mining its true position with final certainty. Obviously, however, it is not a *Thysanophora*,—nor is it a *Gastrodonta*. It cannot well be a *Sagda*,—nor *Odontosagda*, yet it seems to be closely related to both. Its very prominent character of a centrally placed continuous lamella on the parietal wall I think justifies the creation of a genus to include it within the subfamily *Sagdinæ*. I therefore propose for it the new genus, to be described for the present as follows:

VOLVIDENS, n. g.

Shell small, depressed, widely umbilicate, rather thin and shining and of *Zonites*-like texture. Aperture with an internal sharply raised lamella centrally placed on the parietal wall. Lip simple. Type: *Helix tichostoma* Pfr.

This lamella in fully adult specimens extends back about one-half whorl. Back of this it appears to have been absorbed but there are evidences of its existence from the early whorls. It differs from all the *Proserpinella* group by its lack of an apical callus.

I have not infrequently found in collections among lots of *V. tichostoma* specimens of *Strobilops hubbardi*. To the naked eye the two species appear very much alike, but they can never be confused when examined under a glass. I have seen no mention of the presence of this latter species in Cuba, but I have found it in many localities in Havana and Pinar del Rio Provinces, and it is quite likely it will be found throughout the Antilles. Cuban specimens are smaller than those from Florida, but otherwise identical.

STUDIES IN NAJADES.

BY A. E. ORTMANN.

(*Continued from page 34.*)

Genus: SYMPHYNOTA, subgenus ALASMINOTA nov. subgen.

This new subgenus is proposed for the species: *Margaritana holstonia* Lea as type, which has been placed by Simpson

(1900, p. 670) in the genus *Alasmidonta*. However, the chief character of *Alasmidonta* is in the beak sculpture, which is heavy and generally concentric, at the outmost with only a slight indication of a sinus. And, further, some species of *Alasmidonta* have a tendency to have the inner lamina of the inner gill more or less connected with the abdominal sac (Ortmann, 1912, pp. 279, 280, 294). These are the only essential characters which distinguish this genus from *Symphynota* Lea.

Marg. holstonia has a beak sculpture which is not heavy, consisting of four to six rather fine and sharp bars, the first one or two subconcentric, the following ones sharply double looped, the posterior loop smaller, separated from the anterior by a deep, sharp, re-entering angle. This sculpture is identical with that of *Symphynota compressa, viridis,* and *complanata.* Aud, further, *M. holstonia* has the inner lamina of the inner gills free from the abdominal sac, agreeing also in this with *Symphynota.* Thus it is evident, this species should be placed here.

Symphynota has three subgenera, according to Simpson, but to none of these *holstonia* can be assigned, and thus it is best, to create a new subgenus, *Alasminota,* for it. Its relation to the other subgenera may be made clear by the following table:

Genus *Symphynota* Lea.

a^1 Hermaphroditic. Cardinal and lateral teeth present. Beak sculpture sharply double-looped. Shell subovate or subtrapezoidal, moderately long.

Subgenus: *Symphynota* Simpson.

a^2 Gonochoristic. Cardinal teeth present, laterals rudimentary or absent.

b^1 Shell elongated elliptical, rather small. Surface without sculpture. Beak sculpture sharply double-looped.

Subgenus: *Alasminota* Ortmann.

b^2 Shell subrhomboid, subtrapezoidal, or subovate, moderately long or short, quite large. Surface with more or less developed sculpture of radiating ridges upon the posterior slope.

c[1] Shell large, ovate-rhomboid, high and short. Beak sculpture sharply double-looped. Radial ridges upon posterior slope present or obsolete.

Subgenus: *Pterosygna* Rafinesque.

c[2] Shell rather large, subrhomboidal or subtrapezoidal, moderately long. Beak sculpture coarse, less distinctly double-looped (only sinuated). Radial ridges upon posterior slope well developed.

Subgenus: *Lasmigona* Rafinesque.

SYMPHYNOTA (ALASMINOTA) HOLSTONIA (Lea) (See: *Alasmidonta h.* Simpson, 1900, p. 670).

On September 19, 1912, I collected two males in Clinch River, Tazewell, Tazewell Co., Va., and on September 20, one gravid female, with glochidia, in the same river at Richland, same county.

Anal separated from supraanal by a mantle-connection, which is rather short, shorter than the anal, its inner edge distinctly crenulated. Branchial with papillae. Posterior margins of palpi united for about one-half of their length.

Inner lamina of inner gills free from abdominal sac, except at anterior end. Structure of gills Anodontine: in the gravid female, only the outer gills are marsupial, they have lateral water canals, and their edge is more or less distended. Glochidia of typical shape, subtriangular, with hooks, large, slightly higher than long. Length 0.32, height 0.38 mm.

ANODONTA OREGONENSIS Lea (Simpson, 1900, p. 628).

Twelve specimens, mostly females and gravid, in part with glochidia, have been obtained from T. Kincaid. They were collected in autumn 1911 in ponds near Seattle, King Co., Washington.

Soft parts of the type of the genus *Anodonta*: anal opening small, its inner edge indistinctly crenulated or almost smooth. Supraanal somewhat longer than the anal, widely remote, about twice its own length, from the anal.

Glochidia large, subtriangular, with hooks. Length 0.33-0.34, height 0.32-0.33. The difference between height and length is minimal. These Glochidia agree well with those of

A. cygnea (Linnaeus), except in being slightly smaller (in *cygnea* they are about 0.35 to 0.36 mm.; in *A. grandis* and *cataracta,* the glochidia are still larger, 0.36 x 0.37).

This species is also in shell characters closely allied to the European *A. cygnea.* The soft parts have been previously described by Lea (Obs., 10, 1863, p. 454).

ANODONTA MARGINATA Say. (See Simpson, 1900, p. 632).

One gravid female, collected August 4, 1912, by O. E. Jennings in Six Mile Lake, Silver Islet, Thunder Cape, Canada (North shore of Lake Superior).

The soft parts agree in every respect with those of *A. grandis* and *cataracta.* The specimen had only eggs and no glochidia.

Lea's description of the soft parts of *A. fragilis* (= *marginata*) differs in giving the posterior margins of the palpi united nearly the whole length. In my specimen they are united for about one-fourth on the right side, and for nearly one-half on the left, agreeing also in this respect with *A. grandis.*

THE SUBGENERA OF ALASMIDONTA Say.

Simpson's division into subgenera does not seem to be quite satisfactory, some closely allied species being separated in it. The subgenus *Bullella* is not known in its anatomy, but from shell characters it is very near to the subgenus *Alasmidonta.* The species *A. holstonia* is, as has been shown above, a *Symphynota.* The genus *Pegias* Simpson should fall as a subgenus in this genus. It is further to be remarked, that the subgenera *Pressodonta, Alasmidonta,* and *Pegias* are more closely related to each other than to the two other subgenera.

a^1 Lateral hinge-teeth present, but their number reversed, two in right, one in left valve. Beak sculpture moderately heavy, bars with an angle upon the posterior ridge, and a slight sinus in front of it. Inner lamina of inner gills free. Female shell recognizable by a slight swelling in the region of the posterior ridge.

Subgenus: *Prolasmidonta* nov. subgen.

Type: *A. heterodon* (Lea).

a² Lateral hinge-teeth obsolete or absent. Beak sculpture more or less heavy, with or without a sinus. Inner lamina of inner gills with the tendency to become more or less united to the abdominal sac.

b¹ Posterior ridge of shell indistinct or blunt, posterior slope not distinctly truncated, without corrugations, or only with faint traces of them. Cardinal teeth strongly developed, triangular or squarish, stumpy. Epidermis with unbroken rays.

c¹ Beak sculpture moderately heavy, subconcentric. Shell subrhomboid, posterior ridge moderately developed, blunt, posterior angle of shell little elevated above base line. Female shell distinguishable by a slight swelling of the posterior ridge, accompanied by a radial depression of the posterior slope, causing a shallow emargination of the posterior margin.

Subgenus: *Pressodonta* Simpson.
(Type: *A. calceolus* (Lea)).

c² Beak sculpture very heavy, bars straight or with a slight indication of a sinus in front of the posterior angle.

d¹ Shape of shell regularly ovate, with posterior and moderately elevated above the basal line, and upper and lower margins converging rather uniformly toward it, without a truncation. Posterior ridge indistinct. Male and female shells undistinguishable.

Subgenus: *Alasmidonta* Simpson.
(Type: *A. undulata* (Say)).

d² Shape of shell irregularly subovate, with posterior end greatly elevated above base line, and an oblique truncation below this end. Posterior ridge present. Female shell distinguishable by the stronger development of the posterior ridge and the greater obliquity of the postero-basal truncation, which is slightly emarginate.

Subgenus: *Pegias* Simpson (as genus).
(Type: *A. fabula* (Lea)).

b² Posterior ridge of shell distinct, rounded or rather sharp. Posterior slope more or less truncated, with distinct corrugations. Cardinal teeth weak, compressed, not stumpy, sometimes even obsolete. Epidermis with rays which generally break up into a pattern of spots. Beak sculpture very heavy, bars slightly sinuate. Female shell not distinguishable from that of the male. Subgenus: *Rugifera* Simpson. (Type: *A. marginata* Say).

The position of *A. collina* (Conrad) is yet doubtful. The type-species of *Pressodonta* is unknown in its anatomy, but it is very closely allied to *A. minor*, in fact, the two may be only forms of the same species, so that we may safely assume that they agree in structure.

ALASMIDONTA (PRESSODONTA) MINOR (Lea) (See: Ortmann, 1912, p. 295).

I collected a number of specimens in the North Fork Holston River, Saltville, Smyth Co., Va. (September 17, 1912), and in Clinch River, at Richland and Cedar Bluff, Tazewell Co., Va. (September 20, 1912).

The soft parts of this species were described previously from a single male and a single gravid female. In these, the inner lamina of the inner gills was free from the abdominal sac, except at the anterior end.

From Saltville, I have preserved the soft parts of three males and two gravid females, and they all have the inner lamina of the inner gills entirely connected with the abdominal sac. From Richland I preserved two males and three gravid females: of these, the males have the posterior part of the inner lamina free for about half the length of the abdominal sac, one of the females shows the same condition, but the second has even a larger part of the inner lamina free (about two-thirds), and the third has it almost entirely connected, only a small hole remains open at the posterior end of the foot. From Cedar Bluff I have the soft parts of a gravid female, and here the inner lamina is free for a little more than one-half of the abdominal sac.

Thus, in this species, this character is variable. The fact that those from Holston River have all completely connected inner laminae, and those from the Clinch tend to have it more or less free, may be purely accidental.

All females contained glochidia. The measurements are: length, 0.32; height, 0.27 mm. This is larger than my former measurements (0.31 x 0.25), but a re-examination of the old material shows, that the former values were correct. Thus there seems to be a variation in the size of the glochidia, but the shape is in both cases the same.

NOTES.

Possible transportation of Panopea generosa.—I wish to tell of an instance of the transporting of shells from one locality to another. About a year ago I saw in one of the Los Angeles fish markets four large "Goeducks," (*Panopea generosa*). Not having the shell in my collection I asked about them and found that they were shipped in from Puget Sound and were considered very fine, 50 cents each. I did not purchase and learned a week later that they had finally been sold to some one for fish-bait. Several months later a friend picked up two large valves of *Panopea generosa* on a nearby beach. *Panopea generosa* has been found in this locality but they are smaller than the northern form and very scarce and I am inclined to think that my two valves are from Puget Sound having been thrown from some of the piers by the fishermen, and finally worked upon the beach; at least it is not impossible.—E. P. Chace.

A Large Octopus.—While deep-sea fishing at Long Beach, Cal., Capt. A. H. Mason of the launch Esther C, had a terrific struggle with an octopus measuring 16 feet from tip to tip of tentacles.

Captain Mason brought the octopus to the surface while fishing for rock cod. After the devil-fish had been safely