

local collectors, some considering it a variety of *C. arenosa*, and others *C. carneola* var. *propinqua* Garrett. I think it is closer to *carneola* than *arenosa*, but it differs from *propinqua* in having no violet ring and in the color of the teeth.

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SHELL COLLECTING ON THE MOSQUITO COAST OF NICARAGUA.—V.

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BY W. H. FLUCK.

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*Liotia cruentata* Mühlf.

*Omphalius viridulus* Gmel.

*Omphalius indusii* Ch.

*Livona pica* Linn.

All from Man of War Keys. The last-named species is found by the dory-load, and is used as an article of food by the natives. When perfect, the shell is beautifully mottled with white and black, but most specimens from "the keys" are badly incrustated. The beautiful spiral operculum is a study in itself.

*Fissuridea alternata* Say. Wounta Haulover. I found about a dozen in four years, the locality being, I suppose, not rocky enough for them.

*Submarginula octoradiata* Gmel. Man of War Keys.

*Acmaea melanoleuca* Gmel. King's Keys. A white variety.

*Guppya biolleyi* Mart. Rama Key. This little island is in the Bluefields lagoon, about 10 miles south of the town of Bluefields. The shell was found in the yard of the Moravian Mission.

*Epiphragmothora coactiliata* Fér. Weilawas Hill, near Wani, Nicaragua, near where the Ulli river and Wani river meet to form the Prinzapolka river.

*Bulimulus corneus* Sowb. Bluefields, in the garden of the Moravian Mission, among flags and other plants and under stones.

*Macroceramus caracasensis* Rve. Bluefields. Same locality and station.

*Macroceramus concisus* Morelet. Weilawas Hill, Wani, Nic.

*Bifidaria* sp.? Bluefields. Numerous. Clinging to stones. Dr. Dall has seen specimens, and says they much resemble *B. eyriesii* Drouet, of Venezuela, or *P. wolffi* Miller, of Ecuador, adding: "There are so many of these described that I don't dare attempt to name it, especially as our series of these species from the tropics is very incomplete."



*Oxystyla princeps* Brod. Near Kukallaya, in the plantation clearings of the Indians, along the Kukallaya river (sometimes called Wounta river). Quite numerous. I have one specimen that lacks the characteristic zigzag markings, being quite plain, except for the dark-brown spot at the very point of the blunt apex, together with a faint suggestion of some narrow brown bands on the whorls.

*Subulina octona* Linn. Bluefields, under stones and beneath foliage in damp places.

*Subulina mimosarum* Orb. Bluefields, Rama Key, Wounta Haulover, Kukallaya. Under stones, wood, leaves, in damp places.

*Succinea recisa* Morelet. Wounta Haulover, in a puddle left by the rainy season, between the sea and the lagoon and not more than 100 yards from either. The bottom of the pool was grass-covered. Shells were clinging to a stem of cocoanut leaf, which had fallen and was submerged. 25 specimens. In the dry season the spot is dry and the grass dead, and the lagoon and all the water courses for miles around are salty. I never saw this shell anywhere else except on the banks of a little run in Bluefields, where they were rare.

*Melampus flavus* Gmel. Man of War Keys. Large, banded and unbanded specimens.

*Melampus coffea* Linn. Wounta.

Exceedingly numerous. Used as beads by Indians. The unbanded variety will average larger than the banded. In March, 1903, I collected some of these shells at the Bluff near Bluefields, but the shells were all small, none being larger than *M. lineatus* say of the North Atlantic. In the spring of the three years preceding 1903, I searched the same spot, but found none of these shells. I am inclined to regard them as newcomers to Bluefield.

*Teredo* sp? Wounta Haulover and everywhere on the coast.

*Pholas campechensis* Gmel. Wounta Haulover, Prinzapolka, etc. Of the hundreds of valves cast up daily, I never found anything but right valves. Cannot some one who knows write an article on why it is that single right or left valves, as the case may be, are often found, to the exclusion of the other valves?

*Tagelus poeyii* Dall. Prinzapolka. On the beach toward the south from the town. Rare. Only 3 specimens.

*Periploma inequivalvis* Schum. Wounta Haulover. Right valves only.

*Mactra (Mactrella) alata* Spengler. Wounta Haulover, and along



the whole coast. Abundant, both alive and dead; fragile, white and beautiful.

*Mulinia gaudeloupensis* Recluz. Single valves on the shore at Wounta Haulover.

(*To be continued.*)

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#### NEW VARIETIES OF NORTH AMERICAN PISIDIA.

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BY V. STERKI.

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During the twelve years' study of our *Pisidia*, on about 350,000 specimens examined, many new forms were found. Some of them have been published from time to time, since 1895, in the *NAUTILUS*, others were held back, mostly for years, in the hope of getting additional materials which would more clearly show their relations and positions. Owing to the great variation of most of our species, with some apparently endless, it is often difficult to know, or even to estimate, whether a new *Pisidium* represents a new species, or a variety, and it seemed preferable to be rather over-cautious with regard to "n. sp." than too hasty. Yet new forms, more or less different from those published or regarded as typical for a species, should be named and described, and short descriptions of a number of such are offered in the following lines. They are ranged under species already known, as varieties, in many instances with some doubts, leaving it for further evidence to prove their real affinities or their claims to representing distinct species. A few short notes are necessarily added, but a more detailed discussion of the affinities etc., of the various species and forms is left for a forthcoming revision of our *Pisidia*.

*Pisidium idahoense* Roper var. *indianense* n. Smaller than the types, less inflated; beaks much narrower, low, little prominent over the hinge margin; surface with several well-marked lines of growth, more horn-colored than in the other forms; shell and hinge slight, the right cardinal tooth less curved; long. 8, alt. 7, diam. 4 mill.

Hab.: Lake Maxinkurkee, Ind., collected in considerable numbers by Drs. Evermann and Bartsch, for the U. S. Fish Commission.

As compared with the types from Idaho and the larger, much inflated form from Seattle, Washington, the Indiana *Pisidium* appears to be of a distinct species. Yet a form, eventually a var., from



Fluck, W H. 1905. "Shell collecting on the Mosquito Coast of Nicaragua - V." *The Nautilus* 19, 78–80.

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