It is therefore a rare distinction for me as a member of the committee which has made this award to ask the president in the name of the academy to hand the Agassiz Medal to Columbus O'Donnell Iselin. I only wish that Mr. Agassiz had lived to know him.

THOMAS BARBOUR

PRESENTATION OF THE DANIEL GIRAUD ELLIOT MEDAL FOR 1935, WITH ACCOMPANYING HONORARIUM OF $200, TO EDWIN H. COLBERT

THE award to Edwin H. Colbert for his "Siwalik Mammals in the American Museum of Natural History" (*Transactions* of the American Philosophical Society, 1935, quarto, x + 401 pp., 198 figures in text, 1 folding map) seems especially timely and appropriate, because just a century earlier Cautley and Falconer published the first of their important contributions on the fossil mammals of India. Since then the field has been ably developed by their successors, especially Lydekker, Pilgrim, Matthew and now Colbert. The latter, after giving an excellent summary and analysis of his predecessors' results, has brought in a wealth of new and significant observations of his own.

Although this work is written in English, the technical portions, albeit through no fault of the author, would be hardly more intelligible to the English-speaking world than Chinese, except for the handful of students who have mastered the technical language of paleontology. This branch of science has inherited a double load of technical words, first from geology, and second from anatomy, besides contributing an enormous and rapidly growing vocabulary of its own. But however technical the author was compelled to be in the descriptive portions of his text, he has succeeded in achieving great clarity in the statement of his more general results, which are of wide interest to students both of mammalian evolution and of intercontinental exchange of faunal elements.

In summarizing the work of his predecessors, the author notes that: "Lithologically the origin of the (Siwalik) series is probably simple, representing increasingly coarse river detritus brought down from a rapidly rising mountain mass. Moreover, there are no great secondary changes to be found in the Siwalik rocks, evidences of automorphism and glaciation being absent. The factor of predominant importance is that of erosion and deposition by rapidly flowing rivers." He sets forth fully the accurate records as to locality and stratigraphic levels which were kept by Barnum Brown when the latter made his collection of fossil mammals for the American Museum in 1922. Brown's work in this field was amazingly extensive and productive, especially in view of the great difficulties of collecting in this super-torrid region.

The main part of Colbert's memoir deals with the description of the fossil mammals, the classification and phylogeny of many of the mammalian families, the migrations of certain mammals to and from India during late Tertiary and Quaternary times.

Among the most remarkable mammals dealt with was *Dissopsalis,* a somewhat wolflike placental carnivore with a remarkably small brain—the last survivor of the Eocene and Oligocene creodonts.

In the section on the horses Colbert's measurements and graphs confirm Matthew's conclusion that the two Siwalik "species" of *Hipparion* grade into each other. He further shows that with regard to their molar patterns these forms were definitely more advanced than the American *Hipparion mohavense* Merriam and *H. gratum* Osborn. From this fact and from the complete absence in the known record in Europe of ancestral *Hipparions* of earlier date, Colbert favors the view that these forms originated in North America and spread to India during the lower Pliocene.

The ten species of Siwalik rhinoceroses are distributed under five genera, of which *Gaindatherium* Colbert is more primitive in many features than the existing *Rhinoceros indicus.* It is also intermediate between the latter and the very primitive and older *Caenopus.* Colbert applies and extends D'Arcy Thompson's method by projecting the drawings of several rhinoceros skulls against a grid of coordinates; in a sequence of four rhinoceros skulls the coordinates become progressively distorted in several directions, indicating differential emphasis of certain features.

One of the most notable parts of the memoir deals with the fossil pigs of India, which branched into fifteen genera and numerous species. Colbert divides them into six groups and traces several phyletic lines through the lower, middle and upper Siwaliks. In one of them, *Conohyus,* the posterior premolars developed great conical crowns for smashing and cutting the food. In another, *Listriodon,* each molar bore two cross-crests and thus convergently resembled a tapir's molars. In still another, *Sus falconeri,* the skull is already highly peculiar and needs only the final stage to complete its transformation into that of the African wart hog (*Phacochoerus africanus*).

In describing the fossil Indian hippopotami Colbert quotes the remarkable suggestion of C. W. Andrews that the hippopotami, usually supposed to be related to the pigs, may have been derived from some of the anthracotheres, especially the Siwalik *Merycopotamus.* Colbert gives a thorough analysis and comes to a conservative conclusion but leaves a strong case for the reality of Andrews's interpretation of the evidence.

The descriptive section ends with an excellent analysis of the twenty genera and numerous species of fossil giraffes centering in the Siwaliks. Colbert divides them into three main series: The first and

most primitive being represented by the living okapi of the Belgian Congo, the second by the typical giraffes, the third by such massive giants as *Sivatherium*, whose skull bore huge branching bony "horns."

In the closing analysis on the migration of certain mammals to and from the Siwaliks we see India as at the crossroads, exchanging mammals with Europe and Africa on the one hand and with Asia and North America on the other.

In view of the merits of this work mentioned above, as well as others, the committee has unanimously recommended the award of the Daniel Giraud Elliot medal and honorarium for 1935 to Edwin H. Colbert.

WILLIAM K. GREGORY

PRESENTATION OF THE DANIEL GIRAUD ELLIOT MEDAL FOR 1936, WITH ACCOMPANYING HONORARIUM OF $200, TO ROBERT CUSHMAN MURPHY[4]

FEW writers have had a more prolonged and varied preparation for their task than Dr. Robert Cushman Murphy as author of the "Oceanic Birds of South America." Soon after graduating from Brown, Dr. Murphy shipped aboard the whaling brig *Daisy* on a voyage of nearly a year's duration in the South Atlantic. For the longer part of this period he was associated with birds of the high seas, pulling an oar with the best of the shearwaters and other pelagic species; but for four months he lived on the island of South Georgia. There he obtained the rudiments of a course in South American littoral ornithology. Penguins, albatrosses and other species little known on their breeding grounds were his teachers, but the day was to follow when he would become their monographer.

Several years later, Dr. Murphy passed six months among the bird islands of the Humboldt Current off the coast of Peru. Here, in the world's greatest demonstration of certain phases of bird-life, his education in the ways of marine birds and the factors governing their distribution were still further advanced. In 1924 he returned to this region and extended his studies to the coast of Ecuador.

In these three productive expeditions, Murphy found the field in ornithology in which he has distinguished himself, and when opportunity offered for the formal pursuit of his researches he was equipped to embrace it. Meanwhile, the American Museum of Natural History, under the patronage of Messrs. Brewster and Sanford, commissioned R. H. Beck to collect the marine and littoral birds of South America from Peru to Pará, including Cape Horn and the Falkland Islands. This master of his profession was in the field for four-and-a-half years securing 7,853 specimens, each one a potential source of original information. Murphy was the one man qualified by experience, training, and desire to interpret this collection. Fortunately, he was now on the American Museum's staff. With most of the species represented, he was familiar in life; and he had visited a large part of the area whence they came. Thus his field-studies, added to Beck's collections, made the ideal laboratory combination. With it was included a thorough review of all pertinent literature. Several years were required to digest the whole and present the resulting facts and conclusions in two eminently readable volumes of objective and subjective ornithology.

To the systematic treatment of all the forms concerned, there was added an exposition of Murphy's discovery that oceanic birds are subject to the same kind of environmental control as seals, sea-turtles and even fish. The part played in distribution by the temperature of water as well as air, the influence of wind and of currents and the effects of insular isolation are also considered. Full biographies, when available, are given with each species, and long-standing biologic problems like that presented by the confusing relations of the steamer ducks are satisfactorily treated. All this, and more, is set forth in the 1,245 quarto pages entitled "Oceanic Birds of South America," forming a work of such high merit that, *Mr. President:* The committee has recommended the award by the Academy of the Elliot Medal for 1936 to Robert Cushman Murphy as its author.

FRANK M. CHAPMAN

[4] Read by Dr. Ross G. Harrison, in the absence of Dr. Chapman.

PRESENTATION OF THE JOHN J. CARTY MEDAL AND AWARD (MONETARY AWARD $4,000) TO EDWIN GRANT CONKLIN

THE Committee for the Award of the John J. Carty Medal has had an easy and a pleasant task to perform, for once the name of Conklin was suggested as recipient, so appropriate was his selection that there scarce could be a competitor.

In the citation which has been read are indicated many ways in which Edwin Grant Conklin merits this medal and award, but there is another and unique way in which Conklin qualifies. I refer to Carty's friendship and admiration for Conklin which all Carty's close associates attest, and to the influence of Conklin's philosophy on Carty's thinking as indicated by his writings.

Conklin had pointed out that man's future development lay not in the evolution of man as an individual but in the evolution of society—the building of an harmonious body out of cooperating human elements, with man adding to his own power the forces of nature. Carty saw in the telephone system of his