RECENT FORAMINIFERA FROM OLD PROVIDENCE ISLAND COLLECTED ON THE PRESIDENTIAL CRUISE OF 1938

(With Two Plates)

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JOSEPH A. GUSHMAN

Cushman Laboratory for Foraminiferal Research, Sharon, Mass.

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During the Presidential Cruise of 1938 collections were made at Old Providence Island in the Caribbean Sea. As no Foraminifera have been recorded from that particular area, it is interesting to note the occurrence of numerous species. The series of specimens of *Articulina cassis* (d'Orbigny) was noteworthy in showing the great variation that occurs in that species, a representative series of which is shown on our plate. Only a few of the species are figured. References to published figures, including the original reference, are given for each species. A few other species are represented by material too meager for definite specific determination. Nearly all the species were described by d'Orbigny in 1839 in his work on the Foraminifera of the shore sands of Cuba. The figured specimens and a collection representing all the species are to be deposited in the United States National Museum.

Family TEXTULARIIDAE

Genus *TEXTULARIA* Defrance, 1824

TEXTULARIA AGGLUTINANS d'Orbigny


This is a common species of the general West Indian region.

Family VALVULINIDAE

Genus *VALVULINA* d'Orbigny, 1826

VALVULINA OVIEDOIANA d'Orbigny

Plate 1, fig. 24


This is a characteristic species of shallow water in the West Indies. The figure given shows the aperture with the large valvular tooth.
Genus *CLAVULINA* d'Orbigny, 1826

**CLAVULINA TRICARINATA** d'Orbigny

Plate 1, fig. 1


Typical specimens of this common West Indian species occurred in the collections from Old Providence Island.

**CLAVULINA NODOSARIA** d'Orbigny

Plate 1, fig. 2


This is a much smaller, more delicate species than the preceding, with thin walls.

**Family MILIOLIDAE**

Genus *QUINQUELOCULINA* d'Orbigny, 1826

**QUINQUELOCULINA AGGLUTINANS** d'Orbigny

Plate 1, fig. 3


This is a common species in the collections and common in the West Indian region.

**QUINQUELOCULINA LAMARCKIANA** d'Orbigny


This species has a wide distribution in the general West Indian region.

**QUINQUELOCULINA COLLUMNOSA** Cushman

*Quinqueloculina columnnosa* Cushman, Carnegie Inst. Washington, Publ. No. 311, p. 65, pl. 10, fig. 10, 1922.

This species was described from the Tortugas region. Typical specimens occurred in our material.
QUINQUELOCULINA BRADYANA Cushman

Plate 1, figs. 5, 6


Specimens occur in our material that seem to belong to this species, which has been recorded from both the tropical Pacific and Atlantic.

QUINQUELOCULINA cf. Q. KERIMBATICA Heron-Allen and Earland, var. PHILIPPINENSIS Cushman

Plate 2, figs. 2, 3

The figured specimens show a large form that has the periphery on each chamber strongly reticulate but the sides smooth and unornamented. The variety was described from the Philippines, but a form similar to the one here figured was recorded from the Dry Tortugas.

QUINQUELOCULINA POLYGONA d’Orbigny


This species has a wide distribution in the West Indian region.

Genus SPIROLOCULINA d’Orbigny, 1826

SPIROLOCULINA GRATELOUPI d’Orbigny


This species is abundant in the tropical Pacific but has also been recorded from the West Indian region.

SPIROLOCULINA ORNATA d’Orbigny


This is a rather rare species described by d’Orbigny from shore sands of Cuba and recorded as rare at several localities in the general West Indian region.
SPIROLOCULINA ANTILLARUM d'Orbigny

Plate 1, figs. 12-15


This is a widely distributed species characteristic of shallow tropical waters.

SPIROLOCULINA ARENATA Cushman


This species was originally described from the coast of Jamaica but has since been found to be widely distributed in the general region of the West Indies.

Genus ARTICULINA d'Orbigny, 1826

ARTICULINA SAGRA d'Orbigny

Plate 1, fig. 16


This is a fairly common species in the material from off Old Providence Island.

ARTICULINA CASSIS (d'Orbigny)

Plate 1, figs. 17-23


This species shows a remarkable amount of variation. The usual form has a much broader test, increasing in width even in the completely coiled stage, figure 17. The first uniserial chamber has a flaring lip and a somewhat swollen base, figures 18, 19. Later uniserial chambers may continue of this same type, figures 20, 21, or may become very much broader as in figures 22 and 23. The broad form may be the same as the form named var. mucronata by d'Orbigny, but our series seems to show all gradations. The range of variation is even greater than the few figured specimens show. D'Orbigny's records for the species include Cuba, Jamaica, and Martinique, and I have had it also from Puerto Rico and from the Dry Tortugas. The material from Old Providence Island, however, shows a much greater range of variation than from other localities.
Genus TUBINELLA Rhumbler, 1906

TUBINELLA FUNALIS (H. B. Brady)


This is not a common species, and its occurrence at Old Providence Island extends its range in the tropical Atlantic.

Genus HAUERINA d’Orbigny, 1839

HAUERINA BRADYI Cushman

Plate 1, figs. 25-27


This species was originally described from the Indo-Pacific but has been recorded from numerous localities in the tropical Atlantic.

HAUERINA ORNATISSIMA (Karrer)


Although a typically Indo-Pacific species, it occurs also in the tropical Atlantic but usually in few numbers.

Genus TRILOCULINA d’Orbigny, 1826

TRILOCULINA TRIGONULA (Lamarck)


This is not a common species in the western Atlantic but is recorded as single specimens from Jamaica and the Dry Tortugas. It may not be the same as Lamarck’s species from the Eocene of the Paris Basin.
TRILOCULINA TRICARINATA d'Orbigny


The form from Old Providence Island may be included under this name.

TRILOCULINA OBLONGA (Montagu)

l'eremiculum oblongum Montagu, Test Brit., p. 522, pl. 14, fig. 9, 1803.


This is a fairly common species in this material and is widely distributed in the West Indian region.

TRILOCULINA PLANCIANA d'Orbigny


This is a common species in the general West Indian region.

TRILOCULINA FICHTELIANA d'Orbigny

Plate 1, figs. 7-9


A widely distributed species in the tropical Atlantic.

TRILOCULINA CARINATA d'Orbigny

Plate 1, figs. 10, 11


The reticulate ornamentation is very highly developed in this species, which is common in the general West Indian region.

TRILOCULINA LINNEIANA d'Orbigny


This is a large species widely distributed in tropical waters of both the Atlantic and Pacific.
Genus PYRGO Defrance, 1924

PYRGO SUBSPHAEERICA (d'Orbigny)


The most common species of the genus in the West Indian region but never attains a large size.

PYRGO DENTICULATA (H. B. Brady)


Although typically an Indo-Pacific species it occurs at numerous localities in the tropical Atlantic.

Family OPTHALMIDIIDAE

Genus CORNUSPIRA Schultze, 1854

CORNUSPIRA INVOLVENS (Reuss)


All the specimens are of small size as is usual in the West Indies.

Family NONIONIDAE

Genus NONION Montfort, 1808

NONION GRATELOUPI (d'Orbigny)


Specimens of this common West Indian species occurred in our material.
Genus **ELPHIDIUM** Montfort, 1808

**ELPHIDIUM POEYANUM** (d’Orbigny)


A common species in the West Indian region in warm shallow water, and occurs in our collections.

**ELPHIDIUM SAGRUM** (d’Orbigny)


Although usually more rare than the preceding, this species has a wide distribution in the West Indian region both as a living species and in the late Tertiary also.

**Family PENEROPLIDAE**

Genus **PENEROPLIS** Montfort, 1808

**PENEROPLIS PROTEUS** d’Orbigny


This is a common species throughout the West Indian region.

**PENEROPLIS BRADYI** Cushman

Plate 1, fig. 28

*Pencroplis planatus* Cushman (not Fichtel and Moll), Proc. U. S. Nat. Mus., vol. 59, p. 75, pl. 18, fig. 9, 1921.


Widely distributed in the West Indian region, this species is only slightly less abundant than the preceding.

Genus **MONALYSIDIUM** Chapman, 1900

**MONALYSIDIUM POLITA** Chapman?

This is a rare form in the Atlantic, and its reference to Chapman’s Pacific species is open to some question. The same form has been recorded from Puerto Rico and the Dry Tortugas.
Genus **ARCHAIAS** Montfort, 1808

**ARCHAIAS ANGULATUS** (Fichtel and Moll)

*Nautilus angulatus* Fichtel and Moll, Test. Mic., p. 112, pl. 21, 1803.


This is a very abundant species in the shallow water of the western tropical Atlantic.

Genus **AMPHISORUS** Ehrenberg, 1838

**AMPHISORUS HEMPRICHI** Ehrenberg

Plate 2, fig. 1


*Orbitolites duplex* W. B. Carpenter, Rep. Voy. Challenger, Zoology, pt. 21, p. 25, pl. 3, figs. 8-14; pl. 4, figs. 6-10; pl. 5, figs. 1-13, 1883.

In the general West Indian region this is a very abundant species of shallow water, frequently attached to the short eel grass, *Posidonia*.

Family **ALVEOLINELLIDAE**

Genus **BORELIS** Montfort, 1808

**BORELIS PULCHRA** (d'Orbigny)

*Alveolina pulchra* d'Orbigny, in De la Sagra, Hist. Fis. Pol. Nat. Cuba, “Foraminifères,” p. 70, pl. 8, figs. 18, 19, 1839.


Although rare in the West Indian region, it is recorded from several localities.

Family **BULIMINIDAE**

Genus **VIRGULINA** d’Orbigny, 1826

**VIRGULINA PUNCTATA** d’Orbigny


D’Orbigny described this species from the shore sands of the West Indies. It extends out into deeper water and ranges back to the Oligocene of this same region.
Genus **BOLIVINA** d'Orbigny, 1839

**BOLIVINA COMPACTA** Sidebottom


Originally described from the Mediterranean, this species is known from the Pacific at many localities but in the tropical Atlantic has been previously recorded only from the Dry Tortugas.

**BOLIVINA PULCHELLA** (d'Orbigny)


*Bolivina pulchella* Cushman, Carnegie Inst. Washington, Publ. No. 311, p. 25, pl. 1, figs. 8, 9, 1922.

Widely ranging from Bermuda to Rio de Janeiro, Brazil, this is typically a species of the western tropical Atlantic.

**BOLIVINA STRIATULA** Cushman

*Bolivina striatula* Cushman, Carnegie Inst. Washington, Publ. No. 311, p. 27, pl. 3, fig. 10, 1922.

Originally described from the Dry Tortugas, this species ranges southward to Brazil and probably occurs in the eastern Atlantic also.

**BOLIVINA RHOMBOIDALIS** (Millett)


Millett described this species from the Malay region, and there are numerous records from the tropical Pacific. It has been recorded from the Dry Tortugas and the coast of Cuba. Our specimens seem to be typical.

**BOLIVINA TORTUOSA** H. B. Brady


This is a very widely distributed species but seems to hold its characters remarkably well.
Genus LOXOSTOMA Ehrenberg, 1854

LOXOSTOMA MAYORI (Cushman)

*Bolivina mayori* Cushman, Carnegie Inst. Washington, Publ. No. 311, p. 27, pl. 3, figs. 5, 6, 1922.


Although originally described from the Dry Tortugas, the species is widely distributed also in the tropical Pacific.

Family ROTALIIDAE

Genus SPIRILLINA Ehrenberg, 1843

SPIRILLINA VIVIPARA Ehrenberg


A single specimen was found in the collection from 7 to 8 fathoms inside the reef at Old Providence Island.

Genus PATELLINA Williamson, 1858

PATELLINA CORRUGATA Williamson


Rare specimens occur in our material.

Genus DISCORBIS Lamarck, 1804

DISCORBIS MIRA Cushman

Plate 2, figs. 4-6

*Discorbis turbo* H. B. Brady (and subsequent authors; not d'Orbigny), Rep. Voy. Challenger, Zoology, vol. 9, p. 642, pl. 87, figs. 8a-c, 1884.


Numerous specimens of this well-characterized species occur in the Old Providence Island material.

DISCORBIS ORBICULARIS (Terquem)

*Rosalina orbicularis* Terquem, Anim. sur la Plage de Dunkerque, p. 75, pl. 9, figs. 4, a, b, 1876.


This species is much less common in our material than the preceding.
DISCORBIS CANDEIANA (d'Orbigny)


This is a common and characteristic species of shallow water in the West Indian region.

Genus ROTALIA Lamarck, 1804

**ROatalia Rosea** d'Orbigny


A characteristic West Indian species notable for its deep reddish color.

Family AMPHISTEGINIDAE

Genus AMPHISTEGINA d'Orbigny, 1826

**AMPHISTEGINA LESSONII** d'Orbigny


One of the common species of coral-reef conditions in the West Indian region.

Family CYMBALOPORIDAE

Genus TRETOMPHALUS Moebius, 1880

**TRETOMPHALUS BULLOIDES** (d'Orbigny)


*Tretomphalus bulloides* Moebius, Beitr. Meeresfauna Insel Mauritius Seychellen, p. 98, pl. 10, figs. 6-9, 1880.

Although widely distributed in its pelagic stage, this species is evidently attached in the early stages and is characteristic of coral-reef conditions.
Family PLANORBULINIDAE

Genus PLANORBULINA d’Orbigny, 1826

PLANORBULINA MEDITERRANEENSIS d’Orbigny

Plate 2, fig. 9

Planorbulina mediterraneensis d’Orbigny, Ann. Sci. Nat., vol. 7, p. 280, No. 2, pl. 14, figs. 4-6, 1826; Modèles, No. 79, 1826.

One of the widely distributed species in shallow water, occurring in great numbers attached to the short eel grass, Posidonia, in tropical waters.

PLANORBULINA ACERVALIS H. B. Brady

Plate 2, figs. 7, 8


Specimens with the periphery distinctly lobed, typical of this species, occur in some numbers in our material.

Genus ACERVULINA Schultze, 1854

ACERVULINA INHAERENS Schultze

Plate 2, fig. 10

Acerulina inhaerens Schultze, Organ. Polythal., p. 68, pl. 6, figs. 13, 14, 1854.

Very large specimens occur in these collections. They have the characteristically coarse porous surface of this species.

EXPLANATION OF PLATES

PLATE I

All figures $\times$ 27

Fig. 1. Clavulina tricarinata d’Orbigny.
2. Clavulina nodosaria d’Orbigny.
3. Quinqueloculina agglutinans d’Orbigny.
4. Quinqueloculina sp.
5, 6. Quinqueloculina bradyana Cushman.
7-9. Triloculina fichteliana d’Orbigny.
10, 11. Triloculina carinata d’Orbigny.
16. Articulina sagra d’Orbigny.
17-23. Articulina cassis (d’Orbigny). Series showing the developmental stages.
24. Valvulina oviedoiana d’Orbigny.
28. Peneroplis bradyi Cushman.
Fig. 1. *Amphisorus hemprichii* Ehrenberg.


4-6. *Discorbis mira* Cushman. 4, 6, dorsal views; 5, ventral view.


Recent foraminifera from Old Providence Island

(For explanation see page 13)
Recent Foraminifera from Old Providence Island

(For explanation see page 14)