

the Indo-Pacific realm (Jones, 1963, p. 25), and has been reported from the west side of the Sacramento Valley, California (Matsumoto, 1959a). Comparable specimens are now known from the Diablo Range at LSJU loc. 2227, Monterey Co., occurring there with *Baculites rex*. The present specimens are immature, but are comparable to *P. forbesianum*.

Only one representative of the family *DESMOCERATIDAE* is definitely known from the Chatsworth Formation: *Desmophyllites diphylloides* (FORBES). This smooth, constricted, involute ammonite is common at CIT loc. 1159 and occurs there in approximately a .6 to 1 ratio with *Metaplacenticerias* spp. It is widespread in the Indo-Pacific region, and ranges through the Campanian, and into the Maestrichtian in some areas (Matsumoto, 1959b). It is very common in the late Campanian of California, occurring virtually everywhere *Metaplacenticerias* is abundant. One specimen was found by one of us (L. S.) in a calcareous concretion at Bell Canyon (UCLA loc. 6929).

Waring, 1917, described a new species, *Hauericeras transitionale* from his loc. 2, Bell Canyon, but the holotype (pl. 3, fig. 16) probably did not come from Bell Canyon, as the matrix appears foreign to the area, but may have instead come from the Tuna Canyon Formation (Yerkes and Campbell, 1979) of the Santa Monica Mountains, where Waring and the Stanford field party of 1910 also collected. A *Hauericeras* was recently found by one of us (J. A.) in a unit of very similar lithology in Temescal Canyon, Santa Monica Mountains, near Waring's loc. 3, in shales near the top of the local section. According to Waring's original description (p. 69), "*H. transitionale* is confined to the upper shales of the Chico formation". This statement would seem to exclude it from his loc. 2 in Bell Canyon which appears at the base of the Cretaceous section on his geologic map, p. 51. Based on the stratigraphic position of the shale unit in Temescal Canyon, *H. transitionale* is at least as young as late Campanian, and possibly younger.

PACHYDISCIDAE from the Chatsworth Formation include *Pachydiscus* (*Neodesmoceras* aff. *P. (N.) catarinae* (ANDERSON & HANNA) from the Lang Ranch, and *Anapachydiscus* cf. *A. arrialoorensis* STOLICZKA, *Pachydiscus* cf. *P. neevesi* WHITEAVES, and other juvenile or fragmentary specimens referred to *Anapachydiscus* sp. and *Pachydiscus* sp., all from Dayton Canyon.

P. (Neodesmoceras) catarinae and closely related, if not identical, forms are known from the Rosario Formation of Baja California and adjacent California, and from the "Ragged Valley Shale" near Coalinga, Fresno Co., California. The *P. (N.) catarinae* zone is superjacent to the latest Campanian zone of *Metaplacenticerias pacificum* in the scheme of Jeletzky, 1970, and is therefore of early Maestrichtian age.

Forms similar to *A. arrialoorensis*, present here at CIT loc. 1159, occur in beds of late Campanian and early Maestrichtian age in California (Matsumoto, 1959b, Saul, 1979). A large *Anapachydiscus* sp. was found by W. P. Popenoe at UCLA loc. 5473 near Dayton Canyon. Fragments of large pachydiscids up to 30 cm long are known from CIT loc. 1159.

Specific identification of the other pachydiscids is difficult, partly because some are juveniles (Hancock and Kennedy, 1981). Others probably represent new species, but are fragmentary.

The family *PLACENTICERATIDAE* is represented by abundant specimens of *Metaplacenticerias* Spath, a widespread genus in the North Pacific realm, known from Alaska to Baja California and also from Japan. The zone of *M. pacificum* forms the highest Campanian zone in the scheme of Jeletzky, 1970. Figures 14 and 15 (pl. 3) show two typical specimens from Dayton Canyon which differ in strength of ornament and in breadth. The genus has been found abundantly in the Santa Ana and Santa Monica Mountains, but the large, compressed, finely ribbed forms with tricarinate venter, common in the former areas seem to be absent from the Dayton Canyon beds, while stouter forms are more common in the latter area. The significance of this difference is still unclear, but may reflect a difference in age rather than facies, as possibly transitional forms have been found near the top of the Dayton Canyon section, at loc. JA-33, 100 m NW of the Los Angeles-Ventura Co. line, in sandstone beds stratigraphically above those of CIT loc. 1537. No smooth intergrading series of variants, as found, for example, in *Neogastropylites* by Reeside and Cobban (1960 in the Mowry Shale of the Western Interior, is yet known to exist in the present species.

Discovery of *Metaplacenticerias* spp. in the middle part of the "Alcalde Shale" in Post (loc. JA-67) and Cooper (loc. JA-54 = UCLA loc. 6371) Canyons of the Coalinga area, Fresno Co., in 1977 by one of us (J.A.) and Mr. David Melton, confirms Almgren's (1972) interpretation of the age of that unit, and provides a tie to the upper Campanian Dayton Canyon beds of the Chatsworth Formation.

This family *TETRAGONITIDAE* is represented in the lower part of the Chatsworth Formation at Dayton Canyon by the following forms: *Tetragonites* cf. *T. (Saghalinites) henleyense* (ANDERSON), *Pseudophyllites indra* (FORBES), and *Gaudryceras* cf. *G. denmanense* (WHITEAVES).

The first species is recorded by Anderson (1958) from the Hornbrook Formation near Henley, California, occurring there with *Metaplacenticerias* spp. The juvenile specimens from Dayton Canyon compare fairly well with Anderson's species.

Pseudophyllites indra is known from Alaska, British Columbia, France, Madagascar, So. India, Australia, Antarctica, and Brazil. The remarkable distribution of this species has recently been discussed by Kennedy and Cobban, 1976. It is known in California from UCLA loc. 2415, Bee Canyon, Santa Ana Mts. (coll. L. Saul), from the Covelo area, Mendocino Co. at UCB loc. A-6598, from the Diablo Range at LSJU loc. 2227, Monterey Co. and from the Tuna Canyon Formation, Santa Monica Mountains, with *Metaplacenticerias* spp. Its combination of *Nautilus*-like shell form and complex sutures suggest a possible relatively deep water habitat.

Gaudryceras cf. *G. denmanense* is known from LSJU loc. 2709, Yolo Co., west side of the Sacramento Valley, with *Metaplacenticerias* spp. (Matsumoto, 1959b). Similar forms occur at CIT loc. 1159 and CIT loc. 1535.

At least 5 species of *Baculites* (*BACULITIDAE*) are now known from the Chatsworth Formation. Those occurring with *Neodesmoceras* at Lang Ranch are *Baculites occidentalis* MEEK and *B. lomaensis* ANDERSON. Both are found in the "Ragged Valley Shale" of the Coalinga area, Fresno Co., while *B. lomaensis* is also known from Pt. Loma, San Diego Co. *B. occidentalis*

is present at several localities on the west side of the San Joaquin Valley (Matsumoto, 1959a).

Occurring with *Metaplaenticeras* spp. in the Dayton Canyon area are abundant *Baculites inornatus* MEEK and one specimen of *B. anceps pacificus* MATSUMOTO & OBATA (at CIT loc. 824). *B. inornatus* also occurs in Bell Canyon with *Desmophyllites* and *Nostoceras?* sp., in beds of mid Campanian age.

Crushed, but septate specimens probably referable to *B. rex* ANDERSON are present in silty shale near the top of the Chatsworth Formation, and therefore probably date these beds as Maestrichtian. Specimens questionably referred to *B. rex* are known from CIT loc. 1538 (UCLA loc. 6464).

In addition, crushed, unidentifiable baculites are present in the following areas: 1) in siltstone underlying the massive sandstone at Dayton Canyon (stratigraphically above *Metaplaenticeras* beds), 2) in silty shale beds along the Box Canyon Road, and 3) in silty shale at Santa Susana Pass. It is hoped that these areas will eventually yield better specimens, and thereby provide a sound basis on which to draw the Campanian-Maestrichtian boundary in the Chatsworth Formation.

Presently known members of this -- *NOSTOCERATIDAE* -- family of heteromorphic ammonites from the Chatsworth Formation are all fragmentary, but include *Nostoceras* (?) sp., *Solenoceras* (?) sp., and *Neocrioceras* (?) sp. *Nostoceras* (?) from Lang Ranch consists of part of the helical portion of a shell comparable with this genus. Another fragmentary specimen from Bell Canyon may be part of the retroversal hook of a *Nostoceras* sp.

Solenoceras (?) sp. from CIT loc. 1159 are unusual small forms which probably represent a new species. The more complete specimens show two slightly separated, parallel arms connected by a curved part which alone bears a double row of nodes. The affinities of this species are not clear, but it may be related to *Pseudoxybeloceras* Wright & Matsumoto (Peter Ward, personal communication, 1981; see also Ward & Mallory, 1977).

Neocrioceras (?) sp. from CIT loc. 1159 is another unusual heteromorph species represented by small fragments of a quadrituberculate, open-coiled form with flared ribs. This genus has not previously been reported from California.

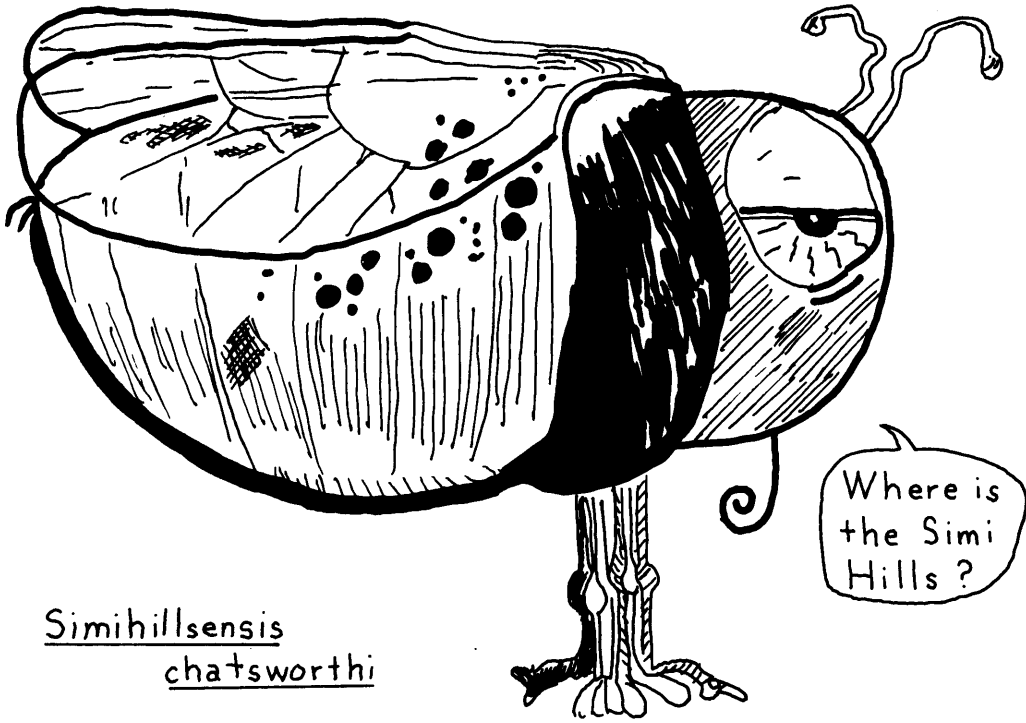
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Simihillsensis
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