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FAUNA OF THE TYPE TEJON: ITS RELATION TO  
THE COWLITZ PHASE OF THE TEJON  
GROUP OF WASHINGTON

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## INTRODUCTION.

The Tejon group of California has a very characteristic fauna and, partially on this account, strata of this group have been recognized easily in many places throughout this state and in the neighboring states of Oregon and Washington.

An examination of the fauna of the type locality of the Tejon on Cañada de las Uvas has revealed many new species and many species described from other localities. The fauna as a whole does not represent the entire assemblage of the forms of the Tejon group, but only one zone appears to be present. The discovery in the type Tejon of several new species which had been described from the Washington Eocene has led to this comparison of the Washington Eocene fauna with that of the type Tejon.

This paper deals with the faunal relations of the Cowlitz phase of the Tejon group of Washington and that of the type locality of the Tejon in California. In brief, the conclusions of this comparative study are that the Cowlitz phase is in reality identical with the faunal assemblage from the typical Tejon at Cañada de las Uvas, and that both faunas belong to a middle zone of the Tejon group which will be called the Rimella simplex Zone.

## HISTORICAL.

The first recognition of Eocene on the Pacific Coast was made by Conrad,<sup>1</sup> and was based upon the fossils contained in a boulder sent by Blake from Cañada de las Uvas.

Conrad described the following new species: *Cardium linteum*, *Dosinia alta*, *Meretrix wasana*, *Meretrix californiana*, *Crassatella wasana*, *Mytilus humerus*, *Volutilithes californiana*, *Busycon (?) blakei*=(*Perissolax blakei*), *Clavatula (?) californica*=(*Fusus californicus*), *Natica alveata*=(*Amauroopsis alveata*), and he identified *Venericardia planicosta*, *Natica atites (?)*, *Natica gibbosa* and *Crassatella alta* of the Claiborne Eocene.

<sup>1</sup> Pacific Railroad Reports, App. to Prelim. Geol. Rept. of W. P. Blake, Palaeontology, pp. 5-20, 1855. Reprinted in Pacific Railroad Reports, vol. 5, part 2, pp. 317-329, 1857.

**Fasciolaria sinuata** Gabb

*Fasciolaria sinuata* Gabb, W. M., Geology of California, Palaeontology, vol. 1, p. 101, 1864.

Plate 11, figures 3a, 3b

This species is slightly more robust in young individuals than in older forms. The characteristic lirations in this species can only be discerned as a rule by breaking a specimen so that the spire portion of the columella can be examined, as the lirations on the outer lip are lacking. This form is very abundant at the type locality of the Tejon.

**Conus californiana** (Conrad)

Plate 11, figure 6

*Volutilithes californiana* Conrad, Pacific R. R. Report, vol. 5, p. 322, 1855.

Not *Conus remondii* Gabb, Rept. Geol. Surv. of California, Palaeontology, vol. 2, p. 122, 1869.

The specimen figured is without much doubt Conrad's form. Gabb described another *Conus* as *C. remondii* and placed this species in synonymy. Gabb's collections from the type Tejon were evidently not as exhaustive as he thought as he failed to find other forms which Conrad described.

This species has fewer nodes than *C. remondii* (See Plate 11, figure 7) and its spire height is greater. It differs from *C. cowlitzensis* Weaver (See Plate 11, figure 8) in having a shorter spire and a lesser number of nodes. The space between the suture and shoulder of this form is nearly flat while the corresponding space on *C. cowlitzensis* is decidedly concave.

**Conus weaveri**, new species

Plate 11, figure 10

Shell small, wide, short, with six whorls; decoration consisting of numerous spiral lines most prominent on lower part of body-whorl.

This species is easily distinguished from *C. hornii* (See Plate 11, figures 9a, 9b, 9c) by its greater breadth and by its marked spiral lines. Its lack of nodes renders it easily separable from *C. cowlitzensis*, *C. californiana*, and *C. remondii*.

Dimensions:—Length, 15.5; width of body-whorl, 9.5 mm.

Type:—No. 356, Cal. Acad. Sci. Locality 182, on the west bank of the Cowlitz River immediately south of the eastward bend about one and one-half miles east of Vader, Washington. Coll., B. Martin.

Named in honor of Professor C. E. Weaver.

**Mitra uvasana**, new species

Plate 11, figures 13a, 13b

Shell of medium size; elongate, spindle-shaped, the spire being a third the total length of shell; spire-whorls, probably eight or nine in number, flat sided, increasing slowly in size; suture impressed; body-whorl slightly convex with constriction three-fourths of whorl-length below suture; shell decorated by many fine ribbon-like spiral ribs. This species differs from *Mitra washingtoniana* Weaver and *M. simplicissima* Cooper in the greater length of spire and its marked ribbing.

Dimensions:—Length, 29 mm.; width of body-whorl, 11 mm.

Type:—No. 358, Cal. Acad. Sci. Locality 245, Tejon Quadrangle, Tejon group. Along the east bank of a small gulch about one-fourth of a mile east of the pumping plant at the mouth of Grapevine Canyon, about 35 miles south of Bakersfield, Cal. Coll., B. Martin.

**Voluta slevini**, new species

Plate 11, figure 16

Shell fusiform, with very rounded body-whorl; number of whorls unknown; decoration on body-whorl consisting of ten to fifteen strong spiral lines crossed by twenty axial ribs of equal strength; rounded nodes found at crossing of two sets of decoration; aperture oval; outer lip thin; inner lip bearing at least five plaits of equal size.

Dimensions:—Width of body-whorl, 9 mm.

Type:—No. 362, Cal. Acad. Sci. Locality 244, Tejon Quadrangle, Kern County, California, Tejon group. In east bank of Live Oak Creek about three-fourths of a mile from its mouth or from the edge of the San Joaquin Valley and about three miles due east of the mouth of Grapevine Canyon. Coll., B. Martin.

## EXPLANATION OF PLATE 11

- Fig. 1a. *Fusus willisi*, new species,  $\times 2$ . Back view of type.  
 Fig. 1b. *Fusus willisi*, new species,  $\times 2$ . Mouth view of type.  
 Fig. 2a. *Fasciolaria buwaldana*, new species,  $\times 2$ . Back view of type.  
 Fig. 2b. *Fasciolaria buwaldana*, new species,  $\times 2$ . Aperture view of type.  
 Fig. 3a. *Fasciolaria sinuata* Gabb,  $\times 1$ . Back view of cotype from Cal. Acad. Sci. Locality 245. The characteristic lirations in this species can only be discerned as a rule by breaking a specimen so that the spire portion of the columella can be examined.  
 Fig. 3b. *Fasciolaria sinuata* Gabb,  $\times 1$ .  
 Fig. 4. *Perissolax blakei* (Conrad),  $\times 1$ . Cotype from Cal. Acad. Sci. Locality 244.  
 Fig. 5. *Actæon*, new species,  $\times 3$ . Cal. Acad. Sci. Locality 244.  
 Fig. 6. *Conus californiana* (Conrad),  $\times 1$ . Univ. of Cal. Locality 456.  
 Fig. 7. *Conus remondii* Gabb,  $\times 1$ . Cal. Acad. Sci. Locality 182.  
 Fig. 8. *Conus cowlitzensis* Weaver,  $\times 1$ . Cotype from Cal. Acad. Sci. Locality 182.  
 Fig. 9a. *Conus hornii* Gabb,  $\times 1$ . Cotype from Cal. Acad. Sci. Locality 244.  
 Fig. 9b. *Conus hornii* Gabb,  $\times 1$ .  
 Fig. 9c. *Conus hornii* Gabb,  $\times 1$ .  
 Fig. 10. *Conus weaveri*, new species,  $\times 2$ . Type.  
 Fig. 11a. *Mitra washingtoniana* Weaver,  $\times 1$ . Cotype.  
 Fig. 11b. *Mitra washingtoniana* Weaver,  $\times 1$ . Mouth view.  
 Fig. 12. *Mitra simplicissima* Cooper,  $\times 2$ . Cotype from Univ. of Cal. Locality 2226, Rose Canyon.  
 Fig. 13a. *Mitra uvasana*, new species,  $\times 1$ . Type from Cal. Acad. Sci. Locality 244.  
 Fig. 13b. *Mitra uvasana*, new species,  $\times 1$ . Cotype. View showing aperture.  
 Fig. 14a. *Voluta martini*, new species,  $\times 1$ . Type.  
 Fig. 14b. *Voluta martini*, new species,  $\times 1$ . Back view of type.  
 Fig. 15. *Voluta*, sp. a,  $\times 3$ . Cal. Acad. Sci. Locality 244.  
 Fig. 16. *Voluta slevini*, new species,  $\times 2$ . Type.

