

is apparent on a megascale, but rocks appear to have been deposited in slope to upper bathyal environments.

Whether the original sponges were circular or lenticular in cross section is impossible to confirm because of the flattened condition of all branches. Sharp edges, however, suggest collapse of more or less circular tubelike branches, and certainly not modification of the skeletal net to produce a strong, sharp, keeled edge, as in other farreid sponges where lenticular branches seem well established.

Reid (1958b, p. 4) observed that fossil genera and species of sponges in the Farreidae must be differentiated on body form alone, because distinctions among living forms, which are based on microscleres, are not practicable in paleontology, considering that the small spicules are so poorly known. Reid, (1958b, p. 4) recognized four genera within the family. The moderately complex *Farrea* Bowerbank, 1862, consists of erect tubes with lateral branching outgrowths, or a cluster of bifurcating and anastomosing tubes, or of some intermediate growth forms. *Chonodictyon* Reid, 1958b, is funnel-like with *Farrea infundibuliformis* Carter, 1873, as the type species. Bladelike sponges with folded lateral margins he included in *Phyllobrochis* Reid, 1958b, with the type species *Farrea laminaris* Topsent, 1904. The fourth genus, *Lonchiphora* Ijima, 1927, consists of undulating plates with terminal stumplike outgrowths.

Reid (1958b, p. 5–10) recognized three species of *Farrea* and one of *Chonodictyon* in the Upper Cretaceous hexactinellids from the British Isles. *Farrea oakleyi* Reid, 1958b, consists of divided and anastomosing tubes 4–8 mm wide, separated by interspaces of similar widths, in a skeletal structure different and certainly much finer textured than the Miocene sponge described here, although the skeletal mesh is of approximately the same general dimensions.

Farrea cf. oakleyi Reid, 1958b, is a fragment in which the rounded, interconnected, tubes are 8–16 mm wide, again much smaller than the broad, upward bifurcating branches shown here in the Miocene sponge. *Farrea tatei* Reid, 1958b, is also a species with simple anastomosing or branching tubes that are small, 4–6 mm wide in general, but with flattened tubes up to 11 mm across. These are also considerably smaller than the relatively coarse, wrinkled, branching form from the California Miocene.

Chonodictyon(?) sewerbyensis Reid, 1958b, was interpreted to have been funnel-like with flat or slightly convex sides, but the extreme base is missing in the type specimen. The relatively simple sponge included in the species has a growth form distinctly different from that of our sponge. If one interpreted the three fragments shown in the holotype of *C.(?) sewerbyensis* as parts of divergent, but broken branches, its growth form might appear similar to our sponge. The Miocene sponge is considerably more complex, however, and has a distinctly and regularly wrinkled surface, in contrast to the smooth skeleton shown in *C.(?) sewerbyensis*.

Reid (1958b, p. 6) noted that *Farrea oakleyi* Reid, 1958b, was the first Cretaceous species of the genus described in which the skeleton was a single layered structure. Other species, such as *Farrea clarkei* Schrammen, 1912; *Farrea halli* Schrammen, 1912; *Farrea densa* Moret, 1926, all have three-dimensional skeletal meshworks and, consequently, differ not only from the species described by Reid, but the sponge described here as well. Meshworks in species described by Schrammen and Moret are all considerably finer textured than the moderately coarse sponge described here.

Locality.—Los Angeles County Museum of Natural History locality 15677, from the upper Miocene Puente Shale, in the Peralta Hills, in a shallow ditch in a small gully which penetrated through the Pliocene Fernando Formation into the underlying Puente Formation. The locality is 0.5 km (0.3 miles) north-

northeast of Olive Hill Reservoir, as shown in Figure 1, part of the Orange, California 7 1/2-minute quadrangle, 1994 edition, scale 1:24,000. The sponges came from approximately 250 m west and 640 m south of the northeast corner of section 8, T. 4 S., R. 9 W., and 117°49'13" West longitude and 30°50'24" North latitude. The holotype, LACMIP 12244, is deposited in Invertebrate Paleontology collections at the Museum.

Etymology.—*Rugosus*, Latin, wrinkled, in reference to the transversely wrinkled regular surface expression of the skeletal net.

ACKNOWLEDGMENTS

We are grateful for the interest and guidance given by E. C. Wilson and others at the Los Angeles County Museum of Natural History. Wilson arranged the loan of the specimen from the Museum and provided help with stratigraphic and locality information. Jeremy Auldeny discovered the fossil locality, and the sponges were collected by Albi and June Maxwell during collecting trips as volunteer associates of the Los Angeles County Museum of Natural History, in Los Angeles. C. M. Middleton printed the photographs for the figures, from negatives made by Rigby, typed the several versions of the manuscript, and helped prepare figures in the Department of Geology at Brigham Young University. We appreciate the helpful reviews of our paper.

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ACCEPTED 15 MARCH 1996