

ther investigation, but thought it quite likely, in spite of the hypogynous flower, *Phytolacca* would be found more nearly related to *Solanaceae* than to *Chenopodiaceae*, near which it was now placed.

He then exhibited some shoots of Grape Vine, and said that Dr. Engelmann had pointed out, when at the Academy last year, that there was some numerical order in the tendrils of grape vines. In the specimen he exhibited every third node had no tendril; but he had seen some grape vines in which as many as eight nodes with tendrils had followed one another. In the mature wood, however, those without tendrils perfected the strongest buds. But he had found in the allied genus *Ampelopsis* a nearly regular system of buds and tendrils. In *A. hederacea*, the common Virginia or five-fingered creeper, the strong shoots running up a wall or tree had at every third node a strong axillary bud, *without any tendril*; while the two intervening nodes had tendrils *without axillary buds*. Occasionally, but very rarely, two successive nodes would have axillary buds, in which case the lower one would be smaller, and have also a small tendril on the opposite side. *Ampelopsis Vietchii* had the same character. He had attempted to propagate this by using nodes from which the tendrils pushed, as single bud cuttings, but failed to get any development from the axils. He believed they had not a trace of a bud in even the most rudimentary state. It had been said in Darwin's paper on motion in tendrils that the gland on the end of the tendril did not develop itself until it approached the object it was to cling to. In *Ampelopsis Vietchii*, they developed before this, in the shape of small globes, looking like rudiments of the same flower which ultimately appeared. In fact tendrils here were incipient flower branches, as any one could see by tracing the common *Ampelopsis hederacea* up to its final flowering condition, when, the axial growth ending in a terminal bud, instead of the usual lateral tendril, it seemed to erect itself and bear flowers. It would seem as if it was only by the elongation of the axis, demanding and drawing to itself nutriment which would otherwise go into the tendril, which made it a tendril, and not a flower shoot.

He did not, however, intend at this time to attempt any explanation of these series of observations. He thought there was nothing in any known law of *Phyllotaxis* which would explain them; and that by following them up matters of much interest to botany might be evolved. But, as he might have more to say about it some day, and winter was approaching, he thought to call the attention of the Academy to the facts, so that those interested might examine them for themselves before the frost destroyed the specimens.

The death of Mr. Wm. P. Wilstach was announced.

Sept. 27th.

The President, DR. RUSCHENBERGER, in the Chair.

Twenty-one members present.

The report of a Committee appointed to draft resolutions regarding the death of the late Wm. P. Wilstach was received, and the following Resolutions adopted:

The death of WILLIAM P. WILSTACH, at Saratoga, Sept. 17, 1870, has been announced to the Academy of Natural Sciences of Philadelphia.

Mr. WILSTACH during his connection of ten years with this institution has been distinguished among its members by his liberal, intelligent and prompt encouragement of every enterprise calculated to increase and diffuse knowledge of the Natural Sciences. Besides many donations at different times, he gave a thousand dollars towards the publication of the last volume of the Academy's Journal; a thousand dollars to the building fund, and in addition he made a conditional subscription of five thousand dollars to the same fund. These facts are cited in evidence of Mr. WILSTACH'S interest in the progress of 1870.]

Science and culture;—they are among the reasons why the Academy recognizes in his death the loss of a liberal patron, a judicious counsellor and an agreeable associate.

Resolved, That this expression of the Academy's appreciation of Mr. WILSTACH's worth be communicated to his widow and family, in token of its sympathy with their bereavement.

W. S. W. RUSCHENBERGER,
JOS. LEIDY,
WM. S. VAUX.

(Signed)

S. B. HOWELL, Rec. Sec.

The following gentlemen were elected members of the Academy: Green Smith, Thos. Stewardson, H. Weir Workman, W. B. Rogers, Thos. G. Gentry, Wm. H. Pancoast, M. D.

The following were elected correspondents: Prof. Igino Cocchi, of Florence, Italy; Prof. John Jas. Stevenson, Ph. D., of Morgantown, W. Va.

On favorable report of the Committees, the following papers were ordered to be published:

Notice of some Crustacea of the Genus LIBINIA, with descriptions of four new Species.

BY T. HALE STREETS.

Much uncertainty has existed with regard to the identity of certain species belonging to the genus *Libinia*. *Libinia dubia*, ever since it was first established by Milne Edwards, has been regarded as a doubtful species. In the description of it by Edwards, he states that it resembles *L. canaliculata* very much, and that it is not improbable that it is the young of that species. Naturalists in this branch of science down to the present time appear to have accepted this statement as the truth.

De Kay, in his Natural History of New York, states that the "younger individuals, 1—4 in. in length, are more pyriform in shape, are entirely covered with a dense, downy hair, and the spines are not so prominent as in the adult. In this state I suppose it to be the *L. dubia* of Edwards."

Gibbes in an article in the Proceedings of the American Association for 1850, regards the two species as distinct, but says that no absolute characters can be indicated by which they may be separated.

I do not know how to account for this prevailing ignorance, as the characters existing, separating the two species, are so plain.

LIBINIA DUBIA, Edwards. His. Nat. des Crust. vol. 1, p. 300, pl. 14, fig. 2.

L. distincta, Guerin.

Besides the characters usually given as distinguishing this species, the following may be observed, and they will be found to be highly characteristic.

In the median line of the body, counting backward from the depression separating the gastric and genital regions, there is a row of four spines; one on the genital region, two on the cardiac and one on the intestinal. One small spine on the posterior part of the gastric region in the median line, and five arranged transversely on the anterior part of the same region. Three prominent spines on the branchial region independently of those on the lateral margin. The *hepatic region* is usually devoid of spines or tubercles; sometimes there is a very small, sharp one on each side, or, again, it may be present on one side and absent on the other. There is never more than one on a side. The regions are very distinctly marked out.

Rostrum prominent. Its bifurcated extremity diverging, and directed nearly horizontally. The cleft deep.

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Habitat. Common species of the Southern Atlantic coast. Very common in the Delaware Bay. In the Academy's collection are four specimens from the coast of Long Island; and one from West Africa, by Duchailu.

LIBINIA CANALICULATA, Say. Jour. Acad. Nat. Sc. vol. 1, p. 77, pl. 4, fig. 1.

L. emarginata, Leach.

In the median line of the body, counting backward from the depression separating the stomach from the genital region, there is a row of five spines; one in the genital region, two in the cardiac and two in the intestinal. On the gastric region there is a longitudinal row of four spines. The second one counting from behind forward is generally double. The anterior one is situated in front of the transverse row, which contains four spines or tubercles, two on each side. The hepatic region always presents more than one spine, usually three, sometimes more; sometimes three on one side and two on the other. One large spine situated on the posterior part of the branchial region, on a line with the lower spine on the intestinal region, another smaller one intervening between. The whole surface of the carapax studded over with numerous spines and tubercles arranged more or less regularly. The spines on the lateral margin not as prominent as in *L. dubia*, but of the same number.

The cleft of the bifurcated extremity of the rostrum is very shallow. The teeth of the rostrum not on the same plane as in *L. dubia*, they present a direction downward. In the largest specimens the anterior extremity is considerably hooked.

The characters here enumerated as distinguishing *L. canaliculata* will be found to hold good through all variations of size—in those that are no more than an inch in length, as well as in those that are from four to five inches long, the latter being the largest of the kind that I have ever seen.

Habitat. Common to the North Atlantic coast, but extends down to the West Indies.

LIBINIA AFFINIS, Randell. Jour. Acad. Nat. Sc. vol. VIII, p. 107.

Gibbes says of this species that it "so closely resembles *L. dubia*, that if from the Atlantic coast, I should not regard it as different, but as it comes from Upper California I cannot venture to pronounce it the same."

The author here quoted undoubtedly made a mistake when he said that *L. affinis* closely resembles *L. dubia*. Stimpson approached the truth more nearly when he stated that "it is very closely allied to *L. canaliculata*." It is undoubtedly nothing more than the young of *canaliculata*. That it is so will be evident to any one who will take the trouble to compare them closely. It agrees with *L. canaliculata* in every respect excepting size.

LIBINIA SUBSPINOSA, Streets, n. s.

Carapax pyriform. Regions distinct. Spines and tubercles few. Three small tubercles arranged transversely on the anterior portion of the gastric region, one on the median line and one on each side. On the posterior part of the stomach, in the usual situation of a spine or tubercle, there is a slight elevation. Genital region compressed from before backward. Two spines on the cardiac region, and one, rather large, on the intestinal region. Five spines on the lateral margin of the branchial region; the posterior one large. On the upper portion of the same region, near the superior border, are two more, arranged in a line from before backward. Hepatic region devoid of spines, smooth. Just beneath this region, on the antero-lateral border, are two spines, the anterior one large.

Rostrum prominent; teeth short and their apices directed forward and toward each other. A short obtuse spine projecting over the inner canthus of the eye. On the inferior border of the orbit are two small tubercles. External antennæ cylindrical.

Anterior pair of feet shorter than the second. The fingers come in contact
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along half the extent of their denticulated margins. The second pair of feet about the same length as the carapax, rostrum included.

The surface covered with close, short hair. Length of the body to the tip of the rostrum one inch and a half.

Habitat.—Chili.

(Cabinet Phila. Acad. Nat. Sc.)

LIBINIA RHOMBOIDEA, Streets, n. s.

Carapax nearly circular. Regions distinct; those in the median line of the body flattened. Six small but sharp spines on the gastric region; five arranged transversely on the anterior part. The two outer ones and the middle are larger, and are placed in a direct line with one another; the two intervening ones are smaller, and are situated a little in front of the others. One spine situated on the posterior part of the stomach. All the spines on the central regions small. Genital region quadrilateral and bearing a small spine. One on the cardiac region and one on the intestinal. On the posterior part of the cardiac region is an elevation which presents a depression in its summit. Four large and sharp spines on the branchial region independently of those on the lateral margin. These are placed so as to inclose a rhomboidal-shaped figure between them. A prominent spine on the hepatic region; five on the lateral margin. These with the one on the hepatic region form nearly half a circle. Below the lateral row anteriorly are two prominent spines.

A prominent spine above the inner canthus of the eye; a small one at the external canthus. External antennæ cylindrical. A spine situated to the outer side of them, and one beneath directed downward.

Rostrum not so broad as in *L. dubia*, and its bifurcation less divergent, the teeth being directed nearly horizontally forward. Anterior pair of feet short and granular; a short spine on the lower portion of the arm. Second pair of feet nearly one and a half times as long as the body. Length of the body three inches and a half.

Habitat.—East Indies.

(Cabinet Phila. Acad. Nat. Sci.)

In the Academy's collection is a single specimen, which very much resembles the preceding, and in the absence of any others of the same kind to confirm the characters, I will not venture to call it a new species. The following are the chief points of difference. The regions in the median line of the body less depressed. The transverse row of spines on the anterior portion of the gastric region are arranged somewhat differently. The two lateral ones on each side are placed in a direct line, while the middle one is situated a little posteriorly. The bifurcation of the rostrum is more divergent and the teeth are inflated to their tips. Second pair of feet but little longer than the body. Length of the body two inches and four-fifths.

Habitat.—West Indies.

If this should prove a new species, I propose for it the name of *Libinia inflata*.

CHIONOCETES CHILENSIS, Streets, n. s.

Body very much depressed, flattened on top; nearly as broad as long. Posterior border rounded; broad anteriorly. Anterior and middle portions of the carapax covered with small wart-like prominences, which are depressed. These terminate in a more or less well-defined line drawn transversely through the centre of the cardiac region. All that portion of the surface not covered with prominences, granular. Regions not very distinct; gastric region somewhat triangular. External angle of the orbit projecting. Rostrum very short, and flattened. Eyes large, of a brown color with black spots.

Anterior pair of feet but little longer than the body. Internal and external borders of the under surface of the arm minutely spinous. These as well as the other feet granular. Fingers long and slender, more than half the length

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