2319.

XI. 6. Foetus with Encephalocele. (Dr. Macphail.)

The foetus has been divided in the middle line so as to show external and internal aspects. Viewed from without, the face and ear appear normal, but the brow is depressed and there is very little of a cranial vault. At what would be the normal posterior aspect of the cranium there is a groove succeeded by an oval protuberance nearly of the same size as the rest of the head, the measurement from the tip of the nose to this groove, and from the groove to the posterior extremity being alike 9·5 cm. Hairs cover the scalp, and they are continued backwards over the protuberance, but they cease about half-way, and the posterior part of the protuberance is completely bald. Viewed from within, the cranial vault is greatly diminished in depth, the measurement from base to summit being 3 cm. The frontal and parietal bones are distinguishable, considerably depressed. The middle fossa of the skull also is distinguishable, but it forms a wide communication with the spinal canal. The intra-cranial cavity communicates with the extra-cranial one by a wide aperture 4·5 cm., and there is a ridge along this aperture corresponding with the groove externally. The dura mater is continued into the protuberance. The skin over the cranial part is of normal thickness, and it continues so a short distance over the protuberance, but gradually becomes thinner, and

in the extreme posterior part is of about the thickness of note-paper. There is a slight ridge visible internally, and a slight depression visible externally, where the actual skin ends.

XI. 7. Encephalocele. (From preceding case.)

The brain shows a distinct division into two parts, an anterior portion, which is small, especially from above downwards, and a posterior, which is much larger. A groove divides them, corresponding with the similar groove mentioned above. A somewhat firm membrane covers continuously the protruded portion of the brain, and is somewhat adherent to the brain-surface. It shades off into the soft membranes in front. The exact relations of the various parts of the brain cannot be made out clearly, but this groove is situated slightly in front of the temporo-sphenoidal lobe, all behind this having been extruded. The cerebellum was found greatly atrophied and the seat of considerable haemorrhage. The pons varolii was carried much backwards, and the upper part of the cord was atrophied to a band of fibrous tissue. The cranial nerves were much stretched.

The mother was 36 years of age and had given birth to eight children. The birth seems to have been normal, but the placenta was retained for a time. The child lived for 18½ hours.

Path. Reports, 1st April, 1893, No. 3306.

XI. 8. Occipital Meningocele Removed by Operation. (Dr. Patterson.)

The preparation is a small very thin-walled membranous sac measuring 3 cm. in long diameter. It has one extremity rounded and the other flattened where it has been laid open. It was removed from the occipital region of a female infant aged five weeks. It was noticed at birth. As observed during life it had the form of a rounded or spherical tumour of a red colour. When the child cried it increased in size to about that of a Tangerine orange and became translucent and very tense. When the sac was compressed the child cried and the fontanelles bulged. 3½ drachms of fluid were removed by tapping, and the cyst was ligatured and excised. A very small aperture in the skull was observed. The child made a good recovery. *Path. Reports*, 12th March, 1896, No. 4526.

XI. 9. Spina Bifida.

The preparation presents a large flat partially obliterated sac attached in front to the lower two lumbar and upper sacral vertebrae. A section has been carried in the middle line through the sac into the vertebral canal, and then carried outwards so as to separate the left half of sac and arches. The canal thus exposed shows, at upper part, the lower end of the spinal cord, in connection with which there is a small flask-shaped cavity which partially occupies the tumour. The neck of the flask is obviously connected with the spinal cord, but whether with the central canal or sub-arachnoid space cannot be made out in the matted condition of the parts.

XI. 10. Spina Bifida Occulta. (Dr. Dalziel.)

The specimen consists of a flat piece of adipose tissue measuring 6·5 × 5 cm., with a pronounced depression on one of the surfaces, which measures 2·2 × 1·7 cm. and has a depth of 1·3 cm. This depression has a partial lining of fibrous tissue, and it formed a bed for the protruded theca spinalis.

Mary D., aged 11, had a soft elastic tumour of the size of a half orange over the upper part of the sacrum, and this had existed since birth. A deficiency in the wall of the spinal canal could be distinguished. This skin over the tumour was perfect. There was a triangular area of anaesthesia whose apex was over the lower lumbar spines. It extended 12·5 cm. to either side of the middle line and downwards to the perineum and posterior half of vulva, and also about 12·5 cm. down the internal and posterior aspect of the thighs. There was imperfect control of bladder and rectum. At the operation the theca presented a finger-like out-growth, and on the inner side were certain nerves regarded as the 4th, 5th, and possibly 3rd sacral. The anaesthesia was in the area of distribution of these nerves.

Path. Reports, 25th September, 1895, No. 4333.

XI. 11. Extensive Malformations, including Encephalocele, Fissure of Thorax and Abdomen, Adhesion of Amnion, Double Club-Foot. (Dr. J. M. Munro Kerr.)

The foetus is apparently of about the sixth month. The umbilical cord is much shrunken and twisted as if enclosed in an adherent

membrane. This membrane is continued to the anterior surface of the foetus, where it is adherent not only to the trunk in the middle line but also to the heart, which is outside the trunk. Outside the trunk there are also liver, stomach, and the greater part of the intestine, but there is no widely open fissure, the abdominal and thoracic wall being united around the exits of the cardiac vessels and the abdominal structures. The membrane referred to is adherent to the apical part of the heart, and the latter is dragged upwards so that the position of the heart is inverted. Proceeding from the heart the membrane, which shows itself to be in great part amnion, is firmly adherent to the forehead of the foetus above the root of the nose, and at the lower part of this adhesion there is a small aperture apparently leading to the interior of the skull. Continuous with this adhesion the amnion is firmly attached to a large mass—evidently protruded brain. This protrudes from the summit of the head directly upwards for a distance of 6·5 cm., and has a lateral measurement of 7 cm. It protrudes through a gap in the skull corresponding mainly with the frontal region. The margin of the left orbit is involved in this aperture, so that the eyeball is exposed from defect of the upper and, to a less extent, of the lower lid. Behind the gap in the skull, and apparently corresponding nearly with the apex of the occipital bone, there is a rounded aperture in the scalp, measuring 1 cm. in diameter, through which protrudes a small flat projection. The placenta is brought somewhat close to the face, apparently by the adhesions, and the amnion over the placenta forms a somewhat loose bag. The lower limbs are rotated backwards so that the plantar aspects present upwards and there is a double talipes varus.

The mother was a woman of 22 who had previously born two well-formed children. Ten weeks before the birth of the present foetus she suffered from the effects of a blow on the side.

Path. Reports, 2nd September, 1895, No. 4299.

XI. 12. Fissure of Abdomen, Ectopia of Viscera, Extroversion of Bladder, etc. (Dr. Jas. Dunlop.)

A foetus of about the seventh month, generally well developed. The abdominal wall is un-united from the umbilicus downwards. From the fissure hangs a tumour measuring 12·5 cm. from above downwards, and consisting mainly of the intestine contained in a sac

which is adherent to the intestine and appears very vascular. At the upper part of the protrusion is a part of the liver, which measures 6·2 cm. transversely and 3 cm. from above downwards. This is connected with the rest of the liver inside the abdomen by an isthmus. The sac enclosing the obtruded viscera in some parts passes through the fissure to be inserted inside the abdomen, but above it is partly united with the umbilical cord, and below with the exposed urinary bladder. The umbilical cord is split at a short distance from its origin, and the two parts embrace the upper extremity of the fissure. A smaller part passes to the right and contains an artery, while a larger part passes to the left and contains artery and vein. Between the two portions there is a triangular piece of membrane uniting them in the middle line. The lower part of the fissure is closed by the extroverted urinary bladder. The part seen is the posterior wall of the bladder, which forms a flat surface measuring 3 cm. from above downwards, and its lateral aspects are continuous with the cutaneous surface, the connection extending on the left for the entire length of the bladder, while it is only about 1 cm. on the right. The fundus is therefore oblique. The orifices of the ureters are seen, the left nearly in the middle line at a prominence, and the right drawn aside and slit-like. At the neck of the bladder there is a narrow bridge with a wide channel beneath it representing urethra. Below this, in the midst of an exposed surface, is the rounded aperture of vagina, into which a probe passes for 2·7 cm. On either side of this there are prominent folds of skin representing labia, but standing 1 cm. apart. Outside these, the rounded extremities of the pubic bones can be felt, there being a gap of 2·5 cm. The ureters and ovaries are present in their normal positions; as are also kidneys, spleen, stomach, and part of liver. The rectum on the one hand, and stomach with duodenum on the other, are directly continuous with the protruded intestine, which thus virtually represents the entire intestine.

Path. Reports, 8th November, 1889, No. 2203.

XI. 13. Extroversion of Bladder. (Dr. Patterson.)

The specimen shows in front the exposed bladder with two small black directors inserted in the orifices of the ureters. Below is the penis flattened horizontally, the urethral canal passing on its surface to the bladder Beneath the penis is the corrugated scrotum. Above

the bladder and overhanging it is the flap which had been dissected off the large raw abdominal surface situated immediately above it. Posteriorly the parts have been dissected out to show their relative positions. Below and projecting backwards is the distended rectum with, on either side, the levator ani muscle. Above the rectum is the irregularly shaped prostate with the vesiculae seminales applied to it and continuous each with its respective vas deferens. The two ureters have black directors in them, and pass backwards and outwards on either side beneath the vasa deferentia. Towards the median line they enter the substance of the bladder, the only existing part of which is seen immediately above and between them. Coursing laterally above these structures are the obliterated hypogastrics. To the extreme right and left of the specimen are two large apertures—the internal abdominal rings—leading to the terminal sacs. The pubic bones have been macerated and are preserved as Series XI., No. 14.

The specimen was taken from a man aged 32 who died from pyaemia. *Path. Reports*, Vol. IX., No. 1579.

XI. 14. Pubic Bones from case of Extroversion of Bladder. (Dr. Patterson.)

The soft parts are preserved in Series XI., No. 13. The internal parts of the innominate bones have been preserved and mounted in their relative positions. They show the rounded ends of the pubic bones standing apart at a distance of 9 cm.

XI. 15. Congenital Diaphragmatic Hernia with Sac. Supernumerary Digit. Malformation of Head. (Dr. Kirk.)

The liver has been removed and also the greater part of the left thoracic wall. The greater part of the left thoracic cavity is occupied by a sac which extends upwards from the diaphragm and measures from above downwards 5 cm. The lung greatly compressed is at the summit of the sac. The sac is continuous with an aperture in the diaphragm. This aperture is situated immediately to the left but is quite distinct from the aortic aperture. Its transverse diameter is 2·3 cm., and its antero-posterior diameter is similar. The muscle of the diaphragm does not reach the orifice, stopping about 6 mm. from it. The peritoneal and pleural

membranes thus come together, and the sac is continuous with the peritoneum below and the pleura above the diaphragm. A little bit of muscle appears just at the neck of the sac. The contents of the sac are mainly small and large intestine, the small being chiefly anterior and occupying considerably less bulk than the large intestine. At the posterior part of the sac is a relatively large spleen which measures 4 cm. from above downwards. Neither the spleen nor the intestine is adherent to the sac. The oesophagus passes down distinctly to the right of the aperture, but at its termination it turns abruptly to the left, and the whole stomach is contained in the sac. The pylorus, which is a considerably thickened ring, is at the orifice of the sac, and the duodenum is in the abdomen. Many coils of small intestine succeed the duodenum, and at the end of these the small intestine passes into the sac. Large intestine emerges from the sac at about the position of the splenic flexure, and the descending colon occupies nearly its normal position. There is a greatly enlarged sigmoid flexure. The kidneys are present and apparently normal. The small intestine is mostly empty, the large intestine contains a dark meconium.

The left hand has a supernumerary finger. It is attached by a narrow pedicle to the outer aspect of the proximal phalanx of the little finger. It is somewhat club-shaped, with a bulbous extremity. On the dorsal aspect there is a little dimple, but no distinct nail. No other malformation of the hands or feet was present, but the head showed an anencephalous condition.

Path. Reports, 30th April, 1896, No. 4597.

XI. 16. Sympus or Siren Malformation. (Dr. John Adams.)

The preparation is a foetus of about full term, the lower limbs of which have coalesced so that the trunk ends in a single rounded buttock with a tapering prolongation not unlike a fish's tail. The two limbs have coalesced by their outer borders, and the extremity of the conjoined limbs is a foot with seven toes, there being a great toe at each outer extremity. In addition, two small coalesced toes project from the dorsal aspect. In like manner the knee projects backwards and flexes forwards. Examination of the viscera revealed three complete occlusions of the lumen of the gut, two of them with entire interruption of its continuity.

XI. 17. Sympus or Siren Malformation, being the Bones of the Lower Limb from preceding case.

The pelvis is much deformed, the ischial bones being coalesced across its floor so as to form a thick transverse bar. The two pubic bones are coalesced in front and project considerably forwards. By the coalescence of the ischial bones the acetabula are brought together and look backwards. The two femurs are represented by a single broad and flattened shaft, which is bifid above and below. There are thus two heads and two necks. There are also two articular surfaces below, each with its own patella, the left patella looking almost directly backwards and the right backwards and outwards. The right knee-joint is completed by the tibia and fibula which form the chief part of the lower part of the limb. The left knee-joint was formed by the aid of a short bone which tapers and produces the slight bifurcation shown in the preceding specimen. See *Journal of Pathology*, Vol. III., 1895, p. 149.

XI. 18. Congenital Sacral Tumour. (Dr. Macfarlane.)

The lower part of the trunk and the legs of a child, apparently at full time, are preserved. A bulky tumour projects from the lower part of the body and lies between the legs, separating the latter. The thighs are directed upwards and outwards, and the legs hang down beside the tumour. The entire length of the tumour from above downwards is 11 cm., and it has a maximum breadth of 14 cm. It is somewhat quadrilateral in shape above, but tapers below. Near the upper extremity of the tumour, in the middle line, there is a slit-like opening with a fold of skin on either side, on parting which a well-formed vagina and urethra are discovered; 2·5 cm. below this again there is a somewhat gaping opening, which is the anus. The upper part of the tumour, both in front and behind, is covered by skin, but at the lower tapering extremity the skin becomes exceedingly thin, and there are some parts devoid of it. The tumour has obviously originated in the posterior parts of the pelvis, the thighs coming off from its front parts. The tumour is very soft to the touch, and on section was found to present a very varied tissue, in which mucous membrane with cylindrical epithelium is frequently present.

The mother was a woman 30 years of age, and this was her fifth child. When the doctor saw the patient, the head was

born; but great difficulty was experienced in delivering the lower parts, as the thighs, placed transversely, caught on the pelvis.

Path. Reports, 13th December, 1886, No. 1638.

XI. 19. Congenital Sacral Tumour from Body of Child at Birth. (Dr. Donald M'Phail.)

The tumour, of which half is preserved, is a bulky one, measuring 14 × 8 cm. It is almost divided into two lobes, a larger measuring 9·5 cm. and a smaller 4·5 cm. In addition to this, there are indications of lobulation visible on the cut surface. The surface of the tumour is covered with skin, which at one edge is normal in appearance, but for the most part is thin and smooth. The cut surface presents a variegated tissue with many small openings as of cysts, and at one place a considerable haemorrhage. Microscopical examination shows four distinct tissues, viz.: (1) a very cellular cartilage, arranged mostly in rounded masses and sometimes partially calcified as if in preparation for bone formation; (2) gland tissues mostly in irregular and sometimes in drawn-out passages, which often present a distinct columnar epithelium; (3) a highly cellular connective tissue, which is often in the form of distinct spindle-celled tissue; (4) mucous tissue. The tumour presented from the sacral region of an eight months' child which died 20 minutes after birth. The finer relations could not be fully investigated. *Path. Reports*, 13th December, 1894, No. 3980.

XI. 20. Water-colour Drawing of Congenital Sacral Tumour, by Dr. A. M'Phail.

The drawing shows the tumour in the fresh state as viewed from the surface. (See XI. 19.)

XI. 21. Congenital Sacral Tumour. (Dr. Beatson.)

The tumour is seen in section, and the following anatomical relations can be made out. In front, urinary bladder, small uterus, and rectum appear in succession. The two former communicate with a considerable cloaca, which opens externally after passing behind the symphysis. The rectum also communicates with this cloaca, but by a ragged aperture the result of sloughing, and here

the tumour tissue has compressed and impinged upon the rectum from behind. The rectum is continued beyond this to the anus, which is visible as an oval dilated aperture some distance beneath the opening of the cloaca. The tumour mass is insinuated between those parts in front and the sacrum and coccyx behind, and it also protrudes downwards for a distance of 12·5 cm. below the symphysis —the mass being larger, however, on the left than the right side. The tumour is somewhat confined above between the sacrum and the parts in front, and expands below. The total measurement of the tumour, after it had been a year in alcohol, is 19 cm. from above downwards and 10 cm. from before backwards. The tumour tissue as a whole is very soft, but the upper part, namely that lying immediately in front of sacrum and coccyx, is exceedingly soft, and has also a brown colour as if infiltrated with blood or else highly vascular. The lower parts are whitish, and they contain a considerable number of cysts. This tissue is largely adipose tissue along with fibrous tissue, and the cysts in it are of two varieties, the one kind containing a glairy substance like mucus, and the other a dull white, crumbling matter. Under the microscope the lower part of the tumour shows, besides a general basis of adipose and fibrous tissues, a good many epithelial structures, sometimes in the form of ducts or incipient cysts, and at other times as definite smaller or larger cystic cavities. The cysts can be distinguished as cutaneous or mucous. The former are lined with stratified epithelium, and show sometimes ducts, which are occasionally twisted in their walls; there are also bands of smooth muscle in connection with these cysts. The mucous ones have a thinner epithelial lining and in their walls are structures like mucous glands. The upper part of the tumour has a most varied structure. In some places it is distinctly cancerous and the cancer cells have a tendency to degenerate into or secrete a clear colloid substance. There are, further, places where the tissue resembles that of the thyroid gland, consisting of saccules lined with epithelium and frequently colloid so as to be small cysts. There is also voluntary muscle in the form of transversely striated cylinders, and also of spindle-shaped cells with transverse striation. There were secondary tumours in the lungs and liver in large numbers, those in the liver reaching several inches in diameter. Under the microscope these tumours show a cancerous structure, with the same tendency to colloid change as was observed in the primary tumour.

A female child, aged 2, was born with a lump which was at

first supposed to be a spina bifida, but soon was determined to be a growth arising near the coccyx. The tumour grew regularly until near the time of the child's death. The chief symptoms were cough, irritability, and some rise of temperature.

Path. Reports, 16th January, 1891, No. 2561.

XI. 22. Supernumerary Digit removed from First Phalanx of Little Finger. (Dr. H. W. Gentles.)

The digit is about 1·2 cm. in length. It was attached by a narrow pedicle, which is preserved in the preparation. The skin is continuous all over, except at the pedicle, and there is a small well-formed nail. Internally there is a cartilaginous phalanx, with a very small kernel of true bone.

XI. 23. Casts showing Congenital Malformation of Hands and Feet.

These casts were taken after death from a man. The right hand contains only four digits, the middle finger being absent. The thumb and forefinger are completely webbed together and united, and so are the fourth and fifth fingers, so that there are virtually only two separable members in the hand. These two members are opposed to each other, giving somewhat the appearance of a bird's claw. The cleft between the members passes farther into the palm than normal, its farthest point being at least half an inch beyond the heads of the metacarpal bones. Between this cleft and the metacarpal bone of the ring finger, the head of the metacarpal bone of the middle finger can be made out, but it is considerably atrophied. The left hand contains only three digits—namely, thumb, fourth and fifth fingers. The latter are completely webbed and united, and they are opposed to the thumb, as the corresponding fingers of the right hand are to the united thumb and forefinger. In the space between the thumb and ring finger, the heads of the second and third metacarpal bones are seen projecting, and in the actual hand a digital bone could be felt passing from the third metacarpal bone towards the fourth finger, but it did not project as a finger. In the right foot only three toes are present—namely, the great toe and the fourth and fifth toes, these latter being webbed and united. Between the great toe

and the conjoined fourth and fifth there is a deep triangular space, which penetrates at least half an inch beyond the head of the first metatarsal bone. The head of the third metatarsal bone is visible outside this cleft, but that of the second cannot be made out. The left foot has also only three toes, but the cleft is not so deep nor so triangular in shape, being more like the condition after amputation of the second and third toes. The heads of the second and third metatarsal bones are visible, with a groove between them.

The casts were taken after death from a man aged 40, who died of pneumonia. He had been a porter in a large drapery establishment, and was able for his work both with hands and feet.

GLASGOW: PRINTED AT THE UNIVERSITY PRESS BY ROBERT MACLEHOSE AND CO.

GLASGOW UNIVERSITY LIBRARY

GLASGOW
UNIVERSITY
LIBRARY