

Synopsis of the contents of the museum of the Royal College of Surgeons of England.

Contributors

Royal College of Surgeons of England.
Royal College of Physicians of London

Publication/Creation

London : Taylor & Francis, 1862.

Persistent URL

<https://wellcomecollection.org/works/f92jkhgp>

Provider

Royal College of Physicians

License and attribution

This material has been provided by This material has been provided by Royal College of Physicians, London. The original may be consulted at Royal College of Physicians, London. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



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

66 . c . 36

SYNOPSIS
OF THE
CONTENTS OF THE MUSEUM
OF THE
ROYAL COLLEGE OF SURGEONS
OF ENGLAND.



LONDON:
PRINTED BY TAYLOR AND FRANCIS, RED LION COURT, FLEET STREET.
SOLD AT THE COLLEGE.
1862.

S.426-1-9-20

ROYAL COLLEGE OF PHYSICIANS LIBRARY	
CLASS	61(069.538)
ACCN.	29132
SOURCE	
DATE	

VISITORS ARE PARTICULARLY REQUESTED NOT TO
TOUCH ANY OF THE PREPARATIONS.

CONTENTS.

	PAGE
History of the Museum	2
General Arrangement	4
WESTERN MUSEUM.	
<i>Ground Floor.</i>	
Skeletons of Vegetables	6
„ Radiata	9
„ Mollusca	14
„ Articulata	18
„ Man	21
Crania of different varieties of Man	22
Dried Preparations of Diseases and Injuries of Bones	22
„ „ Monsters and Malformations	23
„ Vascular Preparations	25
Mummies	26
Surgical Instruments	28
Wax Models	28
Calculi and Concretions	29
Human Skeletons on pedestals	30
Select Pathological Specimens in glazed Cases	31
<i>Staircase</i>	39
<i>Galleries.</i>	
Pathological Preparations in Bottles :	
General Pathology	40
Pathology of special Tissues and Organs	42
Monsters and Malformations	62

MIDDLE MUSEUM.

Ground Floor.

Fossil remains of Animals and Plants :

Large Specimens on platforms and pedestals . . .	65
--------------------------------------------------	----

In Wall Cases and Floor Cabinets :

Plants	68
------------------	----

Invertebrata	69
------------------------	----

Pisces	70
------------------	----

Reptilia	70
--------------------	----

Aves	72
----------------	----

Mammalia	73
--------------------	----

Galleries.

Zoological specimens in spirit	82
------------------------------------------	----

EASTERN MUSEUM.

Ground Floor.

Skeletons of Vertebrate Animals :

Large Specimens on platforms and pedestals . . .	84
--------------------------------------------------	----

In Wall Cases and Floor Cabinets :

Pisces	87
------------------	----

Reptilia	89
--------------------	----

Aves	91
----------------	----

Mammalia	92
--------------------	----

Galleries.

Physiological Preparations in bottles . . .	99
---------------------------------------------	----

Wax Models of the Torpedo	105
-------------------------------------	-----

Summary of number of Specimens in Museum . . .	112
------------------------------------------------	-----

MUSEUM
OF
THE ROYAL COLLEGE OF SURGEONS.

SYNOPSIS.

THE Collection of THE ROYAL COLLEGE OF SURGEONS is designed to facilitate the study of the phenomena of Life, both in health and disease, as the true foundation upon which the rational practice of the healing art is based.

With this view, the Collection is divided into two chief departments.

The first, THE PHYSIOLOGICAL SERIES, contains examples of every important modification of the different structures or organs, by which the functions of Life are carried on, throughout the whole range of organized beings, in a natural condition.

The second, THE PATHOLOGICAL SERIES, exhibits the same structures or organs, under the influence of injury, disease, or malformation.

Besides these two principal departments, there is a small collection of objects of historical or general interest to the profession, such as the various forms of instruments which have been used in the practice of Surgery; the different methods of embalming and preserving the dead, &c.

The Hunterian Collection, which forms the basis, and still a large proportion, of the contents of the present Museum of the Royal College of Surgeons of England, was originally arranged in a building which its Founder, JOHN HUNTER, erected for it in 1785, behind his house in Leicester Square. In 1787 he had completed its arrangement, the principle of which is still adhered to; and the Museum was opened for inspection during the month of October to the Medical Profession, and in May to non-professional Patrons, Cultivators, or Lovers of Physiology and Natural History.

JOHN HUNTER died October 16th, 1793, aged 64. By his will he directed his Museum to be offered in the first instance to the British Government, on such terms as might be considered reasonable, and in case of refusal, to be sold in one lot, either to some Foreign state, or as his Executors might think proper.

In the year 1799 Parliament voted the sum of £15,000 for the Museum, and an offer of it being made to the Corporation of Surgeons, it was accepted on the terms proposed by Government*.

* The following are the Terms and Conditions on which the Hunterian Collection, purchased by Parliament, was delivered to the late Corporation of Surgeons; which Corporation having become dissolved, the Members thereof were re-incorporated by Charter, dated the 22nd day of March, 1800, under the title of The Royal College of Surgeons in London:—

1st. The Collection shall be open Four Hours in the Forenoon of two days every Week for Inspection and Consultation of the Fellows of the College of Physicians, the Members of the Company of Surgeons, and persons properly introduced by them; a Catalogue of the Preparations, and a proper Person to explain it, being at those times always in the Room.

2nd. That one Course of Lectures, not less than twenty-four in number, on Comparative Anatomy and other subjects, illustrated by the Preparations, shall be given every year by some Member of the Company.

3rd. That the Preparations shall be kept in a state of Preservation, and the Collection in as perfect a state as possible, at the Expense of the Corporation of Surgeons, subject to the annual Inspection and Superintendence of the Trustees.

4th. That there shall be a Board of Trustees, to consist of sixteen [increased to seventeen by the Lords of the Treasury in 1856] Members, by

In 1806 the sum of £15,000 was voted by Parliament in aid of the erection of an edifice for the display and arrangement of the Hunterian Collection; a second grant of £12,500 was subsequently voted, and upwards of £21,000 having been supplied from the funds of the College, the building was completed in Lincoln's Inn Fields, in which the Museum was opened for the inspection of Visitors in the year 1813.

From the number of the additions, the Museum, completed in 1813, became too small for their adequate display and arrangement; and more space being at the same time required for the rapidly increasing Library, the greater portion of the present building was erected, wholly at the expense of the College, in 1835, at a cost of about £40,000, and the Hunterian and Collegiate Collections were re-arranged in what are now termed the Western and Middle Museums, which were opened for the inspection of Visitors in 1836.

Further enlargement of the building having become necessary by the continued increase of the Collection, the College, in 1847, purchased the extensive premises of Mr. Alderman Copeland, in Portugal Street, for the sum of £16,000, and in 1852 proceeded to the erection of the Eastern Museum at the expense of £25,000, Parliament granting £15,000 in aid thereof.

virtue of their Public Offices, and of fourteen others, to be appointed in the first instance by the Lords of the Treasury, and afterwards to be elected, as Vacancies may happen, by a Majority of the remaining Trustees.

5th. That the Museum shall always be open for the Inspection of all or any of the said Trustees, who are to take care that the Corporation of Surgeons perform their Engagements respecting the said Collection. That a day be appointed for the annual Inspection of the Museum, by the Trustees acting collectively as a Board; and that they are also to have quarterly Meetings, for the transacting of any Business relative to the Museum, and for the filling up of such Vacancies as may happen in the Number of the Trustees; and that the Corporation of Surgeons shall engage some Person to officiate as Secretary to the Board upon such occasions, and to issue previous Notices to the Members, in which he is to state particularly whether any Vacancies are to be filled up by new Elections.

The entire amount expended by the College in maintaining and increasing the Collection up to the present time has exceeded £250,000.

The superintendence of the Museum is confided by the Council of the College to a Committee of its Members, who, as opportunities offer, recommend the purchase of specimens desirable for the Collection. A valuable portion of the additions has been by liberal donations from various Fellows and Members of the College; and numerous specimens have been received from distinguished cultivators of Natural Science, not members of the medical profession. The name of every Donor will be found recorded in the Catalogues.

GENERAL ARRANGEMENT OF THE COLLECTION IN THE THREE MUSEUMS.

The Collection is contained in three apartments, named the WESTERN, the MIDDLE, and the EASTERN MUSEUMS. The Ground Floor of each apartment is devoted to skeletons and hard parts of animals, and other preparations in a dry state; those of large size being placed on pedestals in the body of the room, the others in glazed cases round the walls, and in cabinets on the floor. The Galleries are appropriated to the preparations contained in bottles.

The apartment first entered is the WESTERN MUSEUM. The Ground Floor is assigned to the Pathological Preparations in a dried state, including the diseases and injuries of bone, calculi and other concretions, as well as injected preparations, anatomical models in wax, mummies, and surgical instruments. It also contains a portion of the series of Natural Structures, viz. the skeletons or hard parts of Plants and Invertebrate Animals, and of Man. The two Galleries are devoted exclusively to the Pathological Preparations in bottles, including monstrosities and malformations.

The MIDDLE MUSEUM contains on the Ground Floor

the fossil remains of extinct Animals and Plants; and in its two Galleries, the Collection of Natural History (undissected animals) in spirit. The Invertebrata are arranged in the Lower, and the Vertebrata in the Upper Gallery.

The EASTERN MUSEUM is entirely appropriated to the Physiological Series. The Ground Floor is devoted to illustrations of the Osteology of the Vertebrate Animals, and the Galleries contain preparations in spirit exhibiting the most remarkable modifications of every other portion of the organization throughout the animal kingdom. In the rail-cases attached to the Galleries, dried specimens belonging to the series are placed.

In this Synopsis the contents of each Apartment are described separately, and in the order in which they are arranged in the Museum; but directions are given by which the visitor will be enabled to make an uninterrupted examination of any natural series. For further facility of reference to any particular part of the Museum, a ground plan, with the distinguishing numbers of the Wall Cases, and letters of the Floor Cabinets, is placed at the end of the work.

WESTERN MUSEUM.

Ground Floor.

The Wall Cases and Floor Cabinets on the eastern side (the left hand on entering) of this Museum, as far as the door into the Middle Museum, contain some of the more remarkable and durable parts of Plants, and the skeletons of Invertebrate Animals. The larger specimens are placed in the Wall Cases, and the smaller ones in the glazed tops of the Floor Cabinets, but as they form a consecutive series they will be described together. Many of these, brought home by Cook, Banks, White, and other voyagers, were formerly the property of Mr. Hunter; and numerous and valuable specimens have been added, both by donation and purchase, since the Collection was entrusted to the care of the Council of the College. A full description of the specimens in this part of the Museum will be found in the 'Catalogue of Plants and Invertebrate Animals in a dried state,' of which several copies are placed on the cabinets for the use of visitors.

Wall Case I. and Floor Cabinet A, Compartments 1, 2, and 3, contain select examples of the more durable portions of members of

THE VEGETABLE KINGDOM.

These specimens embrace some of the lowest, as well as of the highest forms of plant life, and many of them are of peculiar interest from having formerly been in the possession of some of the earliest cultivators of botanical science.

Amongst the THALLOGENS, the Water-net (*Hydrodictyon*), No. 8 [*F.*]*, is worthy of notice; and Nos. 10 and 11 [*F.*] are examples of similar plants so matted together as to produce a flannel-like substance, which under treatment is capable of conversion into paper.

The marine productions termed 'Corallines' (which are not

* [*F.*] after the number denotes that the specimen will be found in the Floor Cabinet; [*W.*] that it is in the Wall Case.

animals, as was formerly supposed, but lowly organized plants, thickly coated with calcareous material) are here represented by many specimens, which formerly belonged to Mr. Ellis, who devoted so large a portion of his time and fortune to the description and illustration of these beautiful productions. The original drawings of Mr. Ellis's work on Zoophytes are preserved in the Museum, and some of the specimens (Nos. 17, 41, 42, 43, 44, &c. [F.]) have their names in his handwriting still attached to them.

Nos. 116 to 127 [F.] are Fungi which grow in the bodies of the larvæ of Insects, producing the combination of plant and animal called "vegetable caterpillar" or "rush-caterpillar" by the colonists of New Zealand. In the most common kind, the caterpillar belongs to a moth of the genus *Hepialus*, and *Sphaeria Robertsii* is the botanical name of the parasitic fungus. The caterpillar, after feeding for some weeks on the leaves of the tree on which it was hatched, drops to the ground and burrows in the earth, there to undergo its final transformation. In the process of moulting, the minute germs of the *Sphaeria* get access to the interior of the body, and germinate at the expense of the fatty matter which has been accumulated beneath the integument. In this rich nidus the growth of the plant is rapid; the materials for the development of the parts of the perfect insect are exhausted, and the caterpillar dies. The growth of the plant proceeds; all the soft parts of the caterpillar are progressively consumed or assimilated by the plant, which, after thus filling and distending the integument of its prey, bursts forth at the weakest point, which is usually that thinner and more flexible skin which allowed the free movements of the head upon the trunk. The plant then seeks the light, ascends, rises above the surface, and develops the minute germs or spores which are dispersed in the air and fall to the soil, prepared to take advantage of any similar nidus in which they may be accidentally introduced.

Nos. 116, 117 [F.]. *Sphaeria sinensis* is eaten by the Chinese, being brought to the market of Canton tied up in bundles with silk.

The ACROGENS, to which class the Ferns belong, are largely represented. Some of these, as seen in the transverse sections of the trunk, Nos. 171 to 174 [*W.*], from New Zealand, attain the size of large trees.

In the next Class, the ENDOGENS, there are many objects of interest, as in it are included the Grasses and Palms, both of which orders are represented by well-marked specimens. No. 186 [*W.*], which occupies the centre of the Case, is a very fine panicle of the Sugar-cane (*Saccharum exaltatum*). This mass of inflorescence was cut from a plant about 12 feet in height, which grew in the marshes in the delta of the Ganges. There are also sections of the stem of *S. officinarum* (Nos. 184 and 185 [*W.*]). Adjoining the Wall Case in the corner is a tall glazed frame (No. 193) containing two fine specimens of *Papyrus antiquorum*, the Bulrush of the Nile, in ancient times largely used in the manufacture of paper. Sections of the stems of Palms (Nos. 205 [*W.*] and others) show the peculiar arrangement of the bundles of woody and vascular tissue of which they are composed. No. 209 [*W.*] is the fruit of *Elaeis guineensis*, which yields the Palm-oil of commerce. No. 213 [*F.*] is the Coquilla-nut (*Cocos lapidea*), and No. 217 [*F.*] the Ivory-nut (*Phytalephas macrocarpa*), in constant use by the turner. No. 233 [*F.*] is a transverse section of a branch of the Dragon-tree of Teneriffe (*Dracæna draco*), supposed to be one of the oldest of the living inhabitants of the surface of the globe. No. 234 [*W.*] is a leaf of the singular Lattice-plant (*Ouvirandra fenestralis*) from Madagascar. It is made up of a series of parallel veins connected together at nearly equal distances by transverse bands of green fibres, thus forming a square open network, without any trace of upper or under cuticle.

After some illustrations of the Class of GYMNOGENS, to which the Pines belong, follow specimens of the largest class in the Vegetable Kingdom, viz. the EXOGENS. The plants composing it are all characterized by a well-marked central pith, surrounded by zones of wood, which during growth are added to the outside of those previously developed.

Some curious examples are contained in the Collection of the growing over, or enclosing of foreign bodies, climbing plants, &c., within the substance of trees. Nos. 334 and 335 [W.] show a branch of Ivy embracing the trunk of an Oak so firmly, that the latter in its growth has completely buried the Ivy. No. 279 A [W.] is a horseshoe, which had become impacted, apparently between two branches of an Oak, and was so completely surrounded by the wood that no trace of it was visible externally, and it was only discovered on sawing the tree into planks.

Instances of the peculiarities of the bark of Exogens are seen in Nos. 274 and 275 [W.], from the Cork-tree (*Quercus suber*); Nos. 293 and 294 [W.], from the Lace-bark tree of the West Indies (*Lagetta lintearia*); and Nos. 357, 358, and 359 [W.], pieces of cloth from the South Sea Islands, prepared by macerating in water, and then beating with a mallet, the inner bark of a tree, probably *Morus papyrifera*.

Among roots, the Mandrake (*Mandragora officinalis*), No. 321 [W.], will be observed with interest on account of the numerous allusions to the superstitions connected with it found in the writings of the old poets. Nos. 329 to 333 [F. and W.] are examples of the so-termed Rice-paper, which consists of fine slices of the pith of a plant (*Aralia papyrifera*) which grows in China. In glazed frames at the back part of the Case (Nos. 365 and 366), and under the glass shade (No. 362), are to be seen some very perfect specimens of the leaves and seed-vessels of various plants, prepared by maceration and careful washing in water, so as only to leave the fibrous structure forming their framework.

ANIMAL KINGDOM.

Subkingdom RADIATA.

Class PROTOZOA.

In this Class are associated a group of organisms exhibiting the general characters of animal life in the lowest or simplest

degree ; so much so, indeed, that many of them have been ranged by naturalists in the Vegetable Kingdom. The series of hard parts of these creatures commences (Floor Cabinet A, Compartment 4) with a collection of the calcareous shells of the *Foraminifera*, many of them remarkable for elegance of form and the beauty of the sculpturing of their surface. When first discovered, they were considered to be chambered shells of animals allied to the Nautili ; but more accurate investigations into their structure and habits have resulted in placing them in their present low situation in the scale of organized beings. They are widely distributed, occurring both in shallow and deep seas ; and are also abundantly found in the fossil state, large tracts of rock and earth in many parts of the world being composed entirely of the remains of *Foraminifera*. Being mostly of minute size, the specimens exhibited are so placed that they can be examined through the glass top of the Cabinet by means of a pocket lens of an inch focal length.

Class PORIFERA.

Wall Case II. Floor Cabinet A, Compartments 5, 6, 7.

The Porifera or Sponges are widely distributed over all parts of the globe, and are nearly all marine, a very few species only being found in fresh waters. Their hard supporting framework or skeleton is in most cases composed of a network of keratose or horny fibres, generally strengthened by siliceous, and occasionally (as in *Grantia*, B 183 [F.]) calcareous, spicules. In some the skeleton is composed entirely of silica, as in *Dactylocalyx*, B 189 to 190 [F.].

In the upper part of the Wall Case may be seen some large specimens of the common officinal Sponge, several of them attached to the rock on which they grew. In the bottle marked B 12 [W.] is one of the variety known as "Turkey Honeycomb" mounted in spirit, with its fleshy coating preserved. Examples of Turkey Sponges of different qualities will be found in the Floor Cabinet, as also some of the

Bahama or West Indian Sponges (B 17 to 20 [F.]), which are so coarse in their fibres as to be of very little commercial value.

Some of the finest representatives of the Class are to be seen in the Cup-shaped Sponges (*Raphyrus patera*), B 128, 129 [W.], from the Eastern seas, often known by the name of "Neptune's Goblets." One of these is as much as 3 feet in height and 18 inches in diameter. Contrasting with these are the parasitic Sponges (*Cliona*), B 156 to 165 [F.], which have the power of excavating a dwelling-place in such hard substances as shell and stone. Several examples of shells almost honeycombed by the ravages of members of this genus are placed in the Cabinet. Reference must be made to the Catalogue for the description of the numerous other interesting varieties of this group.

Class POLYPIFERA.

Wall Cases II. III. IV. Floor Cabinet B.

The animals of this Class, often from their plant-like form termed "Zoophytes," are almost exclusively marine. They are sometimes simple, each polype being a separate and perfect animal in itself, as the common Hydra and Sea Anemone, but more often compound, a number of such polypes being organically connected together by their bases. The hard supporting parts or skeletons of such compound forms often attain a considerable magnitude, and are remarkable for their beautiful arborescent form, and in many cases for their vivid colouring. These skeletons are in some instances flexible and horny, but more often of a calcareous nature.

The Order HYDROIDA contains many genera common on the British coast, as *Tubularia* (C 2 [F.]), *Sertularia* (C 4 to 14 [F.]), *Plumularia* (C 22 to 25 [F.]), of which the delicately branched transparent horny sheaths or skeletons (polypidoms) are preserved in Floor Cabinet B, Compartment 1. When living the polypes are placed in little cup-like cells, generally disposed along the sides of the main stem or of the branchlets.

In the Order ASTEROIDA the skeleton consists of a central axis or shaft, and the polypes (which have invariably eight tentacles) are located in a soft fleshy crust, generally containing abundant calcareous spicules, investing it. Among the simpler forms, having a long, straight, unbranched axis, are *Virgularia* (C 35 to 42 [F.]) and *Pavonaria* (C 43 [W.], 44 [F.]). Some specimens of the latter exceed 2 feet in length. *Antipathes*, or Black Coral (C 45 to 61 [W. and F.]), has an axis, composed of concentric layers of a dark-brown horny material, of glossy surface, and often elegantly branched. One specimen in the Wall Case is of remarkable size, as when in its perfect state it must have exceeded 6 feet in height.

The large family of *Gorgoniadæ*, including the Fan-Corals, or Venus's Fan (*Gorgonia flabellum*, C 62 to 71 [W. and F.]), are well represented, the rich collection of the late Charles Stokes, Esq., F.R.S., having greatly enlarged this department of the College Museum. Many of the specimens, which there is not space to exhibit, are deposited in the drawers of the Cabinet. To this family belongs the true Red Coral (*Corallium rubrum*), C 235 to 239 [W. and F.], the central axis of which is exceedingly hard, and susceptible of a very high polish, whence its value for ornamental purposes.

In the Order HELIANTHOIDA the polypes are generally of large size, and have one or more circles of tentacles surrounding the mouth, their number being some multiple of six. In some cases, as the common *Actinia* or Sea Anemone, they are soft and fleshy, without any trace of a calcareous skeleton, whilst others secrete within their tissues the beautiful stony structures known as Corals. These, after the removal of their fleshy coating, are almost always white, and are composed principally of carbonate of lime. The animals of this Order are all marine, and attain their finest development only in the warmer seas, where the stony skeletons of innumerable individuals, accumulating through ages, form immense reefs and even islands.

Many fine examples of the principal varieties of White Coral are seen in Wall Cases III. and IV., and Floor Cabinet B, Compartments 4, 5, and 6. Among them may be parti-

cularly noticed,—C 290 [W.]. *Pocillopora grandis*. C 325 [W.]. *Madrepora spicifera*. C 344 [W.]. *Dendrophylla ramea*. C 354 a. [W.]. *Pavonia explanulata*. C 367 [W.]. *Fungia Ehrenbergii*. C 395 [W.]. *Meandrina cerebriformis*. C 437 [W.]. *Millepora alcicornis*.

Class ECHINODERMATA.

The more durable parts of animals belonging to this Class are contained in Floor Cabinet C. They have all, as an external skeleton, either a tough, leathery skin, strengthened by earthy particles, or a series of calcareous plates, articulated together so as to form a more or less rounded case or shell, the surface of which bears numerous moveable elongated spines.

The first family, *Pentacrinidæ*, were once abundant in our seas, as will be seen by an inspection of their fossil remains in the Middle Museum. Their finest representative at present existing is the extremely rare *Pentacrinus Caput Medusæ*, D 1 [F.]. It consists of an animal something like a star-fish, mounted on a long stalk composed of thin discs or joints of pentagonal figure. This specimen was found alive at Barbadoes, and was bought by Mr. Hunter at the sale of the museum of the late Duchess of Portsmouth, for the sum of fifteen guineas. Nos. D 2 to D 7i [F.] form an interesting series, exhibiting the transformations of a beautiful species, common on our coasts, called *Comatula rosacea*, which in its early condition is stalked like the Pentacrinite. The families *Ophiuridæ*, *Asteriadæ*, *Solasteriæ*, and *Goniasteriæ* contain the various animals commonly known under the name of Sea Stars or Star-fish. After these follow the *Echinidæ*, generally known as Sea Eggs or Sea Urchins. Some of the foreign examples are remarkable for the great size and peculiar form of their spines. The structure of the complicated oral apparatus (jaws and teeth) of the common British species (*Echinus sphaeria*), which has received the name of "Aristotle's Lantern," is well exhibited by several preparations (D 98, 102, &c. [F.]). The series of animals of this Class concludes with specimens of the family *Holothuriadæ*, or Sea Cucumbers. D 211 [F.]

is a large example, *Cucumaria frondosa*, mounted in fluid. D 215 [F.], the Trepang (*Holothuria edulis*), are in the condition in which they were offered for sale in the China market, in which country they are employed in the preparation of nutritious soups.

Subkingdom MOLLUSCA.

Wall Cases V. and VI. Floor Cabinet D.

The Mollusca are animals with soft bodies enveloped in a muscular skin or *mantle*, commonly (but by no means universally) protected by one or more calcareous plates called *shells*. Their alimentary system is complete, and they are provided with a heart and respiratory organ. The nervous system consists of a medullary ring surrounding the œsophagus, and giving off nerves, sometimes unsymmetrically, to different parts of the body.

Class BRYOZOA (POLYZOA, *Thompson*).

The Bryozoa are a group of minute composite animals, inhabiting both sea and fresh water, which from their general external features were formerly arranged with the Hydroid Polypes. But in the conformation of their digestive apparatus, and in the presence of a nerve-ganglion between the buccal and anal orifices, they present strong affinities to the Ascidian or Tunicated Mollusks. They are numerous and widely distributed, and have a great range in time, being found in the oldest sedimentary rocks and throughout all the fossiliferous strata. Their skeletons are sometimes flexible and horny, sometimes calcareous, and in form are either branching, foliaceous, or encrusting. They consist of an aggregation of minute cells, in which the polype-like creatures are seated. Examples are seen in Floor Cabinet D, Compartment 1, among which the more remarkable are the *Salicornaria*, E 5; *Flustra*, or Sea Mat, one of the commonest objects of our sea-coasts, E 19; *Eschara*, E 27; and *Retepora*, E 28.

Class TUNICATA.

The Tunicata are unsymmetrical shell-less molluscos animals of somewhat lower organization than the Mollusca generally. Their body is enveloped in a coriaceous integument or tunic, whence their name. They are exclusively marine, and widely distributed from the arctic to the tropical seas, and occur both fixed in the shallow zones and floating in the open seas. Some are simple, and others united into compound organisms. Owing to the soft nature of the animals of this class, there is little in illustration of them in this department of the Museum; but the appearance of some of the more interesting forms can be studied in the Lower Gallery of the Middle Museum (Series of Natural History in spirit).

Class BRACHIOPODA.

The Brachiopoda are bivalve Mollusks, which by their organization connect the Bryozoa and Tunicata on the one hand, and the Lamellibranchiata on the other. The valves of the shell are placed, one upon the dorsal, the other on the ventral surface of the animal. The dorsal valve is usually the smallest, and the ventral valve the largest; the latter generally having a prominent beak by which it is attached to some rock or other submarine object, as in *Thecidium* and *Crania*, or else a perforation through which a pedicle for attachment passes. The general form and the resemblance of this orifice to the hole through which the wick protruded in the antique lamp, has caused the name of "Lamp-shell" to be given by the old naturalists to several members of this class. See *Terebratula* and *Waldheimia*, E 44, 45, and 46 [F].

The Brachiopoda are widely distributed in space, being found both in the polar and tropical seas; they range from shallow water to the greatest depths, but are mostly found in the deep sea. They are as equally distributed in time, being found throughout all the sedimentary deposits, from the oldest to the most recent. Upwards of 1000 fossil species have been described, of which the greater number belong to the British

strata, while not more than 70 species are known to exist now upon the surface of the globe. The genus *Lingula* is one of the oldest known forms of organic life, and is interesting as having survived all the changes which have taken place since the deposition of the lowest fossiliferous rocks, as witnessed in one of its present representatives, *L. anatina*, B 53 [F.], from the Indian Ocean.

Class LAMELLIBRANCHIATA (CONCHIFERA, *Lamarck*).

This very large Class includes the greater number of mollusks provided with bivalve shells. The valves are placed one on each side of the animal's body, by which character, and other important structural differences, they are separated from the Brachiopoda. The elegance of form and beauty of colour of the shells of animals of this Class are well illustrated in the Collection. Among them may be noticed the large *Pinna*, E 102 [W.], which is attached to submarine rocks by a tuft of silky fibres, called a *byssus*, so abundant and fine as to be occasionally used for economical purposes. E 163 [W.] is a pair of valves of the *Tridacna gigas* from the South Seas, which measure 2 feet 10 inches across, and weigh together 165 pounds. The single valve of another individual (E 164 [W.]) weighs as much as 143 pounds; and a pair of shells of this giant among mollusks has been known to attain the weight of 500 pounds. A curious modification of the bivalve form of shell is seen in *Aspergillum* (E 332 to 334 [F.]), where the extremely small valves are imbedded in a large shelly tube, formed at one end something like the rose of a watering-pot. The *Pholades* (E 335 to 341 [F.]) are borers into wood and stone; and the nearly allied *Teredines* commit great ravages in ships' bottoms, and submersed pieces of timber, used in docks, piers, &c., as seen in E 345 and 346 [W.]. The specimens marked E 349 [W.] are portions of the shelly tube of a gigantic *Teredo* from the East Indies.

Class PTEROPODA.

The Pteropods are delicate pelagic animals abounding in both the tropical and arctic seas, forming in the latter loca-

lity the principal food of the whale. They swim by means of a pair of fins developed from the side of the neck. Some species are shell-less; but others are provided with a fragile, translucent, and symmetrical shell, of conical, ventricose or spirally coiled form, several examples of which are seen in Floor Cabinet D, Compartment 4, E 350 to 355.

Class GASTEROPODA.

The animals of this large and important class have a distinct head, and move by means of a flat, broad muscular disc on the under surface of the body, called the foot. Some are aquatic in their habits, and respire by means of gills; while others (as the common Snail, E 446 [F.]) breathe by means of a pulmonary sac. The shell, when present, is generally univalve, although in some (as the Chitons, E 456 to 472 [F.]) it is composed of several pieces (multivalve). In many the mouth of the shell is closed when the animal retires within it, by an *operculum* or lid. This is attached to the dorsal surface of the posterior part of the foot, and is composed of horny material (as in E 1037 to 1041 [F.]), or of a dense shelly substance (E 1042 to 1050 [F.]). It always exhibits more or less of a spiral development, and by some authorities is considered to be the analogue of the dextral valve of the Lamellibranchiata. The principal modifications of structure and mode of growth of shells of Gasteropoda are well illustrated by the series of sections (E 1067 to 1098 [F.]).

Class CEPHALOPODA.

The Cephalopoda are the most highly organized of the Mollusca, and are distinguished externally by the arm-like tentacles—organs of motion and prehension—placed like a crown around the head. The form and situation of the shell in animals of this class vary exceedingly. In some it is external and chambered, as in the Pearly Nautilus (*Nautilus pompilius*), E 1051 [F.], and its allies the extinct Ammonites. In others it is external, but not chambered, as in the Paper Nautilus (*Argonauta argo*), E 1056 to 1059 [F.], in which

genus the female alone is provided with this covering. In *Spirula* (E 1060 [F.]) the shell is internal, but chambered and coiled. The internal shell of *Sepia*, in the form of an oval, calcareous, laminated plate (E 1061 [F.]), is well known under the name of "Cuttle-bone." In *Loligo* it is horny, and consists of a shaft and two lateral expansions or wings (E 1064 [F.]).

In Wall Case VI. is a specimen of the entire animal (soft parts and shell) of the Pearly Nautilus: a portion of the shell has been removed to show some of the chambers, and the membranous tube or siphon which traverses them. The organization of this living representative of the extensive series of extinct Cephalopods with chambered shells, which range through the secondary rocks, is described in a quarto volume (published by the College), entitled "Description of the Pearly Nautilus." In the same Case is a specimen of the Argonaut or Paper Nautilus, suspended as when floating, with the expanded membranous arms (erroneously supposed to serve as sails) in their natural position, spread over the exterior of the shell, which they form and repair.

In the Floor Cabinet which contains the shells of Mollusca, is a series (E 1110 to 1153 [F.]) of specimens illustrating the nature and mode of production of Pearls, which are fully described in the Catalogue.

Subkingdom ARTICULATA.

Wall Case VII. Floor Cabinet E.

The animals composing this division are characterized by having the body enclosed in a more or less hard integument, consisting of a series of rings, segments, or joints, "articulated" together by a flexible membrane.

Class INSECTA.

This Class is not only far more extensive than any other in the Animal Kingdom, but probably contains as many species

as all the other classes together*. Insects are distinguished externally from other Articulata by having three pairs of jointed legs, one pair of antennæ, and the body divided into head, thorax, and abdomen.

Selected examples of the principal modifications in their external form are placed in Floor Cabinet E, Compartments 1, 2, and 3. Among them may be observed, in the first Order, *Coleoptera*, some which are distinguished for the great brilliancy of the metallic lustre of their wing-cases or elytra (*Sternocera sternicornis*, F 60; *Entimus imperialis*, the Diamond Beetle, F 133; *Agestrata luconica*, &c.). Others are remarkable for their great size; the *Dynastes hercules*, F 86, *Goliathus Drurii*, F 93, and *G. cacicus*, F 94, being the giants of the class. *Acrocinus longimanus* (F 165) will be noticed for the great length of its antennæ and anterior pair of legs, and for the singular disposition of colours on the elytra, which has procured for it the name of Harlequin Beetle.

It is in the Order *Orthoptera* that the most fantastic forms of insect-life occur, as seen in certain members of this group, which have obtained the popular names of Walking-leaf (*Phyllium siccifolium*, F 185), Walking-stick (*Cyphocrania goliath*, F 183), and others. To this order also belong the Locusts (F 189-91), Grasshoppers, Crickets (F 186), and Cockroaches (F 181). Several beautiful examples of the Order *Neuroptera*, so called from the delicate nerve-like veining of the wings, are to be seen in the Case, of which the Dragonflies (*Libellulidæ*) are perhaps the best known; and the Order *Lepidoptera* (Butterflies and Moths) are represented by some specimens very remarkable for their great size and the splendour of their colours.

In the third compartment of the Floor Case are dissections of insects, displaying the various parts forming their tegumentary skeleton; and the adjoining Wall Case has some of

* The total number of known living *Vertebrate* animals amounts to about 16,000; the *Mollusca* to very little more: the number of plants is estimated at 100,000; and the Insect Class is supposed to include not less than 300,000 species.

the principal forms of nests, built chiefly by social insects of the Order *Hymenoptera* (Bees, Wasps, and Ants).

Class CRUSTACEA.

The Crustacea are articulated animals, provided with jointed limbs; they breathe by gills, and have generally two compound eyes and four antennæ, three pairs of jaws, and the same number of foot-jaws, and five pairs of feet. The skin is usually a solid crust, more or less calcareous, and is cast off at intervals during growth. In the early moultings they sustain a true metamorphosis.

The animals of this class are contained in Floor Cabinet E, Compartments 7 and 8, and in Wall Case VII. Here will be found various forms of Crabs and Lobsters, including fine examples of the Robber Crab (*Birgus latro*), G 46 and 47 [W.], from the East Indian seas; the Spiny Lobster (*Palimnurus homarus*), G 55 [W.], from the British coast; the claws of some gigantic specimens of the edible Crab and Lobster, G 69 [W.] and 70 [F.]; and also two species of King Crab (*Limulus*), G 80 and 81 [W.], the former from North America, the latter from the Moluccas.

Class CIRRHIPODA.

These animals are so nearly allied, in the more important parts of their organization, to the Crustacea, that by many authors they are considered to form an order of that great class. When young, they swim freely about the sea, but finally attach themselves by the anterior extremity of the body to some rock, or floating submarine substance, and remain fixed for the remainder of their lives, developing in most cases a shell composed of several calcareous plates. The presence of this shell caused them to be classed by older naturalists among "multivalve" Mollusks.

The Cirrhipods are divided into two groups—the Sessile and Pedunculated. Among the former is the *Balanus*, or Acorn Shell, of which a large group is seen in Wall Case VII. H 1; and others in Floor Cabinet E, Compartment 6, where

also may be observed *Chelonobia* (H 9), found attached to the surface of Turtles, and *Turbinella* (H 13), imbedded in the skin of Whales. The pedunculated Cirrhipods include the creatures commonly known as Barnacles, and are placed in the same compartment.

The remainder of Cabinet E, Compartments 4 and 5, are occupied respectively by examples of the Classes MYRIAPODA and ARACHNIDA; the former including the Centipedes, and the latter the Scorpions and Spiders, which differ from Insects in having eight legs, and the body divided into two parts (a cephalothorax and abdomen) instead of three. There will also be seen in this compartment some specimens of silk spun from the cocoons of Spiders, two purses made of the web of a Jamaica spider (L 19), and nests of the Mason Spider (L 22, 23). Many other forms of nests of these animals will be found in the Natural History Series in spirit (Nos. 356 to 366), in the Lower Gallery of the Middle Museum.

Should the visitor wish to make a complete examination of the skeletons of animals in an uninterrupted series, he must now pass through the Middle and enter the Eastern Museum. In this apartment the series of skeletons of recent animals is continued (page 84), the first Case (on the left hand of the door) containing the lowest Vertebrate forms, and the last the Anthropoid Apes. Then he must return through the Middle Museum, and, on re-entering the Western Museum, will find in the Cases next the door (to his left on entering) the completion of the series, in the osseous framework of Man, the highest of organized beings on earth.

Wall Cases XCVI. to XCIX. are occupied by the collection of Skeletons and Crania of different varieties of mankind.

Case XCVI. contains in its upper part a series of fœtal skeletons of various ages, to illustrate the progressive development of the different bones. There will also be observed in it, entire articulated skeletons of—

5184*. A female Australian.

* These numbers refer to the "Descriptive Catalogue of the Osteological Series," vol. ii.

5357. An adult male Boschisman, or Bushman, from South Africa. The height of this skeleton is 4 feet 5 inches, which is the average stature of the males of this diminutive race.

5372. A male African Negro.

5386. A male Polynesian, a native of Tahiti.

5569. A male European.

Case XCVII. contains several European skeletons, and one of a man who was lately exhibited in London as the "American Giant." It measures 6 feet 9 inches in height.

On the floor of the Case are plaster casts of—

The right hand of Patrick Cotter, an Irish giant, whose height, in the year 1802, was 8 feet 7½ inches.

The left hand of M. Louis, a French giant, whose height was 7 feet 4 inches.

The right hand of an English giant (Bradley).

The right hand of a Lapland giant.

Cases XCVIII. and XCIX. contain the Crania of various races of mankind, arranged in the following order:—

Melanian (dark brown or black) variety.

Australian, Papuan, African.

Xanthian (yellow, olive and red) varieties.

Polynesian, American, Esquimaux, Asiatic, Egyptian.

Leucanian (white and light olive) variety.

European.

Further illustrations of normal Human osteology and dentition will be found in the adjoining Floor Cabinet F, Compartments 4, 5, and 6.

Wall Cases C., CI. and CII. belong to the Pathological Section, and contain specimens of Injuries and Diseases of Bones, preserved in a dry state. Among them may be noticed—

2879 B.* The skeleton of an adult Spaniard affected with rickets.

* These numbers refer to the "Descriptive Catalogue of Pathological Specimens," vol. v.

3489 A. The skeleton of a boy, twelve years old, showing the effects of hydrocephalus and rickets.

3223. A Tibia and Fibula with a large osseous tumour. The tumour has grown almost entirely from the anterior and lateral parts of the upper two-thirds of the tibia. It is of an irregular oval form, and measures 10 inches from above downwards, about 14 inches from side to side, and exactly a yard in its chief circumference. Its surface is for the most part smooth, evenly rounded, and covered by a very thin layer of compact osseous tissue. Its interior and certain parts of its surface are formed of coarse cancellous tissue, about as heavy as that of healthy bone. Its exterior is smoothly continuous with that of the tibia, the walls of which are expanded and drawn out around its base of attachment. The fibula is pushed outwards, and so compressed by the growth of the tumour, that it is in some parts nearly two inches in width and only two lines in thickness.

Presented by William Long, Esq. The limb was amputated at St. Bartholomew's Hospital by Mr. Gay, and weighed with the foot, &c. forty-two pounds. The preparation is engraved, of half the real size, in Cheselden's '*Osteographia*,' tab. 53. figs. 1, 2, 3.

Select specimens belonging to this division, including some striking illustrations of the healing of sabre-wounds of the cranium received on the field of battle, and some specimens of gun-shot injuries, from the Crimea, are placed in Floor Cabinets G and H, Compartments 4, 5, and 6 of each.

Wall Case CIII. contains the dried preparations, and casts and models of Monsters and Malformations, those in spirit being on the Upper Gallery (See page 62). Among them may be noticed,—

No. 322*. A cast in wax of the Band uniting the bodies of the Siamese Twins, who were born in the year 1811, and exhibited in London in 1830. The band of union is formed in the following manner:—At the lowest part of the sternum of each boy, the ensiform cartilage is bent upwards and forwards,

* Catalogue of Monsters and Malformed Parts.

meeting the other in the middle of the upper part of the band, where moveable joints exist, which admit of vertical as well as lateral motion; each junction appearing to be connected by ligamentous structures. During the period of infancy, this band was much larger in proportion to the size of their bodies than it is at the present time: it had then no hard cartilaginous feel at its upper margin; it was also larger in circumference, and the bodies of the twins were nearer in contact; but from continued stretching it has become elongated, and its circumference has diminished. At the time when the cast was made (1830), the band was remarkably strong, and possessed little sensibility. One of the twins fell out of bed while asleep and hung by the band for some time, and when both awoke, they alike stated that they experienced no pain in the band from this accident. An attendant has lifted one of them from the ground, allowing the other to hang by the band with his feet raised from the floor; yet the whole weight of one of the boys thus suspended did not occasion pain to either, or even excite their displeasure. Under the cartilage, while they stand in their ordinary posture, are large hernial sacs opening into each abdomen, and into which, on coughing, congenital herniæ are forced; probably, in each boy formed by a portion of the transverse arch of the colon: generally, however, and under ordinary circumstances, these herniæ are not apparent.

No. 323 is a coloured Model of A-ke, a Chinese twin-monster, born in a district about two days' journey from Canton, in the year 1804. The principal or perfect twin was born with another male child of nearly the same size united to the pit of his stomach by the neck, as if the head were plunged into the breast of the more complete twin. The skin of the principal twin here joins that of the upper part of the neck of the parasite, quite regularly and smoothly, excepting the superficial blood-vessels, which appear somewhat turgid. The sufferings of the mother were so great that she survived the birth of this monster only two days.

Since that time the parasite has not much increased in

size, and at present is not much larger than new-born infants usually are; but the bones are completely formed.

The attachment of the neck of the parasite to the chest of the principal twin admits of a semi-rotatory motion. The natural position of the bellies is towards each other; but A-ke can turn his brother so far round, that he can bring either side towards his own belly. He also shows that his brother's arms can be moved freely. The pulsation of the carotid arteries could be feebly felt in the neck of the parasite.

A-ke was about 4 feet 10 inches high when this model was taken, of a feeble frame and sickly appearance; but, save the attachment of the acephalous twin, perfectly formed.

In the lower part of the Case is a dried injected preparation of the principal thoracic and abdominal viscera of a Man, in whom their normal situation was transposed: thus the apex of the heart is turned to the right, and the aorta arches over the right bronchus; in the abdomen, the spleen and great end of the stomach occupy the right hypochondrium, and the larger lobe of the liver with the gall-bladder are on the left. The cæcum and appendix vermiformis are on the left, and the sigmoid flexure of the colon (which is not here preserved) was on the right side. This transposition of the parts did not affect the healthy performance of their functions.

Wall Case CIV. and part of CV. contain dried vascular preparations from the human subject, partly natural, and partly in an abnormal condition.

3472 A. Part of a lower extremity, in which the femoral artery had been tied fifty years before the death of the patient, for the cure of a popliteal aneurism, by John Hunter. The fourth case in which he tied the artery at a distance from the aneurism, and the first in which the vein was not included in the ligature. Presented by T. Wormald, Esq.

The remaining Wall Cases in this apartment, part of CV. and CVI., are chiefly occupied by examples of the various artificial modes adopted by different nations for the preservation of dead bodies. Among them will be observed—

No. 742 *. The body of a male Peruvian, which was found in one of the native sepulchres, or guacas, in some calcareous hills in the district of Caxamarca, in Peru. Tradition, preserved among the inhabitants of the country, stated the spot in which the body was found buried, to have been the site of a voluntary sacrifice of the life of a Curaca, one of an order of nobles immediately following in dignity the Incas, or reigning family. The body was found ten feet below the surface, in a dry calcareous soil, to which, and to the dryness of the air, is to be attributed its preservation in an undecomposed state. Throughout the highlands of Peru, desiccation proceeds so rapidly as to arrest the putrefactive process; animal substances becoming completely dried up by mere exposure to the air. The bodies are not found wrapped up in linen, as amongst the Egyptians, but they are sometimes covered with the skin of the Vicugna or Peruvian camel, bound closely to the body with ligatures. Presented by His Majesty King George the Fourth.

No. 743. The body of a Guanche, or Mummy, from the ancient sepulchres in the island of Teneriffe. This specimen is in a similar state of desiccation to that of the Mummy from the guaca at Caxamarca.

The Natural Mummy of a Boy, about twelve years old, who was found erect, with remnants of his ordinary clothes on, under St. Botolph's, Aldgate old church, in the year 1742. He was supposed to have been shut in at the time of the Plague in London in 1665, as the vault had not been opened from that period until the time of the discovery of the body, when the church was pulled down. The dried carcase weighs about eighteen pounds. Presented by the Zoological Society of London.

A Mummy from Adelaide, South Australia, one of a tribe in which the practice exists of drying the corpse and preserving it above ground. Presented by Governor Sir G. Grey.

The skull of a native (a Papuan Black) of New Guinea, singularly travestied by rude artificial representatives of pro-

* Catalogue of Vascular and Miscellaneous Preparations in a dried state.

minent eyes, nose, and beard. This skull was found suspended from a frame attached to a pole reaching from the floor to the roof of a native dwelling-house, and was presented by Captain Blackwood, R.N. (See Jukes's Narrative of the Surveying Voyage of H.M.S. Fly, 1847, vol. i. p. 274.)

No. 738. An Egyptian Mummy. Horsiesi, son of Naspihiniegori, an Incense-bearing Priest in the Temple of Ammon at Thebes, unwrapped, with a portion of the original bandage about the loins.

No. 739. An Egyptian Mummy, partly unwrapped; taken out of one of the sepulchres at Thebes, by the late Captain Hayes. Presented by Sir David Dundas, Bart.

No. 740 A. The internal case out of which the Mummy No. 738 was taken. It immediately enveloped the swathed body, and partakes of its form: it appears to be composed of many layers of cloth, cemented together, and faced or covered externally with a white composition, affording a smooth and uniform surface, upon which divers hieroglyphical devices and figures are drawn, the colours of which are well preserved.

No. 744. The embalmed Body of the first wife of the late Martin Van Butchell, which, at his request, was prepared by Dr. William Hunter and Mr. Cruikshank, in January 1775. The method pursued in its preparation was, principally, that of injecting the vascular system turgid with oil of turpentine and camphorated spirit of wine, and the introduction of powdered nitre and camphor into the cavity of the abdomen. Presented by Mr. E. M. Van Butchell, August 24th, 1815.

No. 745. The embalmed Body of a female subject, aged twenty-four, of the name of Johnson, who died of phthisis in the Lock Hospital, about the year 1775. In a letter which accompanied the specimen it is stated "that much camphor was used, that all the arteries and veins were filled with injection, and that spirit of wine was used as well as camphor; that the heart and intestines were taken out, and injected and replaced, as was also the brain." It was prepared by

John Sheldon, Esq., Professor of Anatomy to the Royal Academy.

Floor Cabinets on the Western side of the Museum.

The first from the entrance-door (K) contains some of the older and more curious forms of instruments which have been used in the practice of Surgery; many of them of special interest, from the names of their former possessors.

The second (I) contains, in the compartments on the side facing the centre of the Museum, preparations in wax, displaying the normal structure of various portions of the human frame, some (Nos. 727, 728, 729, and 729 A) executed by the Florentine artist, Clemente Susini. Also some dried injected preparations of the nerves and arteries of the upper and lower extremities, and the entire cuticle of the hand (*cheirotheca*) and foot (*podatheca*) of a Man, shed during a febrile attack; and portions of the Human corium or true skin, tanned. The durability of this tissue is exemplified by some portions of human skin which had been attached to church-doors from the period, according to tradition, of the Danish incursions in the ninth and tenth centuries. They are ascribed to pirates taken in the act of sacrilegiously plundering the sacred edifices.

The contents of the same side of the remaining three Cabinets (H, G, and F) have already been noticed.

On the side facing the Wall Cases, of Cabinets I, H, G and F, arranged in a continuous series, is the collection of Calculi and other Concretions from the Human subject and the lower animals. Special descriptions and analyses of the specimens will be found in the quarto 'Catalogue of the Calculi and other Animal Concretions,' in 2 vols.

The following is the arrangement adopted :—

PART I.

DIVISION I.

CALCULI FROM THE URINARY ORGANS OF MAN.

- | | | |
|---------------------------------------------------|---|---------------------------------------|
| Calculi of
which the
nucleus
consists of | { | A. Uric acid. |
| | | B. Urate of ammonia. |
| | | C. Oxalate of lime. |
| | | D. Cystic oxide. |
| | | E. Xanthic oxide. |
| | | F. Phosphate of lime. |
| | | G. Phosphate of magnesia and ammonia. |
| | | H. Mixed phosphates. |

DIVISION II.

CALCULI FROM THE URINARY ORGANS OF THE LOWER
ANIMALS.

- | | | |
|-------------------------------|---|---------------------------------------|
| Calculi
consist-
ing of | { | P. Uric acid and its compounds. |
| | | Urate of ammonia. |
| | | Urate of potass. |
| | | Q. Oxalate of lime. |
| | | Cystic oxide. |
| | | Xanthic oxide. |
| | | R. Diphosphate of lime. |
| | | S. Phosphate of magnesia and ammonia. |
| | | T. Mixed phosphates. |
| | | V. Carbonate of lime. |

PART II.

DIVISION I.

CALCULI FROM THE DIGESTIVE TRACT OF MAN.

I. *From the Biliary Organs.*

Calculi consisting of—

- A. Cholesterine.
- B. Colouring matter of the bile, &c.

- Ⓒ. Fatty acids.
- Ⓓ. Carbonate of lime.

II. *From the Salivary Organs.*

- Ⓔ. Phosphate with carbonate of lime.

III. *From the Stomach and Intestines.*

- Ⓕ. Animal hairs.
- Ⓖ. Vegetable hairs.
- Ⓗ. Various amorphous substances.

DIVISION II.

CALCULI FROM THE DIGESTIVE TRACT OF THE LOWER ANIMALS.

I. *From the Biliary Organs.*

- Ⓜ. Colouring matter of the bile.

II. *From the Salivary Organs.*

- Ⓟ. Carbonate with phosphate of lime.

III. *From the Stomach and Intestines.*

- Ⓢ. Animal hairs.
- Ⓟ. Vegetable hairs.
- Ⓡ. Ellagic acid (*Oriental Bezoar*).
- Ⓚ. Resino-bezoardic acid (*Occidental Bezoar*).
- Ⓢ. Phosphate of magnesia and ammonia.
- Ⓒ. Diphosphate of lime.
- Ⓤ. Diphosphate of magnesia.
- Ⓤ. Oxalate of lime.
- Ⓚ. Carbonate of lime.
- Ⓟ. Ambergris.

Beyond the Floor Cabinets, at the southern end of the Museum, are three pedestals, on which are placed—

- I. Two Human skeletons, male and female, the former five feet six inches, the latter five feet two inches in height.

II. No. 5905. The skeleton of Charles Byrne or O'Brian. The following record of his death is extracted from the 'Annual Register Chronicle,' June 1783, vol. xxvi. p. 209: "In Cockspur-street, Charing-cross, aged only 22, Mr. Charles Byrne, the famous Irish Giant, whose death is said to have been precipitated by excessive drinking. In August 1780 he measured eight feet; in 1782 he had gained two inches; and after he was dead, he measured eight feet four inches. Neither his father, mother, brother, nor any other person of his family was of an extraordinary size." The skeleton measures eight feet in height.

No. 5906. On the same pedestal, under a glass shade, is the skeleton of Caroline Crachami, the Sicilian Dwarf, born in or near Palermo in the year 1814. She was exhibited in various parts of England; and in Bond-street, London, during the summer of 1824, where she died in the tenth year of her age. The skeleton measures twenty inches in height.

In the bottom of the glass shade are wax models of her arm and foot; and a plaster-cast of her face is to be seen in the adjoining Wall Case XCVII.

III. A plaster-cast of a young male African negro, taken from the life, by Sartini.

Behind the pedestals are three glazed cases containing respectively (beginning with that on the left),—

I. No. 3367. The skeleton of a Man, thirty-nine years of age, which is very remarkable for the production of osseous growths from many parts, of various dimensions and extent; some forming exostoses merely, whilst others pass from one part of the skeleton to another, and have thus produced anchylosis or immobility of most of the members. The exostoses may be observed on the os frontis, mastoid process, and occiput, and in other parts of the skeleton where muscles are inserted; as near the angle of the lower jaw, where the masseter is inserted; at the extremities of the spines of the vertebræ; at the coronoid processes of the ulnæ; in the femur, at the part where the glutæus maximus is implanted, &c.

The second, and more extensive kind of ossifications, have

in general followed the course of the larger muscles; and may be seen, on the right side, in the situation of the deltoid, joining the clavicle and acromion of the scapula to the humerus; in the situation of the supra-spinatus; and passing from the inferior angle of the scapula to the humerus, in the situation of the teres major and latissimus dorsi. On the back, more extensive ossifications of the muscles appear, which affix the scapulæ on both sides to the sacrum and ilium, and to the spines of the lumbar and dorsal vertebræ. On the left scapula, the ossification of the teres major has not extended quite to the humerus, but the dorsum presents a singular process or ossification with smooth sides, and a flattened overhanging margin, like an auxiliary or second spine. From the pelvis, ossifications extend from the sacrum and ilium in the direction of the glutæus magnus; and from the tuber ischii and os pubis, in the course of the biceps and triceps adductor muscles. These extend to the right femur.

Ossifications of the tendinous and ligamentous parts appear to be still more common: producing ankylosis of the vertebræ; of the left elbow-joint; of the tibia and fibula to each other, on both sides; of the ankle-joints; and general coalescence of the bones of the tarsi.

II. In the central case are placed some very rare and interesting pathological specimens. Among them will be observed,—

No. 264. Two skulls united by their vertices, of a double-headed male Child, born in May 1783, at Mungulhaut, in the province of Burdwan in Bengal: the child was healthy and was more than four years old at the time of its death, which was occasioned by the bite of a Cobra de Capello. When born, the body of the child was naturally formed, but the head appeared double, there being, besides the proper head of the child, another of the same size, and to appearance almost equally perfect, attached to its upper part. This upper head was inverted, the two being united together by a firm adhesion between their crowns, but without any indentation at their union, there being a smooth continued surface from one

to the other. The face of the upper head was not over that of the lower, but had an oblique position, the centre of it being immediately above the right eye. When the child was six months old, both of the heads were covered with black hair, in nearly the same quantity. At this period the skulls seemed to have been completely ossified, except a small space between the ossa frontis of the upper one, like a fontanelle. The eyelids of the superior head were never completely shut, but remained a little open, even when the child was asleep, and the eyeballs moved at random. When the child was roused, the eyes of both heads moved at the same time; but those of the superior head did not appear to be directed to the same object, but wandered in different directions. The tears flowed from the eyes of the superior head almost constantly, but never from the eyes of the other except when crying. The superior head seemed to sympathise with the child in most of its natural actions. When the child cried, the features of this head were affected in a similar manner, and the tears flowed plentifully. When it sucked the mother, from the mouth of the superior head the saliva flowed more copiously than at any other time, for it always flowed a little from it. When the child smiled, the features of the superior head sympathised in that action. When the skin of the superior head was pinched, the child seemed to feel little or no pain, at least not in the same proportion as was felt from a similar violence being committed on its own head or body.

A full account of this remarkable case of monstrosity, with figures, may be found in the 'Philosophical Transactions,' vol. lxxx. p. 296.

No. 3093. The Skull of a Peruvian, in which all the bones of the face, as well as the frontal and adjacent parts of the sphenoidal and parietal bones, are in a remarkable manner enlarged and thickened. The nasal fossæ and the orbits are nearly closed up, the superior maxillary bones and the orbital portions of the malar and frontal bones having grown into great knobbed and tuberculated masses, in which their ori-

ginal form can hardly be discerned. The adjacent smaller and thinner bones, namely the lachrymal and the orbital and vertical plates of the ethmoid, are diseased in the same manner and in a corresponding degree. Of all the bones seen in the anterior aspect of the face, the left nasal bone and the orbital processes of the malar bones are alone unaffected. The hard palate is similarly diseased; its arch and nearly all the alveoli are obliterated. The posterior part of the vomer is half an inch in thickness, and the affection has extended in a slight degree to the pterygoid processes of the sphenoid bone. The great alæ of the sphenoid, all the frontal portion of the frontal bone, and the anterior parts of the parietal bones are similarly diseased, but the posterior half of the skull is healthy. The lower jaw is enormously enlarged at its right angle, and in the greater part of its right half it measures upwards of five inches in its circumference, and all but three of its alveoli are closed up.

The external surface of all the bones thus diseased is more or less coarsely knotted and tuberculated; it is hard and dense, and minutely perforated for the passage probably of numberless blood-vessels. A section has been made of the lower jaw, and shows that its interior is composed of an almost uniformly hard and compact but porous bone. Purchased at the sale of Mr. Brookes's Collection.

No. 3236 A. The bones of a Face with bony Tumours. The latter consist of two large masses of almost exactly symmetrical form and arrangement, but which have partially coalesced in the median line. They are of an irregularly rounded form, deeply lobed, and somewhat nodulated; they are nearly as hard and heavy as ivory, and their surfaces are perforated by numerous small apertures, apparently for the transmission of blood-vessels. Their interior, as far as it is exposed, consists of a very close cancellous tissue, bearing a general resemblance to that of true bone. They project more than three inches in front of the face, and an inch on each side beyond the malar bones: they completely fill both orbits, the cavities of the nose, and probably both the antra, and they

extend backwards as far as the pterygoid plates of the sphenoid bone. There is scarcely any vestige of the form of the face, except in the deep groove which separates the two chief masses of the tumours, and at the bottom of which a part of the septum of the nose is seen, and in the alveolar arch of the upper jaw, which remains perfect with several teeth implanted in it. The adjacent bones, in all the parts on which the tumours have encroached, are considerably thickened, so that some of them, as the left malar and the left orbital portion of the frontal bone, appear to form part of the morbid growths. From the Museum of Mr. Langstaff.

No. 3254 A. A Skull with the osseous base of a large Tumour connected with the bones of the right side of the jaw. The tumour had its origin in the antrum ; it was five years in progress, and in its growth it has destroyed all the right orbit except its roof, and has involved or destroyed the whole of the right malar, palate, and superior maxillary bones. The part which has remained after maceration consists of an oval mass of light cancellous bone, about 5 inches in its chief diameter, and very slightly connected with the remaining bones of the face. At its lowest part it preserves somewhat of the form of the alveolar border of the upper jaw, and the incisor, canine, and bicuspid teeth are implanted in it. A circular portion of the frontal bone, just above the right temple, is thin and perforated by several small apertures, apparently in consequence of the growth of a tumour from the dura mater. Purchased at the sale of Mr. Heaviside's Collection.

No. 3472. A popliteal aneurismal sac, from a man on whom John Hunter operated in St. George's Hospital, in December 1785.

This was the first successful case where the operation was performed according to Hunter's new method, for the cure of popliteal aneurism, by tying the vessel in the anterior part of the thigh, at some distance from the diseased part, "thereby to diminish the risk of hæmorrhage, and admit of the artery being more readily secured, should any accident happen :"

Hunter being also of opinion "that the force of the circulation being thus taken from the aneurismal sac, the progress of the disease would be stopped: and he thought it probable, that if the parts were left to themselves, the sac with its contents might be absorbed, and the whole of the tumour be removed; which would render an opening into the sac unnecessary."

"The patient was a coachman, forty-five years of age. The disease had first been perceived three years previous to his admission into the hospital, and had gradually increased during the whole of that period: he recovered from the operation and returned to his employment, but died from fever fifteen months afterwards. On examination, the cicatrix on the anterior part of the thigh was scarcely discernible: the ham had no appearance of tumour, and was, to the eye, exactly like that of the other limb; there was, however, a solid tumour perceptible to the touch, filling the hollow between the condyles. The femoral artery was impervious, from its giving off the arteria profunda as low as the part included in the ligature; and at that part there was an ossification for about an inch and a half along the course of the artery, of an oval form, the rim of which was solid, becoming thinner towards the centre, and not bony but ligamentous. Below this part the femoral artery was pervious down to the aneurismal sac, and contained blood, but did not communicate with the sac itself, having become impervious just at its entrance. What remained of the aneurismal sac was somewhat larger than a hen's egg, but more oblong, and a little flattened, extending along the artery for some way. The sac was perfectly circumscribed, not having the smallest remains of the lower orifice into the popliteal artery. The sac contained a solid coagulum of blood which adhered to its internal surface, and appeared to be composed of concentric lamellæ uniform in colour and consistence."

For a full account of the operation, see the 'London Medical Journal' for 1786, vol. vii. p. 391, and vol. viii. p. 126.

No. H 2. A Calculus taken after death from the bladder of

Sir Walter Ogilvie, Bart. It weighed forty-four ounces troy, and measured 16 inches around its long axis, and 14 inches around its short axis. This calculus was examined by Dr. Powell, and found "to consist of the triple phosphate of ammonia and magnesia with phosphate of lime and a large quantity of animal matter." The central portion was less fusible before the blowpipe than the general mass, and appeared to contain a large proportion of phosphate of lime.

An account of this enormous and very characteristic specimen of the *Fusible Calculus* is given by Sir James Earle in the 'Transactions of the Royal Society' for 1809, p. 303.

The third Case contains

No. 3489. The skeleton of an individual who died at the age of twenty-five, of Chronic Hydrocephalus with Curvature of the Spine. The cerebral cavity is enormously enlarged: the cranial bones, especially those of the right side, are much expanded and attenuated: the circumference of the skull is 48 inches. Innumerable ossa triquetra have been developed, especially in the course of the lambdoidal suture. The sagittal suture terminates before reaching the coronal suture, and the bregma is obliterated: in the situation of the coronal suture the cranium is somewhat protuberant, especially on the left side. The bones composing the base of the skull are not much increased in size. The outer periphery of the orbits is much increased; the deeper parts of these cavities are much diminished in consequence of the displacement of those portions of the bones of the cranium composing them. The bones of the face are unusually large. The curvature of the spine towards the right side diminishes the right cavity of the thorax, and causes the elevation of the right shoulder. The ribs and bones of the inferior and superior extremities are remarkably slender. The scapula and ossa ilia are diaphanous. There is considerable distortion of the pelvis, the right os innominatum being smaller and higher than the left. There is an irregular depression on the upper margin of the left thyroid foramen, between the left anterior inferior spinous process of the ilium

and the commencement of the os pubis, formed in consequence of dislocation of the head of the femur on that point. The posterior part of the head of the femur, which had occasionally occupied this new acetabulum, is flattened and irregular from absorption: there has also been occasional dislocation backwards of the right femur. The right trochanter minor and the left linea aspera are unusually prominent; the inferior extremities are bent and inclined towards the left side. There is imperfect union between the left tibia and fibula a little above the ankle-joint, and distortion outwards of the left foot. The patient was a male: at birth the head appeared larger than usual, and the skin was of a bluish colour. The size of the head rapidly increased till he attained the age of nine years, afterwards the increase became more gradual: the skin of the head was uncommonly smooth, and the eyebrows were elevated about an inch. The eyeballs appeared forced from their sockets. Sudden loss of sight took place at eight years of age, at which time the senses of hearing, smelling, and tasting were very acute, and the intellectual faculties not much impaired. His memory was good: he was subject to extreme irritability, starting from the slightest noise. He slept little, and was subject to occasional febrile attacks: he chiefly complained of the great weight of his head. *Vide* 'Annals of Medicine,' Edinburgh, vol. viii. p. 364. From the Museum of Mr. Liston.

Staircase and Galleries.

A STAIRCASE at the South end of the Museum leads to the Galleries.

On the first landing is placed the iron pivot of a try-sail mast, and two views of a seaman, through whose chest the blunt end of the pivot was driven. The following are the chief circumstances of this case:—John Taylor, a Prussian by birth, aged twenty, on board the brig *Jane* of Scarborough, in the London Docks: on Saturday, February 26th, 1831, while guiding the pivot of the try-sail mast into the main

boom, the tackle gave way ; the pivot passed obliquely through his body, apparently between the heart and left lung, in the course represented in the drawings, and penetrated the deck : the try-sail mast was 39 feet long, and about 600 lbs. in weight. He at the same time sustained various other injuries : his scalp was laid open ; his lower jaw and four ribs fractured ; parts of all which exfoliated. He was carried to the London Hospital, where in five months he had so far recovered from the effects of these injuries as to be enabled to walk from the Hospital to the College and back again. He ultimately returned to his duty as a seaman, and has twice, at intervals of about a year, revisited the College in a robust state of health.

On the second landing are two coloured plaster figures of Boschismen from South Africa, male and female, modelled from life. A small room, opening on to this landing, is appropriated to a collection of casts, exhibiting various abnormal conditions of the human body.

The GALLERIES IN THE WESTERN MUSEUM are entirely occupied by the specimens of Pathological Anatomy contained in bottles.

This Collection is arranged in two chief Sections. In the *first* are placed the specimens which illustrate the processes of Disease and of the Repair of Injuries in general ; in the *second*, those which illustrate the corresponding processes in each chief organ and texture of the body.

The following is an outline of the classification adopted in this department of the Museum, with references to the distinguishing numbers of the preparations contained in each division, and to the page of the Catalogue in which they will be found described. The series commences at the left-hand of the entrance to the LOWER GALLERY.

South Side.

SECTION I.—GENERAL PATHOLOGY.

	SERIES I.	Page*.	Number.
Hypertrophy		1	
By growth		2 ..	1 to 4
By development		5 ..	5
	SERIES II.		
Atrophy		6	
By decrease		7 ..	7, 8
By degeneration of tissue		8 ..	9, 10
	SERIES III.		
Repair and Reproduction :			
Sub-Series A.—Organization of Blood ..		9 ..	11 to 14
B.—Process of Healing :			
a. Formation and Structure of Granulations ..		12 ..	15 to 27
b. Formation and Structure of Cicatrices		16 ..	28 to 42†
C.—Reproduction of Parts ..		22 ..	43
D.—Transplantation or Grafting of Parts		22 ..	44 to 58
E.—Effects of Foreign Bodies		27 ..	59 to 70
	SERIES IV.		
Process and Effects of Inflammation		33	
Increased Vascularity .....		.. ..	71 to 73

* This has reference to the First Volume of the Pathological Catalogue, placed in the Gallery for the use of Visitors.

† No. 40 is the fore-part of the thorax or chest of a man who was impaled by the shaft of a chaise, which entered the chest under the left arm and came out under the right arm, being thrust through, by the violence of an unruly horse, as far as the first tug-hook, which also penetrated the chest and wounded the left lung. The portions of both lungs, condensed and agglutinated to the inner openings of the wounds by the effects of the inflammatory processes, are shown on the opposite side of the specimen. This accident occurred on the 13th of June, 1812: on the 25th he had so far recovered as to be pronounced out of danger, and the external wounds had healed at the end of nine weeks after the accident. He soon recovered his former health and strength, and lived eleven years after the injury.

The shaft which caused the wound is by the side of the preparation.

	Page.	Number.
Sub-Series A.—The Adhesive Inflammation	34	
a. Effusion of Lymph and Blood	34	.. 74 to 89
b. Organized Lymph, Adhesions, Thickening, &c.	40	.. 90 to 106
B.—The Suppurative Inflammation	45	.. 107 to 119
C.—The Ulcerative Inflammation	50	.. 120 to 129

SERIES V.

Mortification	56	
a. From mechanical injury	56	.. 130
b. From heat	56	.. 131 to 136
c. From cold	57	.. 137
d. From chemical action and escharotics	57	.. 138 to 140
e. From obstruction of large blood-vessels	59	.. 141
f. Dry gangrene	59	.. 142
Specific Diseases, references to examples of	60	

SERIES VI.

Tumours and other allied Morbid Growths	62	
Sub-Series A.—Cysts, or Encysted Tumours	62	
1. Simple Cysts with liquid contents	63	.. 143 to 152
2. Cysts containing Air .	66	.. 153 to 154
3. Cutaneous Cysts	66	.. 155 to 165
4. Compound Cysts	70	.. 165 to 166
5. Cysts containing Vascular Growths	72	.. 167 to 178
6. Cysts with uncertain contents	79	.. 179, 180
7. Various Contents of Cysts	79	.. 181

	Page.	Number.
8. Cysts with Bone-like deposits in their walls.....	79	.. 182 to 184
Sub-Series B.—Solid Tumours	80	
1. Fatty Tumours	81	.. 185 to 196
<i>West Side.</i>		
2. Cartilaginous and Osseous Tumours	85	.. 197 to 207 _A
3. Fibro-cellular Tumours	91	.. 207 _B to 216
4. Fibrous, Fibro-cystic, and Fibro-calcareous Tumours	96	.. 217 to 227
5. Osteoid Tumours	103	.. 228 to 230
6. Epithelial Tumours ..	104	.. 231, 232
7. Scirrhus Tumours ..	106	.. 233 to 251
8. Medullary Tumours..	113	
a. The Firm Variety .	113	.. 252
b. Spongy or Pulpy Variety	115	.. 253 to 272
c. Brain-like Variety .	123	.. 273 to 276
d. Cystic Variety	125	.. 277 to 281
e. Bloody Variety ..	127	.. 281 _A
f. Melanotic Variety .	128	.. 282 to 292
9. Alveolar Tumours ..	133	.. 293, 294
10. Tubercles.....	134	
Tuberculous Tumours	135	.. 294 _A
Circumscribed Infiltration	135	.. 295 to 297
Diffused Infiltration .	137	.. 298, 299
Ulceration, Degeneration, &c.	138	.. 299 _A to 301
Appendix A.—Tumours of uncertain nature	139	.. 301 _A to 307 _A
B.—Pendulous and loose Growths	142	.. 308 to 320

SECTION II.—PATHOLOGY OF SPECIAL TISSUES AND ORGANS.

SERIES VII.

Morbid Conditions of the Blood.....	1*
-------------------------------------	----

* Second Volume of the Pathological Catalogue.

	Page.	Number.
1. Clots formed of Blood drawn from the body	1 ..	321 to 325
2. Clots formed of Blood effused in the Body during life	2 ..	326, 327
3. Clots formed in the Heart and Vessels after death	2 ..	328 to 331
4. Clots formed in the Heart and Vessels during life	3 ..	332 to 340

SERIES VIII.

Injuries and Diseases of Muscles	9 ..	341 to 347
----------------------------------------	------	------------

SERIES IX.

Injuries and Diseases of Tendons	11 ..	348 to 363
----------------------------------------	-------	------------

SERIES X.

Diseases of Bursæ, Sheaths of Tendons, and similar parts	13	
A.—Diseased Bursæ, Synovial Sheaths, &c.	13 ..	364 to 368
B.—Loose Bodies removed from the same	14 ..	369 to 376

SERIES XI.

Injuries of Cartilage	15 ..	377, 378
Diseases of Cartilage referred to	15	

SERIES XII.

Injuries and Diseases of Bones:		
Sub-Series 1.—Hypertrophy	16 ..	379, 380
Sub-Series 2.—Atrophy (including Fatty Degeneration, Rickets, and Mollities Ossium)	16 ..	381 to 404
Sub-Series 3.—Section A.—Repair of Fractures in general	39	
a. The ordinary and simple process of the Repair of Fractures	39 ..	405 to 432
b. Structure of Callus	44 ..	433 to 436

	Page.	Number.
c. Deviations from the ordinary process	44	437 to 459
d. Fractures which have remained long unrepaired.....	50	460 to 470
e. Gun-shot, and other similar injuries	55	471 to 479
Sub-Series 3.—Section B.—Fractures of particular Bones:		
Bones of the Skull.....	57	480 to 484
Ribs	59	485, 486
Pelvis.....	59	487 to 490
Scapula and Clavicle	61	491 to 493
Humerus	61	494 to 497
Radius and Ulna	63	498 to 502
Bones of the Hand.....	65	503, 504
Femur	65	505 to 534
Patella	78	535 to 545
Tibia and Fibula	80	546 to 551
Sub-Series 4.		
Section A.—Inflammation of Bone with formation of New Bone.....	82	552, 553
Sub-Section a.—With superficial formation of New Bone	83	554 to 592
Sub-Section b.—Inflammation producing expansion of the Walls of a Bone, and subsequent induration	97	593 to 600
Sub-Section c.—Inflammation producing consolidation of cancellous tissue	103	601
Section B.—Inflammation with supuration in bone	103	602, 603
Section C.—Inflammation with ulceration in bone.....	104	
Superficial ulceration.....	105	604 to 606
Ulceration of articular parts of bones	106	607 to 617
Carious ulceration	109	618 to 625
Rheumatic ulceration	111	626, 627, 627A

	Page.	Number.
Syphilitic ulceration	112	.. 628 to 637
Malignant ulceration	119	.. 638 to 640
Sub-Series 5.—Necrosis	120	
Section A.—Necrosis in general ..	123	.. 641 to 655
a. Separation of the Periosteum ..	126	.. 656, 657
b. Formation of new bone	127	.. 658 to 661
c. Formation of the Groove between the dead and living bone	128	.. 662 to 675
d. Advanced formation of new bone	131	.. 676
e. Changes in the dead bone ..	132	.. 677, 678
f. Formation of new bone on portions of the old bone	132	.. 679 to 686
g. Necrosis of the middle or inner layers of the wall of a bone ..	136	.. 687, 688
h. Necrosis of cancellous tissue ..	137	.. 689 to 695
i. Necrosis of articular portions of bones	139	.. 696 to 700
j. Necrosis of diseased bone	140	.. 701 to 705
k. Double Necrosis	141	.. 706 to 709
l. Necrosis from peculiar causes ..	143	.. 710 to 715
Section B.—Necrosis of particular Bones :		
Bones of the Skull	146	.. 716 to 718
Bones of the Face	149	.. 719 to 724
Ribs	150	.. 725, 726
Clavicle	150	.. 728
Bones of the Arm and Hand ..	151	.. 729 to 737
Femur	153	.. 738 to 742
Tibia	156	.. 743 to 755 _A
Fibula	160	.. 756 to 758
Bones of the Foot	160	.. 759 to 771

North Side.

Sub-Series 6.—Tumours of Bones :

1. Cartilaginous Tumours
2. Cartilaginous Tumour ossified :
 - a. Cancellous and with Medulla

	Page.	Number.
b. Compact and hard.....	171 ..	793 to 796
c. Growths like Osseous Tumours.....	173 ..	797 to 800
3. Fibrous Tumours	174 ..	801 to 805
4. Osteoid Tumours	176 ..	806 to 816
5. Hard Cancer	182 ..	817 to 823
6. Medullary Cancer	184 ..	824 to 852
7. Alveolar Cancer	197 ..	853
8. Tubercle	197 ..	854, 855
9. Bones altered by the Growth of Tumours.....	198 ..	856 to 859
10. Various growths and deposits ..	200 ..	860 to 862 _A
Sub-Series 7.—Entozoa in Bone	201 ..	863, 864

SERIES XIII.

Injuries and Diseases of Joints :

Sub-Series 1.—Dislocations by External Violence :

Upper Extremity	202 ..	865 to 878
Lower Extremity	208 ..	879 to 884
Sub-Series 2.—Diseases	211	
Section A.—Diseases of the Synovial Membrane	212 ..	885 to 899
Section B.—Diseases of Articular Cartilages.....	215 ..	900 to 927
Suppurative Diseases of the Hip-Joint	225 ..	928 to 941
Fibrous Degeneration of Articular Cartilage.....	231 ..	942 to 951
Section C.—Tumours in Joints.....	234 ..	952
Section D.—Pendulous and Loose Bodies in Joints.....	235 ..	953 to 957
Section E.—Gouty Deposits in Joints ..	237 ..	958 to 965
Section F.—Osseous Ankylosis	239 ..	966 to 970
Section G.—Dislocation after Disease .	241 ..	971 to 974

SERIES XIV.

Injuries and Diseases of the Vertebral Column :

Atrophy	243 ..	975, 976
---------------	--------	----------

	Page.	Number.
Fracture and Dislocation	243 ..	977 to 986
Ulceration	248 ..	987 to 999
Necrosis	254 ..	1000

SERIES XV.

Injuries and Diseases of the Teeth	1*	..	1001 to 1026
1. Fractures	1	..	1001
2. Decay	2	..	1002 to 1009
3. Enlargement of the Fangs	3	..	1010 to 1012
4. Gum-boil	4	..	1013
5. "Scurvy in the Gums"	4	..	1014
6. Tartarous deposits	5	..	1015 to 1018
7. Irregularity and Malformation..	6	..	1019 to 1022
8. Transplantation	6	..	1023 to 1026

SERIES XVI.

Tumours of the Jaws	8	..	1027 to 1059
1. Epulis, or fibrous Tumour of the Gum	8	..	1027 to 1032
2. Cystic Tumours of the Jaws ..	11	..	1033
3. Cartilaginous and Osseous Tu- mours	11	..	1034 to 1039
4. Fibrous Tumours	13	..	1040 to 1052
5. Medullary Tumours	19	..	1053 to 1059

East Side.

SERIES XVII.

Injuries and Diseases of the Lips and Cheeks	22	..	1060 to 1063
-------------------------------------------------------	----	----	--------------

SERIES XVIII.

Injuries and Diseases of the Tongue	23	..	1064 to 1069
------------------------------------------	----	----	--------------

SERIES XIX.

Injuries and Diseases of the Palate, Tonsils, and Fauces	25	..	1070 to 1073
-------------------------------------------------------------------	----	----	--------------

* Third Volume of the Pathological Catalogue.

SERIES XX.

	Page.	Number.
Injuries and Diseases of the Pharynx and		
Esophagus	26 ..	1074 to 1108
Hydrophobia	26 ..	1074, 1075
1. Foreign bodies	28 ..	1076, 1077
2. Simple Stricture	28 ..	1078 to 1085
3. Dilatation	31 ..	1086
4. Ulceration	32 ..	1087 to 1089
5. Polypi and Innocent Tumours .	33 ..	1090, 1091
6. Cancer	33 ..	1092 to 1108

SERIES XXI.

Injuries and Diseases of the Peritoneum .	39 ..	1109 to 1138
1. Dropsy	39 ..	1109
2. Peritonitis and its consequences	39 ..	1110 to 1120
3. Cysts and Tumours	45 ..	1121 to 1131
4. Entozoa	48 ..	1132 to 1138

SERIES XXII.

Injuries and Diseases of the Stomach	51 ..	1139 to 1175
1. Digestion after Death.....	51 ..	1139
2. Foreign Bodies	51 ..	1140, 1141
3. Effects of Poisons	53 ..	1142 to 1147
4. Ulceration	56 ..	1147 _A to 1158
Superficial	56 ..	1147 _A
Hæmorrhagic .....	.. ..	1148, 1149
Perforating .....	.. ..	1152 to 1158
5. Tumours and Cancers .....	.. ..	1159 to 1175
Fibrous Tumours.....	.. ..	1159
Hard Cancer	61 ..	1160 to 1164
Soft Cancer	62 ..	1165 to 1175

SERIES XXIII.

Injuries and Diseases of the Intestines ..	67 ..	1176 to 1252
1. Simple Strictures	67 ..	1176
2. Dilatation	67 ..	1177
3. Injuries by Violence	68 ..	1178 to 1181
4. Foreign Bodies	70 ..	1182 to 1187

	Page.	Number.
5. Inflammation of the Mucous Membrane	72 ..	1188 to 1190
6. Effusion of Lymph and other effects of Inflammation	73 ..	1191 to 1193
7. Ulceration	74 ..	1194 to 1219
Hæmorrhagic	75 ..	1194 to 1196
Superficial	76 ..	1197, 1198
Follicular	76 ..	1199
Perforating	77 ..	1200, 1201
Dysenteric	78 ..	1202 to 1210
Typhous	81 ..	1211 to 1219
8. Cancer	84 ..	1220 to 1226
9. Tubercle	86 ..	1227 to 1233

Appendix.—Peculiar Diseases of certain parts of the Intestines:

a. Diseases of the Peyer's and Solitary Glands	88 ..	1234 to 1246
b. Diseases of the Ileo-Cæcal Valve	93 ..	1247 to 1249
c. Diseases of the Cæcum and its Appendix, and of parts of the Colon	94 ..	1250 to 1252

SERIES XXIV.

Diseases of the Rectum and Anus	95 ..	1253 to 1284A
1. Simple Stricture of the Rectum	95 ..	1253 to 1256
2. General thickening and induration	97 ..	1257
3. Abscess and Fistula	99 ..	1258 to 1263
4. Warts and other Innocent Growths	101 ..	1264
5. Cancer	101 ..	1265 to 1276
6. Hæmorrhoids	109 ..	1277 to 1284A

SERIES XXV.

Hernia	111 ..	1285 to 1363
Section I.—Anatomy of Hernia in general:		
a. Of the sac	111 ..	1285 to 1293
b. Of the contents of the sac	115 ..	1294 to 1311

	Page.	Number.
Section II.—Anatomy of particular forms of Hernia:		
A. Of the parts concerned in Inguinal Hernia	120	.. 1312 to 1315
B. Inguinal Hernia	122	.. 1316 to 1344
a. Incomplete	122	.. 1316 to 1319
b. Oblique	124	.. 1319 to 1323
c. Direct	125	.. 1324
d. Various	126	.. 1325 to 1330
e. From Animals	127	.. 1331 to 1334
f. Complicated with other diseases	127	.. 1335 to 1341
g. Congenital	130	.. 1342 to 1344
C. Femoral Hernia	130	.. 1345 to 1350
D. Umbilical and Ventral Hernia	132	.. 1351 to 1358
E. Obturator Hernia	135	.. 1359
Section III.—Internal Strangulation ..	135	.. 1360 to 1363

SERIES XXVI.

Introsusception and Prolapsus Recti	137	.. 1364 to 1382
------------------------------------------	-----	-----------------

SERIES XXVII.

Artificial Anus	146	.. 1383 to 1390
-----------------------	-----	-----------------

SERIES XXVIII.

Injuries and Diseases of the Liver	152	.. 1391 to 1439
1. Injury by Violence	152	.. 1391
2. Fatty Degeneration	152	.. 1392
3. Induration and Contraction, Cirrhosis	153	.. 1393 to 1396
4. Abscess	154	.. 1397 to 1399
5. Cancer	156	.. 1400
a. Hard Cancer	156	.. 1400
b. Medullary Cancer	157	.. 1401 to 1408
c. Melanosis	158	.. 1409 to 1411
6. Tubercle	159	.. 1412 to 1415
7. Entozoa	160	.. 1416 to 1437
8. Diseases of the Blood-vessels of the Liver	163	.. 1438, 1439

SERIES XXIX.

	Page.	Number.
Diseases of the Gall Bladder and Ducts	164	.. 1440 to 1461
1. Hypertrophy	164	.. 1440
2. Effects of Inflammation	164	.. 1441 to 1443
3. Effects of Calculous Concretions	165	.. 1444 to 1461

SERIES XXX.

Diseases of the Pancreas	169	.. 1462 to 1462B
--------------------------------	-----	------------------

SERIES XXXI.

Diseases of the Lacteal and Lymphatic Vessels and Glands	170	.. 1463 to 1477
1. Enlargement and Induration	170	.. 1463 to 1466
2. Calcareous deposits	170	.. 1467 to 1470
3. Cancer	171	.. 1471 to 1473
4. Tubercle	172	.. 1474 to 1477

SERIES XXXII.

Injuries and Diseases of the Spleen	173	.. 1478 to 1494
1. Injury by violence	173	.. 1478 to 1480
2. Abscess	175	.. 1481
3. Cysts	175	.. 1482, 1483
4. Cancer	175	.. 1484
5. Tubercle	175	.. 1485 to 1487
6. Entozoa	176	.. 1488 to 1490
7. Diseases of the Capsule of the Spleen.....	177	.. 1491 to 1494

SERIES XXXIII.

Diseases of the Thyroid Gland	177	.. 1495 to 1506
1. Enlargement: Bronchocele ..	177	.. 1495 to 1504
2. Cancer	181	.. 1505, 1506

South Side.

SERIES XXXIV.

Diseases of the Pericardium and of the Heart and its Valves	182	.. 1507 to 1564
Sub-Series A.—Diseases of the Peri- cardium	182	.. 1507 to 1516

	Page.	Number.
Sub-Series B.—Diseases of the Sub-		
stance of the Heart	185	.. 1516A to 1536
1. Hypertrophy	185	.. 1516A to 1516c
2. Atrophy	186	.. 1517 to 1519
3. Rupture	187	.. 1520 to 1522
4. Aneurysm	188	.. 1523 to 1526
5. Tumours and various morbid		
deposits	190	.. 1527 to 1533
6. Entozoa	193	.. 1534 to 1536
Sub-Series C.—Diseases of the		
Valves of the Heart	194	.. 1537 to 1563
1. Superficial deposits of Lymph:		
Vegetations	194	.. 1537 to 1540
2. Thickening, Adhesion, Con-		
traction, &c.	195	.. 1541 to 1549
3. Earthy Deposits	200	.. 1550 to 1557
4. Ulceration	202	.. 1558 to 1563
SubSeries D.—Diseases of the Blood-		
Vessels of the Heart	204	.. 1564

SERIES XXXV.

Injuries and Diseases of Arteries	205	.. 1565 to 1718
1. Wounds and other Injuries by		
External violence	205	.. 1565 to 1571
2. Rupture by Force from within	208	.. 1572, 1572A
3. Healing of Wounds and other		
similar Injuries	209	.. 1573 to 1577
4. Effects of Ligatures on Arteries	211	.. 1578 to 1585
5. Failure of the process for the		
closure of a tied Artery	213	.. 1586 to 1590
6. Restoration of the Circulation		
after the obliteration of an		
Artery	215	.. 1591 to 1596
7. Thickening of the Internal		
Coat, with deposits of fatty		
and earthy Matter	221	.. 1597 to 1620
7A. Illustrations of this Disease		
in particular Arteries	231	.. 1621 to 1633

The remainder of the Pathological Collection is arranged in the UPPER GALLERY, commencing on the left hand of the entrance door.

South Side.

	Page.	Number.
8. Aneurysms and Aneurysmal Dilatations	234 ..	1634 to 1712
A. Cylindriform Aneurysmal Dilatation	235 ..	1634 to 1638
B. Sacculated Aneurysmal Dilatation	237 ..	1639 to 1642
C. Aneurysms	239 ..	1643 to 1647
D. Aneurysms and Aneurysmal Dilatations of particular Arteries :		
1. Of the Intra-pericardial portions		
of the Arch of the Aorta	241 ..	1648 to 1651
2. Of the Extra-pericardial portion	244 ..	1652 to 1672
3. Of the Thoracic Aorta	255 ..	1673 to 1675
4. Of the Abdominal Aorta	256 ..	1676 to 1679
5. Of the Innominate Artery	258 ..	1680 to 1684
6. Of the Carotid Arteries	260 ..	1685 to 1690
7. Of the Subclavian and Axillary Arteries, and their Branches ..	264 ..	1691 to 1697
8. Of Branches of the Abdominal Aorta	267 ..	1698
9. Of the Iliac Arteries and their Branches	268 ..	1699 to 1701
10. Of the Popliteal Artery	270 ..	1702 to 1712
9. Contractions and obliterations of Arteries by the effects of Disease	273 ..	1713 to 1716
10. Tumours	274 ..	1717, 1718
Table of References to other specimens of Diseases of Arteries	275	

SERIES XXXVI.

Injuries and Diseases of the Veins	277 ..	1719 to 1746
1. Enlargement and Dilatation	277 ..	1719 to 1721
2. Effects of Inflammation	277 ..	1722 to 1736
3. Morbid states in connexion with Tumours	285 ..	1737 to 1741
4. Concretions : Phlebolithes	286 ..	1742 to 1746

West Side.

SERIES XXXVII.

	Page.	Number.
Injuries and Diseases of the Pleura and Lungs	1* ..	1747 to 1820
Section A.—Of the Pleura	1 ..	1747 to 1761
1. Wounds	1 ..	1747
2. Effects of Adhesive Inflammation ..	2 ..	1748 to 1755
3. Suppuration: Empyema	4 ..	1756 to 1760
4. Cancer	6 ..	1761
Section B.—Of the Lungs	6 ..	1762 to 1820
1. Wounds and other Mechanical Injuries	6 ..	1762 to 1768
2. Emphysema:		
a. Vesicular Emphysema	10 ..	1769 to 1777
b. Subpleural and Interlobular ..	12 ..	1778, 1779
3. Hæmorrhage: Pulmonary Apoplexy	12 ..	1780 to 1785
4. Effects of Pneumonia	14 ..	1786, 1787
5. Gangrene	14 ..	1788
6. Tumours and allied Morbid Deposits:		
a. Osteoid	15 ..	1789
b. Cancer	15 ..	1790 to 1796
7. Tubercle: Phthisis pulmonalis	18 ..	1797 to 1811
8. Entozoa	24 ..	1812 to 1814
9. Uncertain diseases	24 ..	1815 to 1820

SERIES XXXVIII.

Injuries and Diseases of the Larynx, Trachea, and Bronchi	26 ..	1821 to 1864
1. Wounds	26 ..	1821, 1822
2. Foreign bodies	26 ..	1823, 1824
3. Diseases of the Cartilages	27 ..	1825 to 1833
4. Diseases of the Mucous Membrane:		
a. Œdema	28 ..	1834 to 1836
b. Thickening and Induration ..	30 ..	1837
c. Superficial deposits of Lymph:		
Croup	31 ..	1838 to 1848
d. Ulceration	34 ..	1849 to 1858
5. Tumours and allied morbid growths	38 ..	1859 to 1864

* Fourth Volume of the Pathological Catalogue.

SERIES XXXIX.

	Page.	Number.
Diseases of the Kidneys	40 ..	1865 to 1961
1. Hypertrophy and Atrophy	40 ..	1865 to 1873
2. Suppression of secretion	42 ..	1874, 1875
3. Dilatation or Expansion	42 ..	1876 to 1885
4. Granular Degeneration: Bright's disease	45 ..	1886, 1887
5. Suppuration	46 ..	1888 to 1894
6. Cysts	48 ..	1895 to 1904
7. Cancer	52 ..	1905 to 1912
8. Tubercle	54 ..	1913 to 1920
9. Entozoa	56 ..	1921 to 1925 ^A
10. Diseases of the Renal Blood-vessels	64 ..	1926
11. Diseases of the Renal Pelvis and Ureter:		
a. Stricture and Dilatation	66 ..	1927 to 1929
b. Effects of Inflammation	66 ..	1930 to 1933
c. Effects of Renal Calculi	67 ..	1934 to 1961

SERIES XL.

Injuries and Diseases of the Urinary Bladder	73 ..	1962 to 2045
1. Hypertrophy	73 ..	1963 to 1965
2. Rupture and over-distention	74 ..	1966 to 1968 ^A
3. Hernia	75 ..	1969, 1970
4. Partial dilatation:		
a. Of all the Coats	75 ..	1971 to 1978
b. Of the Mucous and Cellular Coats	81 ..	1979 to 1985
5. Inflammation and Ulceration	83 ..	1986 to 1994
6. Inflammation of the tissues around the Bladder	85 ..	1995 to 1998
7. Tumours:		
a. Polypi	87 ..	1999 to 2001
b. Cancer	91 ..	2002 to 2009
c. Tubercle	96 ..	2010
8. Bladders containing Calculi	96 ..	2011 to 2030
9. Bladders after Lithotomy and Litho- trity	103 ..	2031 to 2040

	Page.	Number.
10. Bladders tapped for Retention of Urine	106	2041 to 2045
SERIES XLI.		
Injuries and Diseases of the Brain	109	2046 to 2095
1. Injuries by violence	109	2046 to 2049
2. Effusion of Blood: Apoplexy	110	2050 to 2058
3. Condition in Fever	112	2059, 2060
4. Suppuration	112	2061 to 2067
5. Cancer	114	2068 to 2078
6. Tubercle	118	2079 to 2083
7. Entozoa	119	2084 to 2090
8. Uncertain diseases	120	2091, 2092
9. Diseases of the Cerebral Blood- vessels	122	2093 to 2095
SERIES XLII.		
Injuries and Diseases of the Membranes of the Brain	123	2096 to 2153
1. Injuries	123	2096 to 2106 _a
2. Effusion of Blood: Apoplexy	125	2107 to 2113
3. Inflammation	128	2114 to 2120
4. Tumours and allied morbid growths:		
a. Cysts	129	2121, 2122
b. Osseous or bone-like growths	130	2123 to 2132
c. Fibrous Tumours	132	2133
d. Cancer	133	2134 to 2141
e. Uncertain Tumours	135	2142, 2143
Appendix A.—Diseases of the Cerebral Ventricles	137	2144 to 2146
Appendix B.—Diseases of the Choroid Plexus	139	2147 to 2153
SERIES XLIII.		
Injuries and Diseases of the Spinal Cord and its Membranes	140	2154 to 2159
SERIES XLIV.		
Injuries and Diseases of the Nerves	142	2160 to 2192
1. Atrophy	142	2160 to 2162

	Page.	Number.
2. Injuries	143	.. 2163 to 2175
3. Effects of Inflammation	146	.. 2176 to 2182
4. Partial or gangliform Enlargement	148	.. 2183 to 2185
5. Tumours	149	.. 2186 to 2192

SERIES XLV.

Diseases of the Nose	153	.. 2193 to 2210A
1. Syphilitic Ulceration	153	.. 2193 to 2195
2. Glanders	154	.. 2196 to 2198
3. Polypi and other Tumours	155	.. 2199 to 2210A

SERIES XLVI.

Diseases of the Ear	158	.. 2211 to 2217
---------------------------	-----	-----------------

SERIES XLVII.

Injuries and Diseases of the Eye	159	.. 2218 to 2266
1. Diseases of the Conjunctiva	159	.. 2218 to 2220
2. „ Cornea and Sclerotica	160	.. 2221 to 2223
3. „ Iris	161	.. 2224, 2225
4. „ Choroid Membrane	161	.. 2226
5. „ Retina	162	.. 2227 to 2231
6. „ Vitreous Humour	163	.. 2232
7. „ Lens and its capsule	164	.. 2233 to 2237A
8. „ whole globe	165	.. 2238, 2239
9. Cancer of the Eye	167	.. 2240 to 2259
a. Melanosis	173	.. 2253 to 2259
10. Tumours in the Orbit	175	.. 2260, 2261
11. Uncertain diseases	176	.. 2262
Sub-Series A.—Diseases of the Append- ages of the Eye	177	.. 2263 to 2266

SERIES XLVIII.

Diseases of the External Integuments, the Skin, and its Appendages	178	.. 2267 to 2323
1. Œdema	178	.. 2267
2. Elephantiasis	178	.. 2268 to 2270
3. Ulceration	179	.. 2271, 2272
4. Small-pox	179	.. 2273 to 2277A
5. Warts	180	.. 2278 to 2282

	Page.	Number.
6. Cutaneous and Adipose growths, including Hypertrophy	181 ..	2283 to 2290
7. Sebaceous and other Cysts	182 ..	2291 to 2299
8. Horn-like growths	183 ..	2300
9. Cancer	184 ..	2301 to 2304
10. Confervoid growths	185 ..	2305
11. Gouty and other unorganized deposits	185 ..	2306, 2307
Appendix A.—Diseases of the Epidermis	185 ..	2308 to 2315
1. Pityriasis	185 ..	2308, 2308A
2. Corns.....	186 ..	2309 to 2315
Appendix B.—Diseases of the Hair	187 ..	2316, 2317
,, C. ,, Nails		
and their Matrices.....	187 ..	2318 to 2323

SERIES XLIX.

Diseases of the Testicle and its Coverings..	189 ..	2324 to 2465
Sub-Series A.—Diseases of the Membranes of the Testicle	189 ..	2324 to 2370
1. Hydrocele	189 ..	2324 to 2334
a. Varieties and Complications of Hydrocele	191 ..	2335 to 2337
b. Effects of Operations for Hydrocele	192 ..	2338 to 2342

North Side.

2. Hæmatocele	195 ..	2343 to 2350
3. Inflammation	198 ..	2351 to 2364
4. Cysts.....	200 ..	2365, 2366
5. Loose bodies in the Tunica Vaginalis	201 ..	2367 to 2370
Sub-Series B.—Diseases of the Testicle..	202 ..	2371 to 2435
1. Atrophy.....	202 ..	2371 to 2374
2. Effects of Inflammation	203 ..	2375 to 2378
3. Protrusion; Fungus Testis	204 ..	2379 to 2383
4. Tumours and allied morbid growths:		
a. Cartilaginous Tumours	205 ..	2384 to 2386
b. Fibrous and Cystic	206 ..	2387 to 2392

	Page.	Number.
c. Medullary	208 ..	2393 to 2417
d. Tubercle	217 ..	2418 to 2429
5. Uncertain diseases	220 ..	2429A to 2435
Appendix A.—Diseases of the Epi-		
didymis	222 ..	2436 to 2454
1. Enlargement and Induration	222 ..	2436 to 2441
2. Cysts and Pedunculated		
Growths	223 ..	2442 to 2450
3. Cancer	224 ..	2451
4. Tubercle	225 ..	2452 to 2454
Appendix B.—Injuries and diseases		
of the Spermatic Cord	225 ..	2455 to 2465
1. Injuries	225 ..	2455
2. Cysts	226 ..	2456 to 2459
3. Hæmatocele	227 ..	2460
4. Tumours	227 ..	2461 to 2463
5. Varicocele	229 ..	2464, 2465

SERIES L.

Diseases of the Scrotum	230 ..	2466 to 2470*
-------------------------------	--------	---------------

* SERIES LI.

Diseases of the Vesiculæ Seminales	231 ..	2471, 2472
------------------------------------------	--------	------------

SERIES LII.

Diseases of the Prostate Gland	232 ..	2473 to 2527
1. Enlargement :		
a. Uniform	232 ..	2473 to 2477
b. Affecting especially the lateral		
lobes	234 ..	2478 to 2485
c. Affecting especially the middle		
lobe	238 ..	2486 to 2498
d. Affecting especially the anterior		
part	245 ..	2499

* No. 2466. An enormous enlargement of the scrotum and of the integuments of the penis and prepuce, removed by operation. The mass before its removal measured 42 inches in circumference; after removal it weighed 44½ lbs. It had been growing 12 years. The patient was 22 years old. He recovered rapidly and completely after the removal of the parts.—*From the Museum of R. Liston, Esq.*

	Page.	Number.
e. With peculiar deformity	245	2500 to 2505
f. With wounds by instruments..	249	2506 to 2513
2. Abscess and ulceration	253	2514 to 2516
3. Tumours and allied morbid growths	255	2517, 2518
4. Calculi in the prostatic ducts	256	2519, 2520
5. Effects of Calculi in prostatic part of the Urethra	256	2521 to 2527

SERIES LIII.

Injuries and Diseases of the Urethra	260	2528 to 2581
1. Stricture	260	2528 to 2536
a. Accidental Complications of Stricture	264	2537 to 2541
2. Ulceration in consequence of Stric- ture of the Urethra	267	2542 to 2548
3. Inflammation in the parts surround- ing the Urethra	270	2549 to 2552
4. Fistulae in Perinaeo	273	2553 to 2560
5. Effects of the treatment of Strictures	276	2561 to 2574
6. Ulceration	281	2575, 2576
7. Morbid growths	281	2577 to 2580
8. Calculi	282	2581

SERIES LIV.

Diseases of the Penis	283	2582 to 2615
1. Phimosis and Paraphimosis	283	2582 to 2587
2. Diseases of the Præputial Secretion.	284	2588 to 2590
3. Syphilitic eruptions and Ulcers	284	2591 to 2605
4. Warts	287	2606
5. Cancer	287	2607 to 2615

SERIES LV.

Diseases of the Ovaries	289	2616 to 2642A
1. Simple Cysts	289	2616 to 2620
2. Compound Cysts	290	2621 to 2623

East Side.

3. Cysts containing fat, hair, teeth, &c.	291	2624 to 2632
4. Enlargement of Ovisacs	293	2633, 2634
5. Tumours	294	2635 to 2642A

SERIES LVI.

	Page.	Number.
Diseases of the Fallopian Tubes or Viaducts	296 ..	2643 to 2652
1. Obstruction and Dilatation	296 ..	2643 to 2646
2. Cysts and Tumours	297 ..	2647 to 2652

SERIES LVII.

Diseases of the Uterus	298 ..	2653 to 2705
1. Displacements	298 ..	2653, 2654
2. Obliteration of the Orifice or of the Cavity.....	302 ..	2655, 2656
3. Cysts	302 ..	2657 to 2659
4. Polypi and other Tumours:		
a. Mucous or Gelatinous Polypi..	303 ..	2660 to 2663
b. Fibrous and Fibro-calcareous Tumours	304 ..	2664 to 2695
c. Cancer	312 ..	2696 to 2705

SERIES LVIII.

Diseases of the Vagina and External Organs of Generation in the Female	316 ..	2706 to 2717
1. Effects of Inflammation	316 ..	2706, 2707
2. Enlargement	316 ..	2708 to 2714
3. Tumours	318 ..	2715
4. Cancer	318 ..	2716, 2717

SERIES LIX.

Injuries and Diseases incidental to Gestation and Parturition	319 ..	2718 to 2740
1. Malposition of the Fœtus	319 ..	2718, 2719
2. Retention of the Fœtus	319 ..	2720 to 2733
3. Retention of the Placenta.....	323 ..	2734
4. Rupture of the Uterus	323 ..	2735 to 2737
5. Fistulæ	324 ..	2738 to 2740

SERIES LX.

Diseases of the Breast	326 ..	2741 to 2812
1. Obstruction and Dilatation of Lacti- ferous Ducts	326 ..	2741 to 2748
2. Simple Cysts	328 ..	2749 to 2757
3. Cysts containing growths; Sero- cystic Sarcoma	329 ..	2758 to 2771

4. Fibro-Cellular (Chronic Mammary) Tumours	Page. 334 ..	Number. 2772 to 2783
5. Cancer:		
a. Hard Cancer	338 ..	2784 to 2794
b. Medullary Cancer	341 ..	2795, 2796
c. Uncertain Tumours	342 ..	2797 to 2809
6. Entozoa	343 ..	2810
7. Diseases of the Blood-vessels of the Mammary Gland	344 ..	2811, 2812

SERIES LXI.

Anatomy of Stumps after Amputation of Limbs	344 ..	2813 to 2833
---------------------------------------------------	--------	--------------

The remaining shelves of this Gallery are occupied by the specimens in spirit of

MONSTERS AND MALFORMATIONS.

SERIES I. <i>Præternatural Situation of Parts.</i>	Nos. of Preparations.
Sub-Series 1. Without deficiency	1 to 6
2. With deficiency	7 to 12
SERIES II. <i>Addition of Parts.</i>	
Sub-Series 1. Head	13 to 14
2. Trunk and Extremities	35 to 50
3. Organs of Circulation	51
4. Organs of Digestion	52 to 53
5. Urinary and Generative Organs ..	54 to 63
SERIES III. <i>Deficiency of Parts.</i>	
Sub-Series 1. Head	64 to 91
2. Trunk and Extremities	92 to 125
3. Organs of Circulation	126 to 133
4. Organs of Digestion	134 to 135
5. Urinary and Generative Organs ..	136 to 146
6. Brain and Nerves	147 to 158
7. Deficiency with Addition	159 to 181
8. Deficiency with Union, or Præternatural Connexion	182 to 227
9. Vegetable Monstrosity	228 to 235
SERIES IV. <i>Hermaphroditical Malformation</i>	236 to 263

In this Department the following specimens are particularly worthy of attention.

No. 7. A Female monstrous foetus, found in the abdomen of Thomas Lane, a lad between fifteen and sixteen years of age, at Sherborne in Dorsetshire, June 6th, 1814. The particulars of the case, as recorded by Nathaniel Highmore, Esq., the donor of the specimen, are given in the Catalogue.

No. 8. An imperfectly formed Male foetus, found in the abdomen of John Hare, an infant between nine and ten months old, born on the 8th of May, 1807. The history of the case is given at length in a paper in the Medico-Chirurgical Transactions, vol. i. p. 234, by the donor, George W. Young, Esq.

No. 195. A Human female twin-monster, the bodies of which are united crosswise, sacrum to sacrum; the mother was between sixteen and seventeen years of age, and was delivered of the above in the year 1815, without any particular difficulty. A detailed account of the case, and the anatomy of the monster are given in the Quarto Volume, entitled "Catalogue of Monsters and Malformations," which is placed near the specimens for the use of Visitors.

The dried preparations belonging to this series are contained in Wall Case CIII. of this Museum (see p. 23).

MIDDLE MUSEUM.

Ground Floor.

The Ground Floor of this apartment is entirely devoted to the Fossil Remains of extinct Animals and Plants. This collection is a section of the great department of physiological or natural structures, which originated in Hunter having clearly seen that a complete exposition of the laws of Life must include examples of the mode in which they are manifested, not only at the present moment, but at every period since the earth first became peopled with living beings. Although fossil remains of animals exhibit only certain portions of their organization, in many cases quite sufficient has been preserved to enable the scientific anatomist to deduce inferences as to their general structure, habits, food, &c., and also to derive important conclusions as to the condition of the earth's surface in the period at which they lived.

In order to give a complete illustration of all the more remarkable forms, wherever original specimens could not be procured, coloured casts of the best-preserved and most characteristic examples in other museums are exhibited.

A full description of the specimens will be found in four volumes of the Catalogue, entitled respectively "Catalogue of the Fossil Organic Remains of Plants," "— of Invertebrata," "— of Reptilia and Pisces," "— of Mammalia and Aves," placed in the room for the use of Visitors.

In the doorway from the Western Museum is

No. 428. A large slab of New Red Sandstone, which shows on the under surface (as it lay *in situ*) many casts in relief of cavities which had been impressed on the argillaceous shale on which it rested, and on which it had been deposited in the condition of moist or disintegrated sand. Most of the impressions are foot-prints of animals, some apparently of a five-toed web-footed reptile, others like those of a small water-tortoise; and there are a few well-marked impressions of the

hind and fore foot of a large and probably Labyrinthodont Batrachian. Presented by J. Cunningham, Esq.

On entering the room, the large skeleton to the left* is that of the *Megatherium Cuvieri*, the most gigantic species of that peculiar extinct family of American quadrupeds which appear to have subsisted by uprooting trees and feeding on the leaves and smaller branches. The Sloths, which at present inhabit the same regions of the globe, are their nearest allies among existing animals. This skeleton is in part a restoration, the supplied portions (taken from authentic sources) being marked with a red star. The real bones were principally obtained from recent tertiary deposits in the province of Buenos Ayres, and were presented to the College by Sir Woodbine Parish.

On a neighbouring platform is placed the almost perfect skeleton of the Mylodon (*Mylodon robustus*), a large extinct quadruped, allied to the Megatherium. It was dug up out of the newer tertiary fluviatile deposits, seven leagues north of the city of Buenos Ayres, in the year 1841, and was purchased by the College. The description of this skeleton, with an explanation of the food and habits of the animal when living, will be found in Professor Owen's 'Memoir on the Mylodon,' published by the College. For the sake of comparison, a skeleton of the Two-toed Sloth (*Cholæpus didactylus*) is placed on the upper part of the tree which supports its extinct gigantic congener.

In the corner of the room, behind the Mylodon, is a coloured plaster-cast of an unusually perfect fossil cranium of the great Mastodon of North America (*Mastodon giganteus*), the original of which is in the British Museum, by the Trustees of which Institution this cast was presented to the College.

In the centre of the room is the bony carapace or armour of an extinct gigantic Armadillo (*Glyptodon clavipes*, No. 541),

* The terms 'right' or 'left' hand always refer to the position of the visitor when facing the end of the Museum opposite that by which he enters.

with part of the skull, the tail, and some of the bones of the extremities, of which those of the left hind foot are most complete. This very remarkable example of the extinct quadrupeds of South America was discovered 12 feet below the surface, in tertiary deposits in the vicinity of the city of Buenos Ayres, and was purchased by the College in 1842. For a description of the various parts of this specimen, see the 'Catalogue of Fossil Mammalia,' pp. 107-117, Nos. 516-541, inclusive. On comparing its bony carapace with that of one of the existing species of Armadillo (in Floor Cabinet F, Eastern Museum), the analogy of the armour is seen in its tessellated composition and the sculpturing of the external surface of the numerous component ossicles; but the jointed bands which permit the small Armadillo to roll itself into a ball, and inclose its extremities within its carapace in time of danger, are not present in the fossil, such additional mechanism not being required for the defence of so large an animal. Portions of the bony armour of other species of Glyptodon are shown in the Floor Cabinet in this Museum.

Beyond the Glyptodon is seen the skeleton of the male gigantic extinct Deer (*Megaceros hibernicus*), commonly, but erroneously, called the 'Irish Elk.' This skeleton resembles that of the Fallow Deer in the bones of the trunk, the number of ribs, and also in the form of the skull; but the bones of the extremities are stouter in proportion to their length. The cervical vertebræ are proportionally much larger, in relation to the great weight which they were destined to support when the antlers were fully developed. The subgeneric character and chief peculiarity of the present extinct species are manifested by the extraordinary development and the form of the antlers. The span of the antlers, measured in a straight line between the extreme tips, is eight feet; the length of a single antler following the curve is seven feet three inches. The height of the skeleton to the top of the skull is seven feet six inches; to the highest point of the antlers ten feet four inches. The weight of the skull and antlers is seventy-six pounds. The specimen was dug up from a bed of shell-marl beneath

a peat-bog near the town of Limerick, and was purchased by the College in 1844.

Other examples of the skull and antlers of this fine animal are attached to the rails of the lower gallery; and in Case LXXXVIII. is a skull of the female or Hind of the same extinct species (No. 1127), which shows that this sex, as in most other species of *Cervus*, had no antlers.

In the corner of the room, behind the Irish Deer, is a pedestal supporting a plaster-cast of the skull of *Sivatherium giganteum*, an extinct four-horned Antelope of immense size, discovered by Sir P. Cautley and Dr. Falconer in the tertiary deposits of the Sewalik or Sub-Himalayan Hills.

Near to this will be seen the original and unique fossil specimen of a second species of gigantic four-horned Antelope (*Bramatherium perimense*), from the tertiary strata of Perim Island in the Gulf of Cambay, presented by the discoverer, A. Bettington, Esq.

On the left-hand side of the room, near the entrance-door, is a coloured plaster-cast of the skull of a very rare and remarkable extinct carnivorous animal (*Machairodus neogæus*), the original of which was discovered in a limestone cavern in Brazil, and is now in the Museum of the Jardin des Plantes at Paris. Remains of the same species have been found associated with those of the Megatherium, Mylodon, and Glyptodon, in the same deposits of the Pampas of Buenos Ayres as those from which the specimens in the Museum were obtained. The *Machairodus* was most nearly allied to the Lion or Tiger, which it equalled or surpassed in size; it differs from the genus *Felis* chiefly in the disproportionate length of its formidable upper canine teeth, the crowns of which descended outside the lower jaw when the mouth was shut. With these weapons it must have attacked and destroyed its prey by an action like that of stabbing and cutting, the canines being trenchant and finely serrated behind, as well as sharp-pointed. The lower canines are smaller than usual and blunted, and are placed on a line with the lower incisors. The strength of the zygomatic arches and the expanse of the

temporal fossæ indicate the great size and power of the muscles of the jaws. This cast was presented by the 'Professors-Directors of the Jardin des Plantes,' 1847.

Under the glass shade which covers the cast is also placed (No. 103) the canine tooth of another *Machairodus* (*M. latidens*), found in the ossiferous cavern called Kent's Hole, near Torquay, and presented by the Earl of Enniskillen.

On the same side of the room, beyond the Floor Cabinet, is a pedestal supporting casts of some of the bones (the lower extremities, pelvis, and part of the vertebral column), articulated in their natural position, of a gigantic extinct Struthious bird from New Zealand (*Dinornis giganteus*). The real bones from which these casts were taken are in the Wall Case, No. XXXVI. This bird would seem to have become extinct in comparatively recent times, and examples of the eggs as well as the bones have been found. One of these is placed in the adjoining glazed case, where also will be seen two casts of the enormous eggs of an extinct bird (*Aepyornis maximus*) found in Madagascar.

On the top of the case containing these eggs is a stuffed specimen of the Apteryx, the small living representative of the once numerous race of wingless birds of New Zealand.

Suspended to the rails of the lower gallery, above the Mylodon, is a fine specimen of the entire tusk of a Mammoth, showing its great size and extensive double curvature. The length of this specimen, measured along the outer curvature, is ten feet two inches; it was found in the tertiary deposits of the Ohio, North America. Near it is suspended the less curved tusk of a young Mastodon.

Wall Cases of the Middle Museum.

Commencing on the left hand of the entrance-door, the first two Cases (Nos. VIII. and IX.) contain the fossil organic remains of Plants. These consist of woods, impressions of stems and leaves, and fruits, the greater number of which, as well as those of the Invertebrate animals, formed part of the original

Hunterian Collection. The principal external characters of the specimens, and the appearances exhibited by each under the microscope, are fully described in the Catalogue.

The remaining Cases as far as the door into the Eastern Museum (X. to XVIII.) are devoted to the fossil Invertebrata, arranged in the following classes:—PORIFERA, FORAMINIFERA, POLYPI, ECHINODERMATA, ANNULATA, CIRRIPODA, CRUSTACEA, INSECTA, BRYOZOA, BRACHIOPODA, LAMELLIBRANCHIATA, PTEROPODA, GASTEROPODA, CEPHALOPODA. The leading characters of the classes have already been exemplified by their recent representatives in the Western Museum.

The fossil Porifera and Foraminifera are illustrated by numerous examples, and among the Polypi are some fine and instructive specimens of palæozoic Corals.

The class Echinodermata is richly represented. Amongst the numerous specimens of *Crinoidea* may be noticed the interesting genus *Encrinus* (Nos. 1820–1827) and the free crinoid *Marsupites* (Nos. 1828, 1829), exemplified by fossils in fine preservation.

Most of the principal extinct types or families of the class Crustacea are represented. Amongst the *Malacostraca* there are some remarkable forms of *Macrophthalmus* from China (Nos. 1553–1556), and a fine series of specimens belonging to the Macrurous, Brachyurous, and Anomurous sections—as *Hoploparia*, *Zanthopsis*, and *Basinotopus*, from the Eocene deposits called ‘London clay.’ The various forms of Trilobites (Nos. 1579–1601) were obtained by Hunter from the Silurian strata of Sweden, France, and Bohemia, as well as from localities where the same ancient formation occurs in England and Wales.

The class Brachiopoda is exemplified by the palæozoic genera *Orthis*, *Spirifer*, and *Productus*, and the singular little shell *Calceola* (Nos. 1523, 1524). The families *Rhynchonellidæ* and *Terebratulidæ* exhibit, in the abundance of species which inhabited the seas of the secondary era, a striking contrast to the paucity of those at present existing.

Amongst the Lamellibranchiata, the species of *Trigonia* (Nos. 1153-1165) are peculiarly worthy of attention, the genus having but two or three known living representatives. There are also good illustrative series of the genera *Lima*, *Pecten*, *Gryphæa*, and *Ostrea*.

The fossils of the class Gasteropoda are chiefly remarkable for the large proportion from the tertiary deposits of the Paris basin, and for the fine series of the extinct genus *Pleurotomaria* (Nos. 956-986).

There are probably few collections in Europe that exhibit so great a variety of the structure of the complex and beautiful shells of the class Cephalopoda, as the original Hunterian series does. The specimens themselves are for the most part remarkable for their fineness and good state of preservation, and no pains appear to have been spared by Mr. Hunter in exhibiting their organization, and consequently rendering them as useful as possible in advancing this department of the science of animated nature. Almost every specimen of the chambered shells of the *Ammonites*, *Orthoceratites*, *Nautilites*, and their allies, has been bisected by a skilful lapidary, and carefully polished. The specimens (Nos. 29-33) exemplifying the organization of a Belemnitic Cephalopod, through the extremely rare instance of the fossilization and conservation of the soft parts of the animal, are also especially worthy of notice. They were found in the Oxford clay, at Christian Malford in Wiltshire, and were mostly presented to the College by the late Marquis of Northampton, P.R.S.

The remaining Wall Cases of this apartment are devoted to the fossil remains of the Vertebrated classes.

In Case LXXX. are displayed some singularly perfect specimens of rare fossil Fishes.

The five following Cases contain examples of the class REPTILIA.

In the upper part of Case LXXXI. will be seen a coloured plaster-cast of the entire skull of *Labyrinthodon salamandroides* (No. 403), a huge Batrachian reptile from the Keuper

Sandstone of Gaildorf in Wirtemberg. No. 429 is a cast of the relief of an impression of the hind foot of a similar creature, from the New Red Sandstone of Cheshire.

No. 316 is a cast of the skull of a gigantic marine Lizard (*Mososaurus*) discovered in the Chalk formations at Maestricht, the original of which is in the Museum of the Jardin des Plantes at Paris.

No. 222 is a cast of the skeleton of a *Plesiosaurus*, an extinct Lizard with a head like that of a Crocodile, a long neck like that of a Swan, four paddles constructed like the fins of a Porpoise, and a moderately long tail. The remains of many species of this most singular form of extinct reptile have been discovered in the strata of the Oolitic and Cretaceous periods. The original of the present species is in the British Museum, and was obtained from the lias of Somersetshire.

No. 172 is the actual skeleton, imbedded in lias, of an *Ichthyosaurus*. This extinct reptile had a very short neck, and the vertebræ hollowed out at both ends, like those of a fish; the paddles or fins, of which two are pectoral and two ventral, had more numerous and smaller ossicles than in the *Plesiosaurus*, and exhibit a structure intermediate between the fin of a whale and that of a fish; but the skull and teeth resemble those of a Crocodile; the eye, which was very large, was provided with a ring of bony plates or scales at the border of the anterior aperture of the sclerotic, as in birds and a few reptiles, and the tail was of great length. The sclerotic plates are well shown in the present skeleton, which is of the species called *Ichthyosaurus tenuirostris*, and was discovered in the lias of Leicestershire.

No. 156. A slab of lias, from Lyme Regis, in which is imbedded the entire skeleton of a young *Ichthyosaurus intermedius*. This was the first skeleton of the *Ichthyosaurus* discovered, and is the subject of the paper by Sir Everard Home in the 'Transactions of the Royal Society' for 1819, where it is figured of the natural size (pl. 15), under the name of *Proteosaurus*.

No. 119 A is a cast of a very perfect specimen of a Ptero-

dactyle, or winged Lizard. Nos. 119-133 are bones of several species (chiefly *Pterodactylus Bucklandi*) of these extraordinary creatures, found in the oolitic slate of Stonesfield, Oxfordshire. The name 'Pterodactyle' is derived from the Greek words meaning *a wing* and *a finger*; because the wings are mainly supported by the outer finger of each fore limb, enormously lengthened and of proportionate strength, which finger nevertheless answers to the little finger of the human hand. The wings consisted of folds of skin, like the leather wings of the Bat; and the Pterodactyles were covered with scales, not with feathers; the head, though somewhat resembling in shape that of a bird, and supported on a long and slender neck, was provided with long jaws, armed with teeth; and altogether the structure of these extinct members of the reptilian class is such as to rank them amongst the most extraordinary of all the creatures yet discovered in the ruins of the ancient earth.

No. 95 is a femur of the *Iguanodon Mantelli*, presented by the late Dr. Mantell. The remains of this gigantic extinct Saurian are found chiefly in the Wealden formations of England; and the present magnificent specimen is from the submerged beds of that formation at Brook Point, Isle of Wight.

The fossil remains of the class AVES, which chiefly include those of the different species of *Dinornis* and *Palapteryx*, from New Zealand, are arranged in Wall Case LXXXVI.

In the lower part of the Case are placed casts of the Footprints of analogous birds, discovered in the New Red Sandstone of Connecticut, and described by the donor, Professor Hitchcock, under the name of *Ornithichnites*.

No. 1551. Casts of the head and foot of the Dodo (*Didus ineptus*) of the Island of Mauritius; and No. 1593 B, casts of some of the leg-bones of the Solitaire (*Didus solitarius*) of the Island of Rodriguez. Both of these have become extinct within very recent periods, as seems the inevitable fate of bulky birds unable to fly, when exposed, by the dispersion of the human race, to the attacks of man.

The remaining Cases are appropriated to Mammalian remains.

The order Marsupialia (Wall Case LXXXVII.) is represented by remains of the genera *Diprotodon*, *Nototherium*, *Macropus*, *Hypsiprymnus*, *Phascalomys*, *Dasyurus*, and *Thylacinus*, all from Australia, to which country the living species of the order are almost restricted.

Among the Cetacean fossils in the same Wall Case is a series of tympanic bones of extinct Whales, or "cetotolites," from the Red Crag at Felixstow, Suffolk.

In the order Ruminantia (Wall Cases LXXXVII. and LXXXVIII.) will be noticed, besides the remains of the gigantic Irish Deer already mentioned—

No. 1254. A part of the skull and bony cores of the horns of the great extinct Aurochs (*Urus priscus*). This fine specimen was dug out of a stratum of dark-coloured clay, below layers of brick-earth and gravel, thirty feet from the surface, at Woolwich. The bony cores of the horns extend outwards, with a slight curvature upwards: from the mid-line between their bases to the extremity of one core, in a straight line, measures two feet five inches.

Skulls and bones of two other species of Oxen, formerly inhabitants of this island (*Bos primigenius* and *Bos longifrons*), are also contained in the Collection.

No. 1119. A cast of the lower jaw of an extinct species of Giraffe (*Camelopardalis Biturigum*), discovered in 1843, in the miocene strata of the South of France, and described by the donor, Professor Duvernoy.

The order Pachydermata is very rich in extinct animals, mostly of great size. They are arranged in Wall Cases LXXXIX. to XCIII. Among the more interesting specimens are—

Nos. 924 to 952. Bones of the *Macrauchenia*, a large quadruped characterized by very long cervical vertebræ, with imperforated transverse processes, like those of the Llama; but with three toes on each foot. These fossils were discovered by the donor, Charles Darwin, Esq., in the tertiary deposits of Port St. Julian, Patagonia, and are unique.

The same Case contains specimens of fossil remains of extinct species of Horse, Hog, and Hippopotamus, and of the extinct genus *Anoplotherium*.

No. 923. A cast of half the lower jaw of the *Elasmotherrum*, an extinct Pachyderm between the size of a Rhinoceros and an Elephant, with molar teeth resembling those of the Rhinoceros in the pattern of the grinding surface, and those of the Horse in the great length of the undivided crown, but peculiar for the undulatory plications of the enamel. The original is unique: it was discovered in the superficial deposits of Siberia, and is preserved in the Museum of Moscow.

No. 847. A cast of the cranium of the *Rhinoceros tichorhinus*, Cuv. The original was discovered in the drift formation in Siberia, and is figured in Cuvier's 'Ossemens Fossiles,' ed. 1822, pl. 12. The skull of the extinct two-horned tichorhine Rhinoceros surpasses in length, not only absolutely but proportionally to its breadth, that of any known existing species; the nasal bones are more especially produced; and the rugose surface for the anterior horn which they support is an oblong ellipse, traversed by a median longitudinal ridge, whilst in the African two-horned Rhinoceros it is a semi-circle, and is impressed by a median longitudinal furrow: the intermaxillary bones are longer than in the existing species. But the most important anatomical character of this extinct Rhinoceros is the extension of the bony septum of the nose to the anterior extremity of the nasal bones, which, instead of standing out freely, bend down, and become confluent with the vomer and the intermaxillary bones. The specific name *tichorhinus* has reference to this peculiarity, which adds so much solidity and strength to the support of the anterior horn. Presented by the Rev. Dr. Buckland.

No. 847 A is a cast of the right ramus of the lower jaw of the same species.

Numerous remains of this species have been discovered in the more recent geological strata of this country, examples of

which are Nos. 877 to 915, portions of a skeleton of a tichorhine Rhinoceros, discovered by Joseph Whidbey, Esq., Civil Engineer, in a limestone cavern at Oreston, near Plymouth, during the formation of the great Breakwater of that port.

In Essex and some other parts of England there have also been discovered remains of a second extinct species of two-horned Rhinoceros (*Rh. leptorhinus*), of which Nos. 848 to 852 are casts. No. 850, a cast of part of the lower jaw of the leptorhine Rhinoceros, demonstrates the shortness of the symphysis characteristic of the species, by which it approaches the two-horned Rhinoceros of the Cape, and differs from the tichorhine Rhinoceros of Siberia. Presented by John Brown, Esq., F.G.S.

In Wall Case XCI. are suspended coloured casts of the lower jaw of the male and female *Dinotherium*, an extinct proboscidian quadruped, as large as the Mastodon, in which the two tusks of the lower jaw were not only retained, but developed to the extraordinary proportions exhibited in Nos. 797 and 798. The identity of structure of the molar teeth in these specimens indicates the larger proportions of the symphysis and tusks to have been a sexual character, and most probably peculiar to the male. The original of the jaw, No. 798, was discovered, broken across in front of the first molar, but the two parts were near each other, in the tertiary deposits at Eppelsheim. They were originally restored by Dr. Kaup, according to the ordinary analogies, the symphysis and the tusks curving upwards towards the upper jaw, as in the figure given in the 'Ossements Fossiles du Muséum de Darmstadt,' tab. iv. The subsequent discovery of the original of No. 795 showed that the symphysis and the incisive tusks were naturally bent in the opposite direction, as they are restored in the present specimen. All the above casts of the teeth and jaws of the *Dinotherium* were presented to the College by Dr. Kaup.

An original tooth of this singular genus, No. 800, the third deciduous molar, right side, upper jaw, formed part of the Hunterian Collection of Fossil Remains.

No. 819 is a coloured cast of both rami of the lower jaw of a smaller species of *Dinotherium* (*D. Cuvieri*). The right ramus contains the four posterior molar teeth; the left contains the three posterior molars and the socket of the fourth in advance. The original was discovered in the tertiary deposits of the South of France: the cast was presented to the College by the Professors of the Museum of Natural History, Paris.

In the same Case are the fossil remains of the extinct pachydermal quadrupeds of the genera *Lophiodon*, *Coryphodon*, *Palæotherium*, and *Tapirus*.

The peculiarities of the extinct genus *Mastodon* are shown by numerous examples. Of these may be noticed No. 665, the right half of the lower jaw of the *Mastodon elephantoides*, and No. 666, a coloured cast of the left half of the lower jaw of the same species, originally described by Mr. Clift in the 'Geological Transactions,' second series, vol. ii. part 3. The remains of this interesting species have hitherto been found only in the newer tertiary deposits of India and Ava. (See 'Catalogue of Fossils,' pp. 161, 164.)

No. 695 is a very remarkable cast of a considerable proportion of the superior maxillary bone of the narrow-toothed *Mastodon* (*Mastodon angustidens*). It exhibits the whole of the palate, and the molar series as it is reduced by age. This series consists, in the present example, of two teeth on each side, viz. the penultimate molar and last molar. The penultimate, which is the fourth of the permanent series, well demonstrates the modification of the grinding surface, from which the generic name, which signifies "udder-toothed," of these huge extinct quadrupeds has been derived: it supports four pairs of mastoid or udder-shaped tubercles, all of which have had their enamelled summits removed by mastication, and the two anterior pairs are worn down to their common dentinal base. The last molar has five pairs of similar tubercles, and a large posterior ridge which is subdivided into three or four small tubercles. The summits of the anterior tubercles only have been worn by mastication.

From the tertiary formations at Eppelsheim in Germany. Presented by Dr. Kaup.

No. 705. A cast of the lower jaw, wanting the ascending rami, of a young *Mastodon giganteus*: it demonstrates the sockets of the two incisive tusks which characterize the immature state of the gigantic individuals of this extinct genus. One of the tusks, and sometimes, but more rarely, both, are retained in the lower jaw of the male Mastodon, but both are shed at an early period in the female. Both sexes have large tusks in the upper jaw, as in the Elephant. The original of this specimen is preserved in Peel's Museum, New York, and was first described by Dr. Godman as a type of a new genus of Proboscidiæ to which he gave the name of *Tetracaulodon*, in the third volume of the New Series of the 'Transactions of the American Philosophical Society.'

No. 706 is the symphysis of the lower jaw of a young *Mastodon giganteus*, showing the remains of the alveoli of the two deciduous incisors. From the tertiary deposits of the Ohio, North America.

No. 714 is a portion of the right ramus of the lower jaw of this Mastodon, containing the penultimate and antepenultimate molars, and the socket of the last large molar. The crown of the antepenultimate molar supports three transverse ridges, and each of the ridges is divided into two mastoid tubercles.

No. 779. The fossil femur or thigh-bone of the gigantic Mastodon of North America. It differs from the femur of the Elephant in being shorter in proportion to its breadth and thickness, and is a stronger bone.

Nos. 566 to 661. An extensive series of the molar teeth and various bones of the great extinct Elephant or Mammoth (*Elephas primigenius*). Most of the teeth, which exhibit some remarkable varieties of structure, have been discovered in the superficial deposits of the Diluvial and Tertiary periods in this island; they are described in the Catalogue at pp. 133-160.

In the Floor Cabinet in this Museum are placed some specimens which will be observed with great interest in connexion with these fossil remains. They are portions of the integument of the great Mammoth which was discovered entire in the frozen soil of the banks of the river Lena, in Siberia, near the 70th degree of north latitude.* One tray contains

* The circumstances of this extraordinary discovery have been recorded by Mr. Adams in the 'Journal du Nord,' printed at St. Petersburg in 1807, and in the 'Memoirs of the Academy of Sciences at St. Petersburg,' from which the following account has been abridged:—"A Tungusian hunter and collector of fossil ivory, who had migrated in 1799 to the peninsula of Tamul, at the mouth of the Lena, one day perceived, amongst the blocks of ice and frozen soil, a shapeless mass, which in the following year was more disengaged and showed two projecting parts. In 1803, part of the ice between the earth and the observed body, which was then recognised as that of a Mammoth yielding the tusks commonly found in the soil of that coast, having melted more rapidly than the rest, the plane of its support became inclined, and the enormous mass fell by its own weight on a bank of sand. Of this, two Tungusians, who accompanied Mr. Adams, were witnesses. In the month of March 1804, the discoverer came to his Mammoth; and having cut off the tusks, exchanged them with a merchant for goods of the value of fifty rubles.

"Two years afterwards, or the seventh after the discovery of the Mammoth, Mr. Adams visited the spot, and found the Mammoth still in the same place, but altogether mutilated: the Jakutski of the neighbourhood had cut off the flesh, with which they fed their dogs during the scarcity. Wild beasts, such as white bears, wolves, wolverines, and foxes, also fed upon it, and the traces of their footsteps were seen around. The skeleton, almost entirely cleared of its flesh, remained whole, with the exception of one fore-leg (probably dragged off by the bears). The spine, from the skull to the os coccygis, one scapula, the pelvis, and the three remaining extremities, were still held together by the ligaments and by parts of the skin. The head was covered with a dry skin; one of the ears, well preserved, was furnished with a tuft of hair. The point of the lower lip had been gnawed; and the upper one, with the proboscis, having been devoured, the molar teeth could be perceived. The brain was still in the cranium, but appeared dried up. The parts least injured were one fore-foot and one hind-foot; they were covered with skin, and had still the sole attached. According to the assertion of the Tungusian discoverer, the animal was so fat, that its belly hung down below the joints of the knees. This Mammoth was a male, with a long mane on the neck; the tail was much mutilated, only eight out of twenty-eight or thirty caudal vertebræ remaining; the proboscis was gone, but the places of the insertion of its muscles were visible on the skull. The skin, of which about three-fourths were saved,

a portion of the thick corium or true skin, with some of the close under woolly covering of the animal still adherent; this curled hair is of a light reddish colour: a second tray contains a mass of the same kind of woolly hair; and a third tray some of the long dark coarse hair which formed the outer covering of the extinct animal: the small tuft of long black bristles is part of that which grew from the extremities of the ears.

No. 560. A skull of *Toxodon platensis*, an extinct quadruped of the size of the Hippopotamus, and apparently of similar aquatic habits, but remarkable for possessing teeth like those of the Rodents. This unique specimen was discovered in the bed of the Tarandis, a river in the province of La Plata, South America, and was presented to the College by Charles Darwin, Esq., F.R.S. A full description of the peculiarities of this cranium will be found in the 'Catalogue of Fossil Mammalia and Birds,' p. 121.

Wall Case XCIV. and the upper part of XCV. contain fossil remains of the large extinct Edentate animals of America, including *Glyptodon*, *Megatherium*, *Megalonyx*, *Mylodon*, and *Scelidotherium*, the latter remarkable for the great breadth

was of a dark-grey colour, covered with a reddish wool and coarse long black hairs. The dampness of the spot where the animal had lain so long had in some degree destroyed the hair. The entire skeleton, from the fore part of the skull to the end of the mutilated tail, measured sixteen feet four inches; its height was nine feet four inches. The tusks measured along the curve nine feet six inches, and in a straight line from the base to the point three feet seven inches.

"Mr. Adams collected the bones, and had the satisfaction to find the other scapula, which had remained, not far off. He next detached the skin on the side on which the animal had lain, which was well preserved: the weight of the skin was such that ten persons found great difficulty in transporting it to the shore. After this, the ground was dug in different places to ascertain whether any of its bones were buried, but principally to collect all the hairs which the white bears had trod into the ground while devouring the flesh, and more than thirty-six pounds' weight of hair were thus recovered. The tusks were repurchased at Jakutsk, and the whole expedited thence to St. Petersburg: the skeleton is now mounted in the museum of the Petropolitan Academy."

of the femur (No. 501). It was discovered in the cliffs of Bahia Blanca, near Patagonia, and presented to the College by C. Darwin, Esq.

A few specimens belonging to the order Rodentia, and a series of fossil remains of Carnivora, occupy the remainder of Case XCV. Among the latter will be seen bones and teeth of the large extinct Lion or Tiger, called *Felis spelæa*, of the Cave Hyæna (*Hyæna spelæa*), and some fine skulls (Nos. 1 to 4) of the great Cave Bear (*Ursus spelæus*), all former inhabitants of this island.

The following summary of the genera of *Mammalia* and *Aves*, from which the specimens described in the Catalogue of Fossils have been derived, may assist the scientific visitor in the study of this department of the Collection.

CLASS MAMMALIA.

Order CARNIVORA.

	Nos. of Specimens.
Genus <i>Ursus</i>	1 to 60
„ <i>Gulo</i>	61 to 64
„ <i>Putorius</i>	65
„ <i>Canis</i>	66 to 102
„ <i>Machairodus</i>	103 to 104
„ <i>Hyæna</i>	105 to 166
„ <i>Felis</i>	167 to 210

Order RODENTIA.

Genus <i>Castor</i>	211 to 212
„ <i>Trogontherium</i>	213
„ <i>Ctenomys</i>	214 to 217

Order EDENTATA.

Genus <i>Megatherium</i>	218 to 347
„ <i>Megalonyx</i>	348 to 376
„ <i>Mylodon</i>	377 to 485
„ <i>Scelidotherium</i>	486 to 515
„ <i>Glyptodon</i>	516 to 559

Order PACHYDERMA.

		Nos. of Specimens.	
Genus	Toxodon	560 to	565
„	Elephas	566 to	662
„	Mastodon	663 to	790
„	Dinotherium	791 to	821
„	Lophiodon	822 to	825
„	Coryphodon	826 to	827
„	Tapirus	828	
„	Palæotherium	829 to	846
„	Rhinoceros	847 to	918
„	Acerotherium	919 to	922
„	Elasmotherium	923	
„	Macrauchenia	924 to	952
„	Equus	953 to	1031
„	Hippopotamus	1032 to	1067
„	Hexaprotodon	1068 to	1075
„	Anthracotherium	1076	
„	Sus	1077 to	1079
„	Chœropotamus	1080 to	1081
„	Hyracotherium	1082 to	1083
„	Anoplotherium	1084 to	1117
„	Dichobune	1118	

Order RUMINANTIA.

Genus	Camelopardalis	1119	
„	Cervus :		
Subgenus	Megaceros	1120 to	1176
„	Elaphus	1177 to	1236
„	Tarandus	1237	
„	Dama	1238 to	1240
„	Capreolus „	1241 to	1244
Genus	Palæomeryx	1245 to	1246
„	Microtherium	1247 to	1250
„	Sivatherium	1251 to	1253
„	Bos :		
Subgenus	Urus	1254 to	1409
„	Bos	1410 to	1428
„	Ovibos	1429 to	1430

Order CETACEA.

	Nos. of Specimens.
Genus Delphinus	1431 to 1438
„ Monodon	1439
„ Hyperoodon.....	1440 to 1441
„ Zeuglodon	1442 to 1444
„ Physeter	1445
„ Balæna.....	1446 to 1459

Order MARSUPIALIA.

Genus Diprotodon	1460 to 1504
„ Nototherium	1505 to 1509
„ Macropus.....	1510 to 1535
„ Hypsiprymnus.....	1536 to 1539
„ Phascalomys	1540 to 1542
„ Dasyurus	1543 to 1547
„ Thylacinus	1548 to 1549

CLASS AVES.

Order RAPTORES.

Genus Lithornis	1550
-----------------------	------

Order CURSORES.

Genus Didus	1551
„ Dinornis	1552 to 1593
„ Ornithichnites	1594 to 1620

Galleries.

The Galleries of the Middle Museum are entered from those of either of the other Museums, there being no staircase leading directly to them. They contain the Series of Natural History specimens in spirit. This Collection originated in numerous and valuable specimens transmitted from all parts of the world to Mr. Hunter for the purpose of dissection, which, as the requisite time for their examination was wanting, were preserved to illustrate the most remarkable differences in the outward forms of the Animal Kingdom.

They are now arranged in the following order, the numbers in both Galleries commencing on the left hand of the entrance from the Western Museum.

Lower Gallery.

	Nos. of Preparations.
VEGETABLES	1 to 14
ANIMALS:	

Subkingdom RADIATA.

Polypi	15 to 63
Acalephæ	64 to 84
Echinodermata	85 to 114

Subkingdom MOLLUSCA.

Tunicata	115 to 128
Acephala	129 to 137 B
Gasteropoda	138 to 159 A
Pteropoda	159 B to 161 A
Cephalopoda	162 to 167

Subkingdom ARTICULATA.

Entozoa	167 A to 234
Annelida	235 to 257
Cirrihipoda	258 to 282 E
Crustacea	283 to 331 B
Myriapoda	331 c to 339
Arachnida	339 A to 374
Insecta	375 to 614

Upper Gallery.

Subkingdom VERTEBRATA.

Pisces	1 to 387
Amphibia	388 to 441
Reptilia	442 to 691
Aves	692 to 755
Mammalia	756 to 862

The individual specimens are described in the "Descriptive Catalogue of the Specimens of Natural History in Spirit," in two volumes.

EASTERN MUSEUM.

Ground Floor.

The Ground Floor of this apartment is occupied by specimens illustrating the various modifications of the osseous system in Vertebrate Animals: a full description of these will be found in the two volumes of the Catalogue devoted to the "Osteological Series."

In the body of the room are placed some of the larger skeletons and skulls.

Suspended from the ceiling are—

No. 2444. The skeleton of a young Piked Whale (*Balæna rostrata*).

No. 2479. The skeleton of the Bottle-nosed Whale (*Hyperoödon bidens*). The animal from which this skeleton was prepared, was taken in the Thames near London Bridge, in the year 1783, and is described and figured by John Hunter in the 'Philosophical Transactions' for the year 1787.

The specimens on platforms on the floor of the room, commencing with those on the left hand, are—

No. 2866. The skeleton of the Malayan Tapir (*Tapirus indicus*).

No. 3860. The skeleton of the Walrus (*Trichechus rosmarus*), an animal allied to the Seals. Its large upper canine teeth or tusks serve as weapons of offence and defence, and to aid it in mounting and clambering over blocks of ice in the Polar Seas which it inhabits. Its food consists of sea-weed and mollusca, the shells of which, its molar teeth are well adapted to crush.

No. 3133. The skeleton of a Horse (*Equus caballus*).

No. 3404. The skeleton of the Hippopotamus (*Hippopotamus amphibius*). On the same platform is placed the skull of a larger individual of the same species.

No. 2969 A. The skeleton of the Indian Rhinoceros (*Rhinoceros indicus*). This species has a single horn upon its nose. Beneath it are placed skulls of other species of Rhinoceros which have two horns. No. 2935, the Sumatran (*R. sumatrensis*), and No. 2941, the African Rhinoceros (*R. bicornis*).

On the platforms on the right side of the room, commencing from the entrance-door, are

No. 3504. Two skulls of the American Elk (*Alces malchis*, var. *americana*), from N. Carolina. In fighting, the horns had become so firmly locked together by means of their points or snags, that the animals were incapable of liberating themselves; and in this state they were discovered, starved to death.

No. 3696. The skeleton of the Equine Antelope (*Antilope equina*).

No. 3825. The skeleton of the Long-horned, or Lancashire variety of the Common Ox (*Bos taurus*).

No. 3445. The skeleton of the Camel (*Camelus bactrianus*).

No. 3503. The skeleton of a male American Elk (*Alces malchis*, var. *americana*), the largest existing species of the Deer-tribe.

No. 3617. The skeleton of a young male Nubian Giraffe (*Camelopardalis giraffa*).

At the end of the room is

No. 2654. The skeleton of a male Asiatic Elephant (*Elephas indicus*). The animal from which it was obtained was brought to England in 1810, of the supposed age of twenty years; it was then so docile as to be exhibited on the stage of Covent Garden Theatre. In 1814 it was purchased by Mr. Cross, the proprietor of the menagerie at Exeter Change, and was there exhibited, under the name of *Chunee*, until the year 1826, when a return of an annual paroxysm, aggravated, as it subsequently appeared, by inflammation of the large pulp of one of the tusks, produced such ungovernable violence as to endanger the breaking down of the den, and to compel the keeper to put the enormous beast to death. This was effected by shooting, but not until the animal had

received upwards of 100 musket- and rifle-bullets*. The height of the skeleton to the summit of the dorsal spines is nine feet; the length from the anterior broken extremities of the tusks to the root of the tail, in a straight line, is fourteen feet.

On the platform supporting this skeleton are the pelvis, femur, humerus, and some vertebræ of a larger individual of the same species of Elephant.

On the platform to the left of the skeleton are placed fine skulls of adult male and female Asiatic Elephants.

On the other side are skulls of the male and female African Elephant (*Elephas africanus*). The skull of the male was brought from the vicinity of the White Nile, by Consul Petherick. The tusks are of great size, but the bones of the head are unfortunately somewhat mutilated. The differential characters in the conformation of the skull of the two existing species of Elephant are well seen in this series.

In front of the skeleton of the large Elephant is placed the posthumous bust, by Flaxman, of JOHN HUNTER, the Founder of the Collection.

In this part of the Museum will be seen, in separate glazed Cases, four injected and dried preparations of hearts of large Mammalia, viz.:

No. 92. A dried and injected preparation of the heart of an Elephant (*Elephas indicus*). The arteria innominata gives off the right subclavian and both carotid arteries; the left subclavian arises by a separate trunk. The termination of the thoracic duct is also shown.

No. 93. The heart of a smaller Elephant.

No. 112. The heart of a Dromedary (*Camelus dromedarius*), dried and injected; the vessels of which are left attached to a more considerable length than in the preceding specimen. The course of the thoracic duct, and its termination at the junction of the subclavian and jugular veins, are distinctly shown.

* A full account of all the circumstances attending the malady and destruction of this fine Elephant will be found in Griffith's translation of Baron Cuvier's 'Animal Kingdom,' vol. iii. p. 348.

No. 135. The heart of the Bottle-nose Whale (*Hyperoödon bidens*), injected. The mode of origin of the vessels from the arch of the aorta is the same as in the human body; the arteria innominata giving off the right carotid and subclavian arteries, the left carotid and subclavian arteries arising from the aorta by separate trunks. This preparation was obtained from the animal whose skeleton (No. 2479) is suspended from the ceiling.

Wall Cases and Floor Cabinets of the Eastern Museum.

The Wall Cases are chiefly occupied by articulated skeletons and the larger skulls and bones, and the Floor Cabinets contain the smaller specimens of skulls and detached bones. The same arrangement is preserved in both series, beginning at the left-hand side of the entrance-door with the

Class PISCES.

Wall Cases XIX. to XXVII. Floor Cabinet A, and
Compartments *a* and *b* of Floor Cabinet B.

Fish are cold-blooded, oviparous or ovi-viviparous Vertebrata, which breathe by means of gills, and have a heart with two cavities. The surface of their body is generally covered with scales. They are divided into two principal groups—those in which the skeleton is completely ossified, and those in which it remains permanently in a cartilaginous condition.

Cases XIX. to XXV. contain the skeleton and bones of osseous fishes. Among them will be seen several disarticulated skulls, with the bones artificially connected in nearly their natural relative positions, and numbered on coloured labels, according to a Table to be found in the Catalogue. These, with similarly prepared examples from the other classes, are intended to illustrate the unity of plan which pervades the composition of the cranium in all vertebrate animals.

Among the skeletons may be noticed—

No. 46*. The skeleton of a very large Trout (*Salmo eriox*), prepared from a specimen taken in the River Thame at Drayton Manor, Nov. 1848, and presented by the late Sir Robert Peel.

No. 49. The skeleton of a Pike (*Esox lucius*).

No. 182. The skeleton of the Halibut (*Pleuronectes hippoglossus*).

No. 191. The skeleton of a large Sea-Perch (*Centropristis gigas*), prepared from a specimen taken off the coast of New Zealand, and presented by Captain Sir E. Home, R.N.

No. 247 A. The skeleton of a very large Tunny-fish (*Thynnus communis*), taken in the Frith of Forth, August 1850.

No. 248. The skull of a Sword-fish (*Xiphius gladius*).

In the lower part of the Case is placed a portion of the bow of a ship (H.M.S. Fawn), which has been pierced by the pointed prolongation of the upper jaw of another species of Sword-fish (*Istiophorus velifer*); this weapon has penetrated the copper sheathing, the felt, the deal, and the hard oak timbers to the depth of 14 inches; and nearly that extent of the 'sword' has been broken off by the force of the blow and is retained in the wood. The fibres of the oak timber have been bent and crushed as by the passage of a swivel-ball. The ship-borers (*Teredo navalis*) have attacked the outer timbers where the displaced copper has given them access to the wood. This interesting example of the force with which the Sword-fish strikes its blow was presented by Wm. Beech, Esq., of Rotherhithe.

No. 256. The skeleton of the Arthritic Chætodon (*Platax arthriticus*), from the Indian Seas; very remarkable for the partial enlargements of many of the bones, which resemble tumours or exostoses, but are natural and constant in this species.

No. 309 A. The skeleton of the Angler-fish (*Lophius*

* The specimens mentioned will all be found in the Wall Cases, unless otherwise specified. The numbers refer to the 'Descriptive Catalogue of the Osteological Series.'

piscatorius), conspicuous for the enormous development of the head.

No. 369. The skeleton of the Pike-headed Gar-fish (*Lepidosteus lucius*), from the rivers of North America. Nos. 371 and 372 are the dried skins of other species of *Lepidosteus*, showing the unsymmetrical or heterocercal form of tail, and the hard bony scales covered with a smooth shining substance (ganoine) of the density of enamel, with which these fishes are clothed. Both this form of tail and structure of scales are extremely rare among existing fishes, *Lepidosteus* being the only genus at present extant known to combine them. These characters, on the other hand, are very common among extinct fishes, especially those of the older secondary formations.

Cases XXVI. and XXVII. contain the cartilaginous skeletons of the second and more highly organized group of fishes, comprising Sturgeons, Sharks, Skates, and Rays. Among them will be observed a large series of jaws of various species of Sharks; also numerous specimens of the prolonged upper jaw or rostrum, with its row of sharp-pointed teeth on each side, belonging to several species of Saw-fish (*Pristis*). The mode in which this appendage projects from the head of the fish is seen in the dried specimen, No. 446.

Class REPTILIA.

Wall Cases XXVIII. to XXXIII. Floor Cabinet B.

Compartments *c* and *d*. C. Compartments *a*, *b* and *c*.

The Reptiles are cold-blooded, oviparous or ovi-viviparous vertebrate animals, having a heart with three cavities, and breathing air by means of lungs. The surface of their body is either naked or clothed with scales.

The animals of the Order BATRACHIA form in their organization a link between the Fishes and true Reptiles. In addition to their lungs, they have, either throughout the whole, or in the earlier portion of their life, a set of gills, for breathing while immersed in water. On account of this, and other peculiarities of structure, this Order is by many natu-

ralists raised to the rank of a separate Class, under the name of AMPHIBIA. The existing species being all of small size, and not numerous, their skeletons are contained in the Floor Cabinet B, Compartment c. Among them will be seen the several varieties of Salamanders, Frogs, and Toads.

Case XXVIII. contains the skeletons of the Order OPHIDIA, or Snakes.

Under a glass shade in the middle of the Case is a skeleton of the venomous Indian Hooded Snake, or Cobra.

No. 602 is the skeleton of the Tiger Boa (*Python tigris*). It measures 11 feet 2 inches in length, and has 291 vertebræ.

No. 628. The disarticulated skull of a reptile of the same species.

On the floor of this and the following Cases, extended at full length, is (No. 629) the skeleton of a large African Serpent (*Python regius*), which measured 15 feet 6 inches long. It has 348 vertebræ, 279 of which bear moveable ribs. The skin of the same individual is seen suspended in the upper part of the Cases.

Cases XXIX. and XXX. contain specimens of the Orders LACERTILIA and CROCODYLIA, embracing the animals known as Lizards, Chamæleons, Iguanas, Monitors, Gavials, Crocodiles, and Alligators.

Cases XXXI., XXXII. and XXXIII. contain skeletons of the Order CHELONIA, Turtles and Tortoises. Among them may be pointed out, as examples of the three divisions of the Order,—

No. 769A. The skeleton of the Green Turtle (*Chelone mydas*).

No. 960. The skeleton of the Matamata, or Fimbriated Tortoise (*Chelys fimbriata*).

No. 1011. The skeleton of the Great Land Tortoise of the Galapagos Islands (*Testudo elephantopus*).

Class AVES.

Wall Cases XXXIV. to XL. Floor Cabinet C. Compartment d, and Floor Cabinet D.

The Birds are warm-blooded oviparous Vertebrata, having

a heart with four cavities, and breathing air by means of lungs. The surface of their body is covered with feathers.

Cases XXXIV. and XXXV. contain the skeletons of the Order PALMIPEDES, or Web-footed Birds, such as the Penguins, Albatroses, Gulls, Pelicans, Swans, and Geese. After these follow (in Cases XXXV. and XXXVI.) the GRALLATORES, or Waders, mostly distinguished by the length of their legs. Among them will be noticed the very rare and singular Whale-headed Stork (*Balæniceps rex*), No. 1312 A. The specimen from which this skeleton was prepared was brought from the upper Nile by Consul Petherick in 1860, and lived some time in the Zoological Society's Gardens in the Regent's Park. Near it will be seen (No. 1311) the much smaller but nearly allied Boat-bill (*Cancroma cochlearia*), from South America.

Case XXXVII. and part of the following contain the Order CURSORES, which, though not numerous in species, has some very interesting forms, mostly of large size, and all remarkable for the rudimentary condition of their wings. Skeletons of the following species are contained in the Collection:—

No. 1355. The Kivi (*Apteryx australis*).

No. 1356. The Cassowary (*Casuarus galeatus*).

No. 1358. The Emeu (*Dromaius novæ hollandiæ*).

No. 1361. The Three-toed or American Ostrich (*Rhea americana*).

No. 1362. The Ostrich (*Struthio camelus*). The largest of existing birds, but inferior in size to some of the nearly allied extinct species, as shown by the bones of the Dinornis in the Middle Museum.

The upper part of the same Case contains the Order RASORES, consisting of the Fowls and Game-birds, mostly having feebly developed wings.

Cases XXXVIII. and XXXIX. contain birds of the Order SCANSORES (Parrots, Toucans, and Woodpeckers), distinguished by having two toes directed forwards and two backwards, instead of three forwards and one backwards as in

other birds; and PASSERES, an extensive Order composed of birds mostly of small size. Among these are the most diminutive of the Class, the Humming-birds (*Trochilus*), of which three very perfect skeletons will be seen suspended under a glass shade (Nos. 1521-1523).

Case XL. contains the skeletons of birds of the Order ACCIPITRES, the birds of prey, such as Owls, Hawks, Eagles, and Vultures, whose powers of flight are denoted by their well-developed breast- and wing-bones. Among them the Secretary Buzzard (*Gypogeranus secretarius*), Nos. 1671 and 1672, from South Africa, is remarkable on account of the length of its leg-bones, causing its general appearance to approximate to that of the Waders.

Class MAMMALIA.

Wall Cases XLI. to LXXIX.

Floor Cabinet E, F, G, and H.

The Mammalia are warm-blooded, viviparous Vertebrata, having a heart with four cavities, blood-corpuscles without nuclei, and which suckle their young; the surface of their body is generally covered with hair.

In Case XLI. will be seen skeletons of the only two known species of the singular Order MONOTREMATA:

No. 1699. The Duck-billed Platypus (*Ornithorhynchus paradoxus*);

No. 1704. The Spiny Platypus (*Echidna hystrix*); both inhabitants of Australia. A stuffed specimen of the first-named will also be seen in the Case.

The remainder of Case XLI. and part of XLII. contain examples of the different divisions of the Order MARSUPIALIA, or Pouched Animals, which vary much from each other in their general characters, dentition, &c. Among them may be pointed out—

No. 1724. The skeleton of the Great Kangaroo (*Macropus major*).

No. 1792. The skeleton of the Wombat (*Phascolomys vombatus*), resembling the Rodents in the characters of its teeth.

The following species have teeth adapted for animal food.

No. 1867. The skeleton of the Virginian Opossum (*Didelphis virginiana*).

No. 1898. The skeleton of the Ursine Dasyure (*Dasyurus ursinus*).

Nos. 1903 and 1904. The skeleton of the Thylacine (*Thylacinus cynocephalus*). This, the largest of the carnivorous Marsupials, is a native of Tasmania; but, on account of the destructive ravages which it commits on their flocks of sheep, it will probably soon be exterminated by the European settlers of the island.

In Case XLII. are the skeletons of animals of the Order RODENTIA, distinguished by two large curved cutting incisor teeth in the front of each jaw. These teeth continue growing throughout the life of the animal, and are maintained at their proper length by wearing against those opposed to them. When, by accident, an incisor is lost, or when, owing to a badly united fracture of the jaw, the lower incisors no longer meet the upper ones, as sometimes happens to a wounded hare, these teeth continue to grow until they project like tusks from the mouth, and, following the natural curve of their growth, their points often return upon and penetrate into some part of the head, rendering it impossible for the animal to eat, and causing death by starvation. Several examples of this occurrence will be seen in Floor Cabinet F., Compartments *c* and *d*, Nos. 1966-1971, 2203, &c.

Cases XLIII. and XLIV. contain examples of the singular Order EDENTATA, so called from the absence or deficiency of their teeth. The skeletons of these animals contained in the collection are—

No. 2290. The Weasel-headed Armadillo (*Dasypus sexcinctus*).

No. 2296. The Nine-banded Armadillo (*Dasypus peta*).

No. 2336. The Cape Ant-eater (*Orycteropus capensis*).

No. 2365. The Tamandua Ant-eater (*Myrmecophaga tamandua*).

No. 2366. The Great Ant-eater (*Myrmecophaga jubata*).

No. 2367. The Ai, or Three-toed Sloth (*Bradypus tridac-*

tylus), remarkable for possessing nine vertebræ in the neck; all other Mammalia having only seven.

No. 2387. The Two-toed Sloth (*Cholæpus didactylus*).

In Case XLIV. are also contained specimens of the small Orders INSECTIVORA and CHEIROPTERA, the latter (the Bats) peculiar for the great extension of the bones of the anterior extremity, which, with the membrane stretched between them, form an organ of flight.

No. 2417 is the skeleton of a large East Indian frugivorous Bat (*Pteropus edulis*).

Cases XLV. to XLVIII. contain skeletons and skulls of the Order CETACEA, animals which habitually reside in the water, and have much of the external form of fishes, but whose organization in all essential characters conforms to that of other Mammalia.

At the top of the Case is the skeleton of the female Nar-whal, or Sea-Unicorn (*Monodon monoceros*), No. 2521. This species has only two teeth, which in the female (as seen in the skull, No. 2522) remain in a rudimentary condition, concealed in the substance of the intermaxillary bones, while in the male (No. 2523) one tooth remains in this state, and the other is greatly developed and projects in a straight line from the front of the head. Some fine specimens of these tusks or 'horns,' showing the peculiar spiral ridges on the surface, are to be seen in the Case.

It may be here mentioned that in the Courtyard adjoining the Eastern Museum is the skull of the Great Whalebone Whale (*Balæna mysticetus*). This animal has no teeth, but their place is supplied in the upper jaw by plates of the substance called 'baleen' or 'whalebone.' The Great Sperm Whale, or Cachalot (*Physeter macrocephalus*), is abundantly armed with teeth, as seen in the lower jaw, No. 2449.

The Order SIRENIA, or Herbivorous Cetacea (the Dugongs and Manatees), occupy a portion of the same Cases as the true Cetacea.

Cases XLIX. to LII. contain a fine series of skulls, teeth, and detached bones of Elephants (Order PROBOSCIDEA). The sections Nos. 2657 and 2658 show well the small size

of the cavity for the brain, compared with the magnitude of the superficial parts of the head, the space between being composed of plates of bone, leaving interstices filled with air, and so arranged as to combine strength with lightness, in affording the requisite extent of surface for the attachment of the muscles necessary to support the ponderous tusks and trunk. The complex structure and peculiar mode of succession of the molar teeth are beautifully shown in this series. They replace each other horizontally, from behind forwards, as they wear away in front. The process is continually going on throughout the animal's life; but never more than one wholly, or two partially are in place and use on each side at any given time.

Case LIII. to LVIII. contain the Order PERISSODACTYLA, chiefly composed of animals of large size. In the first-named Case is a series of the nasal horns of different species of Rhinoceros. Then follow skeletons of the Sumatran Two-horned Rhinoceros, and of the Horse, Ass, and Zebra.

Cases LIX. to LXVIII. contain the Order ARTIODACTYLA. The Non-ruminant section of the Order includes the Hogs, Wart Hogs, Peccaries, and the Hippopotamus.

Of the Ruminant division, the family *Camelidæ* are represented in the Cases by skeletons of

No. 3482. The Llama (*Auchenia llama*).

No. 3488. The Paco, a variety of the same species.

No. 3489. The Vicugna (*Auchenia vicugna*).

In Case LX. are skeletons of the elegant little Deer of the genus *Tragulus*, the smallest animals of the Order. The nearly allied Musk-Deer (*Moschus moschiferus*), No. 3490, is remarkable for the long canine teeth projecting downwards from the upper jaw.

No. 3509 is the skeleton of a young male European Elk (*Alces malchis*).

No. 3512. The skeleton of a male Reindeer (*Cervus tarandus*).

Nos. 3513 and 3514. Skeletons of female Reindeer. This is one of the few species of Deer in which the female develops antlers; which, however, are always smaller than those of the male.

In Case LXIII. is a collection of antlers of different species of Deer. These ornamental appendages consist of a substance resembling bone in its structure and chemical composition, and are shed and reproduced every year. During their growth they are covered by a soft hairy skin (the so-called 'velvet'), which, when their full size is attained, withers and strips off, leaving the bony tissue exposed.

Antelopes, Goats, Sheep, and Oxen have hollow horns, covering processes of bone rising from the skull, and having a structure and composition like that of hair and nails. They remain throughout the life of the animal, growing from their base as they wear away at the end. In Case LXV. are some fine specimens of such horns from different varieties of Oxen and Buffaloes.

Cases LXX. to LXXV. contain the skeletons of animals of the Order CARNIVORA.

The first or Pinnigrade division of the Order includes the Walrus and the Seals. Some very fine skulls of the former, distinguished by the two large canine tusks projecting downwards from the upper jaw, will be seen in the lower part of Case LXX. Among the Seals may be noticed—

Nos. 3920 and 3921. Skulls of the great Proboscis Seal (*Cystophora proboscidea*).

No. 3937. The skeleton of the rare Saw-toothed Seal (*Stenorhynchus serratidens*), prepared from a specimen taken during the Antarctic Expedition under Sir James Ross in 1844, and presented by R. M'Cormick, Esq., F.R.C.S., Surgeon to H.M.S. Erebus.

The second or Plantigrade division includes the Bears, Racoons, Coati-mundis, Kangaroos, Badgers, Ratels, &c.; and among the third or Digitigrade section will be observed the skeletons of the Wolf, Fox, several varieties of Dog, and—

No. 4446. The skeleton of the Spotted Hyæna (*Hyæna crocuta*), prepared from the individual animal noticed by Dr. Buckland in his 'Reliquiæ Diluvianæ,' p. 37, which died in the Surrey Zoological Gardens in 1848, after living in confinement in this country upwards of thirty years.

No. 4475. The skeleton of a Lion (*Felis leo*).

No. 4505. The skeleton of a Tiger (*Felis tigris*).

The remaining Cases (LXXVI. to LXXIX.) contain the Order QUADRUMANA, animals which have both fore and hind limbs with opposable thumbs, like a hand. They are divided into three families :—

1. The Lemurs, mostly nocturnal animals, and slow in their movements, are inhabitants of the island of Madagascar and the adjacent coasts.

2. The American Monkeys include the little Marmosets (*Hapale*), the Squirrel Monkeys (*Chrysothrix*), the Capucins (*Cebus*), and the Spider Monkeys (*Ateles*, Nos. 4687 to 4690), very remarkable for the great length of the limbs and prehensile tail, and for the absence of thumb on the fore-hand.

3. The Old World Monkeys comprise the Baboons, Macaques, Vervets, Long-armed Apes, and the group called “anthropoid,” from their presenting, more than any other animals, a resemblance in their organization to Man. Of these the Collection contains—

No. 5050. The skeleton of an adult male Orang-utan (*Pithecus satyrus*), an inhabitant of the islands of Sumatra and Borneo.

Nos. 5057 and 5058. Skeletons of younger Orang-utans.

No. 5082. The skeleton of an adult female Chimpanzee (*Troglodytes niger*), from the West Coast of Africa.

Nos. 5083 to 5085. Skeletons of younger Chimpanzees.

No. 5178. The skeleton of an adult male Gorilla (*Troglodytes gorilla*). This species was discovered by Dr. Savage in the Gaboon district, West Coast of Tropical Africa, in 1847. The fine skeleton in the Collection—the first that was brought to this country—was presented to the College by the late Captain Harris in 1851. Although, from the shortness of its lower limbs, it does not equal an ordinary man in height, the trunk is considerably larger, and the bones of the arm are not only longer, but so developed as to indicate enormous muscular power.

In the back of the Case is a series of skulls and casts of

skulls of Gorillas, exhibiting considerable variation in the form of the head and face, and development of the crests of bone, which, as the animal advances in age, increase the surface for the attachment of the great muscles of the neck and jaws.

Numerous examples of the skulls of the Orang-utan, Chimpanzee, and other Quadrumana, showing the changes dependent on age and sex, are seen in the nearest Floor Cabinet (H).

The skeletons of MAN, completing the Osteological Series, are placed in the Western Museum, Wall Cases XCVI. to XCIX. (see page 21).

Galleries.

Access to the Galleries of the Eastern Museum is by a staircase at the end of the apartment opposite to that by which the visitor enters. On their shelves are arranged the Physiological Series of Preparations of Human and Comparative Anatomy, preserved in bottles; and dried specimens of the same kind are placed in the glazed Rail Cases.

These series constitute the most characteristic part of the original Hunterian Collection, and contain the preparations by which the Founder designed, in his own words, to illustrate "the several links in the chain of varieties displayed in the formation of the different organs in different animals, ascending in a regular progression from the least to the most perfect;" and by which, so arranged, he practically reduced the previously disconnected facts of Comparative Anatomy to one harmonious and philosophical system.

The specimens upon the shelves are described, and the physiological principles which the several series are designed to illustrate are explained, in the five volumes of the Quarto Catalogue, entitled "Descriptive and Illustrated Catalogue of the Physiological Series of Comparative Anatomy." A description of those in the Rail Cases will be found in the volume called "Catalogue of the Vascular and Miscellaneous Preparations in a dried state."

The following is an outline of the arrangement of the preparations on the shelves. The numbers commence on the left hand of the entrance into the LOWER GALLERY.

East Side.

DIVISION I. ORGANS IN PLANTS AND ANIMALS
FOR THE SPECIAL PURPOSES OF THE
INDIVIDUAL.

SUBDIVISION I. ORGANS OF MOTION.

	Nos. of Preparations.	
Component parts of Vegetables and Animals	1 to	15
Nutrient fluids, as Sap and Blood	16 to	27
Moving parts of Plants, commonly called 'sensitive'.	28 to	32
„ or Muscles of Animals	33 to	46
Tendons	47 to	49 A
Application of Muscles	50 to	64
Elastic Ligaments	65 to	75
Substances constituting the Skeletons of Animals..	76 to	82
Skeletons of Zoophytes	82 A	93
„ or Shells of Mollusks	93 A	
„ of Echinoderms	110	
„ of Crustaceans	111	
Constituents of Bone	112 to	130
Formation of Bone	131 to	162
Formation of Bone, as exemplified in the Antlers of Deer	163 to	187
Growth of Bone, exemplified by experiments with madder	188 to	201
Texture of Bone	202 to	219
External Skeletons	221	
Internal ditto	222	
Mixed ditto	223 to	224
Skeletons consisting of one piece	225 to	226
„ „ of many pieces unattached ..	227 to	229
„ „ of many pieces articulated by elastic joints	230 to	239

North Side.

	Nos. of Preparations.
Joints with ligamentous fibres attached to the whole	
articular surface	240 to 248
,, with synovial and capsular ligaments	249 to 255 I
,, with capsular and interarticular ligaments . .	255 K 257
,, with capsular ligaments and interarti- cular substances for the adaptation of the different parts of the joint to one another	258 to 265
,, with capsular and interarticular ligaments and interarticular substances	265 A 272
Combination of active and passive organs of motion, illustrating the mechanical contrivances by which the powers of the muscles are augmented; as	
By the mode of insertion	273 to 273 A
By the interposition of tendons and ligaments	273 B 276 B
By means of sesamoid bones	276 C 279
Organs of Progressive Motion, adapted for—	
Swimming	279 A 281 A
,, Flying	282 to 282 C
,, Creeping	282 D 282 F
,, Burrowing	282 G 282 I
,, Climbing	282 K 282 M
,, Leaping	283
,, Walking only	284 to 286
,, Holding	287 to 288 A

SUBDIVISION II. ORGANS OF DIGESTION.

Structure and Growth of Teeth.

Parts analogous to Teeth in Invertebrate	
Animals	289 to 308
Bills of Birds	309 to 318
Structure and Formation of Whale-bone	319 to 323 A
,, ,, ,, of Teeth, properly so called	324 to 361
Growth of Teeth, exemplified by experiments	
with madder	362 to 368
Constituents of Teeth	369 to 375 B
Process of shedding and renewing the Teeth . .	376 to 384

	Nos. of Preparations.
Structure and Growth of Teeth.	
Situation of the Teeth, in the Mouth	385 to 399
„ the Pharynx	400 to 402
„ the Stomach	403 to 408
Digestive Cavity, simple, with one orifice, serving as mouth and anus	409 to 435
Digestive Canal with mouth and anus distinct	435 _A to 441
Situation of the Stomach	442 to 448
Œsophagus	449 to 464 _C
Stomachs of Annelides	465 to 470
„ Insects	479
„ Mollusks	479 _A 499 _A
„ Fishes	500 to 507 _E
„ Reptiles	508 to 518
„ Birds	519 to 534
„ Mammals	534 _A 581
Gastric Glands	582 to 590 _C
Stomachs showing the effects of the gastric juice after death	591 to 594 _A
Intestines of Annelides	595 to 595 _B
„ Insects	596 to 613
„ Mollusks	614 to 627
„ Fishes	628 to 652 _B
„ Reptiles	653 to 671 _B
„ Birds	672 to 692
„ Mammals	693 to 743
Small Intestines	693 to 723
Cæcum	724 to 729 _B
Large Intestines	730 to 743
Termination of the Intestinal Canal	744 to 756
Intestinal Glands	757 to 763
Salivary Glands	764 to 772 _C
Pancreas	773 to 781
Liver	782 to 810 _A
Gall-bladder and Biliary Ducts	811 to 825
Spleen and appendages of the Alimentary Canal . .	826 to 841

SUBDIVISION III. ABSORBENT SYSTEM.

	Nos. of Preparations.
Nutritive Absorbents in Plants.....	842
" " in Animals	843 to 861 A
Excretive Absorbents, as Lymphatic Vessels	862 to 868 c
" " as Lymphatic Glands.....	869 to 872

SUBDIVISION IV. CIRCULATING SYSTEM.

Vessels without a Heart	873 to 878
Hearts <i>in situ</i>	879 to 890
" consisting of one cavity or ventricle	891 to 898 B
" consisting of two cavities, which act as a systemic ventricle	898 c
" consisting of one branchi-systemic ven- tricle with two auricles	899 to 900
" consisting of one systemic ventricle and one auricle	900 A
" consisting of one systemic ventricle, with subdivided branchial auricles.....	900 B
" consisting of one systemic ventricle and two branchial ventricles, with subdivided auricles	901 to 903
" consisting of one branchial ventricle and one auricle	904 to 911 c
" consisting of one pneumo-systemic ven- tricle and two auricles, one pulmonic, the other systemic	912 to 922
" consisting of a pulmonic auricle and ven- tricle, and a systemic auricle and ventricle	923 to 934
Valves of Arteries	935 to 937
Branching of Arteries	938 to 939
Anastomosing of Arteries	940
Coats of Arteries	941 to 962 A
Coats of Veins	963 to 973
Valves of Veins	974 to 981

SUBDIVISION V. RESPIRATORY SYSTEM.

Gills or Branchiæ of Acalephes.....	982 to 983
" " Echinoderms.....	984
" " Annelides	984 A 990 A
" " Crustaceans	991 to 993 F

West Side.

	Nos. of Preparations.
Gills or Branchiæ of Cirrhipods.....	994 to 997
" " Mollusks	998 to 1017
" " Fishes	1018 to 1061
Gills and Lungs combined	1062 to 1069
Tracheal Breathing Organs	1070 to 1079 A
Allantoic Lung during Incubation	1080
Lungs of Mollusks	1081 to 1087
" Reptiles	1088 to 1123
" Birds	1124 to 1127
" Mammals	1128 to 1140
Siphons	1141 to 1142
Tracheæ or Windpipes	1143 to 1156
Larynges or Voice Organs of Reptiles	1157
" " " Birds	1158 to 1165
" " " Mammals	1166 to 1175

SUBDIVISION VI. URINARY SYSTEM.

Situation of the Kidney.....	1176 to 1184
Structure of the Kidney in Oviparous Vertebrates	1185 to 1197
" " Mammals,	
showing the Renal Vessels..	1198 to 1207
showing the Renal Ducts, in	
Kidneys with the tubuli uriniferi terminating—	
on a concave surface in the pelvis	1208 to 1217
" " on one mammilla	1218 to 1235
" " on a ridge	1236 to 1240 A
" " on many mammillæ	1241 to 1258
Kidney subdivided into distinct lobes or renules ..	1259 to 1268
Ureters and Urinary Bladder	1269 to 1276
Supra-renal Glands	1277 to 1291

SUBDIVISION VII. NERVOUS SYSTEM.

Nervous System in Echinoderms	1292 A
" " Entozoa	1292 to 1294 c
" " Cirrhipods	1294 D
" " Annelides	1295 to 1297
" " Insects	1298 to 1299
" " Arachnidans	1300
" " Crustaceans	1301 to 1303 B

	Nos. of Preparations.
Nervous System in Acephalans	1303 c
„ „ Gasteropods	1304 to 1306
„ „ Cephalopods	1306 A 1307
Brains of Fishes	1308 to 1311 A
„ Reptiles	1312 to 1318
„ Birds	1319 to 1323

South Side.

Brains of Mammals	1323 A 1341
Internal Structure of the Human Brain	1341 A 1341 z
Pia Mater	1342 to 1343
Dura Mater	1344 to 1346 A
Spinal Cord in Fishes	1347 to 1347 B
„ Reptiles	1348 to 1351
„ Birds	1352 to 1358
„ Mammals	1359 to 1378 A
Nerves of Fishes	1379 to 1385
„ Reptiles	1385 A 1385 H
„ Birds	1385 I 1385 P
„ Mammals	1385 q 1385

Numerous additions to the Series of the Nervous System, chiefly by the liberal donation of Joseph Swan, Esq., F.R.C.S., are described in the Manuscript Volume, entitled 'Supplement to Vol. III. Gallery Catalogue.'

SUBDIVISION VIII. ORGANS OF THE SENSES.

Organs of Touch of Invertebrates	1386 to 1394
„ „ Fishes	1395 to 1398
„ „ Reptiles	1399
„ „ Birds	1400 to 1402
„ „ Mammals	1403 to 1437 A
Organs of Taste of Echinoderms	1438
„ „ Insects	1439 to 1440
„ „ Mollusks	1441 to 1446
„ „ Fishes	1447 to 1449
„ „ Reptiles	1450 to 1467
„ „ Birds	1468 to 1485
„ „ Mammals	1486 to 1526 A

	Nos. of Preparations.
Organs of Smell of Fishes	1527 to 1530
" " Reptiles	1531 to 1535
" " Birds	1536 to 1540
" " Mammals	1541 to 1559
Organs of Hearing of Crustaceans.....	1559 A
" " Cephalopods.....	1559 B
" " Fishes	1560 to 1574
" " Reptiles	1575 to 1580
" " Birds	1581
" " Mammals	1582 to 1624
Organs of Sight of Arachnidans.....	1625 to 1625 A
" " Insects	1626 to 1627
Eyes, modified for seeing in Water, of Gasteropods	1628
" " " Cephalopods	1629 to 1646
" " " Fishes	1647 to 1673

East Side.

Eyes, modified for seeing in Water, of Reptiles ..	1674 to 1676 A
" " " Mammals..	1677 to 1694
Eyes, modified for seeing in Air, of Reptiles	1695 to 1699
" " " Mammals	1700 to 1740 A
" " " Birds	1741 to 1755
Appendages of the Eyeball in Gasteropods	1756
" " Cephalopods	1757
" " Fishes	1758 to 1763
" " Reptiles.....	1764 to 1771
" " Mammals	1772 to 1793 A
" " Birds	1794 to 1799

In the Rail Cases attached to this Gallery, besides the dried preparations illustrative of the above subdivisions of the Physiological Series, are twelve Glass Cases containing coloured wax models illustrating the anatomy of the Torpedo, or Electric Ray (*Torpedo Galvanii*), viz.:

No. 1 shows the male Torpedo, with the digestive, circulating, branchial, and electrical organs *in situ*.

No. 2. The digestive, renal, and genital organs of the male

Torpedo, removed from the body and displayed so as to show the course of the short and wide alimentary canal.

No. 3. A male Torpedo dissected to show the subcutaneous muscles, the mucous tubes, and the electrical organs. On the right side the large nerves are shown in their course to the electrical organ, which has been removed; but on the left side it is exposed *in situ*, showing its construction of hexagonal columns placed perpendicularly to the plane of the animal's body, so that their upper ends only are seen in this dissection.

No. 4 shows the internal surface of the integument, with the distribution of the mucous tubes.

No. 5. A female Torpedo, showing the muscles of the gills, the ovaria, and the impregnated uteri.

No. 6. The digestive, renal, and genital organs of a female Torpedo, with the alimentary canal laid open, showing the rugæ of the stomach and the spiral valve of the large intestine. An ovum is seen entering the common Fallopian aperture of the two oviducts, and a second is shown in its course to the left uterus of this viviparous fish.

No. 7 shows the brain and spinal cord *in situ*, with the distribution of the principal nerves; and the electrical organs.

No. 8 contains models of the upper surface of the brain and cerebral nerves, magnified three diameters, and of the internal structure of the brain as shown by a vertical longitudinal section, similarly magnified.

No. 9. Four of the electric columns removed from the body and laid lengthwise, showing their vascular and nervous capsules, magnified twelve diameters. A single column with the vascular and nervous capsule dissected off, showing the semi-transparent proper gelatinous tunic of the column, through which may be discerned the transverse septa, or constituent flattened vesicles, analogous to the copper or zinc plates of the voltaic pile. Magnified twelve diameters. One of the transverse septa is shown magnified thirty-six diameters, on which the distribution of the capillary vessels and electrical nerves is shown.

No. 10. This beautiful model represents the appearances in a small part of the surface of the transverse septum or 'electric vesicle,' when viewed magnified 400 diameters. The capillaries, with their single file of blood-corpuscles, are seen passing from the artery to the vein, and the ultimate meshes of the network formed by the electric nerves.

No. 11 contains a view of a group of the mucous tubes, with some of the Savian corpuscles, magnified fifteen diameters. The distribution of the nerves on the bulb of a mucous tube is modelled as seen under a magnifying power of 120 diameters.

No. 12. This Case contains a portion of the fully-developed ovarium: the impregnated uteri removed from the body, and one of them laid open, from which the embryo has been removed, and is separately displayed, together with the appended external yolk-sac. The venous system, with the renal organs and heart, and the base of the brain are also represented of the natural size; and a group of blood-discs magnified 500 diameters.

These models were prepared by Professor Calamai of Florence; presented by His Imperial and Royal Highness the Grand Duke of Tuscany to Professor Owen, and by him to the Royal College of Surgeons, January 1850.

The continuation of the Physiological Series commences on the left hand of the doorway of the UPPER GALLERY.

East Side.

SUBDIVISION IX. CONNECTIVE SYSTEM.

	Nos. of Preparations.
Adipose substances in the state of Oil	1800 to 1809
" " Marrow	1810 to 1812
" " Lard	1813 to 1825
" " Tallow.....	1826 to 1828
" " Spermaceti	1829 to 1831
" " Adipocere	1832 to 1832 E
Cellular substance	1833 to 1845

SUBDIVISION X. TEGUMENTARY SYSTEM.

	Nos. of Preparations.
Derm or Corium.....	1846 to 1864 E
Substances deposited between the Derm and Epi- derm, as	
,, Pigmentum	1865 to 1884
,, Fish-scales	1885 to 1887
,, Bone.....	1887 A
,, Shell.....	1887 B
Epiderm, or Cuticle, forming an External Covering	1888 to 1906
,, ,, lining Internal Passages	1907 to 1915
,, ,, in form of Scales	1916 to 1928
,, ,, ,, Hairs	1929 to 1975
,, ,, ,, Quills	1976 to 1979

South Side.

Epiderm, in form of Feathers	1980 to 2011 B
,, ,, Nails	2012 to 2014
,, ,, Hoofs	2015 to 2025 B
,, ,, Claws	2026 to 2029
,, ,, Spurs and Spines	2030 to 2037
,, ,, Horns	2038
,, ,, Baleen	2039
,, ,, Beaks	2040 to 2042
Chitonous Tegument	2043 to 2044
Crustaceous Tegument	2045 to 2046

SUBDIVISION XI. PECULIARITIES.

Peculiar Organs and parts of Plants.....	2047 to 2051 E
Peculiarities of Bone	2052 to 2055 A
,, Periosteum	2056 to 2057
,, Arteries.....	2058 to 2059 A
,, Veins.....	2059 B
,, Vascular Ganglions	2059 c 2065
,, Tegumentary System	2066 to 2075
Peculiar Organs of Adhesion.....	2076 to 2081 A
,, ,, Prehension	2082 to 2084 B
Air-bladders	2085 to 2095

	Nos. of Preparations.
Peculiar Glands opening upon the Head	2096 to 2106
" " at the Sides	2107 to 2109
" " upon the Back	2110
" " above the Tail	2111 to 2112
" " upon the Groin	2113
" " within the Præpuce	2114 to 2122
" " at the Anus	2123 to 2151
" " between the Toes	2152 to 2152 B
Peculiar Secretions	2153 to 2155 A
Poison-glands	2156 to 2164 B
Animals which exude a Stinging Fluid	2165
Luminous Animals	2166 to 2166 A
Electric Organs	2167 to 2189
Reproduction of the External Tegument	2190 to 2204 A
" " Extremities	2205 to 2223

DIVISION II. CONTINUATION OF THE SPECIES IN PLANTS AND ANIMALS.

SUBDIVISION I. ORGANS OF GENERATION.

A. COMBINED ORGANS.

Fissiparous and Gemmiparous Generation in Plants ..	2224 to 2226
" " " Animals	2227 to 2228
Hermaphrodite Organs in Plants	{ 2229 to 2230
	{ 2243 to 2281
" " Sponges	2231
" " Polypi	2232 to 2234
" " Entozoa	2282 to 2284
" " Cirrhypods	2285 to 2289
" " Annelides	2290 to 2296
" " Gasteropods	2297 to 2315

B. MALE ORGANS.

	Nos. of Preparations.
Male Organs, in Plants	2316 to 2322
" Acalephes.....	2235
" Entozoa	2323 to 2324 B
" Insects	2325 to 2363
" Arachnidans	2364 to 2365
" Crustaceans	2366 to 2367
" Mollusks	2368 to 2372 A
" Fishes	2373 to 2396 B
" Reptiles	2397 to 2452
" Birds	2453 to 2470
" Mammals	2471 to 2591

C. FEMALE ORGANS.

Female Organs, in Plants	2592 to 2595 B
" " Echinoderms	2236 to 2242
" " Entozoa	2596 to 2600 E
" " Insects	2601 to 2646 C
" " Arachnidans.....	2647 to 2648 A
" " Crustaceans	2649 to 2650
" " Mollusks	2651 to 2657 B
" " Fishes	2658 to 2694
" " Reptiles	2695 to 2725
" " Birds	2726 to 2734
" " Mammals	2734 A 2845

D. THE COITUS.

The Coitus	2846 to 2857
------------------	--------------

SUBDIVISION II. PRODUCTS OF GENERATION.

DEVELOPMENT OF THE OVUM AND EMBRYO.

Development of the Ovum and Embryo, in Plants	2858 to 2924
" " " Polypi	2925
" " " Entozoa ..	2925 A
" " " Acalephes..	2926
" " " Echinoderms	2927 to 2928 A
" " " Cirrhypods..	2929 to 2930
" " " Annelides ..	2931
" " " Mollusks ..	2932 to 2962 G

	Nos. of Preparations.
Development and Metamorphosis of Insects	2963 to 3173
Development of the Ovum and Embryo in	
Arachnidans	3174 to 3182
,, Crustaceans	3183 to 3195
,, Fishes	3196 to 3263
Development and Metamorphosis of Batrachian	
Reptiles	3264 to 3300 ^A
Development of the Ametabolian or Scaled Reptiles	3301 to 3374
Structure and Formation of the Ovum in Birds . .	3375 to 3389
Development of the Embryo in Birds	3390 to 3460
,, ,, Implacental Mammals	3460 ^A 3461
,, ,, Placental Mammals	3462 to 3585
Development of the Embryo in Placental Mammals,	
with Villosities of the Chorion	3529 to 3558
,, Cotyledons	3481 to 3528 ^A
Development of the Embryo in Placental Mammals	
with Annular Placenta	3652 to 3751
,, Pedunculate Placenta	3463 to 3470
,, Discoid Placenta	3573 to 3581
,, Bilobed Placenta	3583 to 3585
Modifications of the Impregnated Uterus and Ma-	
ternal Membranes in the Human Subject	3586 to 3619 ^A
Human Foetal Membranes and Placenta	3620 to 3659
Progressive Growth of the Human Foetus	3660 to 3681
Corpora Lutea	3682 to 3714
Foetal Peculiarities	3715 to 3735
Mammary Organs	3737 to 3757
Marsupial Pouch, Mammæ, and Mammary Foetus . .	3758 to 3777
Nidamental Structures	3778 to 3790

In the Rail Cases attached to this Gallery are the dried specimens belonging to Tegumentary and Reproductive Systems. Among the latter will be seen the injected preparations illustrating the structure of the Human Mammary Gland, formerly belonging to Sir Astley Cooper.

The following is a summary of the number of the Specimens at present contained in the entire Collection.

PHYSIOLOGICAL DEPARTMENT, OR NORMAL STRUCTURES.

		No. of Specimens.	
		Hunterian.	Additions.
Physiological preparations in spirit	.....	3,745	2,403
Osteological preparations	.....	965	4,943
Dry	do.	617	258
Zoological	do.	1,968	977
Fossils—			
„	Vertebrate	1,215	1,235
„	Invertebrate	2,202	138
„	Plants	292	65

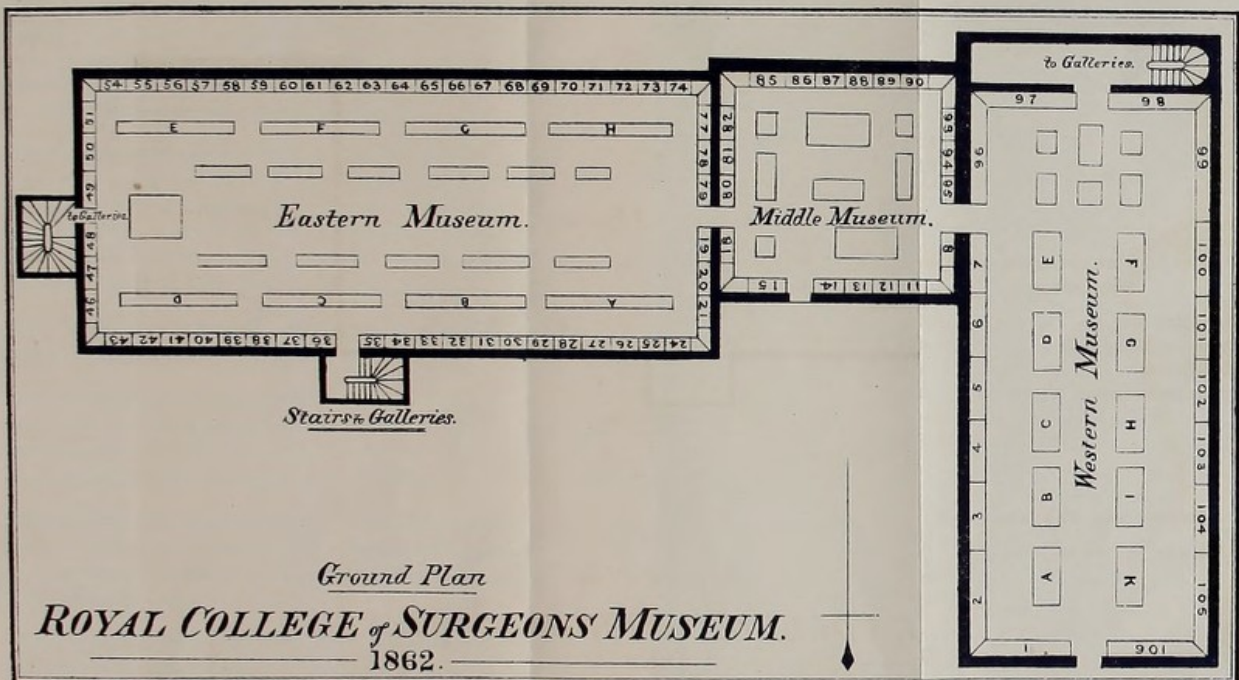
PATHOLOGICAL DEPARTMENT, OR ABNORMAL STRUCTURES.

Preparations in spirit	.....	1,084	2,471
Dry preparations (including bones)	.....	625	1,404
Calculi and Concretions	.....	536	908
Monsters and Malformations	.....	218	217
		<hr/>	<hr/>
		13,467	15,019

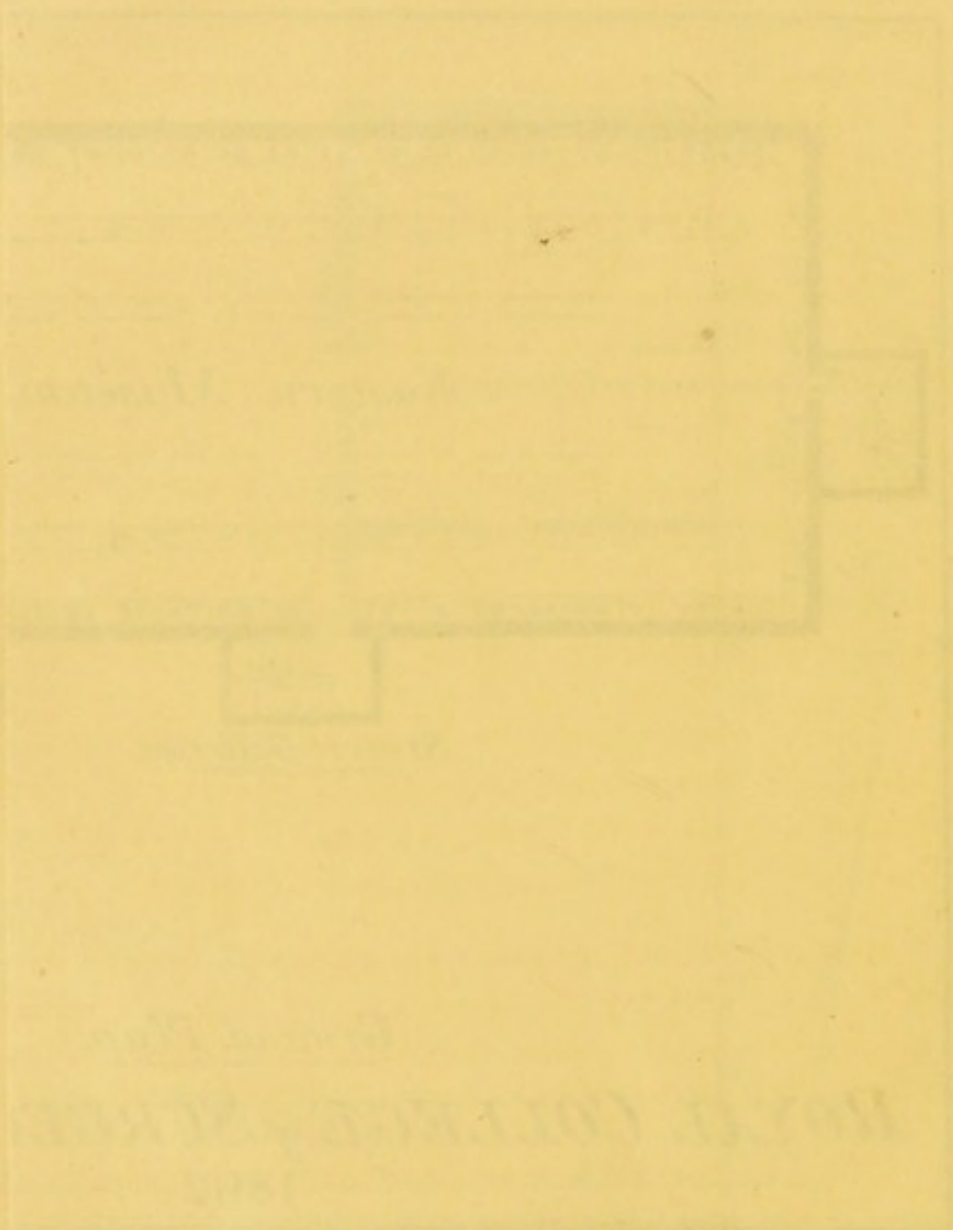
MICROSCOPIC PREPARATIONS.

Normal and Abnormal Structures	.....	215	16,000
		<hr/>	<hr/>
		13,682	31,019

Total number of Specimens 44,701



Day & Son, Lith^{rs} to the Queen



The MUSEUM is open to the Members of the College, to the Trustees of the Hunterian Collection, and to Visitors introduced by them personally or by written orders (*which orders are not transferable*), on the public days, which are Monday, Tuesday, Wednesday, and Thursday in each week, from Twelve to Four o'clock; except during the month of September, when the Museum is closed.

The Museum is also open as above to all Fellows and Licentiates of the Royal Colleges of Physicians and Surgeons in the United Kingdom; to Peers and Members of Parliament; to the Officers in the Public Service; to the Members of all the Learned and Scientific Bodies in the United Kingdom, *and to persons introduced by them respectively*; and to all learned and Scientific Foreigners.

The Secretary and Conservator will exercise their discretion in the case of applications for admission from other persons.

Persons desirous of devoting especial study to particular departments of the Museum, may have access for that purpose on Fridays, from Twelve to Four in Winter, and from Twelve to Five in Summer, on making a written application to the President.

Persons desirous of comparing specimens with those in the Museum, or of having specimens examined, or of gaining other information, are requested to present themselves on Saturdays between the hours of Ten and One o'clock.

Visitors are required to insert their names and residences in the Book provided for that purpose.

The several Parts of the Catalogue of the Collection may be obtained at the College, at the following prices, viz. :—

	Members of the College.			Other Persons.		
	£	s.	d.	£	s.	d.
Physiological Specimens in Spirits, with plates :						
Vol. i. (2nd edit. 1852)	1	1	0	1	11	6
Vol. ii. (1834)	1	1	0	1	11	6
Vol. iii. (1836)	1	1	0	1	11	6
Vol. iv. (1838)	1	1	0	1	11	6
Vol. v. (1840)	1	1	0	1	11	6
Physiological Specimens in a Dry state (Vascular and Miscellaneous), (1831)	0	3	0	0	3	0
Osteological Specimens, 2 Parts (1853)	1	6	6	1	16	6
Natural History in Spirits (<i>Vertebrata</i>), (1859) ...	0	8	0	0	12	0
Natural History in Spirits (<i>Invertebrata</i>), (1830)...	0	5	6	0	5	6
Natural History, Dry (<i>Invertebrata</i>), (1860)	1	1	0	1	11	6
Monsters and Malformations (1831)	0	3	0	0	3	0
Fossil Mammalia and Aves (1845), with plates ...	0	15	0	1	1	0
Fossil Reptilia and Pisces (1855)	0	10	0	0	15	0
Fossil Invertebrata (1856)	0	10	0	0	15	0
Fossil Plants (1855)	0	5	0	0	5	0
Pathological Specimens, Part 1 (1846)	0	5	0	0	7	0
Part 2 (1847)	0	7	0	0	10	6
Part 3 (1848)	0	7	0	0	10	6
Part 4 (1849)	0	10	0	0	12	6
Part 5 (1849)	0	5	0	0	7	0
Calculi and other Animal Concretions,—						
Part 1. in the Urinary Organs, Human (1842),						
with plates { coloured	1	3	0	1	11	6
{ plain ...	0	5	0	0	10	0
Part 2. in the Urinary and Digestive Organs of Animals (1845),						
with plates { coloured	0	15	0	1	1	0
{ plain ...	0	5	0	0	8	0
Histological Specimens: Vol. i. Elementary Tissues of Vegetables and Animals, with plates (1850)	1	1	0	1	11	6
Vol. ii. Structure of the Skeleton of Vertebrate Animals, with plates (1855)	1	1	0	1	11	6
Memoir on the Pearly Nautilus (<i>Nautilus Pompilius</i>), with plates (1832)	0	15	0	1	1	0
Memoir on an Extinct Gigantic Sloth (<i>Myiodon robustus</i>), with plates (1842)	1	1	0	1	11	6
Hunter's Observations on Geology (1859)	0	5	0	0	7	6
Hunter's Memoranda on Vegetation (1860)	0	5	0	0	7	6
Synopsis of the Contents of the Museum (1862)...	0	0	6	0	0	6

