

same brook furnishes, compared to its size, a wider swimming range.

The evolution in habit and structure which from a group of predaceous free-swimming mammals like the Delphinidae has evolved the large whale-bone whales which feed on small animals sifted from the water with their baleen, is more or less paralleled in several independent groups of fishes. Our common menhaden, representative of the herrings, is a good example. Though a small fish the size and density of the schools in which it swims are in a way analagous with the cetacean's bulk. Continually it swims forward, its mouth wide open, gulping sea-water from which its very fine lengthened gill-rakers are sifting food enough to make it very fat and sought after for its oil. A better example are the gigantic basking shark and whale shark, off-shoots from the active predaceous mackerel sharks. The large gill openings and very small teeth of these largest of fishes, show them to be sifters of small food. In the almost universally predaceous mackerel genus *Scomber* an East Indian species has very long fine gill-rakers, doubtless associated with herring-like feeding habits.

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CONCLUDING NOTES ON THE SALIENTIA OF JACKSONVILLE, FLA.

Acris gryllus, Le Conte, the "Cricket frog," is one of the commonest frogs, great swarms of this species having been seen by the writer during the spring months about the edges of bayous, creeks and ponds. Its rattling notes can be heard during the entire warm season, day and night. Owing to the small size of its adhesive disks, this tree-"frog" cannot climb into trees, but lives on the ground, wandering into fields, meadows and gardens. It attains a length of $1\frac{1}{4}$ inches from snout to vent, but the

greater number of specimens are 1 inch or less in length. This species looks and acts more like a water frog than a tree-toad, although belonging to the latter family.

Chorophilus occidentalis, B. & G., is a beautiful species, rarely seen except in early spring. At this time, however, it occurs in great numbers in the large, shallow bayous, where it stands almost straight upright, on some twigs or weeds, with its large throat pouch distended, giving vent to its piercing call. This call is very loud, similar in pitch to that of *Hyla pickeringi*, but much shorter, and at a distance sounds like the ring of a steel chisel, when struck by a hammer.

This is the largest species of the genus *Chorophilus*, attaining a length of 1½ inches, from snout to vent. It is stout of body, the head is pointed, the arms and legs rather short and stout. The toes are very slightly webbed, the disks on fingers and toes scarcely noticeable. The subarticular tubercles are very prominent.

The structure of this species indicates terrestrial, possibly subterranean habits. I have dug specimens out of the sweet-potato hills in my garden.

The smooth, shiny upper surfaces are rich reddish brown or fawn colored, like specimens of our northern Wood frog. There is a black band on each side, beginning at the nostril, running through the eye, over the tympanum to the shoulder. The edge of the upper jaw is silvery white. The groin is rich yellow or orange, with large elongate or round black spots. The undersides are white, faintly spotted with brown on the throat, flesh colored posteriorly. On the back there may be two broad, dark brown parallel bands. The arms and legs are banded more or less distinctly with brown.

Chorophilus nigrinus, Le Conte, or "Swamp Tree-toad," is found during the Winter and early Spring, in great numbers about ditches and bayous.

Its call is similar to that of the Cricket "frog," but much louder, and the crepitations are slower. It is a shy species, extremely difficult to catch. The color is gray or greenish-black, with usually three longitudinal rows of black, light-edged, roundish spots. Occasionally these spots fuse into bands. The limbs are also spotted. On the upper jaw there is a pale yellowish line, extending to the arm insertion. A narrow black band starts at the tip of the snout, runs through the eye, covers the tympanum and ends at the shoulder or beyond. The undersurfaces are greenish yellow. The back and outer parts of the limbs are covered with large round warts, giving the creature a very rough appearance. The belly is coarsely granulated. The tips of the fingers and toes have small disks. The foot is slightly webbed. The head is even more pointed, and much narrower, than in the preceding species.

Chorophilus ocularis, Holbrook. This is the smallest of the North American frogs, rarely exceeding $\frac{5}{8}$ inch from snout to vent. The head is pointed, the eyes large, the limbs and body slender. The disks on the fingers and toes are small but distinct. The skin of the back is covered with very fine warts, that of the belly finely granulated. The color is yellow, reddish brown or chestnut. The upper jaw is margined with white. There are three longitudinal dark brown dorsal bands, one from the tip of the snout to above the vent, usually bifurcate posteriorly, and one on each side of this, starting behind the eye. Underneath, it is pale yellow. The male's throat is dark brown, and can be distended to the size of a large pea. The arms and legs are indistinctly cross-banded.

These small "frogs" are very numerous near Jacksonville, but owing to their small size, are seldom seen. During the Spring months, they abound on the marginal vegetation of the "bayous," the males giving

vent to their faint calls, which sound more like the chirping of insects than the calls of frogs.

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ON A YOUNG BLACK ANGEL FISH.

A *Pomacanthus arcuatus*, 3 or 4 inches long, taken near San Antonio Bridge, Porto Rico, last July, in a biological survey of that island which is being forwarded by the N. Y. Academy of Sciences and the Insular Government, had bright yellow, instead of whitish, cross bands. Yellow bands are then, not diagnostic of *paru*, perhaps they are ordinarily yellow in sufficiently small *arcuatus*.

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