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TURRITELLA GRANTI, A NEW PLEISTOCENE
GASTROPOD FROM PALOS VERDES HILLS,
CALIFORNIA

BY

JAMES W. VALENTINE AND TAKEO SUSUKI

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TURRITELLA GRANTI, A NEW PLEISTOCENE GASTROPOD FROM
PALOS VERDES HILLS, CALIFORNIA

JAMES W. VALENTINE AND TAKEO SUSUKI

University of Missouri, Columbia, and University of California, Los Angeles

A large collection of fossils was made in 1949 by Mr. Carl Helms from an exposure of Lower Pleistocene strata on the northern margin of Palos Verdes Hills, California (Text-fig. 1). Mr. Helms, now of the Standard Oil Company of California, was at that time working under the direction of Prof. W. P. Popenoe, University of California, Los Angeles. Among the fossils is a single specimen of a new *Turritella*. This shell is so distinctive that its formal description is justified.

The strata collected by Helms have been assigned to the Timms Point silt by Woodring et al. (1946, pl. 1, loc. 66) on the basis of the occurrence of *Pandora grandis*, *Mya truncata*, and a small form of *Panomya beringianus*, all cold water pelecypods that characterize Timms Point silt assemblages. Two species of *Turritella* are previously known from Lower Pleistocene deposits of California, *cooperi* and *pedroensis*. Both are abundant in the Helms collection. Efforts to obtain additional specimens of the new *Turritella* by re-collecting were unsuccessful.

Genus TURRITELLA Lamarck, 1799

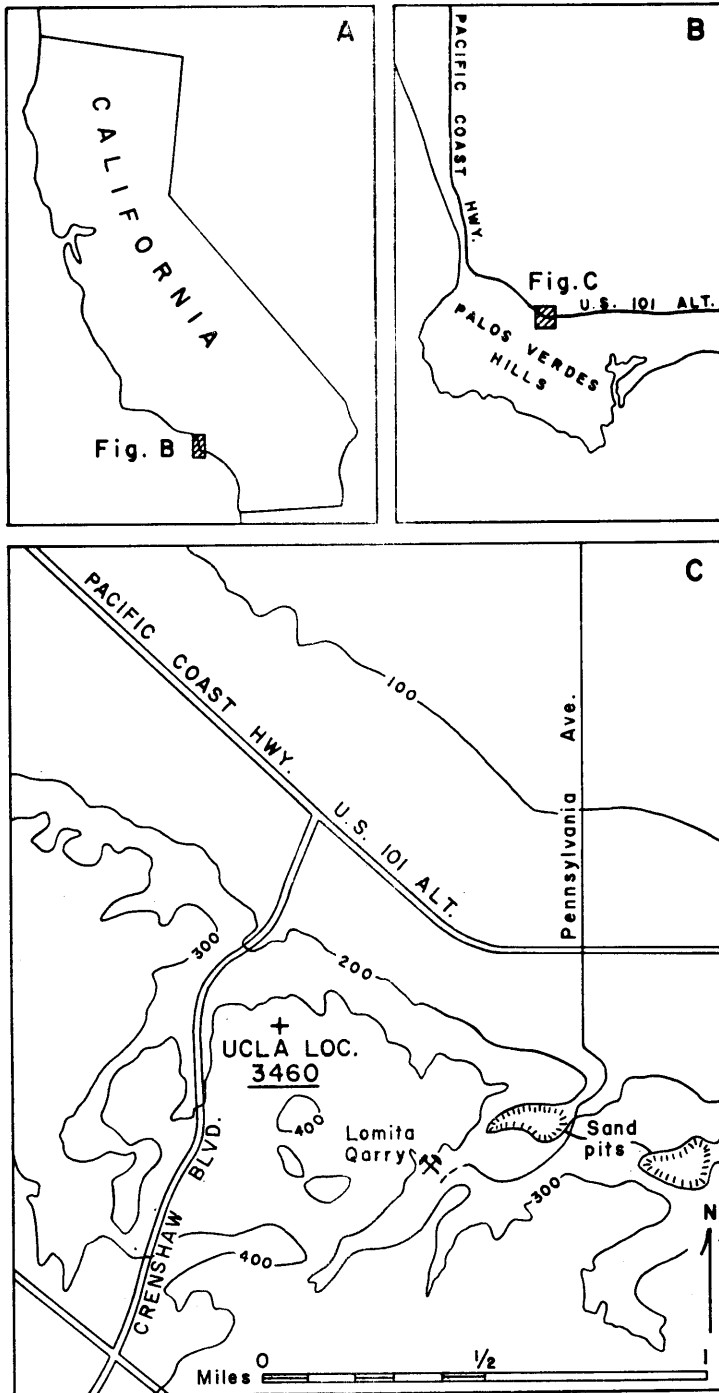
Turritella LAMARCK, 1779, Mem. Soc. Hist. Nat. Paris, ser. 1, v. 1, p. 74; GUILLAUME, 1924, Bull. Soc. Geol. France, ser. 4, v. 24, p. 281-311,

pls. 10-11; MERRIAM, 1941, Univ. Calif. Pubs. Dept. Geol. Sci. Bull., v. 26, no. 1, 214 p., 41 pls; MARWICK, 1957, Malac. Soc. London Proc., no. 32, pt. 4, p. 144-166.

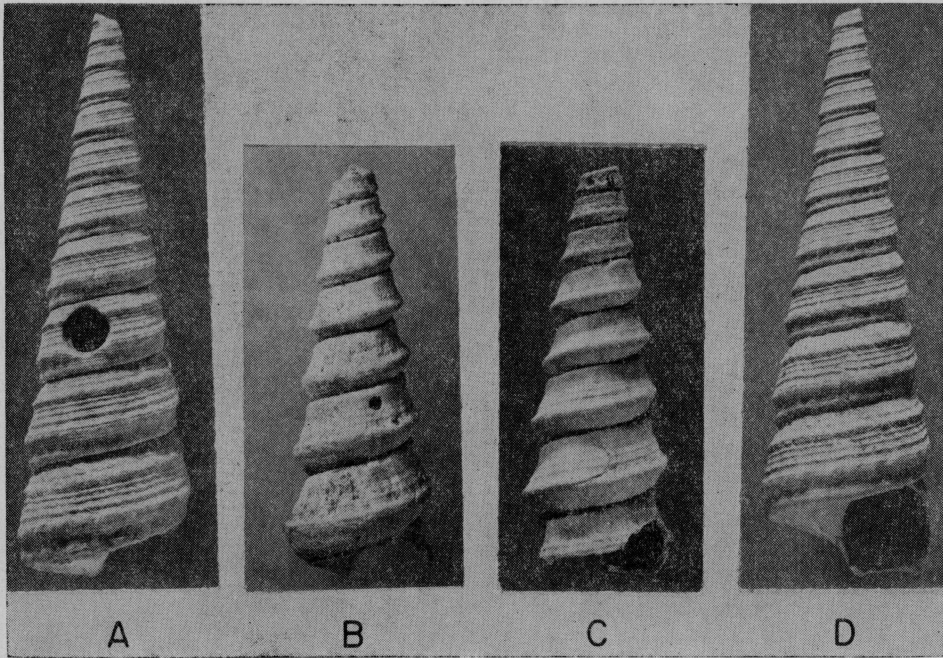
TURRITELLA GRANTI Valentine &
Susuki, n. sp.
Text-figs. 2B-C, 3A

The shell is rather small for the genus and the pleural angle is narrow, 17°, on the type. The apical whorls are missing. Adult whorls are carinate below the center; the whorl profile is concave above and gently convex to straight below the carina. In addition to a spiral cord at the carina, the whorls are ornamented by two faint spiral threads, placed above the carina and just posterior to the center of the whorls. Both spiral threads are absent on early whorls and strengthen towards the aperture; the anterior thread is strongest and is developed earliest. A few faint spiral lines also ornament the whorl sides and the base. The sutures are deeply impressed. The apertural margin is broken and the aperture appears nearly rounded.

The growth line angle is slightly negative, about 6°-8° on the early whorls and 2°-4° on later whorls, as the antispiral sinus is shallow, and the growth line at the maxi-



TEXT-FIG. 1—A, map showing location of outcrop from which holotype of *Turritella granti* was collected. B, index map showing relation of area in A (ruled) to Palos Verdes Hills, California. C, enlargement of ruled area in B.



TEXT-FIG. 2—A, D, *Turritella cooperi* Carpenter, Hypotype no. 28724, U.C.L.A. Invertebrate Paleontology collections. From same locality as *T. granti*. $\times 2$. B, C, *Turritella granti* Valentine & Susuki, new species, Holotype no. 28013, U.C.L.A. Invertebrate Paleontology collections. U.C.L.A. locality 3460. $\times 2$.

imum of the spiral sinus is in a more apertural position than the posterior end of the growth line. The maximum of the spiral sinus is at the carina; the maximum of the antispiral sinus is slightly variable, about at the posterior spiral thread.

Holotype.—No. 28013, Invertebrate Paleontology Collections, University of California, Los Angeles.

Dimensions.—(Incomplete holotype) length, 26.3 mm.; width of last complete whorl, 10.6 mm.; height of last complete whorl, 5.5 mm.

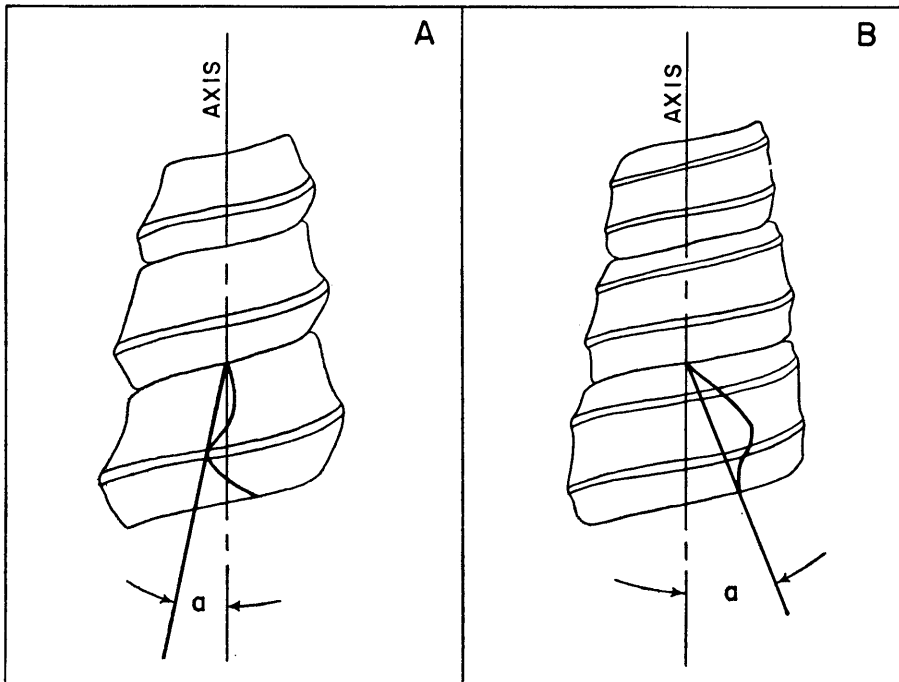
Occurrence.—U.C.L.A. locality no. 3460. Silty sandstone exposed 1,000 feet east of Crenshaw Boulevard and 2,250 feet slightly west of south of the intersection of Crenshaw and U. S. Highway 101, at about 345 feet elevation, in the second ravine east of Crenshaw cutting the north slope of 400 foot hill, northern border of Palos Verdes Hills, Los Angeles County, California. Lower Pleistocene. Carl Helms, Collector.

Known only from the type locality.

Remarks.—The whorl profile and form of the growth line serve to separate this species from all previously described west North American species of *Turritella*. The development of the spiral sinus is particularly diagnostic, for in no other known west North American species does its maximum lie so high on the whorl or so far towards the aperture. As a result, the growth line angle is measured to the left of the shell axis, and may be described as negative (Text-fig. 3A).

As the holotype is broken anteriorly, it is possible that this species is larger when mature than the type dimensions indicate.

It was suggested by paleontologists with whom we conferred that *granti* might be an aberrant form of *cooperi* (Text-fig. 2A, 2D), and we have entertained this possibility. However it does not seem that the *granti* growth line form can be developed from *cooperi* by warping. The *cooperi* growth line,



TEXT-FIG. 3—*A*, growth line form and angle of *Turritella granti*, showing unusual “negative” growth line angle (*a*) and high maximum of spiral sinus, at carina. *B*, growth line form and angle of *Turritella cooperi*, showing positive growth angle (*a*) and low maximum of antispiral sinus, at anterior spiral.

itself very characteristic as Merriam has emphasized (*op. cit.*, p. 118), displays a remarkably anterior maximum of the antispiral sinus, while the maximum of the spiral sinus is at or near the anterior margin of the whorl, commonly on the base (Text-fig. 3B). Even if the carina of *granti* be assumed to represent the basal spiral of an aberrant *cooperi*, the remaining growth line trace does not agree.

If the apertural profile in *Turritella* as reflected in growth lines is indeed a conservative character of supra-specific importance

as the work of Guillaume, Merriam, and Marwick has indicated, then *granti* may belong to a stock that is not otherwise recorded from the Pacific Coast.

This species is named for U. S. Grant, IV, Professor of Geology, University of California, Los Angeles.

REFERENCE

- WOODRING, W. P., BRAMLETTE, M. N., & KEW, W. S. W., 1946, Geology and Paleontology of Palos Verdes Hills, California: U. S. Geol. Survey, Prof. Paper 207, 145 p., 37 pls.