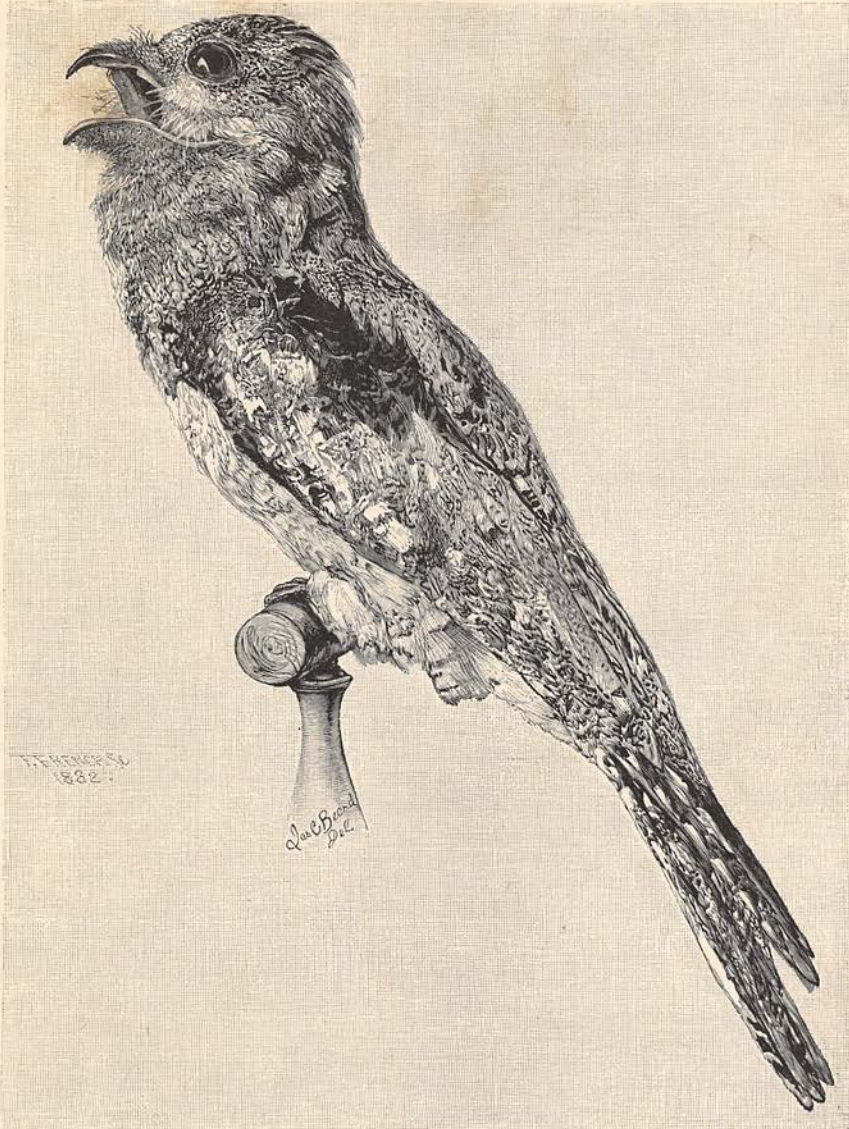


THE AMERICAN MUSEUM OF NATURAL HISTORY.

CENTRAL PARK.



SOUTH-AMERICAN GOATSUCKER.

OUR country has been credited as being slow in founding and careless in maintaining institutions of science; and our metropolis has the reputation of being particularly deficient in this respect. The truth is, however, that in the matter of time the Old World is not, proportionately, in advance. The British Mu-

seum, that immense store-house of objects and literature, was first organized in 1753, the germ from which it developed being the private collections of Sir Hans Sloane. In America, several very reputable bodies in science date almost as far back. The Philosophical Society of Philadelphia published





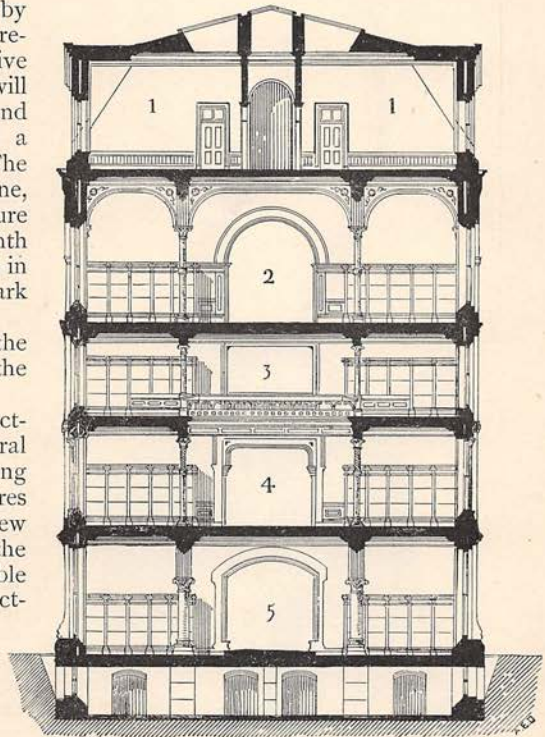


streets respectively. The section indicated by the dark lines is already erected, and the remaining portion of the plan shows the relative arrangement of the parts. The whole will form, in the event of completion, a grand structure, with four principal faces, and a central dome of imposing appearance. The entire building is to be constructed of stone, brick, and iron, thus affording a structure strictly fire-proof. At a point on the Eighth Avenue opposite a deep ravine, a bridge is in process of construction that will enable park carriages to pass to the museum grounds.

The first section of the new building is at the present time nearly filled with material of the most valuable description.

In accordance with the original plan, lectures are now given on subjects of natural science, a lecture-room and laboratory being established in the upper hall. The lectures are for the benefit of the teachers of the New York public schools, who are requested by the Board of Education to attend. The admirable means of illustration at hand render these lectures unusually attractive, and the attendance during the two years has been full.

Another hall on this story is fitted up handsomely for the library of the Academy of Sciences; and others contain the large and valuable libraries on conchology and ichthyology presented by Miss Wolfe and Mr. Stuart. The geological library, and that containing the miscellaneous natural

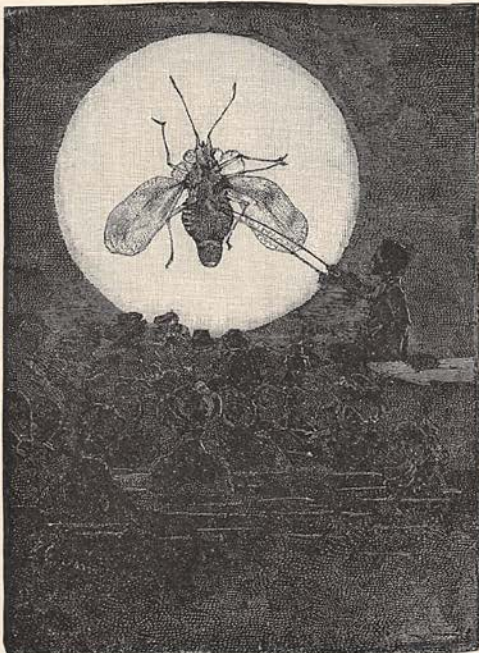


TRANSVERSE SECTION.—1. ATTIC STORY, WORK-ROOMS. 2. UPPER STORY, FOSSILS. 3. GALLERY, ANTHROPOLOGY. 4. PRINCIPAL STORY, BIRDS. 5. LOWER STORY, MAMMALS.

history books, are well stored with desirable material. Elegant rooms on this floor are occupied by a division of the U. S. Geological Survey.

Our observation of the museum must necessarily be directed to the more unfamiliar or noteworthy objects, as it is impossible in such a limited space to give a coherent description of the whole. To keep, as far as possible, in mind the natural connection between forms as we proceed, the highest will first claim attention. Man is here represented—in his lowest estate, nearly, however—by skeletons of Maori natives, from New Zealand. A valuable collection of skulls from most of the ethnological regions occupy the same case.

The next lower form in the scale of life is shown in the group of orang-outans, consisting of an entire family, five in number. This is regarded as one of the most successful pieces of taxidermy yet produced. The operator is an intelligent observer and naturalist, and had the good fortune to capture the specimens in the wilds of Borneo. The full-grown male and female, and others of different ages, are here, including a baby which swings in the tree-top. The tree, foliage, and fruit are made in imitation of



THE LECTURE-ROOM.





HEAD OF SAIGA.

specimens brought from the East; and a rude platform, or nest of leaves and small boughs, is made to represent the exact method of construction. The strange aspect of the face in the male is due to a disc-like expansion which elongates the cheeks. This feature, with the black skin and hair, constitutes a marked difference between this species and the more familiar red orang.

Following the scale downward, we turn to the next case and find a series of apes and monkeys, many of them admirably set up, and so numerous as to species that an excellent idea may be obtained of the natural affinities existing between the oranges, apes, monkeys, the highest of the group of mammals, and that which is placed next in order—the bats. The lowest forms of the primates include the lemurs, and we are told that the anatomical structure of the flying lemur justifies its being placed immediately before the bats, singular as this association may seem. We have been forced to pass by several interesting forms which would repay closer inspection. The curious nosed-monkey and the prehensile-tailed South-American spider-monkeys are among them. Many of these stuffed speci-

mens are the work of Verreaux of Paris, and admirably exhibit some characteristic attitude or habit of the living animal.

Following in the scale, after the bats, or as late authors have it, associated with them under the title insectivora, are the moles, hedgehogs, and several peculiar related creatures. Although the moles appear so lowly, and seem to possess such small heads, the skeleton here shows a large brain-cavity, nearly equal to that of the bat. These forms are, then, well up in the scale of life; for even the great "king of beasts" stands a little lower in the order of classification.

The large family of carnivorous animals is arranged next in order, with the lion at its head. The excellence of this specimen, as a work of art, is such that a gold medal of the Paris Exposition of 1867 was awarded it. A view of this animal from the rear reveals an attention to the expression of the muscles in action that is surprising, and indicates not only a great advance in the art of taxidermy, but such a knowledge of superficial anatomy as is shown in successful sculpture. It is not proposed, in an article like the present, to catalogue all the forms, or even the groups, represented in the museum, but only to give some suggestion of the objects to be seen, the mode of classification, and purposes of the collection.

To make this museum a means of conveying useful knowledge, care has been exercised in arranging the groups that an unbroken connection—so far as is possible in the present



YOUNG OWL.

light of science—may be preserved. Many of the great beasts not yet exhibited are represented by some important part, as the skeleton or skull, which is placed where the animal would belong, and suggests its alliance





HEAD OF SPECTACLED EIDER DUCK.

with others. The great Cetaceans, represented by various species of whales, dolphins, porpoises, etc., are duly represented by the jaws, or other portions of the anatomy. One perfect skeleton of a rare species of whale is in possession of the museum, and is now standing, temporarily, in the hall of Mount St. Vincent. The narwhal, a small whale-like form, having a long single tusk, which has earned for it the title of sea unicorn, is,

perhaps, one of the most interesting examples; its skull, with the single long tusk, is in the collection. Through some freak of Nature, one tusk of the narwhal is arrested in growth, while the other becomes so bulky that there appears to be but one and a central organ. The rudiment of the other tooth remains undeveloped. Instances are given attesting the enormous power of the creature; the planking of vessels is shown, having the tusk of the narwhal projecting half its length on the inner side.

The Bos family, according to late classification, embraces great numbers of familiar and strange forms. The collection of antelopes claims more time than can be given in one visit. The saiga, or Siberian antelope, is remarkable, both for the extreme beauty of its lyre-shaped horns and for being the only antelope found in the cold regions. It also differs from all others in having a flexible snout, which gives it a strange aspect in profile.

It is the purpose of the trustees to secure, as rapidly as possible, the most perfect examples of our American mammals,

not, by any means, neglecting others. The fact that some are threatened extinction renders this effort a very commendable one. The museum possesses already fine examples of the bison: male, female, and calf; of the wapiti, two fine adults; and also of the moose, now fast disappearing from the country. The Rocky

Mountain sheep and the Rocky Mountain goat, unfamiliar animals, from the fact that they inhabit the most inaccessible peaks of



YOUNG GREBE—MOTHER CAREY'S CHICKENS.





GREAT AUK.

the great range of the Pacific slope, are here represented by excellent specimens. The latter is regarded as quite closely allied to the chamois of the Alps.

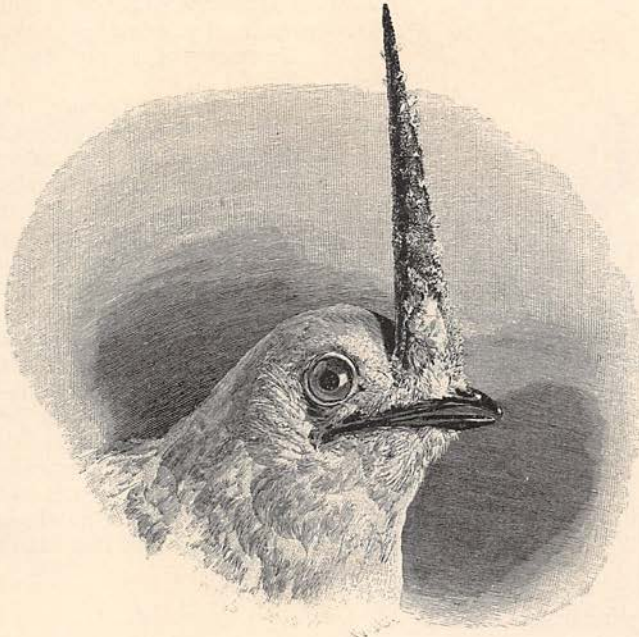
An admirable idea, carried throughout the collections, is the introduction of mounted skeletons at certain places, a glance at which shows, in connection with the exterior development, the reason why the animals are so arranged. No one, by this aid, could fail to recognize a variety of the cat family, nor would affinities of the wolf or fox with the dog be questioned. There are many instances where the affinities are more obscure, and it is the purpose of the arrangement in cases to render the subject of classification more familiar to visitors. The specimens are the best that can be procured, and

many are exceedingly rare. They are mounted on handsome polished cherry stands, and plainly labeled, the common name being placed more conspicuously than the scientific. Notes appertaining to the history of the specimens for the use of students are preserved on the bottom of the stands and in a book kept for that purpose.

The remarkably fine collection of marsupials, including twelve species of kangaroo, will be examined with great interest.

Very full collections of skeletons of mammals, reptiles, and fishes, and other anatomical preparations occupy two cases. The skeletons of fishes are among the gems of the museum, in the sense of mechanism as well as scientific value. They are split, and one-half is wired on a board, each bone independently,





BELL-BIRD.

drawings for the "Birds of America."

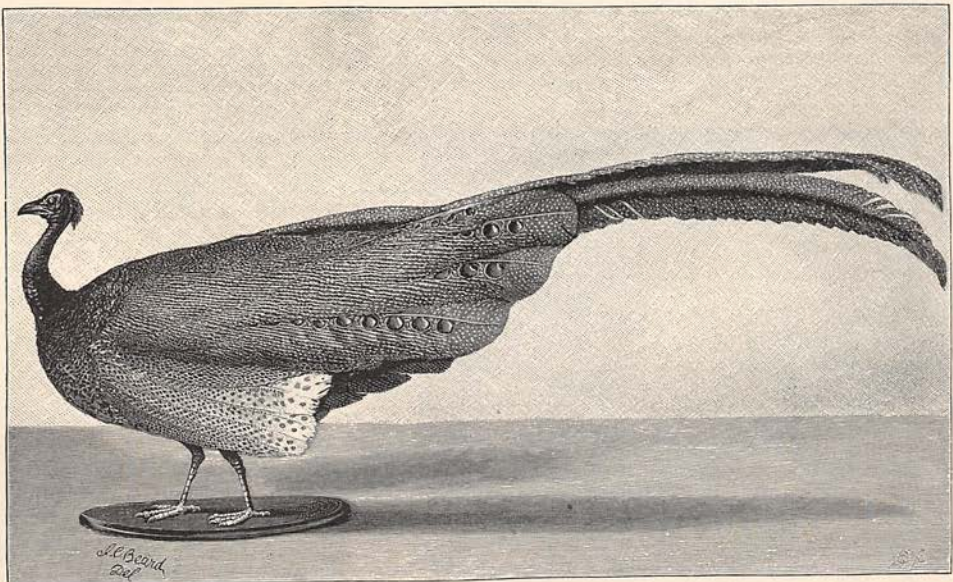
The cases are similar to those in the lower hall, but in addition to the admirable light obtained from the great windows of the alcoves, there is in the wall of each case a deep and narrow window, covered by ground glass, which aids in producing a diffused light that is ample at all times. The partitions of canvas, painted in a delicate French-gray color, give excellent contrasts, and the colors of birds are much strengthened thereby.

Earnest attention has been given here to a subject much neglected hitherto in museums: the tasteful adaptation of the necessary furniture. We see here that everything is subordinate to the purpose of exhibiting the objects in the best possible manner. The

and so adjusted that it may be removed singly for examination.

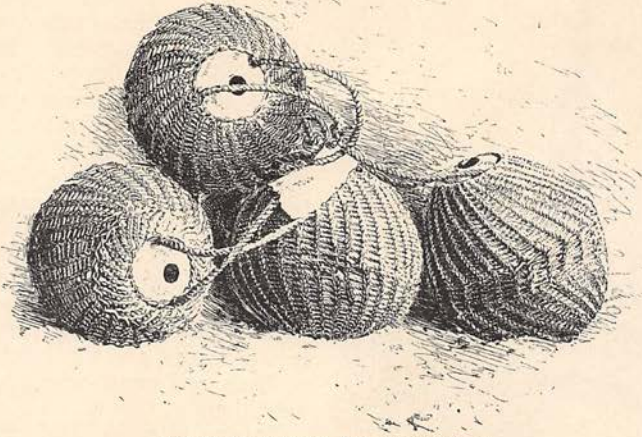
The second story is the Hall of Birds, which offers to view, on entering, the portrait of the first president of the museum, John David Wolfe. The visitor is next attracted by the display of several of the admirable, now historic, copper-plates, which bear the *fac-simile* of Audubon's delightful and artistic

specimens, being of the best that can be obtained, the more satisfactorily stand the test behind the flood of light admitted through the great plate-glass doors. The old method of native bough and moss accessories is abandoned; its too naturalistic litter proves a nuisance in a well-ordered museum. According to the present method the objects are regarded as so many works of Art. They must be mounted



ARGUS PHEASANT.





COVERED COCOANUTS FOR DRINKING-CUPS.

for exhibition and must be labeled, and subject to being placed readily in the course of classification. They must be separately mounted, that students may easily handle them. In view of these requirements a specimen, say a bird, is mounted on a perch or stand, and one that shall be in its proportions and purposes what the pedestal is to a bust or statue. These are planned to be proportionate to the specimen. The perch is sufficiently large to allow the feet to clasp naturally, and all mechanical supports are kept out of sight.

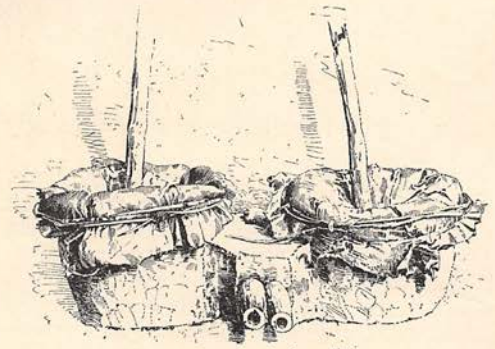
Unlike the usual custom the experiment has been tried here of placing the birds of each country in groups by themselves. This method is not only pleasing in its effect, but gives an impression to the great numbers who visit the museum of the distribution of life. Drawings, written descriptions, and classified skeletons will be added to aid the student of ornithology.



YOUNG TROPIC BIRD.

The case "A," which stands on the left, contains a valuable display of the skeletons of birds.

The cases following, from "B" to "F" inclusive, contain the birds of North America, of which over eight hundred species have now been described, including a very large proportion of small singing birds. The specimens are arranged systematically and labeled neatly and plainly. The plan is practically like that of an illustrated book—the highest form on the left, others succeeding from this to the right on successive rows, the printed labels reading like the text of a book, with the objects on the same page. Family labels indicate the



AFRICAN BELLOWS.

proper limits, and the individual labels give the generic and other distinctions.

A careful study of the true relations of birds with each other determines that the thrushes rather than the birds of prey are the typical form; that they represent the highest ideal of bird organization, the brain having a good share in this consideration. We will not therefore encounter the great eagles and hawks, formerly assigned the first place in bird classification, until we have passed the groups of song-birds and sparrows.

The place of honor is given to the wood-thrush, the delightful songster of our woodland, and one of the most common birds in this region during the warmer months. Notwithstanding, he has the reputation of being only heard, not often seen. He is very frequently noticed in Central Park, where his delightful song attracts attention





BLACK COCKATOO.

from being uttered at evening and morning particularly. His musical notes are pleasantly described by Wilson, who likens them to the "double-tonguing of a German flute."

Among the crows the great American raven is noticeable, and is, probably, as much a rarity to the average visitor as any. A few are known to visit North-eastern Maine, but their principal habitat is in the far North-west.

The curious running cuckoo from California is unfamiliar; and two species of parrots from Texas are the only representatives of that group found north of the tropics.

The owl family now succeed, and we are attracted by a group of three examples of the great gray owl, arranged in such proximity as suggests a collection of judges.

Following next in rank is a series of splendid specimens of the Greenland gerfalcon, a large white bird with dark slashes on its plumage.

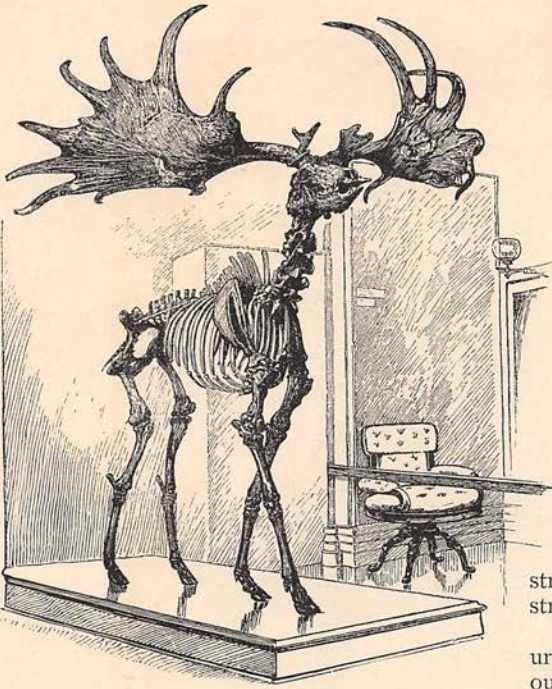
The eagles are fine, particularly the golden variety.

The vultures follow, represented by two species: the turkey-buzzard and the great California vulture; the latter one of the newly discovered birds since the occupation of the Pacific slope.

Several magnificent wild turkeys lead the gallinaceous tribe. Many excellent specimens of the taxidermist's work are in this case—the collection of the chickens of prairie-hens, grouse, ptarmigan, and quail being very attractive.

Among the cranes, the great whooper is notable. If time permitted, the curator would show a prepared specimen of the breast-bone of this bird, which has the windpipe curved backward and elongated more than a foot, occupying the center of the keel of the breast, which separates to admit it, and then, coiling around the base, returns and enters the lungs, having been allowed all this elongation to increase its musical capacity. It is





FOSSIL SKELETON OF THE EXTINCT IRISH ELK.

remarkable that this peculiarity of windpipe occurs also in a single species of swan.

We must neglect many interesting beach-birds and sea-fowl, but should not pass without notice the gorgeously colored wood-duck. Close by are three examples of the Labrador duck, which species is now regarded as wholly extinct. A few years since this duck was known to be rather abundant on our North-eastern shores.

The eider is represented by several species. The spectacled eider is particularly curious, as our portrait of him shows.

Well-nigh at the foot of the list, in the natural classification, we meet the great auk, well shown in the accompanying illustration. This bird is closely allied to the penguins, and, though they do not have the fin-like appendages corresponding to the wings, yet those members are not far removed from them in structure, being useful only as swimming organs. This bird has been extinct nearly fifty years, so far as our knowledge goes. Consequently, the few specimens now in possession of museums are regarded as extremely valuable. The present specimen was the gift of Mr. Robert L. Stuart. The price paid for it in 1868 was \$625 gold. The species was abundant in the waters of our north-eastern coast as far south as Nahant, and, in Audubon's day, was remembered as not at all rare. Forty specimens only are known to science, four

of them being in museums of this country. Several young marine birds are here represented, such as the Mother Carey's chicken.

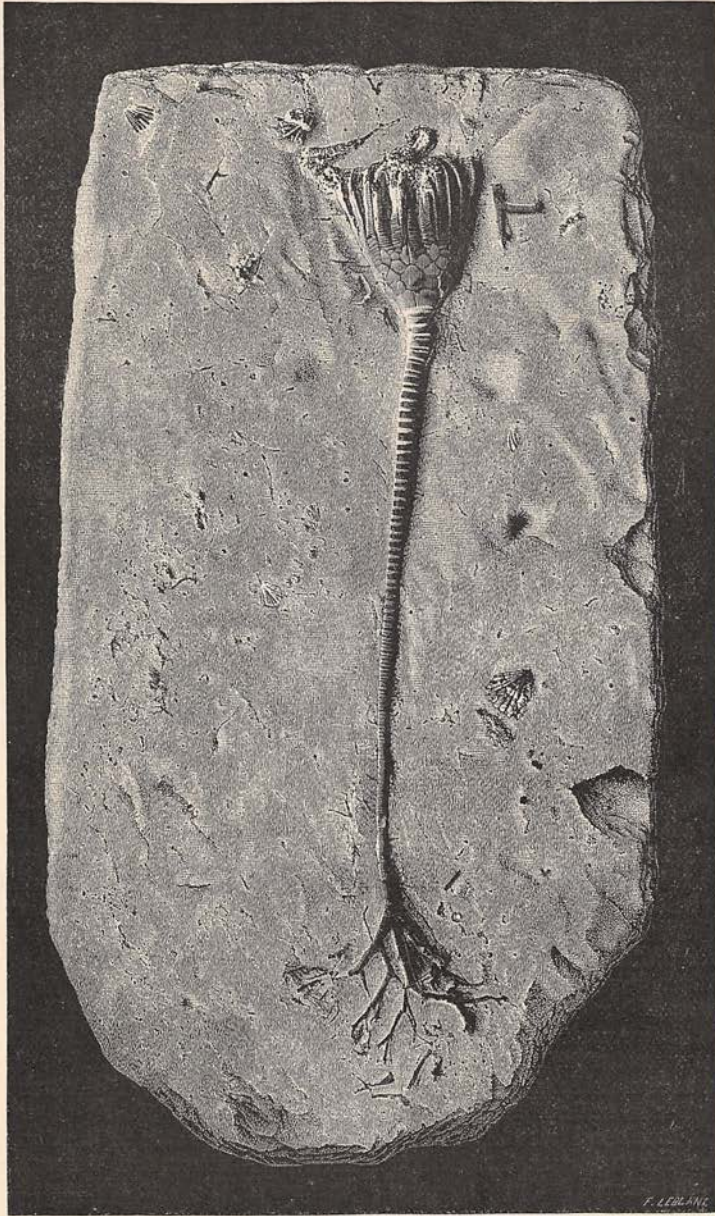
The birds of South America are next arranged, where will be seen the same classification, the thrushes of that country leading. It will prove instructive to compare the family group or individual species with those of other countries. Although the birds of South America are the more brilliant in color, other countries show varieties quite as interesting in other respects. The bell-bird, here pictured, travelers tell us, utters notes that clearly simulate the tones of a convent-bell heard at a distance. The elongated wattle on its beak is hollow, and connected with the nostrils, and is thought to be instrumental in the production of the strange notes.

The great goatsucker is a notable creature quite allied to the whip-poor-will of our woods, and, like it, has a mouth of enormous width, to take in the great moths that flit in the twilight.

The visitor is likely to make a stand at the case of humming-birds, and say, "No farther at present"—and it is not surprising. There are three hundred of those little birds, gorgeous in plumage, and equally strange in decoration and comparative size. Some are very nearly as large as a sparrow, with extraordinary beaks, long and curved; and others are metallic-lustered morsels, marvelously diminutive, suggesting *Mercutio's* "team of little atomies," and his "waggoner, a small, gray-coated gnat"—they are so very small, and we find one now and then very sober in color. With the exception of three or four that visit the States as high as New England, the three hundred different species are natives of Central and South America—not a single species being native to the Old World.

In the collection of birds of Europe and Asia we notice the little Japanese duck, or mandarin, and naturally compare it with the wood-duck of our waters; others are very closely allied, and the exquisite beauty of both will prevent a hasty judgment in favor of either. A wonderfully fine group of pheasants is also arranged here. The Argus-eyed must be seen to gain an adequate idea of its beauty. Coming to the smaller birds of Europe, we find two of the robin-redbreasts classified among the warblers, and not among the thrushes. Our bird which we call





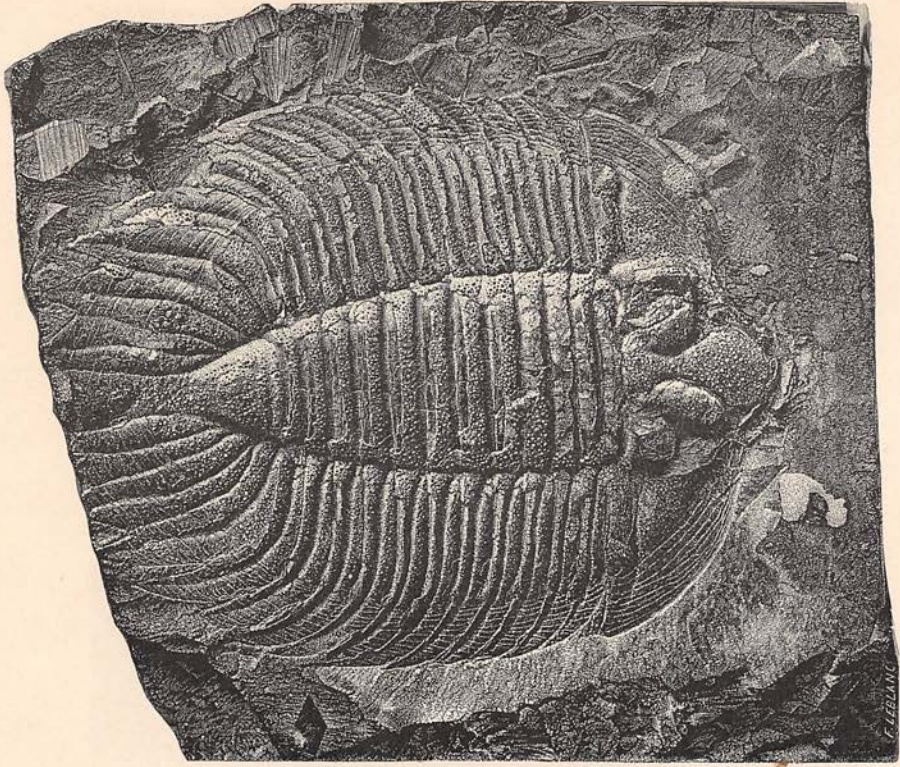
FOSSIL ENCRINITE (STONE LILY), EUCALYPTOCRINUS CRASSUS.

robin is really a thrush, and quite different from the English robin, and much larger; the name was applied by the early English settlers, from a sentimental feeling in regard to the resemblance between the two.

The grand specimens of large walking birds in the African cases are notable. Then follow the birds of the Pacific Islands. The gorgeous display of color among the parrots is in many specimens most surprising. The

colors seem to be indiscriminately thrown upon them, often in combinations which an artist would call inharmonious. In this particular we are apt to overlook the fact that they have not their legitimate surroundings of rich flowers, foliage, bough, or rock, with their accessories of parti-colored mosses and epiphytes. The great cockatoo is one of the rarer forms. The nearly equally large black ones, with yellow and red tail-feathers re-





A FOSSIL CRUSTACEAN (TRILOBITE), LICHAS BOLTONI.

spectively, are also very unfamiliar, and are strikingly contrasted with the pure white cockatoos with sulphur-colored crests.

The interest in birds seems to culminate at this juncture, for the birds of paradise exhaust all our stock of admiration; there seems to be nothing yet surpassing them. Some of these look and feel as if they were made up of velvet or seal-skin fur, nearly all the feathers being of this dark hue, with here and there a sharp contrast in a metallic green tail-feather or a crest of emerald scales, gleaming in all the richness of burnished metal. The next that catches the eye is just as beautiful, just as strange, yet as different in shape and ornamentation as if it was of another family. The essential features, however, that unite such strangely varied forms are anatomical. A porcupine and a beaver differ greatly in their external "make up," yet a comparison of their skeletons would readily show their close affinity. These birds exhibit the most remarkable differences of all. One pert-looking little fellow has a standing collar of the Queen Bess pattern, the material bearing a strong semblance to yellow spun glass. His mate is the shape of any other respectable bird, and almost without color or ornamentation. In

many families of birds the sexual variation of color, ornament, and size is very remarkable. In the present family the females are all perfectly plain, while the males are highly ornamented. Among the gallinaceous birds, the bustard for instance, the hen is not over one-half the size of the male. Among the hawks the male is very much smaller.

We turn from the collection of birds to the gallery above, where we find the ethnological specimens. The picture by Bradford, representing the *Polaris* in winter quarters, hangs in the southern end, and fitly supplements the maps and the collections of Esquimau objects that are intended as guides to ethnology.

Arranged in accordance with this design are a very large number of implements and weapons from all known or inhabited parts of the earth, collected by Appleton Sturgis, Esq.

A large number of these articles from Central Africa have been lately added. The curious bellows, of which we give an illustration, is one of the number.

Porto Rico and several of the islands of the Antilles are noted for the finished character of the stone implements found there. The most wonderful among these are the

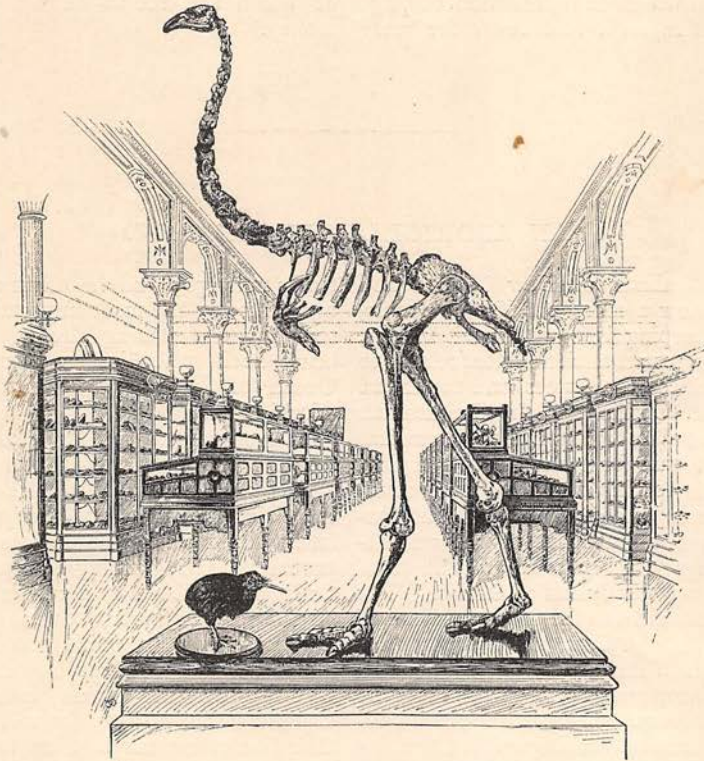


horse-collar shaped stones. They are handsome granite rings, oval, and shaped precisely like the collar of a horse, and one of them weighs more than eighty pounds. They are polished and carved with heraldic-looking figures. Other carved and polished stones are here, also found in the same localities. As none of these are familiar to archæologists no conception of their uses has yet been formed. Here, too, are models of the cliff houses of New Mexico, and those of the Lake-dwellers, besides vast numbers of flint implements found in the latter localities. The collection of ancient objects in flint from the Somme

the great collection of fossils which was purchased of Prof. Hall, of Albany, the results of a life of work in the field. Added to this are many foreign specimens of value.

A great slab of sandstone, from the Portland quarries on the Connecticut River, shows five distinct claw-like impressions made by some enormous reptile while the stone was still the soft sand of a beach. Other large slabs show foot-prints and trails unmistakable in character, and others again the phenomena of glacial action.

The giant bird skeleton, which stands at the entrance of this hall, is one of several



FOSSIL SKELETON OF *DINORNIS MAXIMUS*, AN EXTINCT BIRD OF NEW ZEALAND—AND *APTERYX*, A SPECIMEN OF ITS NEAREST LIVING REPRESENTATIVE.

Valley in Northern France is one of the best in the world. The Stone period of North America is also remarkably well represented. Indeed, though but few years have passed since the organization of this Museum, it possesses one of the most valuable and useful archæological cabinets in this country.

The Geological Hall in the next story above is rather more imposing than the others: its high walls and great iron columns and girders—its large windows, admitting a flood of light, all impress the visitor very sensibly. The larger portion of this hall is devoted to

species of extinct forms found in considerable numbers in New Zealand. They are the moas, so called by the native Maoris, who have a tradition that these creatures lived within the memory of their near ancestors. This is thought to be true, as the bones are found in some instances with traces of ligaments attached, and egg-shells with the lining membrane adhering. The largest specimen yet found measures fourteen feet in height.

The Irish deer, whose spread of antlers measures eight feet, is found fossil in the bogs of Ireland. The appearance of the specimens,



as well as tradition, points to the conclusion that it has not been very long extinct.

The collection of minerals is arranged in the floor cases, and presents a rich exhibit of the principal forms.

One may tarry a long time in this hall with pleasure and profit. The large models of the State of New Hampshire, its geological features, etc., and of the great Western plains, should claim attention.

The figure of a trilobite on page 524 is one of numerous species found in New York State, and illustrates very well a singular extinct form, closely allied to the king-crab of the present day.

The crinoid which is represented on page 523 is one of myriads that cover the rocks

of certain geological formations in New York State as elsewhere; it is easily recognized as star-fish or echinoderm, though having a stalk which held it on the sea bottom. One of the very few of these forms existing at the present day is seen preserved in alcohol within the case devoted to the numerous species of crinoids.

Although we have sketched this collection very briefly, we have perhaps said enough to show that it is too valuable to be exposed to the risk of destruction. The labor of a quarter of a century on the part of its managers would not suffice to restore it, even if it were possible to duplicate all the specimens, many of which are not to be had for love nor money.

*J. B. Holder.*

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## AN ABORIGINAL PILGRIMAGE.

THE Zuñi Indians, of New Mexico and Arizona, are now a mere handful of people, but in their keeping is a wonderful history, which perpetuates an ancient cultus related to that of the Toltecs, the Aztecs, and the Incas. Mr. Frank H. Cushing, of the Smithsonian Institution, who by living among them has made a great gain for ethnological learning, will contribute to this magazine an account of his unique experiences. Our present purpose is to give an account of the remarkable pilgrimage of a number of the chief men of Zuñi to "the Ocean of Sunrise." For many years, it had been the dream of some of these men to visit the East, which was to them a land of fable. Tales of its marvels, incredible because inconceivable, from time to time had drifted to them. "The Apaches are bad, but they have been to Washington; the Navajos have been to Washington; all Indians have been to Washington but the still-sitting ones," said the Zuñis. The motives that prompted the expedition were various. On Mr. Cushing's part there was, first of all, the advancement of his work by strengthening the ties between the people and himself; and second, the good of the people by arousing them to a desire for education and advancement through what was to be seen in the East. With the Indian pilgrims the reasons were more complex. At their first council upon the subject, Nai-iu-tchi, the senior priest of the Order of the Bow, into which Mr. Cushing had been initiated the previous autumn, declared that whoever else was to be chosen he cer-

tainly must go; and he advanced what was agreed to be the most important of the reasons for undertaking the trip—namely, to bring back to Zuñi sacred water from "the Ocean of Sunrise" or "the Waters of the World of Day."

The primary reason for taking the "water that brings rain, and the water of the sacred medicine altar," as the Zuñis term it, from the Atlantic Ocean was the position of the latter with reference to the sun. Nai-iu-tchi promised Mr. Cushing entrance into the Order of the Kâ-kâ as a reward for the great service of conducting them to the ocean. Otherwise entrance could not have been obtained without marriage into the tribe. The Zuñis say that their gods brought them to a dry and sterile country for a home, but that their forefathers taught them the prayers and songs whereby that land might be blessed with rain. They therefore addressed their prayers to the spirits dwelling in the ocean, the home of all water, as the source from which their blessing came. They believe their prayers brought the clouds from the ocean, guided by the spirits of their ancestors, and the clouds gave the rain. These prayers could not be efficacious, however, without the help of a drop of ocean water to start them aright.

The Zuñis have had a knowledge of the oceans from time immemorial, and, besides the Atlantic and the "Ocean of Hot Water" (the Gulf of Mexico), they speak of the "Ocean of Sunset" and the "Ocean of the Place of Everlasting Snow," and they include