GASTROPODS OF THE DAVIS MOUNTAINS VICINITY IN WEST TEXAS[1]

BY ELMER P. CHEATUM
Southern Methodist University, Dallas, Texas
(Plate 5)

During the early part of September, 1934, the writer and Professor Mayne Longnecker, botanist of Southern Methodist University, spent a week in the Davis Mountains studying the vegetation and mollusks of that region.[1] Faunistically the area is little known, although its geology has been partially investigated (Baker and Bowman, Univ. of Tex. Bull. No. 1735, 1917).

The Davis Mountains are a part of the front range of the Cordillera and are entirely of igneous origin. As a whole, they form an irregular plateau built up of alternating layers of lava and volcanic tuff. The highest ridges reach, in Baldy or Livermore Peak, the second highest altitude in Texas (8,382 feet), and consist of an intrusive porphyritic syenite. Deep narrow canyons, the result of erosion, finger back into the main plateau.

The high range loomed up far above the surrounding ranges as we approach the Davis Mountains from the north. Its rich verdure contrasted sharply with the blue-gray colors of the surrounding ranges; like an oasis in the desert. As we entered the mountains on our road to Fort Davis, we drove into the narrow neck of Limpia Canyon, one of the largest canyons in the range. Its walls, composed of alternating layers of lava beds and volcanic tuff, consists of irregular-shaped blocks resembling rude masonry. Pillars, formed of columnar jointing in the lava beds, give rise to precipitous cliffs reaching at times an altitude of several hundred feet. The canyon widens and becomes shallower as it approaches Fort Davis, the county seat of Jeff Davis County, forming a bench from eight to ten miles broad. Just north of Ft. Davis, Limpia canyon continues westward as a narrow canyon terminating in the main plateau. Our headquarters were at Fort Davis, which served admirably as a nucleus for collecting trips because of its central location.

[1] The writer is indebted to W. J. Clench for the identification of physids and to Dr. Henry A. Pilsbry for the identification of the remaining species and descriptions of the three new ones.

The annual precipitation for these mountains is greater than that for the lower surrounding ranges; and since our trip was made after several rains, conditions for general collecting were very good. Collecting trips were made to the larger canyons such as Limpia, Musquiz, Madera, and in several of the smaller ones. After heavy rains the stream bed of each canyon may become a raging torrent; but ordinarily they are dry, with perhaps a series of pot-holes (Figs. 2, 3) either dry or partly filled with water. These pot-holes, cut in the lava bed by the erosive action of water and molar agents, vary considerably in size. Ordinarily they are basin-like, some wide and shallow, others narrow and deep. Many appear to be continuously fed by seepage water. Such basins often provided rich collecting for *Physa* and *Helisoma*. The relatively larger number of springs in the Davis Mountains canyons has been accounted for by Baker and Bowman (1917) as follows: "The water absorbed by the lavas in the Davis Mountains region seeps downward through the rocks until its further progress downward is checked by non-porous beds. At the junction of the impervious rocks below and the porous tuff bed which generally underlies the lowest lava flow, the water accumulates and escapes as springs at the edges of the lava escarpment and where the canyons have cut as deep as the basal tuff bed." Although land snails were unusually scarce even in well protected habitats, our best collections were made at the heads of small canyons where springs occurred and vegetation abundant. The more exposed mountain sides and plateaus were searched diligently, but in vain, for land snails. No living snails were discovered in the open areas.

AMNICOLIDAE

Cochliopa texana Pils. (A new species, see page 91). Collected in Phantom Lake, about four and one-half miles southwest of Toyahvale. The "lake" is in reality a small circular pond (about 75 yards in diameter), fed by a large spring. The swift stream (Fig. 4) of clear alkaline water flowing from the pond had a width of fifteen feet, and ranged in depth from several inches to five or six feet. The bottom of the pond and stream was covered with *Chara,* and a marl-forming alga pro-

ducing a thin greyish crust over the bottom and sides of the stream bed. The aquatic vegetation in the stream was black, in places, with living *Cochliopa* and *Potamopyrgus*. One sweep among this vegetation with a dip-net (12 inches in diameter) yielded approximately 4080 snails, of which the majority were *Cochliopa*. Apparently these two species were sharply localized in their distribution, since a close examination of this same stream a mile down-stream failed to reveal any of these small snails.

Potamopyrgus cheatumi Pils. (Page 91). Habitat same as that for *Cochliopa texana*.

PHYSIDAE

Physa anatina Lea. Collected from pot-holes in Limpia, Musquiz and Fern canyons; abundant in large reservoir along Scenic Drive just northwest of Fort Davis. Small black tapering shells were found in Kokernot Creek in Musquiz canyon. Although they are of this species, Mr. W. J. Clench says they are not typical. Very few physids were found in flowing water; practically all were collected from pot-holes.

LYMNAEIDAE

Lymnaea dalli Baker. Collected in drift along Kokernot Creek, Musquiz Canyon, between Fort Davis and Alpine. No living specimens were taken.

Lymnaea parva Lea. From the same locality as *L. dalli*.

PLANORBIDAE

Helisoma trivolvis lentum (Say). This predominating species occurred in pot-holes. Some of the pot-holes were so deeply imbedded between rocky ledges that they were constantly shaded, yet the walls of these holes were literally plastered with *Helisoma* having dark colored shells, many of them black. Collected along Scenic Drive about one mile northwest of Ft. Davis; Limpia and Musquiz Canyons; and several small canyons within the range.

PUPILLIDAE

Gastrocopta pellucida hordeacella (Pils.). One specimen was found in a bed of humus deposited by Texan oak trees (*Quercus*

texana) about eight miles north of Fort Davis in Limpia Canyon.

Gastrocopta riograndensis Sterki (?). Collected in same habitat as *G. pellucida hordeacella.* Dr. Pilsbry is not certain of the identification since the shell is possibly that of a juvenile specimen.

Gastrocopta pentodon (Say). Collected in same habitat as *G. pellucida hordeacella.*

ZONITIDAE

Retinella indentata paucilirata (Morel.). One young and one adult were found at the head of Fern Canyon (Fig. 1) buried beneath a bed of humus deposited by a group of *Crataegus* trees. The soil was moist with seepage water from a nearby spring. Several dead shells were collected in drift along Kokernot Creek, Musquiz Canyon.

Zonitoides arboreus (Say) (?). From the same habitat as *G. pellucida hordeacella.* Since the animal was immature, Dr. Pilsbry made no positive identification.

Hawaiia minuscula neomexicana (Ckll. & Pils.). Collected from the same habitat as *G. pellucida hordeacella.*

ENDODONTIDAE

Helicodiscus singleyanus (Pils.). Collected in drift along Kokernot Creek, Musquiz Canyon, between Ft. Davis and Alpine.

Helicodiscus parallelus (Say). One specimen was collected near a large reservoir one mile northwest of Ft. Davis. This was found on a rocky ledge covered by a bed of cactus humus.

HELICIDAE

Humboldtiana cheatumi Pils. (A new species, see p. 93). Found at the head of a small canyon tributary to Limpia Canyon, about five miles north of Ft. Davis. At the head of this canyon was an abandoned water-wheel. Seepage water from the spring above fed the small stream in the canyon bed. The collecting area was well shaded by a group of Texan oaks (*Quercus texana*). An intensive search of four or five hours, conducted by four people, netted only seven living specimens

and six dead shells. The living snails were taken from the sides of the large rocks beneath the rocky ledges, all apparently restricted to the shaded area.

Thysanophora hornii (Gabb). One dead shell was found in the same habitat as that described for *R. indentata paucilirata.*

Succineidae

Succinea avara Say. Collected in Fern Canyon; attached to a moist rocky ledge partially covered with maiden-hair ferns, mosses and liverworts. Also taken in Musquiz and Limpia Canyons. In Musquiz this species was found moving about over the edges of pot-holes (Fig. 2) and over the rank grass (*Bouteloua*) that covered marshy places in the canyon bed.

NEW MOLLUSKS FROM THE PANAMIC PROVINCE

BY HENRY A. PILSBRY AND AXEL A. OLSSON

(Plate 6)

Vermetidae

Petaloconchus innumerabilis n. sp. Plate 6, figs. 8, 8*a*, 8*b*.

Punta Picos, near Boca Pan, Province of Tumbez, Peru. (Olsson), type, 164626. ANSP.

A vermetid growing in compact, closely interlaced masses. The initial stage is glossy, globose-conic, of about 1½ whorls; followed by a loosely coiled stage with tube at first with indistinct, incremental sculpture only, about 0.7 mm. diameter. This is followed by a closely coiled, strongly sculptured stage, the 8–12 whorls generally in close contact; then a loosely coiled, corkscrew stage follows, gradually becoming more drawn out, and about 1.5 to 2 mm. diameter. Sculpture of coarse, irregular cords parallel to the whorls, or sometimes more strongly spiral in places, and rather coarse but unevenly developed striae of growth. In the closely coiled stage, there are two columellar lamellae (figs. 8*a*, 8*b*, the posterior one double the size of the anterior, usually thin and simple, but in some whorls it is bifid or trifid; the smaller lamellae is also bifid in places. In the later whorls of the tube, these lamellae disappear. Individual shells appear to be 50 or 60 mm. long, and up to 2 or 2.3 mm. in diameter at the anterior end.

The group of which part is figured, is about 23 cm. long. It was found on the beach. It grows in large masses, like *P. varians*