

COLOR PATTERN OF *NATICOPSIS* (*NATICOPSIS*) *WORTHENIANA*,
BUCKHORN ASPHALT DEPOSIT, OKLAHOMA

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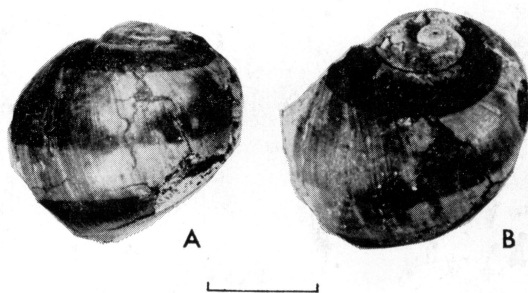
ABSTRACT—A previously unreported color pattern consists of three parallel revolving brown bands on a whitish background for the ephebic form of the gastropod *Naticopsis* (*Naticopsis*) *wortheniana* Knight from the Buckhorn asphalt quarry (Pennsylvanian) in Oklahoma. The specimens show a somewhat variable color pattern and occur in shallow water shelf deposits.

Preservation of color patterns on Paleozoic gastropod shells is uncommon, as reported by Foerste (1930). Ephebic specimens of *Naticopsis* (*Naticopsis*) *wortheniana* Knight, 1934 from the Buckhorn asphalt deposit (Pennsylvanian) in southern Oklahoma, however, show preserved color patterns that are previously unreported for this form. Knight (1933) reported color patterns preserved in Pennsylvanian specimens of six species of *Naticopsis*, including *N. (N.) wortheniana*. All of these specimens are either neanic or early ephebic forms. Knight's description of the color pattern for *N. (N.) wortheniana* is for early neanic specimens, which have color patterns consisting of parallel revolving bands.

During the investigation of the geology and fossil biogeochemistry of the Buckhorn asphalt deposit (Squires, 1973), six specimens of *N. (N.) wortheniana* were recovered from an asphaltic limestone near the center of the quarry. A geologic map of the quarry area and a detailed stratigraphic description of the 33-foot (10-m) thick quarry section were presented by Ham *et al.* (1973). The Buckhorn asphalt deposit has been assigned to the Deese Group of Desmoinesian age (Ham, 1969). The 10-foot (3-m) thick limestone which contains the *N. (N.) wortheniana* specimens is the main fossil bearing unit in the quarry and is also the most asphalt rich. Due to early sealing by asphalt, introduced during Pennsylvanian migration, many of the shells still have the original aragonite and nacreous luster. The limestone is a foraminifer-mollusk grainstone in the lower part and a foraminifer-cephalopod coquina in the upper part. The entire unit consists of broken and abraded skeletal debris, scattered whole gastropod shells, scattered plant remains, and contains scattered micro-scour channels and cross beds. Many of the plant fragments and the orthocone nautiloids show preferred orientations. Inasmuch as most of the quarry units contain transported fossil

debris, plant fragments, scour features, and cross beds, the quarry section is interpreted to be shallow, turbulent water shelf deposits inferred to fill a complex of shallow scour features.

The six ephebic specimens of *N. (N.) wortheniana* from the quarry all have a thin outer prismatic layer of calcite and a thick inner crossed lamellar layer of aragonite. The color pattern of the spire area could not be determined in any of the specimens because either the outer layer or the spire is missing. The color pattern on the body whorl is similar in all the specimens and consists of three parallel revolving brown bands on a whitish background (Text-fig. 1A,B). All specimens have a thin white band next to the suture followed by a broad brown band. In one specimen, however, this white band is not present in the early part of the body whorl. The middle brown band and adjacent white bands are considerably variable in their widths from specimen to specimen. The lowermost broad brown band is followed by a white to brownish-white circum-umbilical band, which is rather broad in one specimen. Color pattern variability, therefore, occurs in the ephebic form. No such



TEXT-FIG. 1.—Lateral view (A) and oblique view (B) of the color pattern of *Naticopsis* (*Naticopsis*) *wortheniana*, UCLA 38248, Buckhorn asphalt quarry, Oklahoma. Bar scale is 5 mm.

variability, however, was reported by Knight (1933) for the neanic form.

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MANUSCRIPT RECEIVED APRIL 21, 1975

REVISED MANUSCRIPT RECEIVED JUNE 19, 1975

The Department of Geology, California State University, Northridge contributed \$30.00 and Dr. Richard L. Squires contributed \$25.00 toward the publication of this paper.