

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.

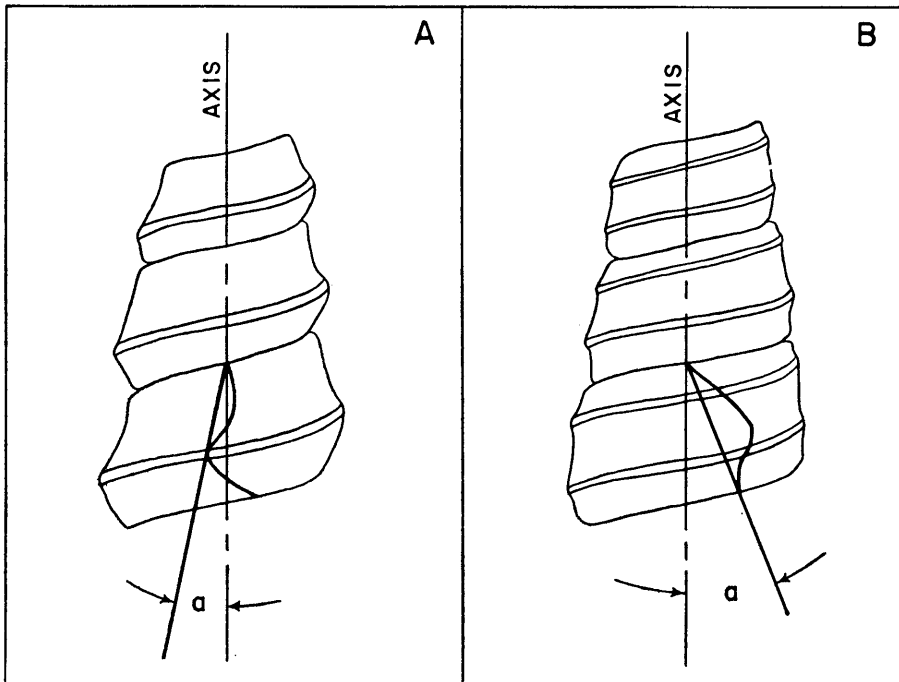
Occurrence.—U.C.L.A. locality no. 3460. Silty sandstone exposed 1,000 feet east of Crenshaw Boulevard and 2,250 feet slightly west of south of the intersection of Crenshaw and U. S. Highway 101, at about 345 feet elevation, in the second ravine east of Crenshaw cutting the north slope of 400 foot hill, 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.