

Genus *Aequipecten* Fischer, 1886

Aequipecten discus (Conrad)
Pl. 4, fig. 7

Pecten discus Conrad, 1857c, p. 190, fig. 1.

Pecten (Plagiectenium) discus Conrad. Arnold, 1906,
p. 86-87, pl. 27, figs. 1, la, 2-4.

Specimens of *Aequipecten discus* are mostly molds of single valves, although a few still have traces of shell material. At locality 289, valves are abundant enough to constitute a coquina.

Genus *Lyropecten* Conrad, 1862

Lyropecten crassicardo (Conrad)

Pallium crassicardo Conrad, 1857a, p. 313.

Pecten (Lyropecten) crassicardo Conrad. Arnold, 1906,
p. 71-73, pl. 16, figs. 1, la; pl. 17, figs. 1, la,
lb; pl. 18, figs. 1, 2, 2a.

Lyropecten crassicardo occurs as fragments of single valves which show poor to fair preservation. The largest partial specimens is 10 cm in height.

Lyropecten magnolia (Conrad)

Pecten magnolia Conrad, 1857c, p. 191, pl. 1, fig. 2.

Pecten (Lyropecten) magnolia Conrad. Arnold, 1906,
p. 77-79, pl. 24, figs. 1, 2.

Specimens of this distinctive species are mostly large, broken, single valves, up to 8 cm in height. Preservation of the surfaces of the fragments generally is good. At locality 263, several valves of *Lyropecten magnolia* are closely packed together in a single hand sample with a single valve of *Vertipecten nevadanus*.

Genus *Vertipecten* Grant and Gale, 1931

Vertipecten nevadanus (Conrad)

Pecten nevadanus Conrad, 1855, p. 19.

Pecten (Vertipecten) nevadanus Conrad. Grant and Gale,
1931, p. 189-190, pl. 7, figs. 2a-2c.

Only a few, poorly preserved, single valves of *Vertipecten nevadanus* were found. Except for the large specimen found with *Lyropecten magnolia* at locality 263, all the specimens are broken.

Genus *Amussiopecten* Sacco, 1897

Amussiopecten vanvlecki (Arnold)

Pecten (Pecten) vanvlecki Arnold, 1907, p. 428, pl.
53, figs. 1, 2.

Amussiopecten vanvlecki (Arnold). Addicott, 1974,
p. 180-194.

Specimens of *Amussiopecten vanvlecki* are mostly broken, single valves with shell material still present. Although preservation generally is only fair, both external and internal ribbing is clearly visible on various of the specimens.

Plate 4. Fossils from the Vaqueros, Rincon, and Santa Margarita Formations. (All figures are natural size.)

Figure 1--*Ostrea eldridgei* Arnold, exterior of right (upper) valve, hypotype UCLA 58199, CSUN loc. 48 upper member of Vaqueros Formation; 2--*Chlamys sespensis* Arnold, exterior of right valve, hypotype UCLA 58197, CSUN loc. 36, upper member of Vaqueros Formation; 3--*Carcharodon angustidens* L. Agassiz, hypotype UCLA 58204, CSUN loc. 100, upper member of Vaqueros Formation; 4--Unidentified spataganoid?, catalogued specimen UCLA 58191, CSUN loc. 16, upper member of Vaqueros Formation; 5--Unidentified terebratulid, catalogued specimen UCLA 58216, CSUN loc. 352, Rincon Shale; 6--*Crepidula* sp., catalogued specimen UCLA 58212, CSUN loc. 305, Santa Margarita Formation; 7--*Aequipecten discus* (Conrad), exterior of right valve, hypotype UCLA 58210, CSUN loc. 287, Santa Margarita Formation; 8--*Isurus* sp., catalogued specimen UCLA 58213, CSUN loc. 306, Santa Margarita Formation; 9--*Astrodapsis antiselli* Conrad, hypotype UCLA 58211, CSUN loc. 300, Santa Margarita Formation.

Family Spondylidae

Genus *Spondylus* Linnaeus, 1758

Spondylus perrini Wiedey
Pl. 3, fig. 6

Spondylus perrini Wiedey, 1928, p. 138, pl. 17, figs.
6, 7.

Only a single, articulated, but incomplete specimen of *Spondylus perrini* was found. The right valve is well preserved; the left valve poorly preserved.

Family Anomiidae

Genus *Anomia* Linnaeus, 1758

Anomia vaquerosensis Loel and Corey
Pl. 1, fig. 8

Anomia vaquerosensis Loel and Corey, 1932, p. 203-204,
pl. 33, figs. 1a, 1b, 2a, 2b, 3, 4.

Anomia vaquerosensis is one of the more abundant faunal elements of the lower member of the Vaqueros Formation. Specimens occur in distinct, thin beds made mostly of crushed and broken, disarticulated valves. The few good specimens are of left (upper) valves whose average height is about 5 cm. Barnacle or bryozoan encrustations occur on a few of the specimens.

Order VENEROIDA

Family Crassatellidae

Genus *Eucrassatella* Iredale, 1924

?*Eucrassatella granti* (Wiedey)

Spisula granti Wiedey, 1928, p. 152, pl. 20, figs. 2, 3.

Crassatellites granti (Wiedey). Loel and Corey, 1932,
p. 207-208, pl. 35, figs. 1a, 1b, 2, 3a, 3b; pl.
36, fig. 2.

Only four specimens (up to 6 cm in height) of internal molds of paired valves of ?*Eucrassatella granti* were found. Many of the unidentified pelecypods, however, may belong to this species.

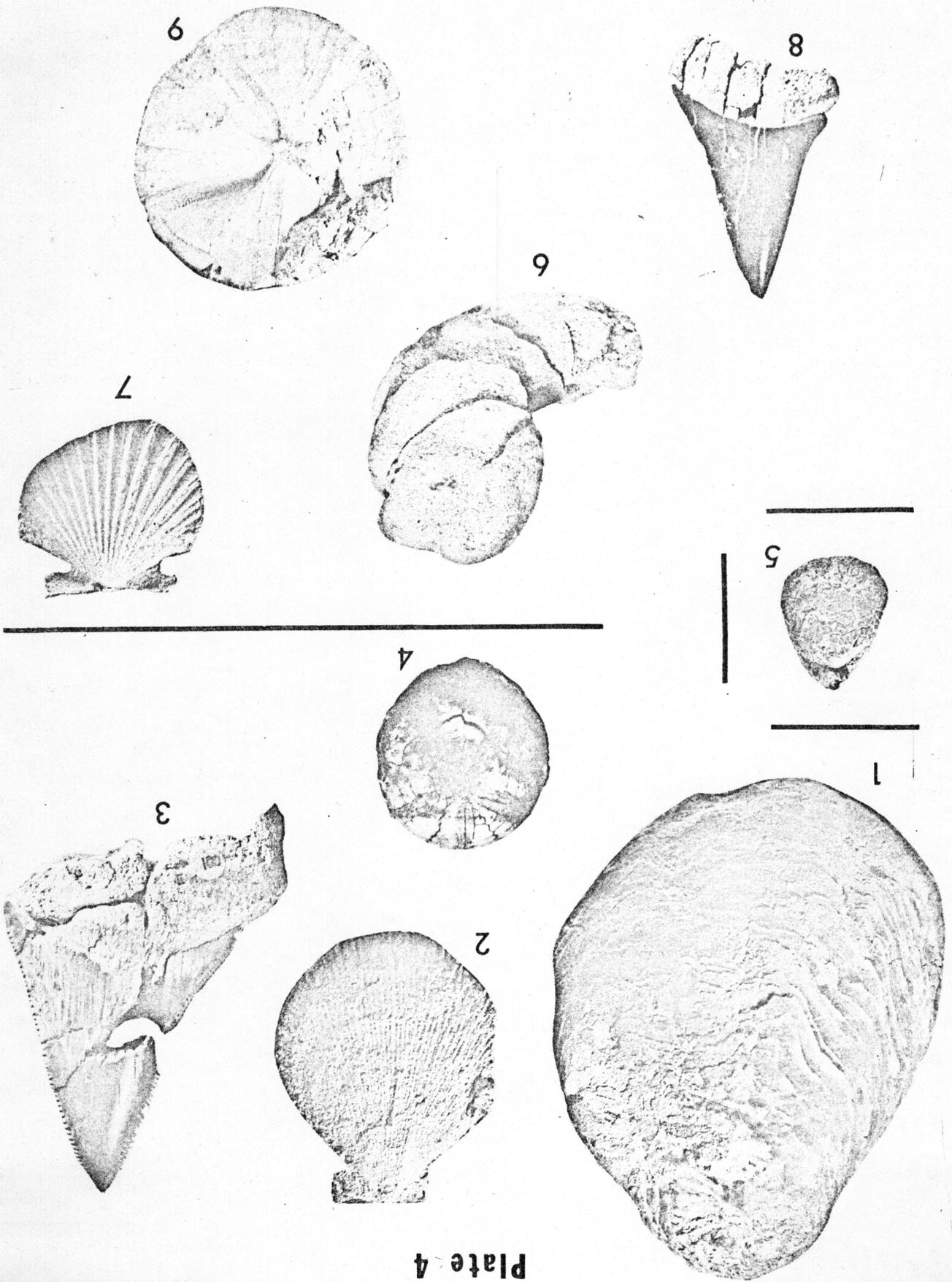


Plate 4

Family Veneridae

Genus *Dosinia* Scopoli, 1777*Dosinia* sp.

Only two specimens of *Dosinia* sp. were found, one each in the Vaqueros and Santa Margarita Formations. Both specimens are broken valves in which shell material has been replaced and surface ornamentation obliterated.

Genus *Saxidomus* Conrad, 1837? *Saxidomus vaquerosensis* Arnold

Saxidomus vaquerosensis Arnold, 1910, p. 56, pl. 7, fig. 7.

All specimens of ? *Saxidomus vaquerosensis* occur as internal molds of paired valves up to 7 cm in height. At locality 255 there is a growth series.

Genus *Clementia* Gray, 1842*Clementia* sp.

Two broken, internal molds of *Clementia* sp. were found, one articulated and the other a single valve.

Genus *Chione* Megerle von Muhlfield, 1811

Chione cf. *C. richthofeni* Hertlein and Jordan
Pl. 3, fig. 7

Chione richthofeni Hertlein and Jordan, 1927, p. 619, pl. 17, figs. 4, 7, 8.

Most specimens of *Chione* cf. *C. richthofeni* consist of paired valves that have the shell material missing, except along the widely spaced concentric ribs. A few of the better preserved specimens show faint radial striae between the concentric ribs. The species is common in the Sespe Creek area, although most individuals are crushed and hinge line details are not visible.

Loel and Corey (1932) reported a *Chione* in the Sespe Creek region which they called *C. temblorensis subtemblorensis*. Their material was too poorly preserved for figuring, but they suggested that some of the individuals might belong to the species that they called *C. aff. richthofeni*. Their *C. aff. richthofeni* was not reported as occurring in the Sespe Creek area, and according to their text was not figured. A figure labeled *Chione* aff. *richthofeni* (Loel and Corey, 1932, pl. 42, fig. 4), however, is very unlike the figure of the holotype of *C. richthofeni* in Hertlein and Jordan (1927).

The CSUN specimens from the middle member of the Vaqueros Formation are very similar to *C. richthofeni* and definitely not similar to *C. temblorensis subtemblorensis*. Fritsche and Squires (1978) reported that this *Chione* might possibly be a new species, but until specimens that show hinge line details are found, such a designation cannot be made with certainty.

Family Tellinidae

Unidentified tellinid

A single internal mold of paired valves, 4 cm in height, was found.

Genus *Macoma* Leach in Ross, 1911*Macoma arctata* (Conrad)

Pl. 3, fig. 8

Tellina arctata Conrad, 1849, p. 725, pl. 18, figs. 3, 3a.

Macoma arctata (Conrad). Moore, 1963, p. 81, pl. 28, figs. 6, 7, 10, 11, 13; pl. 29, fig. 8.

Most specimens of *Macoma arctata* are internal molds of paired valves which have been deformed by compaction. A few specimens which have part of the shell wall intact show faint concentric ridges. Growth series are not apparent.

Family Solenidae

Unidentified solenid

A few fragmentary internal molds of paired valves of unidentified solenids were found in both the Vaqueros and the Santa Margarita Formations. Two of the largest are 5 cm in length. Solenids are previously unreported from the Sespe Creek region (Loel and Corey, 1932).

Order MYOIDA

Family Hiatellidae

Genus *Panopea* Menard, 1807

Panopea ramonensis Clark
Pl. 3, fig. 9

Panope ramonensis Clark, 1925, p. 106, pl. 10, figs. 2, 3.

Most of the specimens of *Panopea ramonensis* are articulated, and preservation generally is good. None was found in living position, but at locality 338 the specimens make up a growth series. Loel and Corey (1932) did not report *Panopea* as occurring in the Sespe Creek region.

Family Pholadidae

Genus *Zirfaea* Gray, 1842*Zirfaea* sp.

Only a poorly preserved, single? valve of a rather large *Zirfaea* was found. *Zirfaea* is previously unreported from the Sespe Creek region (Loel and Corey, 1932).

Pholadid borings

Pholadid borings at locality 263 average 6 mm in diameter and occur within two irregular siltstone clasts, the largest being 8 cm in length. The bored clasts are sandwiched between broken valves of *Lyropecten magnolia* and *Vertipecten nevadanus*.

At locality 332, 12 oblong casts of pholadid borings averaging 3 cm in length and 8 mm in diameter were found. Most occur in a single, connected cluster.

Pholadid borings from locality 288 are up to 1 cm in diameter and occur in basal Santa Margarita clasts of fine-grained Monterey Formation.

Phylum ARTHROPODA
Class CIRRIPIEDIA
Order THORACICA
Family Balanidae

Genus *Balanus* da Costa, 1778

Balanus sp.
Pl. 1, fig. 9

Most *Balanus* from the Vaqueros Formation are complete except for the opercular plates and preservation generally is fair to good. Specimens occur either as isolated individuals or as single or clustered encrustations on *Anomia vaquerosensis*, *Rapana vaquerosensis*, other shell fragments, or other *Balanus* specimens. Locally, as at locality 330, individuals are abundant enough to form *Balanus* beds. Some specimens have walls with prominent longitudinal ribs on the outer surfaces, such ribbing perhaps the result of preservation. The largest specimen is 3.5 cm in height.

Specimens from the Santa Margarita Formation are mostly complete and attached to *Crassostrea titan* valves. Preservation of such barnacles is usually poor.

Class MALACOSTRACA
Order DECAPODA
Infraorder BRACHYURA

Crab parts
Pl. 1, fig. 10

Most of the crab parts are from locality 381, where they occur as scattered, but abundant, remains in a bed that has horizontal burrows at the base. The poorly preserved claws average about 7 mm in length.

At locality 400, a cheliped (Pl. 1, fig. 10) was found within a borrow.

Phylum ECHINODERMATA
Class ECHINOIDEA

Unidentified echinoid parts

At locality 259, scattered fragments of poorly preserved echinoid spines, up to 8 mm in length, occur in a coarse-grained sandstone.

Order CLYPEASTEROIDA
Family Echinarachniidae

Genus *Astrodapsis* Conrad, 1857

Astrodapsis antiselli Conrad
Pl. 4, fig. 9

Astrodapsis antiselli Conrad, 1857a, p. 315. Hall, 1962, p. 71-73, pl. 15, figs. 1-7; pl. 16, figs. 1-8; pl. 17, figs. 1-8; pl. 18, figs. 1-8, pl. 19, figs. 1-10; pl. 30, figs. 1, 1a, 2, 2a.

Complete and fragmentary specimens of *Astrodapsis antiselli* are commonly mixed and occur in distinct beds. Specimens in the CSUN collection are complete and show fair to excellent preservation.

Genus *Kewia* Nisiyama, 1935

Kewia fairbanksi (Arnold)
Pl. 1, fig. 11

Scutella fairbanksi Arnold, 1907a, p. 542, pl. 42, fig. 3; pl. 43, fig. 3. Kew, 1920, p. 66-68, pl. 11, figs. 2a-2c.

Durham (1955) concluded that *Scutella fairbanksi*

seems to be referable to the genus *Kewia*. Complete and fragmentary specimens of *Kewia fairbanksi* are usually mixed together in resistant limestone beds, although isolated individuals do occur. The CSUN specimens are complete to nearly complete, preservation is good to excellent, and average size is about 4.5 cm in diameter.

Order SPATANGOIDA

Unidentified spatangoid?
Pl. 4, fig. 4

One uncrushed and fairly well preserved specimen of an unidentified spatangoid? was found. The oral surface is encased in rock matrix, but much of the aboral surface plate arrangement is visible. Based on the shape and size of the test, as well as the lack of an anterior sulcus, the specimen resembles *Brissus kewi* Grant and Hertlein. The specimen differs from *B. kewi* in that 1) the two middle petals point anteriorly, 2) the petals extend over the sides of the test nearly to the oral surface, and 3) the petals are not sunken. *Megapetalus* Clark has these three features, but the petal areas are much larger and increase in size toward the margin.

Fritsche and Squires (1978) referred to this specimen as *Brissus kewi*, but it is more likely that it represents a new taxon. Preservation, however, is not good enough to allow a more definitive conclusion.

Phylum CHORDATA

Unidentified vertebrate bones

Unidentified vertebrate bone material usually consists of fragments which could be cetacean in origin. At locality 258, the material is possibly a fragment of a reptile jawbone, and at locality 288, the material is probably fish vertebrae.

Class CHONDRICHTHYES

Unidentified shark teeth

At a few localities, shark tooth fragments are so poorly preserved that differentiation between *Isurus*, *Odontaspis*, or some other genus is not possible.

Order MYLIOBATIFORMES

Unidentified myliobatoid teeth

A single, 2-cm-long specimen of myliobatoid (ray) teeth was found. Myliobatoids are previously unreported from the Vaqueros Formation in the Sespe Creek region (Loel and Corey, 1932).

Order LAMNIFORMES
Family Odontaspidae

Genus *Odontaspis* Agassiz, 1838

Odontaspis sp.

Two nearly complete and well preserved specimens of *Odontaspis* sp. (sand tiger shark) were found. The largest specimen is 2.2 cm in length.

Family Lamnidae

Genus *Isurus* Rafinesque, 1809