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The World's Industrial and Cotton Centennial Exposition,
NEW ORLEANS, LA., 1884-85.

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Medical Department, United States Army,
EXHIBIT-CLASS 4.

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No. 5.

DESCRIPTION
OF
SELECTED SPECIMENS

FROM THE

Medical and Surgical Sections of the Army Medical Museum
AT
WASHINGTON, D. C.,


SURGEON JOHN S. BILLINGS, U. S. A.,
Curator of Army Medical Museum.

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HENRY McELDERRY.

Assistant Surgeon, U. S. A.,

IN CHARGE OF THE REPRESENTATION OF THE MEDICAL DEPARTMENT, U. S. A.

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The exhibition from the Army Medical Museum includes specimens illustrating normal and pathological human anatomy, comparative osteology and histology; also means of transportation of sick and wounded by land and water, plans and models of hospitals, surgical instruments and appliances, anthropometrical instruments, microscopes, culture apparatus, and surgical photographs.

The primary object of the Army Medical Museum was the collection and preservation of specimens illustrative of wounds and of the diseases of armies, as an important step in the study of the best means of diminishing disease and mortality among soldiers, and of rendering them as effective as possible. It was soon found necessary to extend the scope of the collection to include all forms of injuries and diseases, and also to obtain typical specimens of normal human and of comparative anatomy. An effort has also been made to form a collection of surgical instruments, of apparatus connected with the transportation of sick and wounded, and of instruments for diagnosis and for physiological research,

including microscopes and culture apparatus. At the present time the Museum contains 2,236 specimens in the section of normal anatomy, 2,530 in that of comparative anatomy, 9,280 specimens in the pathological section, 8,460 specimens in the microscopical section, and 108 specimens in the miscellaneous section, devoted to apparatus, instruments, etc., forming a total of 22,614 specimens, illustrative of all branches of medical and surgical science. Large as these numbers may appear, there yet remain many gaps in each series, which should be filled as rapidly as possible. The appropriations annually made by Congress for the support of the Museum are but little more than sufficient for the current running expenses of the establishment, leaving only a small margin for the acquisition of additional specimens, and the Surgeon General therefore appeals to all medical men to aid, by contribution of specimens, an institution which is already of great value and interest, having an enviable reputation both in Europe and this country, and which, it is believed, is destined to be of great importance in the advancement of medical science. In recent years, through the co-operation of the officers of the medical staff and of many practitioners in civil life, many interesting pathological specimens have been obtained; and it is gratifying to be able to state that the number of contributors is steadily increasing, as the facilities afforded by the Museum for the permanent preservation of pathological specimens, and of the records connected with them, are more and more appreciated. Practitioners—who have not the time or facilities for the making of minute dissections or preparations of morbid conditions—are usually willing to forward to the Museum the results of their operations or autopsies, feeling sure that such specimens will be carefully examined, and, if of value, properly prepared and preserved, so that they may be available for study by any physician who chooses to visit the Museum for that purpose. It is only necessary that contributors should properly pack the material for transportation by express, placing them in hermetically-sealed cans, with alcohol when

necessary, or, in the case of many specimens, packing them in sawdust or salt. Freight charges are defrayed by the Museum; and those specimens which are found to be of value are mounted permanently, and all data respecting them are placed on record.

In cases of special interest the Museum will return to its contributors photographs of the specimens after they have been properly prepared. Among the specimens which are more particularly desired at present, in order to complete the pathological series of the Museum, may be named :

1. Specimens illustrating the ultimate result of wounds and operations, especially if connected with the late war—such as *Fractures, Resections, Amputation Stumps*, etc.
2. *Aneurisms; Embolism*; diseases of *arteries and veins*, of *bursæ*, or of *synovial sheaths*; diseases of the *bones or joints*; *hernia*.
3. *Hypertrophy* localized; *tumors* of all kinds.
4. Effects of *osteo-malacia, rickets, syphilis*.
5. Diseases of the *Ear, Eye, Pancreas, Skin* (including tattooing), and *supra-renal capsules*.
6. Sclerosis or *atrophy* of *brain and spinal cord*.
7. Acute yellow *atrophy* of *liver*.
8. Contracted gouty form of *liver*.
9. *Calculi; foreign bodies* in situ.
10. *Parasites*, except lumbricoids and headless tapeworms.
11. Diseases and results of *old injuries* in *animals*.
12. *Casts, drawings, and photographs*.
13. Specimens illustrating the pathological anatomy of scurvy, cerebro-spinal meningitis, cholera, leprosy, yellow fever.
14. *Abnormities and Deformities* of all kinds; *monsters*.
15. *Atrophy* of *old age*.

16. Specimens of skeletons, as complete as possible, of *very old men or women*, especially if the ages are known; also of bones of *very old animals*.

JOHN S. BILLINGS,
Surgeon U. S. Army,
Curator Army Medical Museum.

I.—ILLUSTRATIONS OF INJURIES OF THE CRANIUM.

1. (3639.) A calvaria showing the effects of contusion by a shot projectile an inch behind the coronal suture. There is superficial necrosis without, and slight fissure and depression within. The patient survived the injury seventeen days. (See *Cat.* 1866, p. 8; *Med. and Surg. Hist.*, Part I, Vol. II, p. 146.) Donor, Dr. H. Mullen.

2. (1568.) Section of left parietal with fracture of the inner table, from oblique impact of a musket ball on the outer table. Patient died of meningitis after nine days. (See *Circ.* 6, S. G. O., 1865, p. 10; *Cat.* 1866, p. 7; *Med. and Surg. Hist.*, Part I, Vol. II, p. 142.) Contributed by Dr. R. W. Coale.

3. (2121.) Segment of right parietal; one fragment of a conical ball, which split longitudinally upon the bone, was extracted from within the cranial cavity, the other fragment lodged beneath the occipito-frontalis. The patient survived the injury thirteen days. (See *Cat.* 1866, p. 14, and *Med. and Surg. Hist.*, Part I, Vol. II, p. 181.) Donor, Surgeon J. Dwinelle, 106th Pennsylvania.

4. (3220.) Segment of the calvaria of a quadroon of 21, showing a perforation of the left parietal by a pistol ball at close range. The missile was arrested on the opposite side, after traversing both hemispheres of the cerebrum. The patient survived five days. (See *Cat.* 1866, p. 25, and *Med. and Surg. Hist.*, Part I, Vol. II, p. 318.) Donor, Surgeon E. Bentley, U. S. V.

5. (1108.) Part of cranium, showing a conoidal ball embedded and encrusted between the sphenoid and frontal bones. The aperture of entrance through the right orbit is partly obliterated by osseous depositions. The patient lived 64 days after the injury. No marked cerebral disturbance appeared until the ninth week. (See *Cat.* 1866, p. 28; *Med. and Surg. Hist.*, Part I, Vol. II, p. 205.) Donor, Dr. G. H. Dare.

6. (5116.) Base of a cranium, with a round pistol-ball embedded in the left carotid canal. The specimen was purchased with the Gibson cabinet. It was found in the catacombs of Paris; and, according to tradition, the patient survived the injury many years.

7. (5531.) Cranium of a California Indian, killed by a stone-headed arrow, which is seen penetrating the left malar bone and orbit. The skull

was found by Dr. C. Yates, in Alameda county, California, and was contributed to the Smithsonian Institution, and numbered 8106. It was transferred to the Army Medical Museum January 25, 1867.

8. (5908.) Cranium of a soldier of the 4th cavalry, killed by Indians near Fort Concho, Texas, September 30, 1870. The iron arrow-head impacted in the left temporal with but slight splintering, produced speedily fatal intracranial hæmorrhage. (See *Circular* No. 3, S. G. O., 1871, p. 150.) Donor, Brevet-Major W. M. Notson, Assistant Surgeon U. S. A.

9. (6900.) Cranium of a colored man, showing comminution and depression of the left parietal and frontal bones, the result of "butting." Donor, Dr. J. F. Hartigan.

10. (9231.) Base of cranium, showing double longitudinal fracture, caused by a kick of a horse. Death on the 10th day after the injury from cerebral hæmorrhage. Donor, Dr. D. S. Lamb.

11. (9242.) Portion of left side of vault of cranium, showing oval depressed healed fracture. The injury had been caused by a piece of shell. Death from drowning 13 years after injury. Donor, Dr. R. B. Bontecou.

II.—ILLUSTRATIONS OF INJURIES OF THE TRUNK.

12. (2843.) Six dorsal vertebrae, showing a shot fracture of the spinous and transverse processes and lamina of the third vertebra. The ball passed through the left lung, and the patient survived only one day. (*Cat.* 1866, p. 58; *Med. and Surg. Hist.*, Part I, Vol. II, p. 435.) Donor, H. M. Dean.

13. (2762.) Third lumbar vertebra with a conoidal ball and shreds of clothing embedded. The patient died from tetanus after nine days. (*Cat.* 1866, p. 60.) Donor, Dr. G. A. Mursick.

14. (2902.) Fifth lumbar vertebra and sacrum with a musket-ball impacted in the upper left sacral foramen, from a soldier, 23 years old, wounded May 10, 1864, became paraplegic, and died May 15, 1864. (See *Cat.* 1866, p. 227; *Med. and Surg. Hist.*, Part II, Vol. II, p. 248.) Donor, Dr. O. P. Sweet.

15. (1641.) Left innominatum and longitudinal half of sacrum, from a soldier of 21 years, wounded May 3d and died July 8, 1863. A battered conoidal ball, which perforated the ilium and lodged in the sacrum, is attached. (See *Cat.* 1866, p. 228; *Med. and Surg. Hist.*, Part II, Vol. II, p. 217.) Donor, Acting Assistant Surgeon Carlos Carvallo.

16. (4130.) Left os innominatum and sacrum perforated by a shell fragment, from a soldier 35 years old, wounded April 6th, died April 28, 1865, from hemorrhage. (*Cat.* 1866, p. 228, and *Med. and Surg. Hist.*, Part II, Vol. II, p. 223.) Donor, Surgeon J. C. McKee, U. S. A.

17. (819.) Round ball impacted near the tuberosity of the right ischium, from case of Private W. L——, 23d North Carolina, wounded at South

Mountain September 12, 1862, died, as supposed, from the effects of chloroform, October 28, 1862. (See *Cat.* 1866, p. 224; *Med. and Surg. Hist.*, Part II, Vol. II, p. 242.) Donor, Dr. R. Davies.

18. (1246.) Conoidal ball impacted in right ischium. Case of Private S. W——, 23d New Jersey, wounded at Chancellorsville May 3d, died of secondary hemorrhage May 24, 1863. (See *Cat.* 1866, p. 227; *Med. and Surg. Hist.*, Part II, Vol. II, p. 242.) Donor, Assistant Surgeon W. Thomson, U. S. A.

19. (3597.) Aneurismal varix of the left femoral vessels, showing, with the varicose veins and dilated arteries, a portion of the aorta. The iliacs have been successively tied by Acting Assistant Surgeon J. B. Cutter. The patient died September 21, 1864, four days after the ligation of the primitive iliac. (See *Am. Jour. Med. Sci.*, 1864, Vol. XLVIII, p. 36; *Ibid*, 1865, Vol. L, p. 391; *Cat. Surg. Sect.*, 1866, p. 469; *Med. and Surg. Hist.*, Part II, Vol. II, p. 336.) Donor, Assistant Surgeon J. Theodore Calhoun, U. S. A.

20. (1926.) A portion of the omentum magnum, in the folds of which is lodged a conoidal bullet, which entered the left loin below the twelfth rib, traversed the abdominal muscles to the right side, whence it probably ulcerated through the abdominal wall into the cavity. The patient, a soldier, wounded at Antietam, survived the injury six weeks. (See *Cat.* 1866, p. 490, and *Med. and Surg. Hist.*, Part II, Vol. II, p. 174.) Donor, Dr. W. W. Keen, Jr.

21. (7304.) The third, fourth and fifth lumbar vertebra with a conoidal ball lodged with its apex forward and downward in a depression of the posterior part of the body and the anterior part of the left lamina of the fifth vertebra, having apparently entered through the intervertebral foramen of the fourth and fifth. Death occurred 18 years after injury. Donor, Dr. J. O. Stanton.

22. (9246.) Adjoining horizontal halves of first and second dorsal vertebra; a knife-blade has perforated the left lamina of the upper vertebra and passed forward through the spinal canal as far as the body of the vertebra, dividing the cord. Death from tetanus on the 27th day. Donor, Acting Assistant Surgeon F. A. Atkins.

III.—ILLUSTRATIONS OF VESICAL CALCULI.

1. (6203.) Vesical concretion, weighing 580 grains (Troy,) consisting of a pistol-ball enveloped in triple phosphates, removed by lateral lithotomy, by Professor H. McGuire, from a man, aged about 40 years, who received an accidental shot penetration of the bladder in 1867, and was successfully operated on in December, 1870. (See *Virginia Clinical Record*, 1871, Vol. I, p. 46; *Med. and Surg. Hist.*, Part II, Vol. II, p. 275; *Virginia Med. Monthly*, 1875, Vol. I, p. 543.) Donated by the operator.

2. **5931.** Vesical calculus having an iron arrow-head as a nucleus. The concretion weighs 857 grains (Troy.) It was successfully removed by lateral lithotomy by Assistant Surgeon W. H. Forwood, U. S. A., at Fort Sill, August 23, 1869, from Satamore, a Kiowa chief, aged 42 years, wounded through the right sciatic notch, near Fort Larned, in 1862, in a fight with Pawnees. (See *Circular No. 3*, S. G. O., 1871, p. 260; *Med. and Surg. Hist.*, Part II, Vol. II, p. 276.) Donor, Dr. W. H. Forwood.

3. **(4848.)** A mulberry calculus, weighing 1,191.6 grains, successfully removed by lateral lithotomy, August, 1867, by Dr. N. S. Lincoln, in the case of a man of 50 years. (*Richmond and Louisville Med. Jour.*, 1869, Vol. VII, p. 423.) Contributed by the operator.

4. **(4846.)** A large, nearly globular, urinary calculus, weighing 2,515 grains, removed by lithotomy, by Dr. J. G. F. Holston. Obtained by exchange from the National Medical College.

IV.—ILLUSTRATIONS OF INJURIES OF UPPER EXTREMITIES.

1. **(3161.)** Head of left humerus excised on account of penetration by a musket-ball, which is impacted. (See *Cat. 1866*, p. 104; *Med. and Surg. Hist.*, Part II, Vol. II, p. 573.)

2. **(4343.)** A segment of the head of the right humerus shattered by shot and secondarily excised, with a good result, showing that such partial excisions are not invariably disadvantageous. (See *Cat. 1866*, p. 97; *Med. and Surg. Hist.*, Part II, Vol. III, p. 527.) Donor, Surgeon R. B. Bontecon, U. S. V.

3. **(1118.)** Upper extremity of right humerus, shattered by a ball and excised intermediately by Assistant Surgeon C. A. McCall, U. S. A. Case of Private E. H. Woods, 6th Maine, wounded at Chancellorsville May 3, 1863. He was fitted with an apparatus by Dr. E. D. Hudson, who reported, in 1865, that the diaphysis had been partially reproduced. (See *Cat. 1866*, p. 109; *Med. and Surg. Hist.*, Part II, Vol. II, p. 580.) Contributed by the operator.

4. **(734.)** The left elbow joint, excised by Surgeon I. Moses, U. S. V., for a shot fracture of the inner condyle of the humerus. The patient recovered, and was pensioned. (See *Cat. 1866*, p. 161; *Med. and Surg. Hist.*, Part II, Vol. II, p. 890.) Contributed by the operator.

5. **(4249.)** The tip of the olecranon and three inches of the lower extremity of the left humerus, successfully excised by Assistant Surgeon A. W. Campbell, 11th New York Cavalry, for compound fracture caused by a fall from a horse. (See *Cat. 1866*, p. 159.) Donor, Dr. M. D. Benedict.

6. **(531.)** The right radius, showing a simple consolidated fracture with slight angular displacement, without shortening. This specimen, which is more than two hundred years old, was picked up upon an ancient battlefield on Oahu, Sandwich Islands. (*Cat. 1866*, p. 194.) Donor, Assistant Surgeon W. R. DeWitt, Jr., U. S. V.

V.—ILLUSTRATIONS OF INJURIES OF THE LOWER EXTREMITIES.

1. (3520.) The upper fifth of the right femur, sawn longitudinally, showing a penetrating fracture of the neck by a pistol ball, which lodged, exposing its surface just within the capsule. The injury resulted in suppurative destruction of the joint. The patient survived the injury two months. (See *Cat.* 1866, p. 235, and *Circ.* No. 2, S. G. O., 1869, p. 114.) Donor, Assistant Surgeon W. Thomson, U. S. A.

2. (86.) The upper third of the right femur, fractured by a conoidal ball, which entered from the front and perforated the bone at the base of the neck, lodging in the great trochanter, and producing a longitudinal fracture extending to the articulation and reaching six inches down the shaft. The patient died twelve days after the injury. (See *Cat.* 1866, p. 236, and *Circ.* No. 2, S. G. O., 1869, p. 81.) Donor, Dr. J. P. Arthur.

The two following preparations illustrate amputation at the hip:

3. (4237.) Upper two-thirds of the right femur, amputated at the hip-joint by Surgeon E. Griswold, U. S. V., April 12, 1865, for an oblique shot fracture at the base of the great trochanter, with a complete longitudinal fracture extending eight inches down the shaft, in the case of a soldier of the 2d New York Mounted Rifles, aged 17, wounded March 31, 1865. The patient survived the operation less than an hour. (*Circ.* 6, 1865, pp. 50 and 72; *Cat.* 1866, p. 248; *Circ.* 7, 1867, p. 39.) Donor, Surgeon E. Griswold, U. S. V.

4. (4386.) The left femur amputated at the hip-joint by Surgeon E. Bentley, U. S. V., from complications resulting from an imperfectly united shot fracture at the junction of the upper thirds, in the case of Private G. W. L—, 6th Maryland, aged 30, wounded May 5, 1864, and amputated October 12, 1865. The patient recovered and was pensioned. (*Cat.* 1866, p. 248; *Circ.* 7, 1867, p. 42.) Donor, Surgeon E. Bentley, U. S. V.

5. (3881-'82.) Specimens representing united shot fractures in both thigh-bones. The right femur united, two inches shortened, after fracture in the upper third. The left with two and a half inches shortening and angular deformity. The patient survived these injuries seven months and thirteen days. (*Cat.* 1866, pp. 265, 279.) Donor, Acting Assistant Surgeon G. M. Paullin.

6. (3394.) Upper portion of the left femur, badly comminuted by shot below the trochanters and united with displacement and profuse deposit of callus. A number of large fragments preserved their life, to connect the broken shaft. From a soldier in a Nashville hospital. (*Cat.* 1866, p. 281.) Donor, Assistant Surgeon C. C. Byrne, U. S. A.

7. (4201.) Upper half of the left femur contused by shot at the junction of the upper third. An exfoliation at the seat of injury is nearly separated;

the posterior surface is eroded. The patient, a soldier of the 191st Pennsylvania, aged 30 years, survived the injury forty-seven days. (*Cat.* 1866, p. 258.) Donor, Assistant Surgeon W. F. Norris, U. S. A.

8. (3540.) Upper third of the left femur, longitudinally bisected, with an impacted pistol ball in the base of the neck. The patient survived the injury seventy-two days. (*Cat.* 1866, p. 260 *Circular* 2, 1869, p. 71.) Donor, Assistant Surgeon W. Thompson, U. S. A.

9. (1907.) The left femur comminuted in the centre of the shaft by a conical ball, which previously passed through the right thigh, and is attached to the specimen much flattened. The patient survived the injury sixteen days. (*Cat.* 1866, p. 267; *Circular* 6, S. G. O., 1865, p. 33.) Donor, Acting Assistant Surgeon J. Cass.

10. (1354.) The left femur, firmly united, with an inch shortening and slight lateral deformity, after a fracture in the middle third by a conoidal ball. The large fragments that were split off occupy the place of splints held by the callus. The point of fracture shows portions of dead bone not yet thrown off. The patient, Private J. W——, 21st Georgia, aged 38, wounded at Fort Steadman March 25, 1865, survived the injury one hundred and eighty-two days. Dr. G. K. Smith, who treated the case at Armory Square Hospital, regarded it as an example of recovery, and the patient was photographed five months after the injury at the Museum. (*Surg. Series of Phot.*, S. G. O., Vol. II, p. 42; see also *Cat.* 1866, p. 270.) Donor, Assistant Surgeon W. F. Norris, U. S. A.

11. (2182.) The left femur, fractured at the junction of the middle and lower thirds by a conical ball. The displaced fractured ends of the shaft have been connected by arches of callus. From a soldier of a Kentucky regiment, who survived the injury forty-nine days. (*Cat.* 1866, p. 270.) Donor, Acting Assistant Surgeon R. T. Higgins.

The next series illustrates primary or ulterior lesions in the shaft of the femur, amputated for shot injury:

12. (4120.) The lower half of the right femur, amputated primarily by Surgeon D. S. Hays, 110 Pennsylvania, for a severe shot comminution by a conical ball, which has flattened in a mushroom shape against the anterior surface of the lower third. The patient, a soldier of the 73d New York, aged 46 years, wounded September 11, 1864, recovered and was pensioned. (*Cat.* 1836, p. 256.) Contributed by the operator.

13. (1413.) The lower half of the right femur, amputated for a transverse shot fracture in the middle third by a conical ball, which is attached, flattened. A very small portion of the laminated structure is wanting at the point of impact on the outer surface, and directly opposite a longitudinal fissure extends into both fragments. (*Cat.* 1866, p. 225.) Donor, Surgeon C. S. Wood, 66th New York.

14. (2039.) Lower half of the left femur, amputated five days after injury, by Surgeon J. Aiken, 71st Pennsylvania, for a shot comminution in the middle third by a conical ball, which is attached. The patient, Private P. M——, 39th N. Y., wounded February 6, 1864, is a pensioner. (*Cat.* 1866, p. 256.) Contributed by the operator.

15. (30.) Lower half of the right femur, amputated a fortnight after shot fracture in the middle third, by Assistant Surgeon J. S. Billings, U. S. A. The patient, a soldier, wounded at Williamsburg May 5, 1862, recovered. (*Cat.* 1866, p. 285.) Contributed by the operator.

16. (3875.) Portion of the left femur, amputated one month after injury in the upper third, by Assistant Surgeon R. F. Weir, U. S. A., for shot comminution in the middle third with a very oblique fracture. The patient, Private J. F——, 1st N. Y. Cavalry, aged 21, was wounded July 7, 1865, and died twelve days after the operation. (*Cat.* 1866, p. 289.) Donor, Acting Assistant Surgeon J. H. Bartholf.

17. (4067.) Greater portion of the shaft of the right femur, amputated in the upper third nine days after injury, by Surgeon N. R. Moseley, U. S. V., for a shot fracture in the middle third, with extensive longitudinal fissures, by a conical ball, which is attached, flattened. The patient, a soldier, of the 198th Pennsylvania, aged 20, survived the operation six days. (*Cat.* 1866, p. 288.) Contributed by the operator.

The next series illustrates necrosed sequestræ frequently found after amputation :

18. (107.) A cylindrical sequestrum two and a half inches long from a stump of the left femur, amputated in the middle third for shot comminution of the lower third (*Spec.* 3734, *Surg. Sect.* A. M. M.) by Acting Assistant Surgeon E. G. Waters. The patient, Sergeant E. U——, 15th New Jersey, was wounded October 19, 1864, at Cedar Creek, and amputated November 14, 1864. March 8, 1865, the sequestrum was removed by Acting Assistant Surgeon B. B. Miles. Exarticulation at the hip was successfully performed by Dr. T. G. Morton, February 17, 1866. (See *Circ.* 7, S. G. O., 1867, p. 51; *Cat.* 1866, p. 305; *Am. Jour. Med. Sci.*, 1866, Vol. LII, p. 17.) Donor, Dr. B. B. Miles.

19. (4281.) A sequestrum of eight inches, removed from the stump of the left femur three months after primary amputation for shot injury. The patient, a soldier of the 6th N. Y. Cavalry, aged 23, wounded and amputated May 7, 1864, recovered. (*Cat.* 1866, p. 309.) Donor, Assistant Surgeon W. Thomson, U. S. A.

20. (171.) A sequestrum, eight and a half inches long, removed from the stump of the left femur, two months after intermediary amputation in the lower third for shot injury. The patient, a corporal of the 64th New York, aged 30, wounded at Hatcher's Run, March 25, 1865, recovered. (*Cat.* 1866, p. 309.) Donor, Assistant Surgeon H. Allen, U. S. A.

Illustrations of shot injuries of the knee from the following series:

21. (3269.) Bones of the right knee, after amputation in the lower third of the thigh, by Surgeon N. R. Moseley, U. S. V., for shot fracture of the tibia and fibula, in a case in which Dr. W. H. Ensign had excised the upper portion of the fibula for gangrene and hemorrhage. The patient, a private of the 170th New York, aged 44, (wounded August 25th, excised September 12th, amputated September 18th, 1864,) survived the amputation three days. (*Cat.* 1866, p. 381.) Donor, Dr. H. G. Bates.

22. (4135.) The upper extremity of the bones of the left leg, fractured by a conoidal ball which perforated from within and below, splintering the head of the tibia and resting on the articulation. The patient, Private T. J. T., 57th Massachusetts, was wounded March 25th, amputated March 30th, and discharged on October 30, 1865, and furnished with an artificial limb. (*Cat.* 1866, p. 319.) Donor, Surgeon W. O. McDonald, U. S. V.

23. (1882.) The bones of the right knee, amputated in the lower third of the femur by Surgeon A. N. Dougherty, U. S. V., in the case of Private W. G. M——, 4th Ohio, wounded at Mine Run, November 27, amputated December 3, 1863, for a shot fracture of the outer condyle and the head of the tibia. A conoidal ball, compressed upon itself, is lodged in the latter bone. The patient is a pensioner. (*Cat.* 1866, 348.) Donor, Surgeon J. Dwinelle, 106th Pennsylvania.

24. (2276.) The bones of the left knee, amputated in the lowest third of the thigh for fracture of the internal condyle of the femur and of the head of the tibia by a conoidal ball, which is impacted in the latter. The patient, Private L. R——, 23d North Carolina, aged 34, wounded at Spottsylvania May 12, was amputated May 14, 1864, and died of pyæmia eleven days after the operation. (*Cat.* 1866, p. 345.) Donor, Surgeon O. A. Judson, U. S. V.

25. (6812.) The bones of the left knee, showing a bullet imbedded in the femur between the condyles. The patient died of pneumonia over fifteen years after the injury, the foreign body having remained in the bone apparently innocuously during all these years, allowing the patient to walk without the least sign of lameness. Donor, Dr. J. Foster Bush.

Shot injuries of the bones of the leg:

26. (4387.) The right tibia and fibula, from a case of amputation in the lower third of the thigh six months after shot fracture in the leg. Tolerable union has occurred in the fibula. The tibia is partly united, is carious at the point of fracture, and has a very large and complete foliaceous deposit throughout its greatest length. The patient, a sergeant of the 2d Maryland, aged 24, was wounded April 2, and amputated October 14, 1865, and recovered. (*Cat.* 1866, p. 392.) Donor, Surgeon E. Bentley, U. S. V.

27. (38.) The lower halves of the bones of the right leg, with the fibula transversely fractured and the tibia shattered by a round ball, which lodged about 3 inches above the ankle-joint. Three portions of the tibia and fibula below the fractures are connected by bony union. Donor, Assistant Surgeon J. B. Brinton, U. S. A.

28. (2778.) Upper portions of the tibia and fibula of the right leg, with hyperostosis of the distal extremities of both bones. From a soldier of the 51st Pennsylvania, wounded at White Oak Swamp June 30, 1862. (See *Cat.* 1866, p. 400.) Donor, Dr. T. G. Morton.

29. (1956.) Head of left tibia and condyles of the femur, excised five months after fracture by a spherical ball, which is lodged in the inner condyle. The patient died from pyæmia twenty-two days after the operation. (*Circ.* No. 6, S. G. O., 1865, p. 59; *Cat.* 1866, p. 335.) Contributed by the operator, Dr. F. Hinkle.

Shot injuries of the ankle:

30. (3607.) Bones of right ankle, amputated thirteen and a half months after injury by a ball which entered six inches above the ankle-joint and escaped at the point of the heel. The patient, a private of the 44th Ohio, wounded at Missionary Ridge, recovered. (*Cat.* 1866, p. 435.) Donor, Assistant Surgeon G. M. Sternberge, U. S. A.

31. (3356.) Ligamentous preparation of the right tarsus and metatarsus, one month after injury, with a conoidal ball lodged in the carious astragalus. Case of Private C. H., 33d Massachusetts, wounded at Dallas May 25, 1864. Amputated June 26, 1864. (*Cat.* 1866, p. 428.) Donor, Dr. L. B. McNabb.

32. (2783.) Portions of the right tibia, fibula, astragalus, and calcaneum, from a successful Pirogoff's amputation. From Private O. C—, 17th Wisconsin, wounded at Gettysburg July 1, 1863. (*Cat.* 1866, p. 422.) Contributed by the operator, Acting Assistant Surgeon A. Hewson.

33. (4543.) The left astragalus and lower borders of the tibia and fibula, from a soldier shot through the ankle at Fredericksburg December 12, 1862, and amputated by a modification of Syme's method.

VI.—ILLUSTRATION OF VARIOUS DISEASES.

There are four (4) specimens illustrating the lesions in enteric fever: one, of thickening of Peyer's patches; a second, showing thickening with ulceration; a third, in which perforation has occurred; and a fourth, where the ulcerated patch has cicatrized.

1. (7727.) Portion of ileum with thickened Peyer's patches; its solitary follicles enlarged to polypoid tumors the size of small shot. From a soldier

who died in Lincoln Hospital, Washington, D. C., of a fever diagnosed "typhus." Contributed by Surgeon J. H. Bryant, U. S. Vols.

2. (8263.) A portion of ileum with Peyer's patches much thickened and ulcerated. The solitary follicles are enlarged to rounded tumors nearly the size of peas, many of them ulcerated at the apices; the villi are hypertrophied. The solitary follicles throughout the whole colon were enlarged to tumors the size of peas; their apices ulcerated. From a soldier of the 12th U. S. Infantry, age 25, who died of typhoid fever. Contributed by Assistant Surgeon W. Thomson, U. S. A.

3. (7926.) Portion of ileum, taken several feet above the ileo-cæcal valve, with two ulcerated Peyer's patches, which present a peculiar cribriform appearance. Near the bottom of piece is a deep oval ulcer, the long diameter of which is transverse to the gut. At the bottom of this ulcer are two oval perforations a short distance apart. The peritoneal surface of the piece is coated with a thin film of pseudo-membrane; some of the solitary follicles are ulcerated. The small intestines elsewhere presented several other perforations. The patient had contracted fever before Petersburg, Virginia. Contributed by Surgeon W. L. Faxon, U. S. Vols.

4. (7958.) From near the middle of the ileum showing pin-head enlargement of solitary follicles, with adherent shreds of pseudo-membrane and a large oval cicatrix, corresponding in situation with a Peyer's patch. The ileum presented a number of such cicatrices. The colon showed many follicular ulcers, with a few adherent shreds of pseudo-membrane. From a patient who recovered from typhoid fever and subsequently died of chronic diarrhœa. Contributed by Acting Assistant Surgeon H. C. May.

The next two specimens are examples of follicular ulceration of the colon. In chronic catarrhal inflammation the enlarged solitary follicles of the small intestine long abide as little tumors; but those of the colon speedily pass into ulceration, and the follicular ulceration is usually associated with inflammatory thickening of the submucosa. In such cases tenesmus is sometimes present, sometimes absent; and they are spoken of as dysentery by some surgeons, as diarrhœa by others. Pseudo-membranous inflammation of the mucous surface between the ulcers is apt to supervene in these cases, and this lesion is very generally found when acute dysenteric symptoms precede the fatal termination of a chronic flux. This complication exists in a number of the specimens in the Museum. Follicular ulcers can generally be distinguished from the ulcers of diphtheritic dysen-

tery by their form; but in the extensive ulcerations found in some chronic cases it is sometimes difficult to be sure which process has produced the destruction of tissue observed.

5. (7909.) Portion of colon taken near the sigmoid flexure, the mucous membrane thickened, and present minute follicular ulcers and pseudo-membranous frosting. From a soldier of the 8th New York Heavy Artillery, who died of chronic diarrhœa. Contributed by Acting Assistant Surgeon R. B. Hitz.

6. (7664.) Portion of descending colon, its mucous membrane much thickened and presenting numerous well-marked follicular ulcers. From a soldier of the 23d New Jersey who had been sick for two months with fever and diarrhœa. The descending colon and sigmoid flexure were as in the specimen; Peyer's patches were also thickened. Contributed by Assistant Surgeon E. J. Marsh, U. S. A.

The next two specimens are illustrative of the morbid processes of diphtheric dysentery. The characteristic lesions are pseudo-membranous deposits on the surface of the mucous membrane, involving also the mucosa and submucosa, and giving rise to sloughing, the sloughs invading the tissue of the bowel as deeply as the pseudo-membranous deposit; the resulting ulcers are usually of considerable size.

7. (7830.) Portion of ascending colon, the mucous membrane of which is thickened, and presents numerous large excavating ulcers occupying a large portion of its surface. Detached shreds of mucous membrane, coated with lymph, hang from the edges of the ulcers. From a soldier of the 2d Battalion Veteran Reserve Corps, who died of dysentery. The colon throughout was in the condition of the specimen. Contributed by Assistant Surgeon H. Allen, U. S. A.

8. (7829.) Fibrinous cast, fourteen inches long from the rectum; composed of ordinary croupous lymph. From a soldier of the 4th California, who died of chronic dysentery, nearly four and a half months after the disease began. The cast was passed on the twenty-first day. Contributed by Surgeon S. S. Todd, of the same regiment.

The next specimen illustrates EPIDEMIC CHOLERA, as it appeared at Fort Riley, Kansas, in the summer of 1867.

9. (8332.) Portion of ileum, the villi hypertrophied, pin-head enlargement of solitary follicles, and Peyer's patches prominent. From a quartermaster's employé, who, after four days of diarrhœa, from which he appeared

to be recovering, was seized with cramps, and died within two hours. Contributed by Surgeon B. J. D. Irwin, U. S. A.

The next specimen shows the manner in which the DIPHThERIC process extends into the bronchi.

10. (8034.) Portion of lung showing diphtheritic casts in the branches of the bronchial tubes. From a medical officer who died of diphtheria. Contributed by Assistant Surgeon G. M. McGill, U. S. A.

The next two specimens are examples of metastatic foci, quite like those which occur in pyæmia after gunshot wounds, but resulting in these cases from other causes. The point of departure of the metastatic process appears to have been a subcutaneous abscess in No. 78, an ulcerated colon in No. 79, and a collection of pus in the left pleural sac in No. 80.

11. (8255.) Portion of lower lobe left lung containing a number of small pyæmic foci, about the size of peas, from a colored boy, age 13, with scrofulous abscesses in groin and chronic peritonitis. From an autopsy by Dr. S. S. Bond, at Freedman's Hospital, Washington.

12. (7742.) Portion of liver, presenting a number of metastatic foci. From a soldier of the 14th Infantry who had colliquative diarrhœa and general peritonitis. Contributed by Assistant Surgeon E. DeW. Breneman, U. S. A.

The next three specimens are from cases of SCURVY. Nos. 14 and 15 present the typhoid lesion as modified in scorbutic subjects.

13. (7451.) Larynx, posterior third of tongue, half arches, and tonsils; both tonsils the seat of foul, irregular, and gangrenous ulceration. From a patient who died in Marine Hospital, New Orleans, in 1862. One of a number of fatal cases in the same hospital in which gangrenous ulceration of the mouth and throat occurred in debilitated and anæmic (scorbutic) men. Contributed by Acting Assistant Surgeon R. K. Browne.

14. (7537.) Portion of ileum with a sloughing Peyer's patch, remarkable on account of the great size and pultaceous character of its thickening. From a soldier of the 126th New York, in whom the fever supervened upon chronic diarrhœa. The colon was of a dirty slate color, with streaks of inflammation here and there. Pneumonia on the right side. Spleen large and flabby. A number of irregular spots of purpura, from the size of a flea-bite to that of a dime, were observed on the skin, and especially on the thighs. Contributed by Acting Assistant Surgeon Joseph Leidy.

15. (7915.) Lower portion of ileum, with ileo-cæcal valve and part of cæcum, showing three Peyer's patches converted into pultaceous sloughs; the solitary follicles are enlarged; many of them, especially near valve, ulcerated; these ulcers presenting same character as those of Peyer's patches, but smaller. There are also a number of small sloughing ulcers on the under surface of the valve and in the cæcum. From a soldier who contracted typhoid fever before Petersburg in the fall of 1864. Petechiæ, sudamina, and hæmorrhage from the bowels were prominent symptoms. Contributed by Acting Assistant Surgeon W. C. Miner.

Of the next five specimens four are from a remarkable example of multiple melanotic cancer.

16. (8675.) Portion of parietal bone, showing two carcinomatous tumors. From an old soldier in whom also the liver was cancerous. Contributed by Surgeon C. H. Lamb, U. S. A.

17. (8274.) Spindle-shaped melanotic tumor, five inches long, weighing two and a half ounces, which was situated over the left clavicle and upper portion of the sternum, and probably consists of lymphatic glands.

18. (8276.) Portion of lower lobe of right lung, presenting at its inferior angle a lobulated melanotic mass about the size of a hen's egg.

19. (8277.) Section of liver, presenting several melanotic nodules; the largest over three-fourths of an inch in diameter.

20. (8278.) Portion of pancreas, presenting a number of melanotic nodules, the largest about the size of a pea. From a freedman, age 60, in whom numerous other similar deposits were found. The melanotic masses were soft, and composed for the most part of irregular, more or less polygonal, cells about one-thousandth of an inch in diameter, containing large oval nuclei and brownish-black pigment granules. Contributed by Assistant Surgeon E. Bentley, U. S. A.

The next specimen is one of BRONCHOCELE in a child.

21. (8366.) Larynx, portion of trachea, and thyroid gland of a child; the right lobe of the gland is much enlarged, and has undergone cystic degeneration; the left lobe is normal. Contributed by the Medical Faculty of Columbian College, Washington, D. C.

The next is a specimen illustrating Addison's disease.

22. (8740.) Supra-renal capsules, showing cheesy deposits which are most numerous in the right capsule. From a white woman, age 31, in whom the characteristic bronzing of the skin and anæmia were well-marked. Cretified tubercles were found in each lung. Contributed by Dr. J. T. Young, Washington.

The next is a specimen of Bright's disease.

23. (8650.) Kidneys from a woman who died in convulsions during labor. The right is quite small, and is a typical, gouty kidney; the left is less marked. Contributed by Dr. J. T. Young, Washington.

The next is a specimen illustrating TUBERCULOSIS.

24. (7745.) Spleen, studded with small tubercles, from a soldier of the 145th Pennsylvania, age 29, who died of chronic diarrhœa. There were tubercles in both lungs, and the mucous membrane of the colon was ulcerated. Contributed by Surgeon E. Bentley, U. S. Vols.

The next two specimens are of ENTOZOA.

25. (7494.) *Tœnia solium*, about twenty-five feet long, with the head. From a soldier of the 96th New York, age 29. It was voided after the use of turpentine and castor oil. Contributed by Acting Assistant Surgeon J. F. Kennedy.

26. (8792.) *Echinococcus* cysts from the urinary bladder. From a soldier of the 21st Infantry, age about 40. Similar cysts were found in the right lung and spleen; there were none in the liver; the brain was not examined. Contributed by Assistant Surgeon F. C. Ainsworth, U. S. A.

The next specimen illustrates the fatality of even small ANEURISMS of the aorta.

27. (8006.) Small aneurism of aorta, just above semilunar valves; the sac, which is about the size of a walnut, has ulcerated through into the pulmonary artery and the pericardium. From a soldier of the 1st Maryland Veterans, age 22, who was apparently in good health, and doing guard duty, when he suddenly fell insensible, and expired in a few moments. The pericardium was found distended with blood escaped from the ruptured aneurism. Contributed by Assistant Surgeon A. Ansell, 1st Maryland Veterans.

The next specimen is one of LARYNGITIS.

28. (8100.) Larynx and part of trachea, showing great thickening of the epiglottis, an incision into which discovered it to be infiltrated with pus. From a soldier of the 2d Arkansas Cavalry, age 26, who died of acute laryngitis. Contributed by Surgeon Wm. Watson, U. S. Volunteers.

The next specimen illustrates the constriction resulting from caustics applied to mucous canal.

29. (9067.) Alimentary canal of child from tip of tongue to duodenum, showing an inflammatory stricture of œsophagus. From a boy two years

and six months of age, who drank some caustic alkali several months before death. Temporary relief was given by bougies, and nutritive enemata were also used. Contributed by Dr. E. C. Morgan, Washington.

The next specimen illustrates INTUSSUSCEPTION of intestine.

30. (9051.) An intussusception of the ileum into the ascending colon at the ilea-cæcal valve; the invaginated position is much swollen and deformed, and dark-colored, as from incipient gangrene. From a man who presented symptoms of obstruction of the bowel, which was not relieved. Contributed by Dr. T. G. Croft, Aiken, S. C.

The next specimen illustrates an anomaly in number of a viscus.

31. (9103.) Four spleens, each about the size of a walnut, and connected by adhesions. From a negro woman who died suddenly of hemorrhage from the fallopian tube. Contributed by Dr. J. F. Hartigan, Washington, D. C.

