PALEOECOLOGY OF A PROTECTED BIOTOPE FROM THE EOCENE MISSION VALLEY FORMATION, SAN DIEGO COUNTY, CALIFORNIA

by

Thomas A. Demere, Frederick A. Sundberg, Frederick R. Schram

Department of Paleontology
San Diego Natural History Museum
P. O. Box 1390, San Diego, CA 92112

ABSTRACT

An unusually diverse invertebrate assemblage from the Mission Valley Formation (Middle to Upper Eocene) was uncovered during excavations for a new subdivision in the Scripps Ranch area south of Miramar Reservoir. The recovered fauna appears to represent a mixture of assemblages derived from two primary habitats: 1) a sandy substrate characterized by a moderate- to high-flow regime and dominated by infaunal suspension feeders; and 2) a muddy substrate characterized by a low-flow regime and populated largely by infaunal deposit feeders. The composite fauna seems to indicate deposition under normal marine conditions in a shallow, near-shore, protected series of habitats.

INTRODUCTION

In July of 1979, McMillin Construction Company began excavations for a new subdivision in the Scripps Ranch area. In the process of leveling two hills to fill a small arroyo, a concentration of fossils was uncovered in the Eocene Mission Valley Formation. The Mission Valley Formation has been interpreted (Kennedy and Moore, 1971; Kennedy, 1975) as representing a brief marine transgression within the otherwise regressive and predominantly nonmarine Poway Group. The site (SDSNH loc. 2962; NW 1/4, SE 1/4, sec. 33, T14S, R2W) is 0.75 km south of Miramar Reservoir (Fig. 1) and 0.33 km south-southeast of the sites near the shore of the reservoir where Bukry and Kennedy (1969) reported a nannofossil flora and Givens and Kennedy (this volume) describe a limited molluscan fauna.

This preliminary report reveals that the biota from the Scripps Ranch site is important for several reasons. First, it is the most diverse assemblage yet to be described from any single locality in the Mission Valley Formation. Second, the site exhibits exceptional preservation and includes, besides an extensive molluscan fauna, burrows, an intact callianassid malacostracan, and abundant plant remains. Third, the preservation is fine enough that we feel able to offer some discussion of the paleoecology of the immediate area represented by this biota.

STRATIGRAPHY

The fossil assemblage we record from SDSNH site 2962 is in a blue-gray, poorly indurated, argillaceous sandstone. By the time we were notified of the uncovering of the fossils and managed to obtain access to the site, the in situ beds had been cut into and spread out by bulldozers over a 1000 m^2 area. Consequently, the exact stratigraphic position of these fossils within the original bedding was not determinable. A remnant outcrop remaining on the site"