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NEW SOUTHERN APPALACHIAN LAND SNAILS

BY H. BURRINGTON BAKER

These new forms were obtained during July and August, 1928, in eastern Tennessee, while on a search for anatomical material of some of the peculiar pulmonates from the southern Cumberlands and the mountains along the North Carolina boundary.

HELICODISCUS (HEBETODISCUS) SINGLEYANUS INERMIS, new subgenus and subspecies.

Shell (pl. 3, figs. 1-3): minute, broadly umbilicate, depressed, thin, translucent and with a dull sheen; texture as in genus. Color: yellowish corneous, with darker varicoid lines. Whorls: $4\frac{1}{2}$, quite gradually increasing in diameter and well rounded; last whorl slightly descending; suture distinctly impressed. Sculpture: growth-lines weak except a few varicoid ones on the last whorl (as in *H. parallelus*); surface weakly punctate under high magnification but without trace of spiral ornamentation of any sort. Umbilicus: 2.8 times in major diameter. Aperture: subcircular and almost vertical. Peristome: sharp, but very narrowly ex-

panded; continued on parietal wall by a thin but distinctly margined callus.

Altitude 1.24 mm., maj. diam. 178 (2.21 mm.), min. diam. 161 (1.99), alt. apert. 69 (.86), diam. apert. 95 (.82); whorls $4\frac{1}{2}$.

Type locality: leaf humus near base of limestone ledges, at Dove (Martin Spring), Marion County, Tennessee; only one specimen found (Acad. Nat. Sci. Philadelphia, no. 147186).

Jaw: quite heavy and plaited (stegognath), consisting of 15 oblong plates which slightly overlap from center out. Radular formula: 11-1-11, with about 85 transverse rows. Forms of teeth: practically the same as those in *H. parallelus*, as figured by Watson (1920, Proc. Malac. Soc. London 14, fig. 4e).

This description of a subspecies is long and detailed because, at the time it was prepared and offered for publication, I labored under the delusion that I was describing a brand new species. Unfortunately, the copious Texan material of typical *Zonites singleyanus* Pils. (1889, Proc. Acad. N. S. Philadelphia 51, p. 84; 1888, pl. 17, figs. 6-8), consists of shells from stream drift. However, one lot from Riverton, New Jersey (ANSP. 105779), identified by Dr. Pilsbry himself, consists of fresh specimens which closely resemble *inermis*, but show traces of spiral lines that approach those of typical *singleyanus*. A radula, recently soaked from one of these shells, is like that described for the type specimen of *inermis*. For this reason, I have reduced *H. singleyanus inermis* to a subspecies. All of the material examined from east of the Mississippi agrees with this form in the somewhat higher spire, smaller size and more evident growth-lines and varices, although most specimens show some weak traces of spiral sculpture. *Hebetodiscus*, type *Helicodiscus inermis*, has a radula and jaw very similar to that of *Helicodiscus* s. s., but the absence of distinct spiral ridgelets from the shell is reason enough for the foundation of a new subgenus.

PARAVITREA (PARAVITREOPS) MULTIDENTATA LAMELLATA, new variety.

Vitrea multidentata, "accelerated individuals" Pilsbry (1903, Proc. Acad. Nat. Sci. Philadelphia 55, p. 209). *P. lamellidens* H. B. B. (1928, P. A. N. S. P. 80, p. 31, pl. 4, figs. 9, 10), anatomy; not *Gastrodonta lamellidens* Pils. (1898, Naut. 11, p. 134).

Shell: apparently identical with, but not attaining maximum size of typical *P. multidentata*. Internal armature: consisting of curved, obliquely radial barriers. Umbilicus: 7.5 times in major diameter.

Altitude 1.32 mm., maj. diam. 189 (2.49 mm.), min. diam. 174 (2.30), alt. apert. 82 (1.08), diam. apert. 122 (1.32); 6 whorls.

Type locality: valley of Blue Ridge in Rockbridge County, near Snowden, Virginia (ANSP. 137443), but known to occur from Cheboygan County, Michigan, east to Maine and south to the Roan Mountain Region between Tennessee and North Carolina. (It is always much less abundant than the typical form, but is more frequent in the southern part of its range.)

Dr. Pilsbry (l. c.) has already carefully differentiated between this form of *P. multidentata* and the similarly armed *P. lamellidens* from the Great Smokies; in addition, the latter has a considerably larger apical whorl, more slowly expanded later whorls and a greater maximum size (slightly larger than that attained by typical *multidentata*). Although I agree with him that *P. multidentata lamellata* is little more than a sporadic tendency towards an incipient race, it is not known to intergrade with the typical form and the single paratype dissected differs slightly in anatomy.

PARAVITREA (PARAVITREOPS) WALKERI DENTATA, new variety.

Shell: similar to *P. walkeri*, but with weaker and less continuous growth-wrinkles, so that apical side of last whorl, under high light, appears to be decorated with min-

ute points, which are arranged in both spiral and incremental series. Internal armature: similar to typical *P. multidentata*, but with individual teeth of each obliquely radial row even higher and more distinct. Umbilicus: 4.5 times in major diameter.

Altitude 1.65 mm., maj. diam. 215 (3.55 mm.), min. diam. 197 (3.26), alt. apert. 79 (1.31), diam. apert. 114 (1.19); $6\frac{1}{2}$ whorls.

Type locality: in leaf humus at base of slate ledges in gorge of Tellico River, just above mouth of Laurel Creek and about $1\frac{1}{2}$ miles east of Tellico Plains, Monroe County, Tennessee (ANSP. 147187).

Although the armature of this form is more different from typical *walkeri* than typical *multidentata* is from form *lamellata*; a lot of 22 specimens, collected at and near the type locality of *dentata*, contains three individuals with the smooth internal barriers of typical *walkeri*!

PARAVITREA (PARAVITREOPS) VARIABILIS, new species.

Shell (pl. 3, figs. 12-14): similar to *P. walkeri*, but more polished. Color: apex almost colorless; remainder corneous with light chestnut tinge and with a narrow, dark chestnut line just below suture. Whorls: $6\frac{1}{2}$, similar to *P. walkeri*, but forming slightly higher spire. Sculpture: apical whorl almost smooth; second whorl with impressed growth-lines at quite regular intervals; later whorls with closely but somewhat irregularly spaced, impressed growth-lines, which are weaker on base, and with microscopic, closely spaced, spiral, impressed lines, which are almost as prominent on basal as on apical side. Umbilicus: 4.6 times in major diameter. Aperture and peristome: much as in *P. walkeri*. Internal armature; lacking in adults; half-grown shells with 1 to 3, low lamellae, which are almost vertical and about $\frac{1}{2}$ length of periphery of whorl, and which usually exhibit weak and irregular subdivision into 5 or 6 points (pl. 3, fig. 11).

Altitude: 1.81 mm., maj. diam. 197 (3.57 mm.), min.

diam. 175 (3.17), alt. apert. 75 (1.36), diam apert. 112 (1.52); whorls $6\frac{1}{2}$.

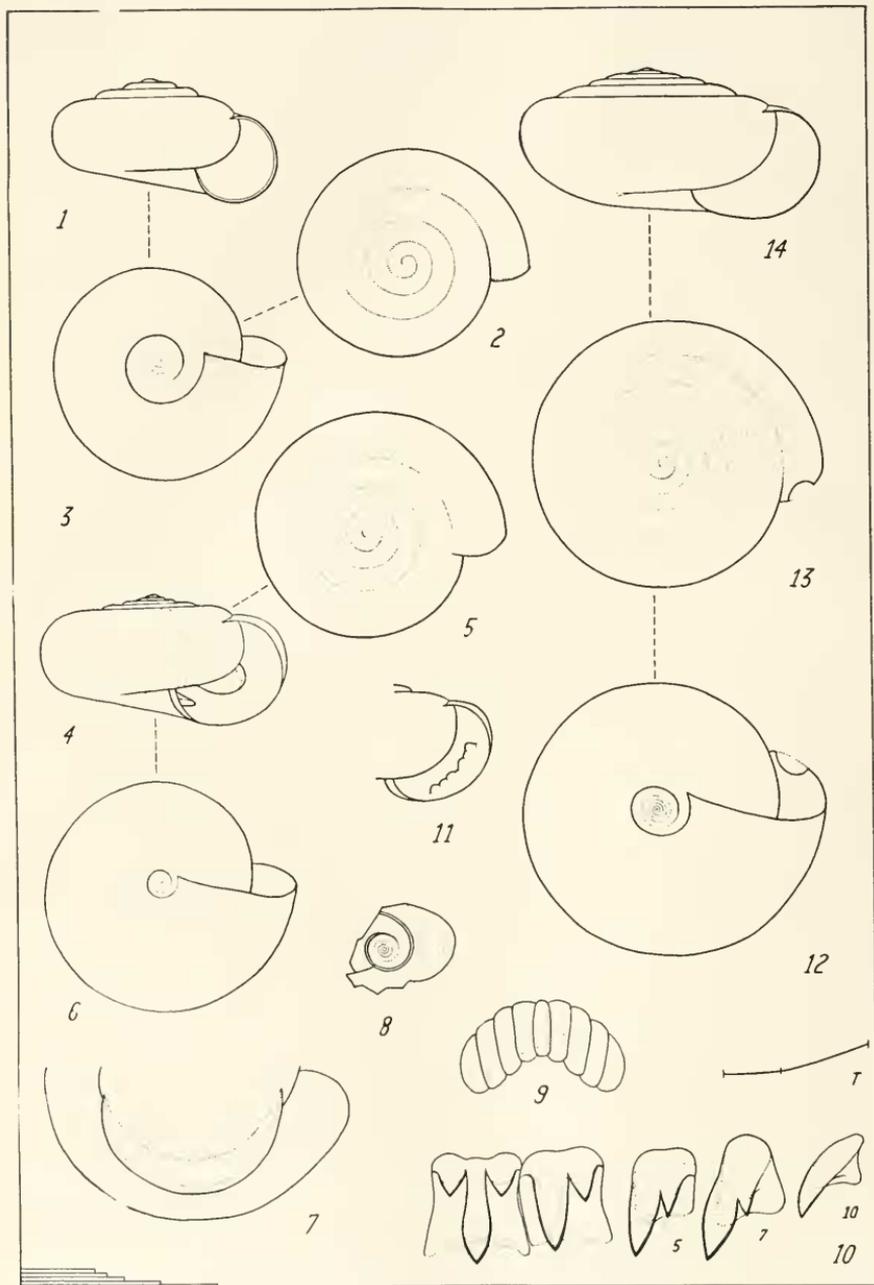
Type locality: leaf humus among sandstone rocks in a valley of the Cumberland escarpment, about 2 miles northwest of Pikeville, Bledsoe County, Tennessee (ANSP. 147190); also found on slopes of Walden Ridge east of Pikeville and on the Cumberland escarpment near Let and near Cannon Creek in Bledsoe County; also at Dove (Martin Spring), Marion County. (Underlying rocks are limestone at Dove, but sandstone at the other localities.)

As indicated above, this species is most like *P. walkeri*, but the surface of the shell in *P. variabilis* is without distinct, raised growth-wrinkles (i. e., the interspaces between growth-lines are almost flat), the impressed growth-lines are more widely and irregularly spaced and the spiral striae are sharper and more nearly continuous. In addition, the internal armature (of young shells) is almost intermediate in structure between that in typical *walkeri* and that in var. *dentata*, although each bar is shorter and more nearly vertical than in either *P. walkeri* or *P. multidentata*. *P. variabilis* is the only small *Paravitrea* that I found in the Sequatchie Valley (or in the southern Cumberlands), but it is superficially similar to, and has probably been confused with *P. multidentata* and var. *lamellata*.

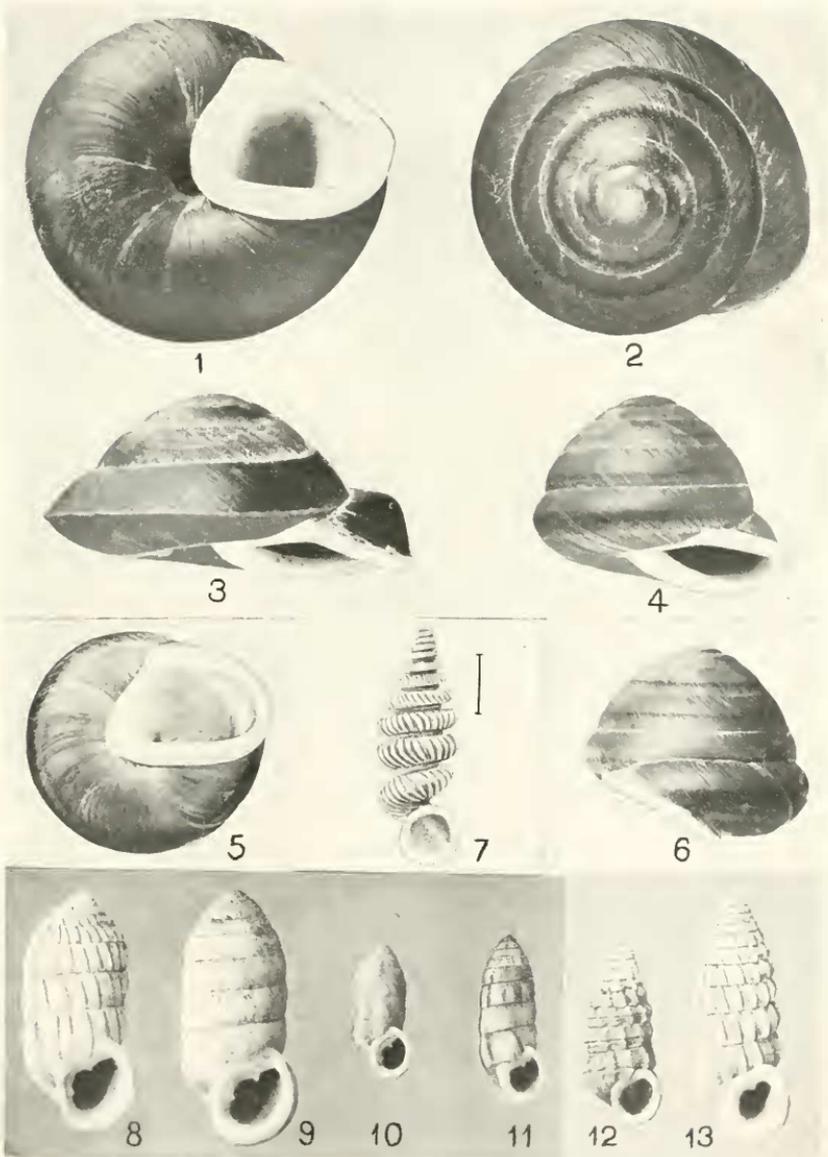
GASTRODONTA (CLAPPIELLA) ALDRICHIANA (Clapp), new subgenus.

Vitrea aldrichiana Clapp (1907, Naut., 20, p. 109, pl. 5, figs. 8-11), Jackson County, Alabama.

This new subgenus is founded on a single specimen taken from the aperture of a shell of *Gastrodonta gularis*, which was collected at the base of limestone ledges on the south side of Prior Cove, near Jasper, Marion County, Tennessee (ANSP. 147188). Although smaller than the dimensions given by Clapp, it agrees so closely with his description in every other character that it can scarcely be anything else. Also, *Glyphyalinia cumberlandiana* (Clapp) and *Paravitrea pilsbryana* (Clapp) occur at this same



H. B. BAKER: NEW SOUTHERN APPALACHIAN LAND SHELLS



1-3. *PLEURODONTE WELCHI*, Pils. 4-6. *P. LOWEI*, Pils. 7. *UROCOPTIS ALLENI*, Torre, Pena Blanca, Sierra Anafe. 8, 9. *CERION PAUCICOSTATUM*, Torre, Cape Maist. 10, 11. *C. ALLENI*, Torre, Antilla. 12, 13. *C. VICTOR*, Torre, Caleta de Ovando, Oriente.