

SOUTHERN CALIFORNIA CRETACEOUS FORMATIONS AND
FAUNAS WITH ESPECIAL REFERENCE TO THE
SIMI HILLS AND SANTA MONICA MOUNTAINS

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EXPOSITION PARK

Later Cretaceous fossiliferous beds crop out at intervals near the southern California coast from the vicinity of Point Conception at the north to Arroyo Santa Catarina in Baja California, approximately 500 miles to the southeast. The oldest faunas obtained from these exposures are of Upper Turonian age, and are found in the Santa Ana Mountains, Orange County, and in the Santa Monica Mountains, northwest of Los Angeles. Coniacian and Santonian strata are probably present in the Santa Ana and Santa Monica Mountains sections, but definite evidence thereof is very meager. Campanian beds and faunas are well-developed in the Santa Ana Mountains, Santa Monica Mountains, and in the eastern Simi Hills. Beds of probably Lower Maestrichtian age are found in the western Simi Hills and at Jalama Creek. Locations of the Cretaceous exposures are shown on the Index-Map, Text-Figure 1, whereas the thicknesses, lithologic variety, and the positions of faunal assemblages are shown in columnar section on Text-Figure 2. Common and characteristic species from these localities are shown on Plates 1 to 4.

Emphasis in the discussion following will refer to the Cretaceous of the Simi Hills and the Santa Monica Mountains.

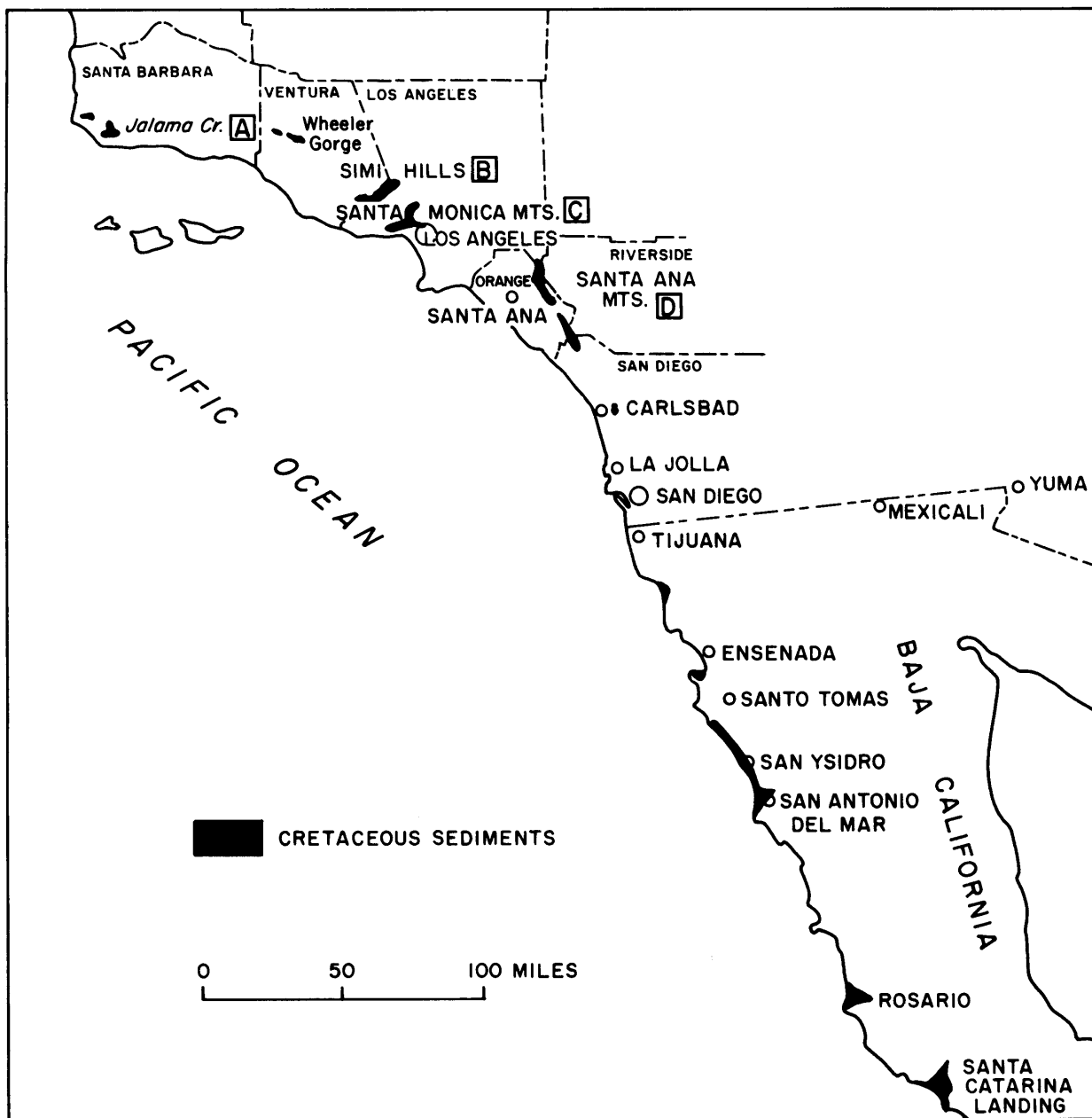
Depositional and Depth Conditions Inferred from the Faunas

Santa Monica Mountains

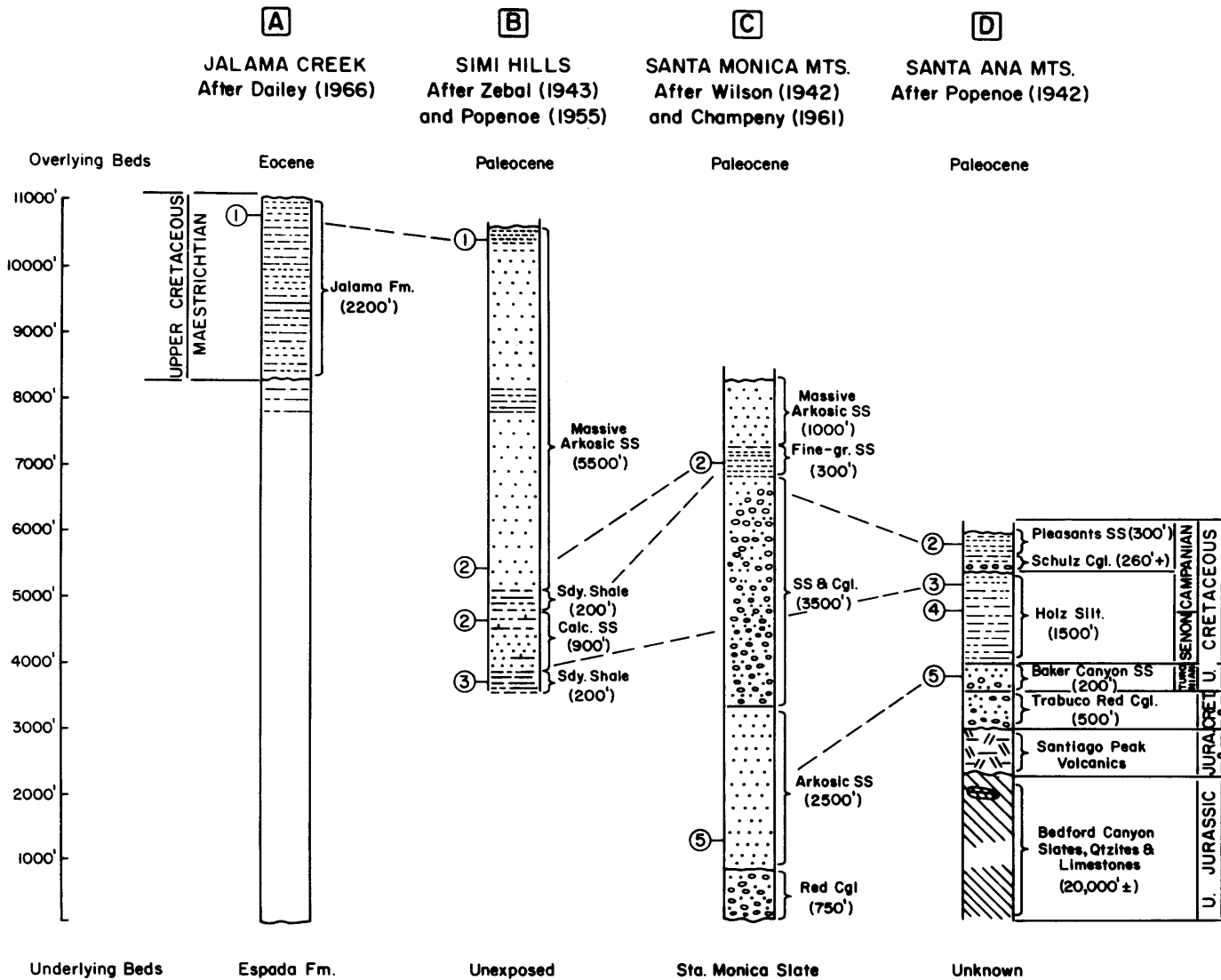
Waring (1917), Hoots (1931), Wilson (1942), and Champeny (1961) discussed the Cretaceous faunas and stratigraphy of the Santa Monica Mountains. As the two latter workers have had advantages of accessibility and better fossil collections, their observations will be used here.

Wilson divided the Cretaceous strata cropping out between Santa Ynez Canyon and a little east of Mandeville Canyon into five members to which he applied informal letter designations. In descending order, these members with thicknesses are as follows:

- | | |
|--|-------|
| E. Upper arkose and conglomerate. Unfossiliferous. | 1000' |
| D. Fine-grained fossiliferous sandstone. | 300' |
| C. Cobble conglomerate. Unfossiliferous. | 3500' |



TEXT - FIGURE 1. INDEX MAP



EXPLANATION

Letters in squares at top of columnar sections show location of section at similarly lettered squares on the index map, Text-figure 1.

Numbers in circles beside the columnar sections show the approximate stratigraphic positions of faunal assemblages on Plates 1 to 4, as follows:

1. Neodesmoceras - Calva varians - Cophocara beds
MAESTRICHTIAN
2. Metaplacenticeras - Eupachydiscus beds
UPPER CAMPANIAN
3. Turritella pescaderoensis beds
MIDDLE CAMPANIAN
4. Turritella chicoensis beds
LOWER - MIDDLE CAMPANIAN
5. Otoscapites - Subprionocyclus beds
UPPER TURONIAN

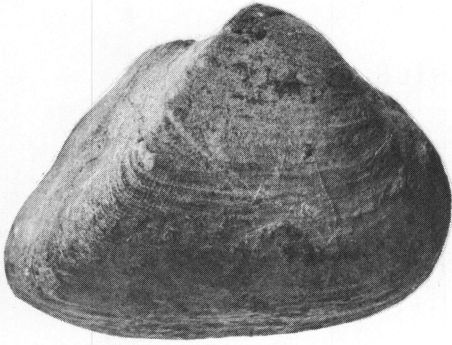
TEXT - FIGURE 2. COLUMNAR SECTIONS

PLATE 1
TURONIAN FOSSILS

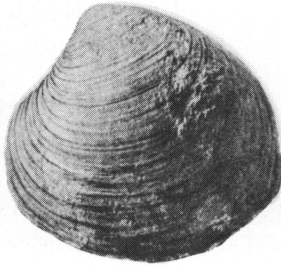
All figures are natural size except where otherwise indicated. All specimens are from the Baker Canyon Formation, Santa Ana Mountains, except where otherwise noted.

1. Trigonarca californica Packard. Modjeska Canyon vicinity.
2. Calva regina Popenoe. South side of Silverado Canyon, opposite Holz Ranch.
3. Lima beta Popenoe. Silverado Canyon, near Holz Ranch.
4. Clisocolus corrugatus Popenoe. Holz Ranch, Silverado Canyon.
5. Pterotrigonia klamathonia (Anderson). Upper Baker Canyon, Santa Ana Mountains.
6. Ampullina pseudoalveata (Packard). Holz Ranch, Silverado Canyon.
7. Flaventia zeta Popenoe. Modjeska Canyon region.
8. Glossus delta (Popenoe). Holz Ranch, Silverado Canyon.
9. Idonearca gravida (Gabb). Holz Ranch, Silverado Canyon.
10. Otoscaphtes puerculus (Jimbo) = Scaphites inermis Anderson. X2. Dry Creek, near Bellavista, Shasta County, California. This form is found also in the Santa Ana and Santa Monica Mountains.
11. Crassatella gamma Popenoe. Holz Ranch, Silverado Canyon.
12. Acteonella oviformis Gabb. Holz Ranch, Silverado Canyon.
13. Subprionocyclus cf. neptuni (Geinitz). ?Holz Ranch, Silverado Canyon.
14. Opis sp. Holz Ranch, Silverado Canyon.

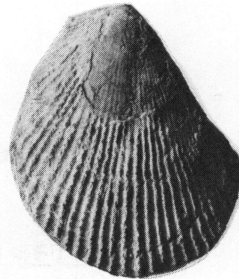
PLATE 1 - TURONIAN FOSSILS



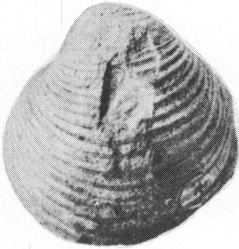
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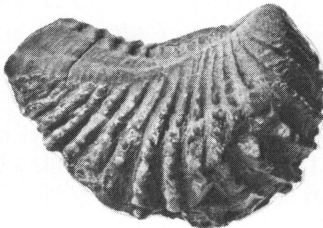
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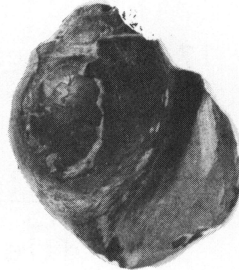
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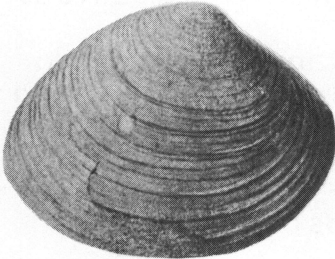
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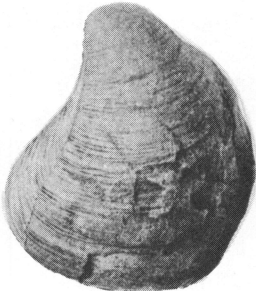
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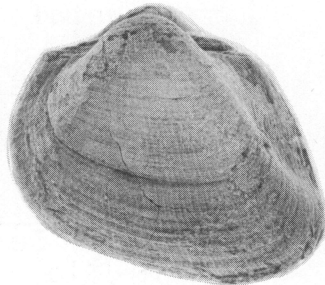
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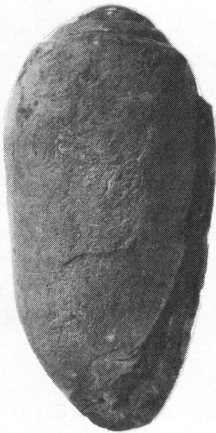
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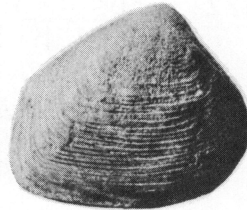
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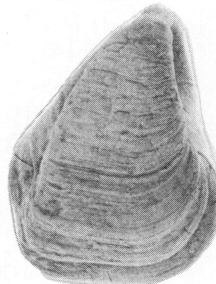
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PLATE 2
CAMPANIAN FOSSILS

All specimens are natural size except where otherwise indicated.

15. Metaplacenticers pacificum (Smith), X $\frac{1}{2}$. Santa Ynez Canyon, Santa Monica Mountains. Upper Campanian.
16. Perissitys brevirostris (Gabb). Bell Canyon, Simi Hills. Upper Campanian.
17. Legumen ooides (Gabb). Modjeska Ranch area, Santa Ana Mountains. Upper Campanian, Pleasants Member, Williams Formation.
18. Turritella pescaderoensis ? Arnold. Schultz Ranch, Santa Ana Mountains. Uppermost Holz shale member, Middle ? Campanian.
19. Crassatella n. sp. Harding Canyon region, Santa Ana Mountains. Uppermost Holz shale, Middle Campanian.
20. Crassatella tuscana (Gabb). Holz Ranch, Silverado Canyon, Santa Ana Mountains. Middle Holz shale member, Lower - Middle Campanian.
21. Flaventia lens (Gabb). Silverado - Baker Canyon divide, Santa Ana Mountains. Uppermost Holz shale, Middle - Upper Campanian.
22. Euspira sp. cf. E. shumardiana (Gabb). Bell Canyon, Simi Hills. Metaplacenticers beds, Upper Campanian.
23. Ampullina packardi Popenoe. Aliso Creek headwaters, Corona quadrangle, Santa Ana Mountains. Middle Holz shale member, Lower - Middle Campanian.
24. Turritella chicoensis Gabb. Aliso Creek headwaters, Corona quadrangle, Santa Ana Mountains. Middle Holz shale member, Lower - Middle Campanian.
25. Opis sp. B. West side Holz Ranch, Silverado Canyon, Santa Ana Mountains. Middle Holz shale member, Lower - Middle Campanian.
26. Trinacria cor Popenoe, X2. Modjeska Ranch vicinity, Santiago Canyon, Santa Ana Mountains. Pleasants sandstone member, Williams Formation, and Holz shale. Middle and Upper Campanian.