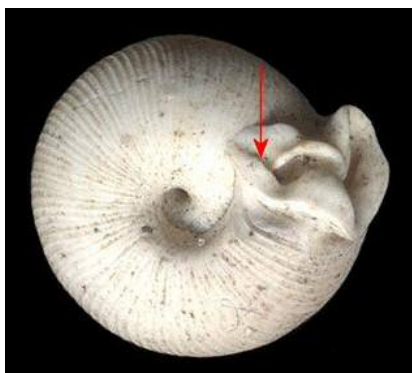


An exception to the exception to the rule

by Harry G. Lee

Valentines Day fell on a Sunday this year. The date also coincided with the final day of the Sarasota Shell



Show, from which event I was homeward-bound when I took a slight detour east of I-75 via SR 50 and US 301 through easternmost Pasco and westernmost Sumter Cos. My sights were set on collecting what appears to be a novel, un-named land snail of the genus *Daedalochila*, which group has formally come to be called Liptooths. As it turned out, the first living specimen remained elusive - and even now has yet to be seen by a (human) collector. I tried my best, however, and made about a half dozen prospecting stops, finding a few empty shells of this seven and a half mm species, figured on the **left** and informally dubbed the "Panasoffkee Liptooth," at two places. The final collecting destination of this side-trip was pre-ordained: the spot where CR 48 crosses Jumper Creek, just W of Center Hill and about six miles E of Bushnell. Here John Slapcinsky and François Michonneau of the Florida Museum of Natural History had found

specimens of the target species two years earlier (FLMNH 392539; see <http://www.flmnh.ufl.edu/scripts/dbs/malacol_pub.asp>). I scoured all four bridge approaches looking in the low grassy roadside areas, "maintained" by the highway department and serving as prime Liptooth habitat. Nada!

Just before quitting the scene, I clambered down the embankment and checked out Jumper Creek. The water level was at a fairly low stage, and a bit of a current was evident. Although traversing fairly pastoral setting, the creek wasn't exactly pristine as discarded trash was evident in and around it. Several "snags" in the watercourse were visible from my vantage point, and surrounding each was an accumulation of whitish granular material. Thinking the stuff was degenerated Styrofoam®, I nonetheless approached this flotsam and discovered the white stuff was actually tens of thousands of empty Ghost Rams-horn shells, ¼ to ½ inch in diameter and aptly-dubbed, belonging to the aquatic snail *Biomphalaria obstructa* (Morelet, 1840). The sheer numbers were mind-boggling - the lotic equivalent of the shell windrows on some beaches of Sanibel and Marco or, closer to home, the heaps of scallop boat bycatch.

Unable to curb my conchomaniacal appetite, I gathered up the equivalent of a pillowcase-full of the stuff and stashed it in the largest Ziploc® bag on which I had ever laid hands. It was shortly apparent that other kinds of shells and a component of fine bits of vegetation were included in the harvest - and that waters of Jumper Creek were unusually cold this 14th of February.

I returned home just early enough deliver a timely Valentine felicitation, and the next morning I dumped



the sodden contents of the plastic bag into a meter square, 10 cm deep plastic photographic processing pan, the same one used by Lee (1990: 3). It took about five weeks in the carport for the stuff to dry sufficiently for efficient visual perusal, and periodically thereafter I would noodle around in the shell mulch, about ten percent of which appears in the **juxtaposed figure**. Just short of six weeks after Valentines Day I hit the jackpot. While noodling for shells on my return from the domestic garbage detail late the morning of March 24, I started culling *Physa pomilia* Conrad, 1834, which, due to their glossy amber shells, stood out among the bits of vegetation and the ultra-dominant Ghost Rams-horns. Another distinguishing feature of it and its confamilial relatives is its exception to the general rule

of clockwise coil in Gastropoda being one of the few groups which normally grow counterclockwise and thus form sinistral shells. Despite limitations of illumination and visual acuity, I was able to pluck about a dozen five to ten mm specimens before noting that next one was different. It seemed to coil to the right, contrary to

any physid I had ever seen. Not ready to believe what my mediocre eyesight was indicating, I swiftly went back indoors and repaired to my Swift® stereomicroscope, where I confirmed the chirality of this five mm dextral shell (see below). The specimen is a bit atypically broad and short-spined for the species, but corollary aberrations of no less magnitude are known among reverse-coiled (sinistral) mutants in members of the pulmonate land snail *Cerion* (Gould *et. al.*, 1985).

As one who has an interest in gastropod coiling reversal bordering on the fanatic, I immediately paused to ponder whether this was reverie or some kind of a ruse, but these more plausible explanations quickly dissipated. What I had before me was a *rara avis*, no, a *hapax legomenon* - an exception to the exception of the rule and certainly as close as most conchologists could expect to get to a unique work of mother nature [see image immediately **below**].



My reading told me this kind of epiphany was very unusual but not the only one of its kind. It appears that Dr. John Michael Williams (1838-1925) was the first to report the occurrence of coiling reversal in *Physa*: "While collecting on June 8th, at Barnes Common, Hammersmith, I took a good quantity of *Physa fontinalis* out of the brook, and among these was a dextral one. The mouth in this last was a more elongated-oval than what we find in the type generally - an errant-knight from the conventionalities of this otherwise sinistral genus. - J.D. Williams,

D.Sc., June 10, 1887" (Williams, 1887). Extensive reviews of gastropod coiling reversal by Sykes (1905: 270) and Dautzenberg (1914: 60) included only *Physa fontinalis* (Linnaeus, 1758). However, it appears that the latter author overlooked the minutes (Anon., 1907) of the 355th Meeting of Conchological Society of Great Britain and Ireland, which convened on September 12, 1906. At the event there were at least 14 shell exhibits, a veritable shell show, and three of them contained a total of nine specimens of that many species of mutant reverse-coiled snails. In the exhibit of Reverend Canon John William Horsley (1845-1921) was a dextral physid which was bred, almost certainly under the Canon's watchful eye, in St. Peter's Rectory, Walworth from "parents" transplanted from nearby Kew Gardens in Richmond. The identity was given as *Physa acuta* Draparnaud, 1805, a species described from the Garonne River of France. In the inclusive style of Sykes and Dautzenberg, Pelseneer (1920: 37) corrected his countryman's venial omission and cited Horsley's and Williams' specimens as the only two examples of dextral chirality in *Physa*. Over fifty years later, a third instance of reversal of coil in was reported by Dr. Eva Pip (1950-), who collected a dextral specimen she identified as *Physa gyrina* Say, 1821 in Manitoba June of the preceding year. Although she failed to cite the earlier literature on physid dextrality and mention the size of her specimen, she provided precise locality and ecological data as well as a photograph of the shell (Pip, 1974).

Driven by the aspiration of encountering another mirror image shell (as well as a modicum of undiscouraged lust for the new Liptooth), I sieved and examined the rest of the several liters of flotsam grossly and microscopically finishing on March 29. Although I looked at perhaps 10,000 shells and selected over a thousand specimens of 21 molluscan species including 284 *Physa*, there was no other reversed shell apparent. The *rara avis* was *sui generis* in this context (see Appendix).

In retrospect, the Jumper Creek collection, while failing to produce even a chard of a Liptooth, certainly did provide a memorable discovery - a unique gift from St. Valentine, and, unlike the conventional and ephemeral candy or flowers, one that will keep on giving.

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Appendix: Analysis of selected invertebrates culled from ca. ten liters of rafted flotsam collected in USA: Florida, Sumter Co., 0.7 mi Center Hill, just S (downstream) of SR 48, Jumper Creek. 28° 38.992'N 082° 00.293'W. H.G. Lee! 14 Feb., 2010. Each entry is a complete inventory (all found) except where indicated in brackets. Approximate sizes are included for each.

Terrestrial snails

Pupisoma dioscoricola (C.B. Adams, 1845) **Yam Babybody** 1; 1 mm.
Gastrocopta pellucida (L. Pfeiffer, 1841) **Slim Snaggletooth** 6; 2 mm.
Gastrocopta rupicola (Say, 1821) **Tapered Snaggletooth** 7; 2 mm.
Gastrocopta servilis (Gould, 1843) **Wandering Snag** 13; 2 mm.
Gastrocopta tappaniana (C. B. Adams, 1842) **White Snaggletooth** 3; 2 mm.
Euconulus trochulus (Reinhard, 1885) **Silk Hive** 3; 2 mm.
Guppya gundlachi (L. Pfeiffer, 1840) **Glossy Granule** 3; 2 mm.
Hawaiiia minuscula (A. Binney, 1840) **Minute Gem** 1; 2 mm.
Ventridens demissus (A. Binney, 1843) **Perforate Dome** 164 [vastly undersampled, especially juveniles]; 1-10 mm.
Euglandina rosea (Férussac, 1821) **Rosy Wolfsnail** 1; 19 mm.
Drymaeus dormani (W. G. Binney, 1857) **Manatee Treesnail** 1; 25 mm.
Polygyra cereolus (Mühlfeld, 1816) **Southern Flatcoil** 20 [vastly undersampled]; 9 mm.
Bradybaena similis (Férussac, 1821) **Asian Trampsnail** 17 [undersampled]; 2-14 mm.
Allopeas clavulinum (Potiez and Michaud, 1838) **Spike Awlsnail** [undersampled] 300; 1-9 mm; distinction vs. *A.mauritianum* (L. Pfeiffer, 1852) **Mauritian Awlsnail** is tenuous.
Lamellaxis micrus (d'Orbigny, 1835) **Tiny Awlsnail** 1; 4 mm.
Opeas pyrgula Schmacker and Boettger, 1891 **Sharp Awlsnail** 20; 1-7 mm.

Aquatic snails

Pomacea paludosa (Say, 1829) **Florida Applesnail** 1; 25 mm.
Physa pomilia Conrad, 1834 **Pewter Physa** 284 (including one **dextral**); 1-12 mm.
** *Biomphalaria obstructa* (Morelet, 1840) **Obstructed Planorb** 309 [galactically undersampled]; 1-12 mm; distinction vs. *B. havanensis* (L. Pfeiffer, 1839) **Ghost Planorb** is tenuous.
Gyraulus parvus (Say, 1817) **Ash Gyro** 1; 3mm.
Planorbella duryi (Wetherby, 1879) **Seminole Ramshorn** 6; 10-18 mm.

"Bivalves" [Arthropoda: Ostracoda]

Seed Shrimp, assorted shapes 12 [vastly undersampled]; 2-4 mm.

Many of the smaller shells of *Biomphalaria obstructa* (Morelet, 1840) had a peculiar feature which is discussed in a follow-up *Shell-O-Gram* article (see: <http://www.jaxshells.org/jump20.pdf>).

Epilogue: All the shells collected at Jumper Creek on this occasion were placed as vouchers at the Florida Museum of Natural History (FLMNH) on 13 May, 2011.