

A NEW FOSSIL BIRD LOCALITY NEAR PLAYA DEL REY, CALIFORNIA,  
WITH DESCRIPTION OF A NEW SPECIES OF SULID

WITH ONE ILLUSTRATION

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A new fossil bird locality has recently come to light as a result of excavations in a marine deposit rich in molluscan remains. This deposit occurs on Lincoln Boulevard, in the Del Rey Hills, about two miles east northeast of Playa del Rey, Los Angeles County, California. The fossil-bearing stratum is about one foot in thickness and lies three feet below the present surface and fifty feet above sea level. For the discovery of this new locality, and for most of the bird specimens available, I am indebted to Mr. George Willett of the Los Angeles Museum. With the thirty thousand or more shells of molluscs from this deposit which he has identified and added to the museum collections, he has brought in twenty bones of birds. To these have been added thirteen others, contributed by interested friends who have collected on a smaller scale in the same locality. I take this opportunity to express my thanks to these collectors who have thus helped to make this study complete: Mr. Harry Fletcher, Mrs. Bertha Fuller, Mr. J. C. Marsh, Mr. Henry Matthews and other students of Glendale Junior College, and Messrs. H. C. and Homer L. White.

According to Mr. Willett's study (MS) of the molluscs, which reveals that many of the species are not now known to occur as far north as this latitude, it is assumed that the temperature of the water was slightly warmer at the time the deposits were laid down than it is today. This is in keeping with previous ideas regarding the Upper San Pedro Pleistocene, to which age Mr. Willett assigns the Del Rey beds. The molluscan species further indicate that the deposit was laid down under ten to fifteen fathoms of ocean water. In this latter point, the Del Rey deposit differs from the "Lumber Yard" locality of the Upper San Pedro, at San Pedro, California, from which Loye Miller (Univ. Calif. Publ. Geol., vol. 8, 1914, pp. 31-38) has recorded avian remains. At this latter site, the deposit indicated a beach accumulation in which marine forms were associated with large Pleistocene land mammals. At Del Rey, none of the Pleistocene land mammals is represented, the identifiable mammal bones including only cetacean, seal and pocket gopher. It is possible that the latter was a later introduction, since gophers are plentiful in the locality today.

All of the identified birds are such as may be associated with a marine environment. Twenty-one of the thirty-three avian specimens examined are identifiable. These fall into ten species, of which eight are similar to forms now living on the coast, one has been previously recorded only from the Pleistocene, and one is a species new to science. An account of the known forms follows.

*Gavia*, near *immer*. Loon. Proximal and distal ends of tarsometatarsus, undoubtedly of one bone, are assignable to the genus *Gavia*, but they are so badly worn as to make unwise a definite species identification. Though the size is close to *Gavia immer*, and larger than either *pacifica* or *stellata*, certain characters of the hypotarsal region suggest *stellata*. In *immer*, and to a less extent in *pacifica* as well, the hypotarsus is set in from the external edge of the shaft, and the space between, in which lies the foramen, is deeply grooved. In *stellata*, this groove is shallow, and hypotarsus, foramen and external edge of shaft are nearly on a level. In this area in the fossil, the deep grooving of *immer* is not apparent. This may, however, be due to the way in which the bone is worn.

All three species of loon are common winter visitants along the coast today. Miller (*op. cit.*, pp. 33-34) reports two bones from the Upper San Pedro Pleistocene beds at San Pedro, one of which he finds close to *immer*.

*Aechmophorus occidentalis*. Western Grebe. A fragment of sternum and two incomplete femora

are assigned to the Western Grebe, common here today. The sternum is distinguishable from *Colymbus holboellii* on the basis of the curvature of the anterior edge, which is narrower and deeper in *Ae. occidentalis* and the fossil than in the Holboell Grebe. The femora, though slightly larger than available specimens of modern grebe, resemble the Western Grebe in (1) presence of well-marked depression at proximal end of rotular groove, and (2) position of tubercle on posterior side of distal end (nearer internal margin of bone than in *C. holboellii*). *Aechmophorus occidentalis* has been recorded from three other fossil deposits in California: the Upper San Pedro Pleistocene of San Pedro, the Manix (lower Pleistocene ?) beds of the Mohave Desert, and the Rodeo Pleistocene of the San Francisco Bay region. The genus is well represented also in the Fossil Lake Pleistocene deposits in Oregon, where in addition to *Ae. occidentalis*, an extinct species, *Ae. lucasi* has been recorded (Miller, Univ. Calif. Publ. Geol., vol. 6, 1911, p. 83). Though, as stated above, the Del Rey femora are large, they do not exhibit the relative stoutness of shaft cited as diagnostic of *Ae. lucasi*.

*Diomedea albatrus*. Short-tailed Albatross. An incomplete carpometacarpus is assigned to the Short-tailed Albatross, and distinguished from the Black-footed, on the basis of greater breadth of the shaft of metacarpal 2. A complete radius, 292 mm. in length, is also tentatively referred to this species. It is too large for *nigripes* and agrees in breadth with specimens from an Indian shellmound at Point Mugu, California, which are thought to belong to *albatrus*. The Short-tailed Albatross occurred along our coast in some numbers at least up to the latter part of the nineteenth century, but is now rare or extinct. Judging from diagnostic elements present in the Point Mugu shellmound material, it was a common form inshore a century ago. In fact, in these kitchen middens only one out of the seventy-four albatross bones recovered was definitely assignable to *nigripes*, while fifty-five undoubtedly belonged to *albatrus*.

Miller (Univ. Calif. Publ. Geol., vol. 8, 1914, p. 34, and Condor, vol. 32, 1930, p. 117) gives two records of *Diomedea* from the Pleistocene at San Pedro, one slightly larger than *nigripes* and one nearly as large as *exulans*.

*Puffinus griseus*. Sooty Shearwater. A complete radius is similar in all characters to modern specimens of Sooty Shearwater and cannot be confused with the longer, more slender bone in *P. creatopus*. *P. griseus* is abundant along our coast today and the species is represented in the San Pedro Pleistocene avifauna as well.

*Puffinus opisthomelas*. Black-vented Shearwater. An incomplete femur, lacking the distal end, agrees with the Black-vented Shearwater in size and in characters of proximal end which distinguish it from *P. creatopus*, *tenuirostris*, and *griseus*: (1) trochanteric crest less developed; (2) small depression present below proximal end near head, on anterior face. Another proximal end of a femur resembles *opisthomelas* in the latter characters but is larger (8.1 mm. across proximal end) than the largest available specimen of *opisthomelas* (7.6 mm.). Like *Puffinus griseus* this species is common off the coast today, and has been recorded from the Pleistocene of San Pedro.

*Chendytes laui*. Three specimens of femur, a tibiotarsus and tarsometatarsus conform with figured specimens (Miller, Condor, vol. 27, 1925, p. 146, fig. 40, and vol. 37, 1930, p. 118, fig. 45) of this extinct species of diving "goose." Comparisons have been made, also, with specimens at the University of California at Los Angeles assigned by Dr. Miller to this species. A phalanx resembling one of *Mergus americanus*, though very much larger, is in all probability assignable to *Chendytes* also. A badly worn distal end of a tibiotarsus may be of this species but appears to have a rounder, more slender shaft as in the true geese. The Del Rey locality affords the fourth locality record for *Chendytes*, the others being the Upper San Pedro Pleistocene of Santa Monica and San Pedro, and the Lower San Pedro Pleistocene of Sexton Canyon, Ventura County, California. At the Del Rey site, it is the most abundantly represented of all the avian species found.

Duck, sp. A distal end of a humerus resembles *Spatula clypeata* and *Chauleasmus streperus*. I am unable to distinguish these two forms from the characters of this portion of the humerus.

*Uria aalge*. Murre. A distal end of an ulna, though somewhat worn, is very similar to modern specimens of the California Murre. It is larger than that of the Rhinoceros Auklet and differs from both *Cerorhinca* and *Puffinus* in the longer, less abrupt carpal tuberosity. This is the first record of this species as a fossil. Though it is seen occasionally off our coast today, it is not abundant.

*Corvus corax*. Raven. A complete femur represents an immature raven. The raven is well represented in Pleistocene deposits in California, though it has not been recorded from those at San Pedro. Young ravens, with bones in about the same stage of ossification as the one from Del Rey, are abundant in Indian kitchen middens on Santa Cruz Island.

In addition to the specimens assigned to the known species discussed above, there is a left coracoid, complete except for the external portion of the sternal end, which represents a large sulid. A study of twenty-nine modern sulid bones, representing four

species of *Sula* and three of *Moris*, reveals diagnostic features separating these two genera. In each generic character the fossil coracoid agrees with *Moris*. For the opportunity to study this modern material, I am indebted to Dr. J. Grinnell and the Museum of Vertebrate Zoology, Berkeley; Dr. A. Wetmore and the United States National Museum; and Dr. Loye Miller.

The outstanding generic characters noted are as follows: (1) as cited by Wetmore (Auk, vol. 43, 1926, p. 466), "In the coracoid the lower anterior face is broad and plane toward the inner side in *Moris*, while it is narrower and more rounded in *Sula*"; (2) the ventral portion of the sternal facet is relatively longer and narrower in *Moris* than in *Sula* and lacks the noticeable groove which characterizes the latter; (3) relative to the length of the entire bone, the portion from the procoracoid to the head is both broader and longer in *Moris* than in *Sula* (average ratios for *Moris*, breadth of head 26.7 per cent, breadth at scapular facet 30.8 per cent, length of dorsal portion, 42.9 per cent [average for *Sula* for the same ratios, 22.9, 26.1 and 38.6]); (4) at the head end, the bicipital attachment is more faintly marked in *Moris* than in *Sula*, being in the form of a deep pit in the latter.

In specific characters, the fossil bears resemblance to several modern forms, though the combination of characters is unlike any one. It is therefore here described as new.

#### *Moris reyana*, new species

*Type*.—Left coracoid, Los Angeles Museum, number 991, from Lincoln Boulevard, Del Rey Hills, 2 miles east-northeast of Playa del Rey, California; collected by George Willett, March, 1936. Upper San Pedro Pleistocene. (See fig. 37.)

*Description*.—(1) In general similar to *Moris bassana*, but 10 per cent smaller; size closer to *M. serrator* or *M. capensis*. (2) Head with line from brachial tuberosity running obliquely upward, but not cutting across to join clavicular facet; in this character the resemblance is closer to *Sula l. brewsteri* than to any other sulid. (3) Head protruding slightly beyond adjacent surface, though joining smoothly with this surface; lacking abrupt overhang found in *S. l. brewsteri*; closest to *M. bassana*. (4) Surface adjacent to head smooth and flat as in *M. capensis*.

#### Measurements of *Moris reyana*

(a) Length from head to internal point of sternal edge	56.6 mm.
(b) Breadth of head	15.5
(c) Breadth at level of scapular facet	17.1
(d) Distance from procoracoid to head, measured from beneath scapular facet to tip of head	24.7
Ratio of (b) to (a)	27.4 per cent
Ratio of (c) to (a)	30.2
Ratio of (d) to (a)	43.6

*Referred material*.—A pedal phalanx, L. A. Mus. number 996, appears to belong to a large sulid, thus probably *Moris reyana*.

The occurrence of *Moris reyana* in the Pleistocene of California points to the comparatively recent (geologically speaking) disappearance of the gannets from the Pacific coast. The genus was evidently widespread in the Miocene, being known from Mary-

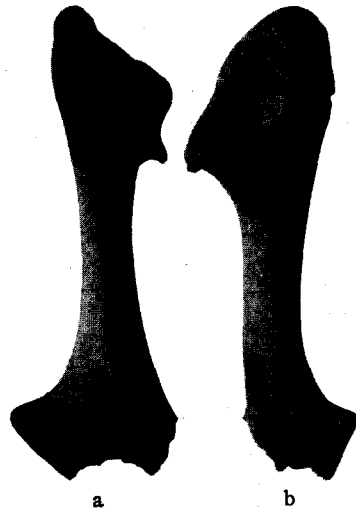


Fig. 37. Coracoid of *Moris reyana*, Los Angeles Mus. no. 991. Type specimen, natural size; a, anterior view; b, internal view.

land and New Jersey (*Moris loxostyla*) and also from California (*Moris vagabundus*). Though the coracoid of *M. vagabundus* is not known, if its proportions can be calculated to be similar to others of the genus, its small humerus indicates a bird smaller even than *M. loxostyla*. The latter, judging from the figured photograph (*M. [atlantica] loxostyla*, Shufeldt, Trans. Conn. Acad. Arts and Sci., vol. 19, 1915, pl. xv, fig. 123) is about the size of *Sula l. brewsteri*, and thus some nine per cent smaller than *M. reyana*.

Among the sulids from the Lompoc Miocene, *Sula lompocana* was originally described as similar to *Moris* (then *Sula*) *bassana* (Miller, Carnegie Inst. Wash. Publ. 349, 1925, p. 114). In connection with the present study, I have examined a specimen of this species (not the type) in the collections of the University of California at Los Angeles (figured by Miller, *op. cit.*, pl. 9) as well as a cast of the type itself. These specimens show the coracoid of this species to have the long, narrow sternal facet, the broad area toward the inner side of the lower anterior face, and the relatively long dorsal end characteristic of the gannets. The species would, therefore, be more properly assigned to *Moris*, now that this genus is distinguished from *Sula*. In size, the coracoid of *lompocana* agrees with *M. bassana* and is larger than the Pleistocene *M. reyana*, just described.

#### SUMMARY

In the foregoing paragraphs the following facts have been presented:

- (1) A new Pleistocene fossil bird locality has been recorded from the Del Rey Hills, California.
- (2) Eight of the ten species of birds represented are similar to forms living along the coast today.
- (3) This deposit is the fourth locality to yield specimens of the extinct diving "goose," *Chendytes lawi*.
- (4) A new species of gannet, *Moris reyana*, is described.

*Los Angeles Museum, Los Angeles, California, June 1, 1936.*

### FROM FIELD AND STUDY

**Community Nesting of Western Robins and House Finches.**—Two instances of Western Robins (*Turdus migratorius propinquus*) and House Finches (*Carpodacus mexicanus frontalis*) using the same nests have come to our attention during the past three years. In May, 1934, we were informed that House Finches were feeding young robins in a nest on a front porch in east Denver, Colorado. On investigation we found four half-grown robins, two newly hatched finches and four finch eggs. There were two female finches apparently with the same mate, and the three finches and the two adult robins fed the young regularly. Unfortunately, however, the large robins smothered their small nest mates. We did not determine whether the four remaining eggs hatched. All three adult House Finches fed the young robins in the nest, and after the young had left the nest.

On May 15, 1936, in a similar instance, the nest was on the back porch of Bailey's home, 2540 Colorado Blvd., Denver. The young robins were nearly ready to leave the nest, and there was no evidence that the pair of House Finches had laid eggs. However, both adult finches and robins fed the young regularly. The male finch was particularly solicitous and would alight on a wire a few feet from the nest and sing whenever one of the other birds brought food. The young robins left the nest May 20, and the finches were the only ones noted feeding them from that time on, although the adult robins were about and no doubt shared the responsibility.—ALFRED M. BAILEY and ROBERT J. NIEDRACH, *Colorado Museum of Natural History, Denver, June 15, 1936.*

**The Mockingbird in North Dakota.**—In the recent article on northern records for the Mockingbird (*Mimus polyglottos*) by L. B. Potter (Condor, vol. 38, 1936, p. 86) no mention is made of my record (Univ. Mich., Mus. Zool., Misc. Publ. No. 10, 1923, p. 77) of a bird taken on the campus of the University of North Dakota on November 23, 1916, by C. C. Schmidt.