A NEW ALBATROSS FROM THE MIOCENE OF CALIFORNIA

By Loye Miller

The geologic record of the albatrosses of the genus *Diomedea* is so very meager that any new item in it assumes a measure of importance. In 1886, Lydekker began the record with a brief note (Quart. Jour. Geol. Soc. London, 42:366–368) illustrating a complete tarsometatarsus from the Upper Pliocene of England which he designated *Diomedea* sp. He later designated the specimen as *Diomedea anglica* (Cat. Fossil Birds Brit. Mus., 1891:189, fig. 42). Wetmore (Proc. New England Zool. Club, 22, 1943: 66–67) recorded the same species from the Middle Pliocene of Florida. In 1935, I reported the genus from the Miocene of California (Univ. Calif. Los Angeles Publ. Biol. Sci., 1:79). The specimen was an imperfect manus preserved as an imprint in diatomaceous shale. It was not given a specific name. The still living *Diomedea albatrus* has been reported several times from the late Pleistocene and from Recent Indian middens of southern California. Beyond these items scattered over half a century, fossil albatrosses are not known to me.

I am greatly indebted to Mr. Joseph Arndt of the Richfield Oil Company for the gift of a number of bird bones from Miocene and Pliocene strata among which is an albatross from Miocene beds known for some time as Sharktooth Hill in Kern County, California.

Diomedea californica new species

Type.—No. 61392, Univ. Calif. Mus. Paleo, the distal half of a left tarsometatarsus.

Locality and age.—Sharktooth Hill, Temblor Formation, Upper Middle Miocene.

Diagnosis.—Larger and stouter than *Diomedea albatrus*; inner trochlea suggests that the inner toe diverged from the middle toe at a greater angle.

The Pliocene specimen figured "natural size" by Lydekker as *D. anglica* is slightly longer than the tarsus of *D. albatrus,* but the width across the trochleae, measured from the figure, is exactly the same. The Miocene specimen is definitely larger and stouter than either Lydekker's figure or the Recent bone of *D. albatrus*. It is equal in shaft diameter but narrower across the trochleae than an adult female *D. exulans*. Comparison is here made with a tarsus of *D. albatrus* dissected from the adult skin of no. 15540 in the Museum of Vertebrate Zoology at Berkeley.

Measurements of Tarsometatarsi of Species of *Diomedea*

	exulans (female)	*californica*	*albatrus*
Width across trochleae	23.9 mm.	20.6 mm.	19.3 mm.
Width of shaft	9.4	9.0	7.5
Thickness of shaft	8.3	7.9	6.7

When the fossil bone is viewed from the front, the inner trochlea merges more abruptly with the shaft as the eye travels upward along the profile than is true in *albatrus*. The inner ridge of the inner trochlea is less extended distally than its fellow ridge on the side toward the middle toe. Both these characters hold true when compared with *D. exulans*. These characters suggest that the inner toe diverged at a greater angle from the middle toe than it does in the modern albatrosses.

The distal foramen (interdigital foramen) is more open and rounded in the fossil and is located relatively nearer to the intertrochlear notch, that is, it is more distal.

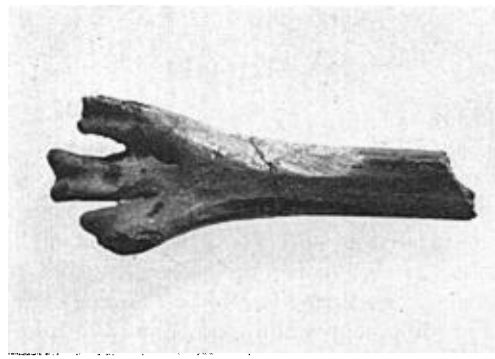

Fig. 1. Distal half of left tarsometatarsus of *Diomedea californica* from Miocene of California. × 1.

When compared with *D. exulans,* the stoutness of the fossil bone stands out strongly, giving the impression that the bird was a short-legged, large-footed creature with a divergent inner toe. I feel confident, however, in assigning it to the Linnean genus *Diomedea.*

One specimen of *D. albatrus* and three of *D. exulans* were used in this study. *D. nigripes* and *D. immutabilis* are much smaller species which, like *D. albatrus* are of Northern Pacific distribution. We think of the southern oceans as the metropolis of the albatrosses today. The fossil record is too scant to warrant a change of ideas regarding "center of origin." We merely add one more name to the small list of northern species.

The Recent *D. albatrus* spent its nonbreeding season on the waters closer in-shore on our coast than does its congener, *D. nigripes.* The recovery of this specimen from estuarine sands laid down on the eastern border of the great inland sea of Miocene California (L. Miller, Condor, 63, 1961:402) suggests a comparable habit for *D. californica.*

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