

Table 1. Occurrence of *Crassatella* spp. in the Chatsworth Formation

groups	<i>conradiana</i>	<i>saulae</i>	<i>lomana</i>
localities			
Lang Ranch			<i>lomana</i>
Dayton Canyon	cf. <i>conradiana</i>	<i>saulae</i>	<i>elongata</i>
Bell Canyon	cf. <i>conradiana</i>		n. sp. near <i>elongata</i>

Canyon (pl. 1, figs. 12+13) localities is also found in the uppermost Chico Formation on Chico Creek, Butte Co. As beds of late late Campanian age at Bee Canyon, Santa Ana Mountains, yield a probable descendant, *C. (C.)* cf. *C. (C.) conradiana* may be indicative of mid to early late Campanian age. The *saulae*-group is represented by poorly preserved specimens of *C. (?) saulae* DAILEY & POPENOE, 1966, from CIT locs. 1156, 1537, and 1538. At its type locality *C. (?) saulae* is probably of early Maestrichtian age, and these Dayton Canyon occurrences thus suggest a range extension to include late Campanian. The *lomana*-group is represented by three species (see Table 1). *Crassatella (?)* n. sp. near *C. (?) elongata* ANDERSON (pl. 2, figs. 1-2) is from Bell Canyon. Compared to *C. elongata*, it has a longer cardinal tooth 2, and the socket for this tooth approaches nearer to the beak. The species is also present in the Cedar District Formation on Sucia Island, Washington, and in the upper Holz Shale of the Santa Ana Mountains. It is thus probably of early and mid Campanian age. *Crassatella (?) elongata* ANDERSON, 1958 (pl. 2, figs. 3-5) is from Dayton Canyon. Anderson based his species on a specimen figured by Waring and said to be from Bell Canyon, but the specimen resembles those from Dayton rather than Bell Canyon. The beak of *C. (?) elongata* is not as anteriorly placed and the shell is not as elongate as that of *C. (?) lomana* (COOPER, 1894). As *C. (?) elongata* occurs with *Metaplacentoceras* spp., it is of late Campanian age. *Crassatella (?) lomana* (COOPER, 1894) (pl. 2, figs. 6, 8) is from Lang Ranch. Despite reported occurrences elsewhere, it has thus far only been found at the type locality, Point Loma, San Diego Co., and Lang Ranch, Ventura Co; at both places it is from the *Neodesmoceras catarinae* zone and associated with *Baculites lomaensis* ANDERSON, 1958. It is, thus, of early Maestrichtian age. Occurrences elsewhere suggest that these three groups may each have slightly different ecologic requirements, the *saulae*-group may have inhabited the shallowest and/or the most turbulent water areas and the *conradiana*-group may have inhabited the deepest and/or quietest water areas. The difference between deepest and shallowest water (if these were the important factors) probably was not great, as it is common for species from two of these groups to occur at the same locality. The *Crassatellas*, then, suggest that the Bell Canyon fauna lived in the deepest, least turbulent water; the Dayton Canyon fauna in the shallowest, most turbulent water; and the Lang Ranch fauna in intermediate conditions.

With the exception of *Protocardia (Pachycardium?)* cf. *P. (P.?) placerensis* (GABB, 1864) at CIT loc. 1159, *CARDIIDAE* are rare in the Simi Hills Cretaceous.

A few specimens representing several genera of *TELLINIDAE* are in the collections. Forms resembling *Linearia*, *Moerella*, and *Paleomoera* are present, and

from CIT loc. 1534 one specimen of *Tellina (Tellinella)* n. sp.

Several specimens of *TANCREDIIDAE* from Dayton Canyon and Lang Ranch localities are all identified with greater or lesser degrees of certainty, depending upon preservation, as *Meekia (Mygallia) daileyi* SAUL & POPENOE, 1962. *M. (M.) daileyi* is of late Campanian and early Maestrichtian age (Saul & Popenoe, 1962, p. 311). *Meekia (Mygallia)* spp., and *Tellina (Tellinella)* spp. are common associates of *Yaardia* spp., and all suggest the shallower areas of the inner sublittoral zone.

Assigned to the family *ARCTICIDAE* are *Etea angulata* (PACKARD, 1922), represented by one or two specimens from CIT loc. 1159, and *Tenea inflata* (GABB, 1864). *T. inflata* is rare in collections from Bell Canyon and rare to common in collections from Dayton Canyon. It has a deep, angular, antero-dorsally directed pallial sinus suggestive of the venerids *Dosinia* or *Cyclina* which it also resembles in shape.

Clisocolus dubius (GABB, 1864) may or may not be correctly placed in the family *GLOSSIDAE*, but its shape, etc., suggest that it may have had a life style similar to that of *Glossus*. *C. dubius* is present in Bell and Dayton Canyon collections and in Lang Ranch collections. It was possibly a very shallow burrower into soft, subtidal substrates.

MACTRIDAE are a major element in the fauna of the Simi Hills. One lineage -- *Cymbophora suciensis* -- *C. triangulata* -- *C. n. sp. aff. C. suciensis* is largely responsible for this. *C. suciensis* (WHIT-EAVES, 1879) approaching *C. triangulata* (pl. 2, fig. 7) is common in Bell Canyon collections; *C. triangulata* (WARING, 1917) (pl. 2, fig. 9) is common to abundant in Dayton Canyon collections; and *C. n. sp. aff. C. suciensis* (pl. 2, fig. 10) is common in Lang Ranch collections. Other species of *Cymbophora* from the Simi Hills are *C. popenoei* SAUL, 1974 -- rare in Bell Canyon collections and most Dayton Canyon collections, but common at CIT locs. 1156, 1159, and 1534; *C. buttensis* ANDERSON, 1958 -- common at CIT 1537; and *C. cf. C. stantoni* (ARNOLD, 1908) rare at CIT locs. 1154 and 1159 (see Table 2). *Willimaetra* aff. *W. popenoei* SAUL, 1973 is represented by broken valves from UCLA loc. 6232 and CIT locs. 1156 and 1537. Where common to abundant, *Willimaetra* and ribbed *Cymbophora* -- e.g., *C. popenoei* -- suggest shallower or more turbulent conditions than does the *Cymbophora suciensis* lineage.

Four genera of *VENERIDAE* have been recognized in the Chatsworth Formation. *Calva* is the most widespread. *C. bowersiana* (COOPER, 1894) (pl. 2, fig. 12) is common to very abundant in collections from Bell and Dayton Canyons. Collections from Lang Ranch include very large specimens of *Calva varians* (GABB, 1864) identical to those from the Jalama Formation, Jalama Creek, Santa Barbara Co. Lang Ranch collections also contain *Loxo decore* DAILEY & POPENOE, 1966. Venerid clams with *Loxo*-like sculpture, but as yet unknown hinge structures, are present at CIT locs. 1156 and 1537. *Flaventia lens* (GABB, 1864) is present in most collections from Bell and Dayton Canyons, whereas *Legumen ooides* (GABB, 1864) is present in Dayton Canyon and Lang Ranch localities.

MYOIDA

A few specimens belonging to this order are in

Table 2. Occurrence of Mactridae in collections from the Chatsworth Formation

species	Bell	Dayton Canyon			Lang	
	localities Canyon	1154 1159	1537	1155 1156 1534	1538	Ranch
<i>Cymbophora</i> n. sp.						X
<i>C. buttensis</i>			X			
<i>C. cf. C.</i> <i>stantoni</i>		X				
<i>C. triangulata</i>		X	X	X	X	
<i>C. popenoei</i>	X	X	X	X		
<i>C. suciensis</i>	X					
<i>Willimaetra</i> aff. <i>W. popenoei</i>	X		X	X		

the collections. *CORBULIDAE* are probably under-represented because of the difficulty in extracting the small valves from the hard matrix. They are common at CIT loc. 1537 but are not identified as to genus or species. A few *Panopea* sp., family *HIATELLIDAE*, have been found; they are not identified as to species. A few pholads resembling *Martesia* have been found; they are not identified as to family.

HIPPURITOIDA

This order is represented by fragments of *Corallichama oreutti* WHITE, 1885, recovered from a clast in a conglomerate bed. At its type locality, Punta Banda, Baja California, at Gualalla, Mendocino Co., in the Asuncion Formation, Cape San Martin quad., Monterey Co., and in the Rosario Formation near Carlsbad, San Diego Co., *Coralliochama oreutti* is probably of early Maestrichtian age. *C. oreutti* is also reported from beds in the San Rafael Mts., Santa Barbara Co., which are said to underlie the Debris Dam Sandstone. East of Agua Caliente Canyon, LSJU locs. 2794 and 2795 in the Debris Dam Sandstone have *Baculites rex* ANDERSON, and Matsumoto (1960, p. 113) considered them to be of early Maestrichtian or latest Campanian age. Other mollusks from UCLA loc. 6308 (vicinity of LSJU loc. 2794) suggest the late Campanian side of the stage boundary. This may indicate a late Campanian through early Maestrichtian range for *Coralliochama oreutti*, but at present the early Maestrichtian age is better based than is the late Campanian age. As specimens from UCLA loc. 6931 are from a clast in a conglomerate, the conglomerate is somewhat younger in age than the fossils.

PHOLADOMYOIDA

Two specimens from CIT loc. 1537 probably belong to the family *PHOLADOMYIDAE*. In shape they resemble *Periplomya* of the Laternulidae, but instead of a chondrophore and internal ligament, they have an external ligament. This unidentified genus is also present in the Chico Formation of Chico Creek, Butte Co.

GASTROPODA

In general, gastropod species are represented by fewer individuals than are the bivalves.

ARCHAEOGASTROPODA

One specimen of a limpet has been found at CIT

loc. 1537. Muscle scars have not been exposed, but externally it resembles members of the family *ACMAEIDAE*.

The family *TROCHIDAE*, subfamily *MARGARITINAE* is represented by two species: "*Margarites*" *ornatissimus* (GABB, 1864) [= *Solariaxis templetoni* WARING, 1917], common to abundant in collections from Bell and Dayton Canyons, and "*Margarites*" cf. "*M.*" *inornatus* (GABB, 1864), from Lang Ranch. "*M.*" *ornatissimus* has also been found in the Pleasants Sandstone, Santa Ana Mts., and the Chico Formation, Butte Co., and is of Campanian age. "*M.*" *inornatus* occurs in beds of Maestrichtian age near Martinez, Contra Costa Co. Margaritinae tend to be a primitive (Fretter & Graham, 1962, p. 616), cool water group. Several species of Recent Margaritinae found in very shallow water near the northern end of their range are found in deeper water in the southern part (Abbott, 1974, p. 36). Many Recent species are cited in association with algae or kelp (Fretter & Graham, 1962, p. 672). Margaritinae of the Chatsworth Formation suggest the deeper portion of the photic zone.

MESOGASTROPODA

The possible member of the *RISSOIDAE*, "*Mesostoma*" *suciensis* (WHITEAVES, 1879) is found at Bell and Dayton Canyons and at Lang Ranch Localities. It resembles an unusually large *Turboella*. As with the margarites, rissoids are cited in association with algae or kelp (Fretter & Graham, 1962, p. 684).

TURRITELLIDAE have been collected at some Bell and Dayton Canyon localities and at UCLA loc. 6464=CIT loc. 1538. Only at CIT loc. 1157 are they abundant. In life turritellas are extremely gregarious and live in dense patches -- a patchy distribution in the strata is not surprising. At Bell Canyon localities the turritella is a late form of *Turritella chicoensis* (GABB, 1864) (pl. 3, fig. 1) approaching *T. c. pescaderoensis* in its sculpture and shape, but at Dayton Canyon localities and UCLA loc. 6464, the turritella is *T. c. pescaderoensis* ARNOLD, 1908 (pl. 3, fig. 2). This is the form found in the Pleasants Sandstone of the Santa Ana Mts. and in *Metaplaenticeras*-bearing beds in the Santa Monica Mts., and it is considered to indicate a late Campanian age (SAUL, in press). Turritellas require non-turbulent water and a bottom sufficiently firm that their mucus-lined feeding depressions can stay open (Yonge, 1946, p. 379).

Several undescribed *MATHILDIDAE* are in the collections from Dayton Canyon and Lang Ranch. Both *Mathilda* and *Gegonia* appear to be represented. Some Recent species of *Mathilda* are reported from bathyal depths.

A variety of undescribed *EPITONIIDAE* are present in the Chatsworth Formation. Most resemble *Amaea* spp. or *Opalia* spp. A specimen over 18 cm long from CIT loc. 1538 is tentatively identified as "*Cerithium*(?)" *suciensis* PACKARD, 1922. It does not appear to be a cerithacean but is probably an epitoniid similar to *Confusiscula*. If epitoniids are specialized carnivores (Fretter & Graham, 1962, p. 572), few individuals of diverse species are to be expected.

Species belonging to two lineages of *Lysis* are present in collections from the Chatsworth Formation. This genus, with its curious excavated columellar area, has been placed in the families *Purpuridae*, *Lamellariidae*, *Naticidae* (*Polinicinae*), and

Fossariidae. *Lysis* spp. from older rocks resemble *Trichotropidae*, but the Campanian and Maestrichtian species resemble *CALYPTRAEIDAE*. The one figured (pl. 3, figs. 3-4) is probably *Lysis duplicosta* GABB, 1864. The columellar area is widely expanded and sunken. *L. duplicosta* is present in collections from Bell and Dayton Canyons. Forms of the other lineage, *L. suciensis* (WHITEAVES, 1879) are present in collections from Bell and Dayton Canyons and the Lang Ranch. The expanded aperture suggests that the living animal was firmly clamped to a hard object.

APORRHAIIDAE were diverse in the Cretaceous. Rare specimens representative of four genera, *Anchura*, *Tessarolax*, *Aporrhais*?, and a new genus, are in the collections from Bell and Dayton Canyons; and "*Lisopodesthes*" *rotundus* (WARING, 1917) is abundant at several Lang Ranch localities. The Recent aporrhaid, *Aporrhais pospelicani* is a detrital feeder and thus must move about more frequently than the filter feeding turritellas with which it commonly occurs. It moves with considerable agility in a series of spasmodic jerks as the shell is lifted high off the substrate by elongation of the foot and the shell is then swung forward (Fretter & Graham, 1962, p. 567).

NATICIDAE are difficult to identify, and the following identifications are tentative. *Euspira compressa* (WARING, 1917) is from Dayton Canyon and specimens from Bell Canyon are probably conspecific. This is in part *Euspira shumardiana* GABB of Popenoe, 1942. Poorly preserved specimens from Lang Ranch may also be *P. compressa*. Other poorly preserved specimens from there look more like *Polinices? mercedensis* ANDERSON, 1958. "*Gyrodos*" *canadensis* WHITEAVES, 1903, is common in some collections from Bell and Dayton Canyons, and "*G.*" cf. "*G.*" *expansa* GABB, 1864, is present in Lang Ranch collections. "*G.*" *canadensis* is present in the Cedar District Formation of Sucia Island, Washington, the Chico Formation of Chico Creek, Butte Co., and the Holz Shale and Pleasants Sandstone of the Santa Ana Mts. (Popenoe, 1954, p. 17) and is of Campanian age. "*G.*" *expansa* was based upon specimens from beds of Maestrichtian age near Martinez, Contra Costa Co., and the Lang Ranch specimens resemble Martinez specimens in being less sharply tabulate than "*G.*" *canadensis* and having a slight sulcus abapical to the tabulation. *Ampullina concipio* DAILEY & POPENOE, 1966, occurs at UCLA loc. 1600. It was described from the Jalama Formation on Jalama Creek, Santa Barbara Co., and is considered to be of early Maestrichtian age. Waring's (1917, pl. 9, fig. 9) figure of *Amauropsis oviformis* GABB does not resemble that species.

Haydenia impressa (GABB, 1864) has been collected at CIT loc. 1159; it has been doubtfully placed in the *CASSIDIDAE* (Stewart, 1927, p. 381).

The family *PERRISSITYIDAE* is included here in the Mesogastropoda, but it may belong in the Neogastropoda. *Perissitys brevirostris* (GABB, 1864) (pl. 3, fig. 5) is common in collections from Bell and Dayton Canyons. It occurs in the upper Chico Formation on Chico Creek, Butte Co., and in the upper Holz Shale and Pleasants Sandstone of the Santa Ana Mts., Orange Co., and is of Campanian age. Its presence at UCLA loc. 6464 indicates that the beds there are of Campanian age. *Cophocara* n. sp. (pl. 3, figs. 6-7) is present in collections from Lang Ranch. The species occurs elsewhere -- Rosario Formation near Santa Catarina Landing, Baja California, and lower "Ragged Valley Shale" along Los Gatos Creek, Fresno Co. -- associated with *Pachydiscus (Neodesmoceras)*

cf. *P. (N.) catarinae* and is of early Maestrichtian age. "*Hindsia*" aff. "*H. nodulosa* (WHITEAVES, 1874)" is present at Bell and Dayton Canyons as also is "*Fusus*" *kingii* GABB, 1864. As they have been collected from the Cedar District Formation on Sucia Island, Washington, they suggest a Campanian age.

NEOGASTROPODA

A number of forms resembling *BUCCINIDAE* are present in the collections; most are undescribed. "*Fulgur*" *hilgardi* WHITE, 1889, may possibly be a buccinid. It occurs at Bell and Dayton Canyons, in the upper Chico Formation, Chico Creek, Butte Co., and the Holz Shale and Pleasants Sandstone, Santa Ana Mts., and is of Campanian age. Specimens resembling "*Fusus*" *tumidus* GABB, 1869, are from Bell Canyon; they are probably not that species, are undescribed, and are probably buccinids.

None of the forms resembling *FASCIOLARIIDAE* have been described. ?*Graphidula* sp. is found at both Bell and Dayton Canyon localities and ?*Anomalofusus* spp. are from Dayton Canyon.

An undescribed member of the *MITRIDAE*, *Paleofusimitra* n. sp. (pl. 3, fig. 8) is common at Dayton Canyon, especially at CIT loc. 1159, and present at Bell Canyon. The tall, slender shell is weakly sculptured by subsutural, spiral lirae and incised spirals over the rest of the shell. These spirals are usually nearly obliterated on the mid whorl. There are two oblique folds on the columella, the apical one much weaker.

VOLUTIDAE are present in collections from Bell and Dayton Canyons and Lang Ranch. *Volutoderma* spp. are the largest gastropods from these localities. Several species are described but for none are the limits of variation well enough known to identify the Simi Hills specimens to species. Two types are recognizable, however: *Volutoderma* aff. *V. averillii* (GABB, 1864) which is more slender and somewhat more strongly sculptured and *Volutoderma* aff. *V. magna* PACKARD, 1922, which has a more expanded body whorl. Despite their overall exterior similarity, the two types have different patterns of columellar folds. More than one species of each type may be represented. Some specimens of *Volutoderma* (if not all) from Bell Canyon are probably *Volutoderma averillii* (GABB, 1864) and some from Dayton Canyon collections are probably *V. magna* PACKARD, 1933.

Some pretty shells from Bell Canyon (UCLA loc. 6232) may belong to the *CANCELLARIIDAE*. They resemble the genus *Caveola*.

Specimens resembling *Amuletum* of the family *TURRIDAE* are also present in Bell Canyon collections.

ENTOMOTAENIATA

Odstomia santana PACKARD, 1922, may belong to the *PYRAMELLIDAE* although it is large for that family. Specimens assigned to this species have been collected from both Bell and Dayton Canyons. In the Santa Ana Mts., Orange Co., it is found in the Pleasants Sandstone.

CEPHALASPIDEA

The family *ACTEONIDAE* is represented by two genera. Specimens identified as *Acteon (Eoacteon) normalis* (COOPER, 1894) are from Lang Ranch. The

species was described from Pt. Loma, San Diego Co., probably from the Rosario Group, *Neodesmoceras catarinae* zone. *Nonacteonina obesa* DAILEY & POPENOE, 1966, is also from Lang Ranch; it was described from the Jalama Formation, Jalama Creek, Santa Barbara Co., and is also of early Maestrichtian age. *Nonacteonina* sp. is present at Dayton Canyon.

The RINGICULIDAE is the best represented family of opisthobranchs, at least in terms of numbers of specimens. A new species of *Ringicula* is abundant at UCLA locs. 3812 and 3815, Lang Ranch. Many, but not all, Recent *Ringicula* spp. are from outer sublittoral to bathyal depths. *Biplicia* spp. are one of the most common gastropods in the Simi Hills collections. *Biplicia obliqua* (GABB, 1864) (pl. 3, figs. 9-10) is present at both Bell and Dayton Canyon localities. Specimens from Bell Canyon are especially large, twice the size of those from Dayton; the significance of this is unknown. *B. obliqua* is widely distributed from British Columbia to Southern California in beds of Campanian age (Popenoe, 1957, p. 435). *Biplicia miniplicata* POPENOE, 1957 (pl. 3, figs. 11-12), is abundant at Lang Ranch. In all of its occurrences elsewhere -- Moreno Formation, Merced Co., Deer Valley Formation of Colburn (1964), Contra Costa Co., etc., it is of Maestrichtian age.

The largest SCAPHANDRIDAE present in Simi Hills collections are slightly over 1 cm in length. Probable *Mirasacapha* n. sp. are from Bell and Dayton Canyons and Lang Ranch. *Ellipsosacapha nortonensis* (ANDERSON, 1958) is present in collections from Dayton Canyon; *E. cf. E. nortonensis* (ANDERSON) is in collections from Bell Canyon. At its type locality in Enos Canyon (CAS loc. 1467), Yolo Co., *E. nortonensis* occurs with *Metaplaenticeras pacificum* (SMITH, 1900) and is of late Campanian age.

The family ACTEOCINIDAE is probably represented by two undescribed species, *Cylicma* n. sp. and *Cylindroturuncatum* n. sp. from Bell Canyon.

Specimens from Dayton Canyon (CIT loc. 1537) have been referred to *Cylicma* n. sp. and possibly to the family RETUSIDAE.

CEPHALOPODA

Recent collecting in the Chatsworth Formation has revealed a large and varied cephalopod fauna. At least 14 ammonite genera are represented, of which 10 have not previously been reported. Although Mollusca known from the Chatsworth Formation range in age from mid Campanian to early Maestrichtian, the only diagnostic ammonites presently known are late Campanian and early Maestrichtian forms. The upper Campanian *Metaplaenticeras* beds at Dayton Canyon localities CIT 1159 and 1537 are especially prolific, with a minimum of 12 genera and perhaps 20 species present, representing all 7 ammonite families recognized herein from the Chatsworth Formation. A few poorly preserved nautiloids are present at Dayton Canyon, representing more than one genus; but we have not tried to identify them. In this preliminary discussion, we attempt to add to what is known of the ammonite faunas, reserving critical studies of certain elements thereof for future reports. For earlier reports mentioning ammonites from this area see Smith, 1900; Anderson, 1902, 1958; Waring, 1917; Kew, 1924; Popenoe, 1942, 1955, and 1973; and Matsumoto, 1959a, b.

Plate 3.-- Gastropods and ammonites from the Chatsworth Formation

[All figures natural size unless otherwise indicated.]

1. *Turritella chicoensis* GABB, 1864, x.75. UCLA 58748. CIT loc. 1157, Bell Canyon; late mid Campanian
2. *Turritella chicoensis pescaderoensis* ARNOLD, 1908. UCLA 59215. CIT loc. 1159, Dayton Canyon; late Campanian
- 3-4. *Lysis duplicosta* GABB, 1864. UCLA 59216. UCLA loc. 6020A, Bell Canyon; late mid Campanian
5. *Perissitys brevirostris* (GABB, 1864), x.75. UCLA 28715. CIT loc. 1158, Bell Canyon, late mid Campanian. Photo by T. Susuki
- 6-7. *Cophocera* n. sp. UCLA 59217. UCLA loc. 3814, Lang Ranch; early Maestrichtian. 6. x1.5. 7. x1.75
8. *Paleofusimitra* n. sp. UCLA 59218. CIT loc. 1159, Dayton Canyon; late Campanian
- 9-10. *Biplicia obliqua* (GABB, 1864), x1.5. UCLA 27753. CIT loc. 1158, Bell Canyon; late mid Campanian. Photos by A. C. Daley
11. *Biplicia miniplicata* POPENOE, 1957, x1.5. UCLA 59219. UCLA loc. 3815, Lang Ranch; early Maestrichtian
12. *Biplicia miniplicata* POPENOE, 1957, x1.87. UCLA 27755. UCLA loc. 3339, Lang Ranch; early Maestrichtian. Photo by A. C. Daley
13. *Pachydiscus (Neodesmoceras) catarinae* (ANDERSON & HANNA, 1935). UCLA 28718. Lang Ranch area; early Maestrichtian. Photo by T. Susuki
14. *Metaplaenticeras* sp. UCLA 46038. CIT loc. 1537, Dayton Canyon; late Campanian
15. *Metaplaenticeras* sp. UCLA 59220. CIT loc. 1537, Dayton Canyon; late Campanian
16. *Hauericeras transitionale* WARING, 1917. HOLOTYPE, CAS 390. "Bell Canyon", but probably Santa Monica Mountains

AMMONOIDEA

Most of the ammonite localities in the Chatsworth Formation are grouped into the following categories: "Dayton Canyon localities" (late Campanian): CIT locs. 1159 and 1537; "Bell Canyon localities" (mid Campanian): CIT locs. 1157 and 1158; "Lang Ranch localities" (early Maestrichtian): UCLA locs. 3339, 3813, and 6936; locality of John Alderson (late Campanian): JA-33.

Members of the persistent ammonite family PHYLLOCERATIDAE are represented in the Chatsworth Formation at Dayton Canyon by *Hypophylloceras (Neophylloceras) ramosum* (MEEK) (we follow the generic nomenclature used by Matsumoto and Morozumi, 1980), and *Phyllopachyceras* cf. *P. forbesianum* (D'ORBIGNY).

H. (N.) ramosum is common in California in beds of late Turonian through late Campanian age, and occurs also on Vancouver Island and in Japan (Jones, 1963). It is found in a variety of sedimentary facies, but phylloceratids have generally been considered free-swimming, relatively deep water forms. The extremely complex septal sutures of *H. (N.) ramosum* and the consequently strengthened shell have been cited in support of this interpretation (Moore, 1957, p. L121).

Phyllopachyceras forbesianum is widespread in