

NOTES ON THE FAUNA OF THE CHIPOLA FORMATION - V

SYMBIANGIA, A NEW RHIZANGIID CORAL

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Many years ago the late T. Wayland Vaughan described in manuscript a new genus and species of small coral from the Chipola Formation at the Baileys Ferry locality (USGS Loc. 2564= TU 457). Unfortunately, this manuscript, which exists only in preliminary draft, was never published. In 1919 (p. 219) he referred to the coral fauna of the Chipola briefly as follows:

"[It] is small: comprising four species representing as many genera, namely, *Stylophora*, *Antillia*, a new species that resembles *Thysanus* with a sipunculid worm in its base, and *Goniopora*."

At least two other hermatypic genera are present in the Chipola: *Porites*, and *Montastrea cavernosa* (Linn.) var. *cylindrica* (Duncan). The undescribed species of *Antillia* mentioned by Vaughan is referable to *Antillophyllia* Vaughan, which is a junior synonym of *Trachyphyllia* Milne Edwards & Haime.

The occurrence of the little coral described here, in abundance at a number of localities in the Chipola Formation was brought to the attention of the writer by H.E. and E.H. Vokes, to whom he is indebted for the opportunity of preparing the present note.

Order SCLERACTINIA

Sub-Order FAVIINA

Family RHIZANGIIDAE

Genus SYMBIANGIA Wells, n.gen.

(The generic name proposed by Dr. Vaughan in his manuscript is preoccupied, hence cannot be resurrected).

Type species: Symbianga vaughani (Weisbord, 1971); Miocene (Chipola Formation), Florida.

Diagnosis: Rhizangiid (astrangiid) corals, forming small, subplocoid or cerioid colonies by extratentacular budding, encrusting dead shells of small gastropods inhabited by sipunculid worms, as in *Heteropsammia*, *Heterocyathus*, etc. Corallites low, broader than high, strongly costate. Septa in at least three cycles, all sparsely and coarsely dentate and

laterally sharply spinulose. Columella trabecular, weakly developed. Endotheca not developed.

Discussion: *Symbianga* groups with other rhizangiid genera such as *Phyllangia* and *Colangia*, which have relatively few, uncrowded, weakly dentate septa, but differs from all genera of the family by its constant encrusting investment of gastropod shells occupied by sipunculids. Recognition of *Symbianga* adds another scleractinian family to the short list of corals with symbiotic worms.

The symbiosis of small corals with sipunculids (*Aspidosiphon*) is well known. Several genera are characterized by this association which appears to be an obligate condition, as corals of these genera are not found without their companions: *Heterocyathus* (Caryophylliidae), *Heteropsammia*, *Psammoseris*, and *Wadeopsammia* (Dendrophylliidae). The most recent discussion of this symbiosis is that of Goreau and Yonge (1968), based on *in situ* observations of *Heteropsammia* on the Great Barrier Reefs. The activity of the *Aspidosiphon* appears to stabilize the coral on an unstable mud-sand bottom and shift the coral, which derives most of its food from the mud and sand, from place to place. Corals turned over are quickly righted by the worm as it seeks to work back into the bottom.

SYMBIANGIA VAUGHANI (Weisbord)

Plate 1, figures 1-10

Thysanus vaughani WEISBORD, 1971, Florida Bur. Geol., Bull. 53, p. 22, pl. 5, figs. 3-5; pl. 6, figs. 1-3.

Diagnosis. Having the characters of the genus as analyzed above. Calices of mature corallites are circular to subpolygonal, shallow, averaging 4 mm in diameter, to a maximum of 4.5 mm. Septa in three cycles, arranged 6/6/12, those of the third cycle uniting with the six of the second cycle. Those of the first cycle commonly with prominent pali-like inner-

most teeth surrounding the low, weak, trabecular columella. Other teeth lower, 2-3 between the paliform tooth and thin corallite wall. Costae prominent, corresponding to all septa, alternating in size, coarsely granulated.

Figured specimens: USNM 171258-171261. Collections studies: TU locality nos. 70, 430, 457 (= USGS loc. 2564), 458, 554, 655, 817, 823, 824, 827, 830, 787, 950, 1020 (all Chipola Formation, Calhoun County, Florida.)

Discussion: The size attained by the small colonies is correlated with the size of the dead gastropod shell, already inhabited by the sipunculid before settling of the coral planula. Many specimens have only 2 or 3 calices with corallites completely investing the shell. The largest observed, which incompletely encrusts a shell of *Terebra (Paraterebra) odopioia* Gardner (Pl. 1, figs. 3, 4), has 14 calices and still retains traces of the pale pink color often seen in the skeleton of living *Phyllangia dispersa* from Panamá.

One specimen (Pl. 1, fig. 7) is aberrant in that, instead of having five distinct calices normally expected from extratentacular budding, it has five petaloid septate expansions around the encrusted gastropod, each representing the site of a polyp stomodaeum resulting from intratentacular budding from a central stomodaeum.

LITERATURE CITED

- GOREAU, T. F., and C. M. YONGE, 1968, Coral community on muddy sand: *Science*, v. 217, p. 421-423, 3 figs.
 VAUGHAN, T. W., 1919, Fossil corals from Central America, Cuba, and Puerto Rico, . . . : U.S. Natl. Mus., Bull. 103, p. 189-524, 25 figs., pls. 68-152.
 WEISBORD, N. E., 1971, Corals from the Chipola and Jackson Bluff formations of Florida: *Florida Bur. Geol., Bull.* 53, 105 p., 15 pls.

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PLATE 1

SYMBIANGIA VAUGHANI (Weisbord)

Figures

1. USNM 171259—calicular aspect (X 4).
Locality: TU 458. Chipola Formation.
2. USNM 171260—basal aspect, showing aperture of sipunculid tube (X 4).
Locality: TU 458. Chipola Formation.
- 3, 4. USNM 171262—large colony partially covering shell of *Terebra (Paraterebra) odopioia* (X 2).
Locality: TU 70. Chipola Formation.
- 5, 8. USNM 171258—calicular aspect (fig. 5, X 4; fig. 8, X 10).
Locality: TU 458. Chipola Formation.
- 6, 10. USNM 171261—Fig. 6—vertical fracture of corallum with two calices, showing investment by coral of gastropod inhabited by sipunculid (X 10). Fig. 10—basal aspect of other half of Fig. 6, showing aperture of sipunculid tube (X 10).
Locality: TU 458. Chipola Formation.
7. USNM 171264—aberrant corallum with 5 centers developed intratentacularly (X 4).
Locality: TU 430. Chipola Formation.
9. USNM 171263—corallum with 10 calices (X 4).
Locality: TU 457. Chipola Formation.

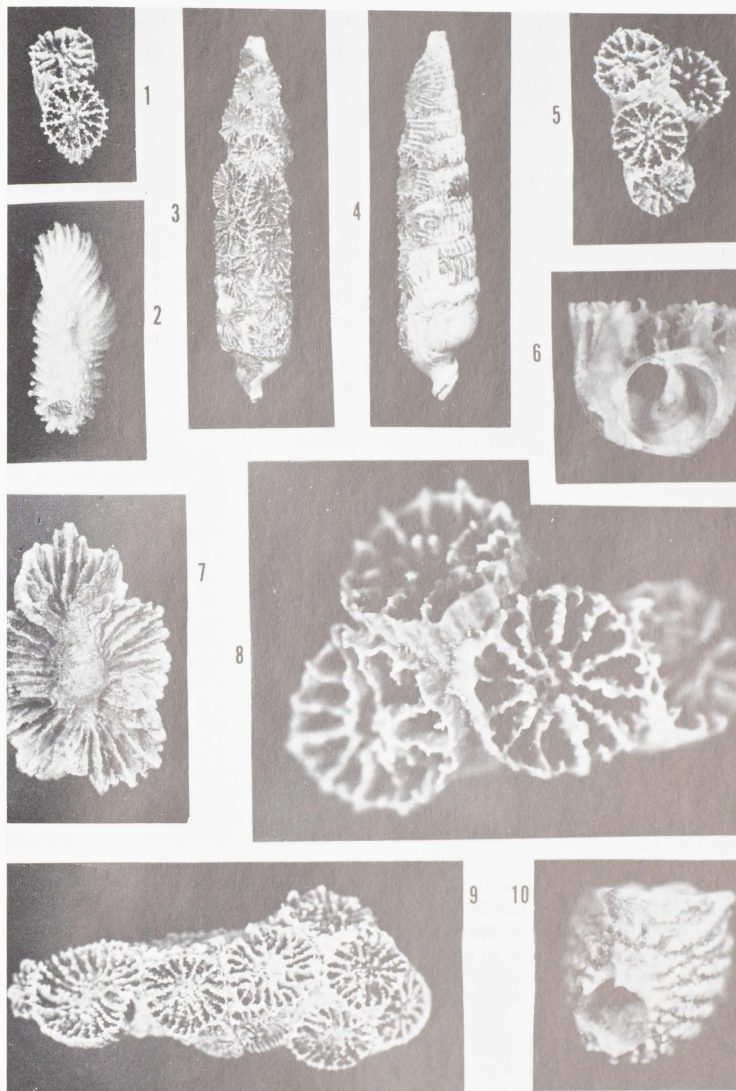
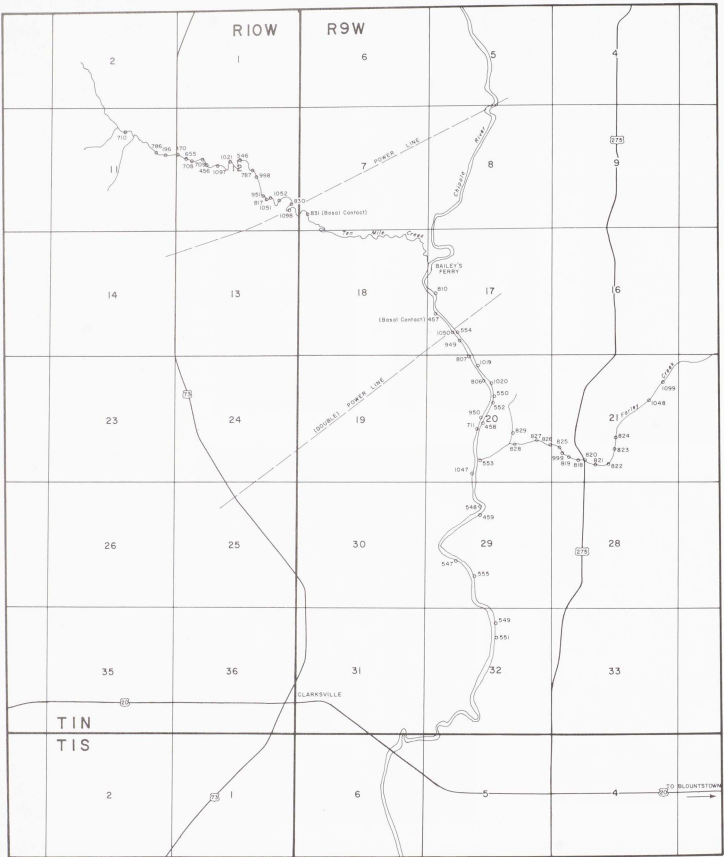


PLATE 1



Tulane University fossil localities in the vicinity of the type locality of the Chipola Formation, Calhoun County, Florida. Map based on U.S.G.S. topographic maps – Clarksville and Altha West Quadrangles.