

NATURAL HISTORY

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and from New Zealand and Australia westward to Ceylon. The collection is a large one and many of the specimens are still in excellent condition.—CHARLES H. TOWNSEND.

VERTEBRATE PALÆONTOLOGY

CHARLES W. ANDREWS, for many years a distinguished vertebrate palæontologist of the British Museum staff, assistant to Keeper Arthur Smith Woodward, passed away on May 25, at the age of fifty-eight. When last in the British Museum he was engaged in mounting and describing a gigantic skeleton of the straight-tusked elephant (*Elephas antiquus*), which may some time appear as his last published contribution to vertebrate palæontology.

The work which will give him an enduring reputation is his share in the discovery and description of the Upper Eocene and Oligocene fauna of the Fayûm, Egypt, following the original discovery of Hugh Beadnell. With the coöperation of Beadnell, he visited Egypt and made the great collections for the Egyptian and British museums, which formed the basis of his remarkable memoir: *A Descriptive Catalogue of the Tertiary Vertebrata of the Fayûm, Egypt*, published by the British Museum in 1906. This is a monumental work, establishing for the first time in the history of science the original home of the Proboscidea, as well as the probable center of evolution of the Hyracoidea and of the Sirenia. The principal conclusions reached in this great volume will stand as a monument to his keen perception of the affinities and relationships among the vertebrates. The names which he gave to these animals, *Palæomastodon*, *Phiomia*, *Mærittherium*, and *Sagatherium*, were sagaciously chosen.

Vertebrate palæontologists the world over will mourn the untimely loss of this genial and helpful fellow worker, and will extend to his colleagues on the staff of the British Museum and to his family their sincerest sympathy.

PRESIDENT HENRY FAIRFIELD OSBORN of the American Museum has been notified by Dr. Serge d' Oldenburg, permanent secretary of L'Académie des Sciences de Russie that, "filled with high regard for his scientific works" the academy has inscribed Professor Osborn's name upon the list of its corresponding members and that the diploma signaling this appointment will be sent to him soon.

THE FAUNTHORPE-VERNAY EXPEDITION

GAPS THAT ARE BEING FILLED IN THE MUSEUM'S COLLECTIONS.—Until very recently the greatest gaps in the bird collection of the American Museum were among the avifauna of tropical Asia and the islands south of that continent. Almost one-third of the genera the Museum lacked were those of birds inhabiting that general region. A very great service is therefore being rendered the institution by the Faunthorpe-Vernay Expedition, which has now collected a total of 847 birds from localities extending from the southern foot of the Himalayas to the southern end of the Indian Peninsula and eastward to Tenasserim and Siam.

The first three shipments were from the northern part of this area, comprising 220 skins prepared by Messrs. Jonas and Kinloch in 1922 and 1923. They represented approximately 128 species, and formed a most welcome and important addition to the collection of Indian birds in the Museum.

Mr. Vernay next sent a dozen specimens (partridges, sand grouse, and a Macqueen's bustard) collected by Major Stockley in Sind and Hissar, and a great Indian bustard from northwest India.

Still more remarkable are the collections recently received from Tenasserim and Siam, where Mr. Vernay is accompanied by the veteran collector for the British Museum, Mr. Willoughby P. Lowe. First came a couple of Burmese peacocks, the male of which is being mounted for exhibition, and two gigantic hornbills, of which one will also fill a gap in the mounted collection.

Two cases recently unpacked contained 596 bird skins, giving a wide representation of the avifauna of the Malayan region, from the smallest flower-peckers to the pheasants and eagles. A great variety of families and genera was included, and it was noted with special pleasure that the shipment contained the falcon-like *Poliohierax*, several beautiful pheasants of the genus *Polyplectron*, some exceedingly large nightjars, not less than fifteen species of woodpeckers, one of the very rare Indian honey guides, and a splendid series of passerine forms. The broad-bills are especially well represented (by five species), as are also the babbling thrushes (Timeliidæ), the bulbuls (Pycnonotidæ), and the thrushes (Turdidæ).



Mr. Arthur S. Vernay seated in front of his grass hut.—At the left is the head of one of the two buffaloes that he succeeded in securing for the American Museum



A Malayan tapir in the Rangoon Zoo.—Among the prizes obtained by Mr. Vernay was a specimen of this species, which he shot by moonlight

Among the mammals obtained by Mr. Vernay unusual interest attaches to a specimen of the Malayan tapir, which was secured in the northernmost part of the range of this species. Sureness of aim such as that required to lay low this animal has few parallels in the annals of marksmanship, for Mr. Vernay shot the tapir by moonlight as it was splashing about in a water hole near his camp.

A cable from Mr. Vernay dated April 24, later confirmed by letter, contained the important announcement that two splendid specimens of the buffalo had been secured,—a bull with horns that, measured from the tip of one horn downward along its wide curve, then across the skull and upward in similar manner to the tip of the other horn, registered 110 inches, and a cow with a horn expansion only one inch less.

Keen interest was aroused by the statement in yet another communication that not only the American Museum, but the New York Zoological Society as well was to be the beneficiary of Mr. Vernay's enterprise and devotion. Two young male gibbons, the one black, the other white, are on their way to New York to join the menagerie in the Bronx. Mr. Vernay writes that they became so tame after a week of kind treatment that when he released them from confinement, they would climb the highest trees only to return at meal times and in the evening, when they would enter the box that was provided for them. "The black one," he adds, "is called Myonk (the Burmese for monkey) and the white one Disha (Deeshah) after one of our elephant men who resembled the ape." Two small crocodiles are also being shipped at the same time.

A summary of the number of different specimens secured by the Faunthorpe-Vernay Expedition discloses the fact that there is a total of 246 mammals, subdivided among the following orders: Insectivora 7, Carnivora 37, Artiodactyla 58; Proboscidea 3, Perissodactyla 5, Rodentia 101, Chiroptera 4, Primates 31.

ASIATIC RHINOCEROSSES SECURED BY THE FAUNTHORPE-VERNAY EXPEDITION.—Under date of May 27 Mr. Arthur S. Vernay cabled President Henry Fairfield Osborn that he had succeeded in obtaining a female and young male of the rare Sumatran rhinoceros (*Dicerorhinus sumatrensis*). Few specimens of this interesting form have reached museums,

though one lived for some years in the London Zoological Gardens. Contrary to what one might expect, *D. sumatrensis* is totally different from the great, one-horned, Indian rhinoceros (*Rhinoceros unicornis*). In the structure of its cheek teeth it shows a closer relationship to the black, or hook-lipped, African form (*Diceros bicornis*). Like the latter it has two horns and in connection with its life in the



A skeleton being conveyed to camp for ultimate shipment to the American Museum

forest has adopted similar browsing habits. It is the smallest of living rhinoceroses, remarkable for its fairly dense hairy coat and the slight development of the folds of its rough granular hide. The Sumatran rhinoceros inhabits the countries east of Bengal, ranging from Assam through certain parts of Burma and Siam into the islands of Sumatra and Borneo. The equally rare, but more widely distributed, lesser one-horned Indian, or Javan, rhinoceros (*Rhinoceros sondaicus*) has extended its haunts into the island of that name.

Not only are the life histories of these three Asiatic rhinoceroses rather imperfectly known but the specimens preserved in museum collec-

tions are inadequate and scientists have consequently been handicapped in their efforts to solve many vexing questions concerning these animals. Such valuable contributions as those made by the Faunthorpe-Vernay Expedition are, therefore, of the highest importance.

For many years Professor Osborn has devoted himself to the study of rhinoceroses and has published extensive works upon the different problems presented by them, especially those of the relationship and evolution of fossil forms. Continued comparison of recent with prehistoric forms is most necessary. Only in this way can one satisfactorily interpret the habits of rhinoceroses of the past, now known only through skeletal remains, often incomplete.

In the evolution of different groups of heavy, gigantic mammals a variety of grotesquely shaped horn structures has been developed, partly to clear a way through the jungle, partly as a means of defense against enemies, and finally as weapons in the competitive battles among the bulls during the rutting period. Guided by these facts Professor Osborn suggested that the great Indian rhinoceros also may use its horn, which sometimes attains a length of as much as twenty-four inches, for purposes of defense.

It is most interesting that his belief is confirmed by a naturalist so well versed in the habits of Indian big game as Colonel Faunthorpe. This sportsman has no doubt that occasionally the Indian rhinoceros uses the horn to inflict wounds upon adversaries such as elephants. He himself shot a rhinoceros in Nepal which had a large deep puncture in the abdomen, as well as other injuries in its hide. These looked as though they were the result of a contest in which horns played the important rôle. They did not resemble wounds inflicted by the triangular, forward- and upward-directed, two lower incisors, generally called the tushes, which are of service also in partly cutting to pieces the tubers and other vegetation on which the animals feed.

For a long time it has been known that the tushes are the chief weapons upon which the great Indian rhinoceros relies in an attack against its enemies including man, as Mr. Roderick T. Mackenzie has kindly pointed out in a letter to Professor Osborn. Mr. Mackenzie states, furthermore, that the horn is always more or less worn away by digging up roots. As the animal rushes forward,

head up, muzzle and lower lip drawn back, and mouth open, the tushes are bared for action. Considering the tremendous impact of the body and the unwonted rapidity of motion of the head under such circumstances, a rhinoceros is liable to inflict terrific wounds. Indeed, it makes a boar's ripping look like the effects of a mild display of temper when it puts into action these sharp, chisel-like weapons. It even cuts open the legs of elephants employed to force it from its retreat.

The mode of attack of the great Indian rhinoceros is, therefore, totally different from that of the two African rhinoceroses, which, deprived of incisors, depend entirely upon charging with head lowered, occasionally goring their enemies with their often sharp-pointed horns. Bulls of the African "black" rhinoceros may fight to the death. Bronsart von Schellendorf gives us the following account of such a contest: "In the next moment both bulls rushed around each other in a circle, furiously snorting, and each one trying to plunge its horns into the body of the other. The older of them suddenly stumbled. Immediately he received two deep thrusts in the breast and belly. The long, sharp, dagger-like horn of his adversary had entered him for about two-thirds of its length. In vain did he try to raise himself. Quick as a flash he received another well aimed thrust in the middle of the neck. After several piercing shrieks he lifted his heavy head up and down, trembled and died."—H. L.

PUBLIC EDUCATION

THE EXPEDITION OF THE AMERICAN MUSEUM TO SWEDEN AND LAPLAND has begun its work under conditions that are an assurance of success. Thanks to the friendly assistance of Legationsrådet Hendriksson, a letter was secured from the head of the educational department (Eklestastik Departementet) of Sweden, requesting all those connected with the schools, colleges, and universities to give Dr. G. Clyde Fisher every assistance within their power. Doctor Fisher is, furthermore, being aided in his visits to the schools by Miss Staël von Holstein, who in addition to her knowledge of the Swedish language and of Swedish educational institutions has a viewpoint regarding American educational standards gained through several years spent at Columbia University. One of Doctor Fisher's main purposes in visiting Sweden is to obtain an insight into the Swedish educational