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REDESCRIPTIONS OF *ANACHIS AVARA* (SAY) AND *ANACHIS TRANSLIRATA* (RAVENEL) WITH NOTES ON SOME RELATED SPECIES (PROSOBRANCHIA, COLUMBELLIDAE)[1]

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ABSTRACT

Both *Anachis avara* (Say) and *A. translirata* (Ravenel) are found from Massachusetts to southern Florida. The shell of *avara* varies geographically from short and broad with many fine ribs in the north to tall and slender with a few heavy ribs in the south. *A. translirata* does not vary in shell morphology over its range. In New England the two species are very commonly found together at mean low water and have usually been confused with each other because of a superficial similarity in ribbing on the shell. Egg capsules and veliger larvae of northern and southern populations of *avara* are morphologically similar. Egg capsules, larvae, and radulae of *translirata* are different from those of *avara*.

In southwestern Florida, *avara* is replaced by *A. semiplicata* Stearns, which appears to be a species endemic to that area. The relationships of an *Anachis* species in the western Gulf of Mexico are not clear. Egg capsules of *A. floridana* Rehder show it to be a species distinct from *avara*. *A. similis* (Ravenel) is considered to be a *nomen dubium*.

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INTRODUCTION

Two very common gastropod species living along the shores of southern New England are the columbellids *Anachis avara* (Say, 1822) and *A. translirata* (Ravenel, 1861). The shells and living animals of both are quite similar, and the two species have a long history of being confused with each other. South of New England misidentifications have been fewer for two reasons: first, *translirata* is much less common near the tideline from New Jersey south (see Table 1); second, *avara* is highly variable in shell form, and those from southern localities are less similar to *translirata* than those from New England.

Gould (1841), in his early work on New England invertebrates, recognized only one species, *avara*. Verrill (1873) noted correctly that another species of *Anachis* occurs in New England, which he called *A. similis* (Ravenel, 1861). However, I regard *similis* a *nomen dubium* (see p. 12) and *translirata* the correct designation. Verrill figured *similis* with a shell of *avara* reproduced from Gould (1870). From Verrill's work until the present time, "*avara*" has been the name more usually applied to both species; when *translirata* has been recognized as a distinct form, the names "*similis*" and "*translirata*" have been used indiscriminately, often as varieties or subspecies of *avara* (e.g., Dall, 1889; Johnson, 1934). Abbott (1954) gave correct names and descriptions of the two species, but unfortunately the plate figures are reversed and the geographic ranges are not correct.

Recently, Scheltema and Scheltema (1963) described the egg capsules and veliger larvae of *translirata* as those of *avara*, because the adults from which egg capsules were obtained were compared with misidentified museum specimens. The error became evident when new keys to invertebrates in the Woods Hole region were being compiled (Smith, ed., 1964). Subsequently, *avara* were collected alive in Beaufort, North Carolina, and held in aquaria; these snails deposited egg capsules that were distinctly different from those of *translirata*. This fortunate circumstance made possible the identification of similar capsules often found attached to eel grass in the Woods Hole area, and consequently larvae have been reared from both Beaufort and Woods Hole populations of *avara*. These larvae were morphologically the same, and distinctly different from those of *translirata* in their soft external anatomy (Scheltema, MS in preparation). Therefore, on the basis of capsules and larvae, it has been verified that the two New England forms of *Anachis* are distinct species, and also that the southern and northern forms of *avara* constitute a single species.

The necessity for redescribing the two species and for determining their geographic ranges became obvious if common errors in identification were to be corrected.

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ANACHIS TRANSLIRATA (Ravenel)

Plate 1, figs. 1, 2, 6; Text-figs. 1b, 2b; Table 1

Columbella translirata Ravenel 1861, Proc. Acad. Nat. Sci. Philadelphia 1861: 42 (no fig.) ("off Charleston bar" [South Carolina]). [Type specimen probably destroyed.][3]

Columbella avara Say. Gould 1841, Invertebrata of Massachusetts, pp. 313-314 (in part), fig. 197; Tryon 1883, Manual of Conchology, **5**: 159 (in part).

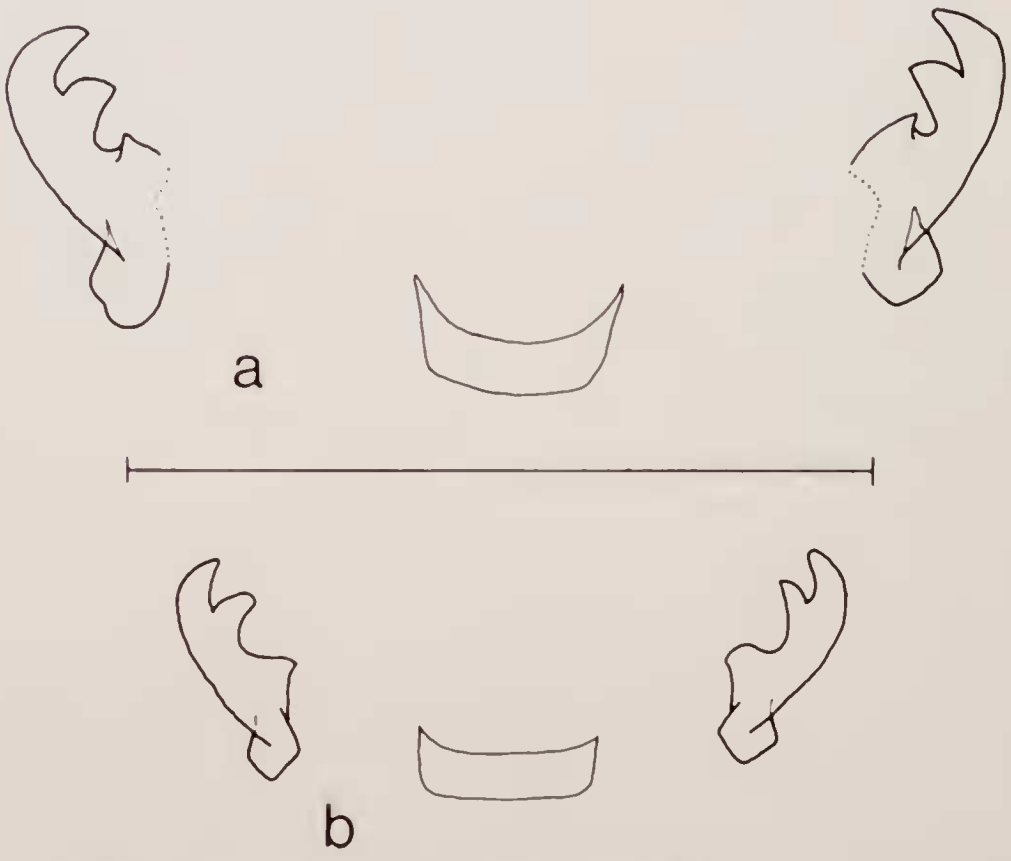
[3] Much of Dr. Ravenel's collection, which lay in the line of General Sherman's march through South Carolina in 1865, was destroyed; no labeled specimens of either *A. translirata* or *A. similis* remain in his collection at the Charleston Museum. Ravenel's description of *translirata,* although not figured, is sufficiently precise to enable one to ascertain the species to which he was referring.

Anachis avara (Say). Perkins 1869, Proc. Boston Soc. Nat. Hist. **13**: 113 (in part); Sumner, Osburn, and Cole 1913, Bull. U.S. Bur. Fish. **31**(2): 710-711, 712 (in part); M. Smith 1945, East Coast Marine Shells, p. 119, pl. 46, fig. 24; Abbott 1954, American Seashells, pl. 25, fig. ee (fig. only); Scheltema and Scheltema 1963, Hydrobiologia **22** (1-2): 85-91, 13 text-figs. (egg capsules and larvae).

Anachis similis (Ravenel). Verrill 1873, Rept. U.S. Comm. Fish. and Fisheries 1871-1872: 644-645 (description only, not fig. 109).

Anachis avara translirata (Ravenel). Dall 1889, Bull. U.S. Nat. Mus. **37**: 116.

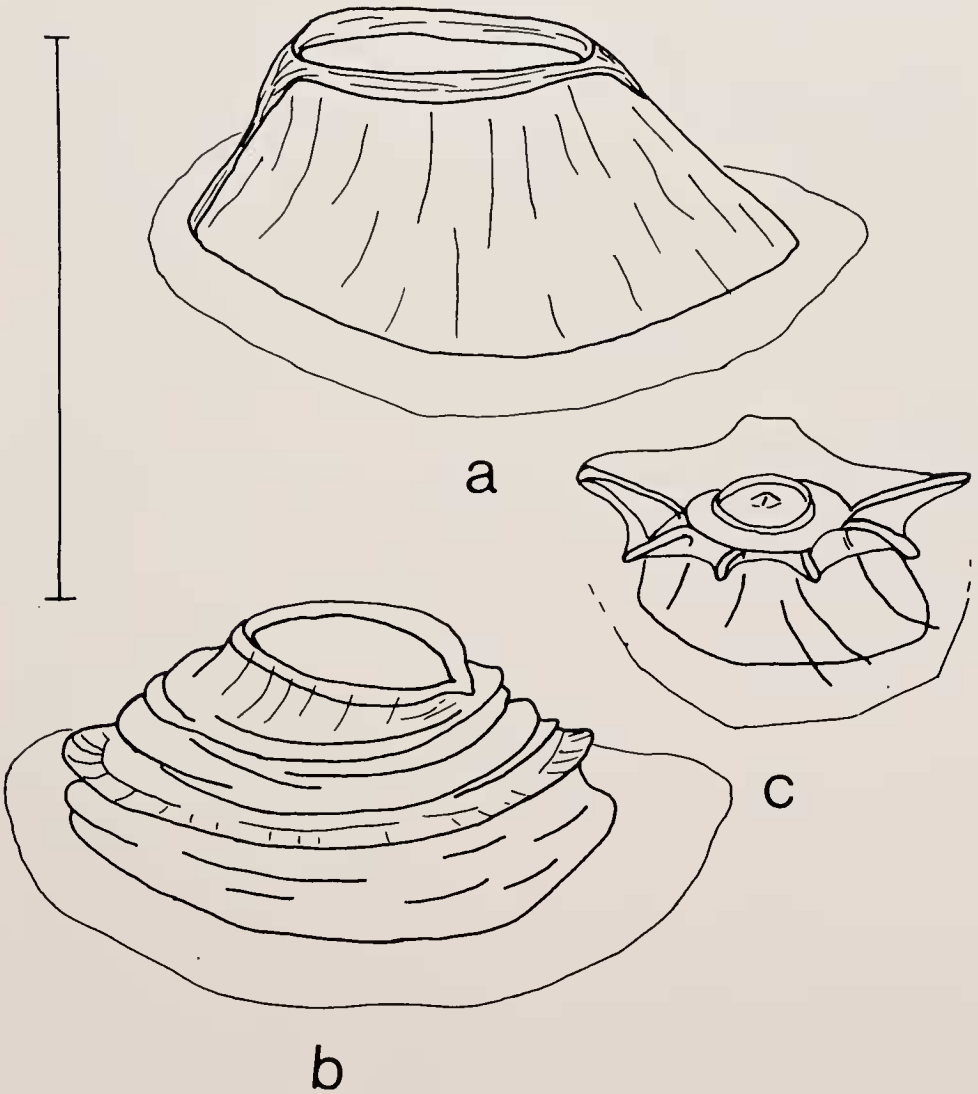
Anachis avara similis (Ravenel). Dall 1889, Bull. U.S. Nat. Mus. **37**: 116; M. Smith 1945, East Coast Marine Shells, p. 119, pl. 46, fig. 19 (juvenile).



Text-Fig. 1. Radular teeth of (a) *Anachis avara* and (b) *Anachis translirata*. Scale line equals 0.2 mm.

Description. Shell elevated, conical, whorls flattened and regularly ribbed. Height to 17.5 mm, width to 6.5 mm, median range in height 12.5 to 14.0 mm. Average width to length ratio 0.40. Aperture a little less than one-half total height of shell. Larval whorls (protoconch) three, smooth, rounded, and translucent.

Post-larval whorls seven or eight, nearly flat, with distinct, regularly spaced, straight axial ribs and less distinct spiral striae. Suture indented. Ribs usually parallel to shell axis, and most elevated at the suture. Those on the spire extend from suture to suture and are about the same width as the interspaces. Ribs on the body whorl average 15 (range 11 to 20), are not as closely spaced as those on upper whorls, and extend from the suture to just below the periphery, except that those near the aperture extend only to the periphery. Periphery somewhat angulated. Faint axial ridges sometimes apparent below periphery, extending between ends of ribs of body whorl. Outer lip often thickened so as to obliterate one or more ribs. Spiral striae usually distinct between ribs.



Text-Fig. 2. Egg capsules of (a) *Anachis avara,* (b) *Anachis translirata,* and (c) *Anachis floridana.* Scale line equals 1.5 mm.

The first spiral stria following the suture is the widest, uually the most deeply impressed, and crosses the ribs, producing the subsutural nodules that are the distinctive shell character of the species. Other striae may or may not cross ribs, giving a more or less cancellate appearance; the first two post-larval whorls in particular are often beaded. Spiral striae least impressed at periphery. Below periphery, spiral striae are deeply impressed and form the dominant shell sculpture; they produce weak beading as they cross the axial ribs and ridges. Aperture elliptical. Outer lip thin or thick, recurved anteriorly to form a short siphonal canal. When the lip is thickened it is recurved posteriorly into an anal notch. Teeth may be present on outer lip when it is thickened, and range from three to nine (average 6) in number, often indistinct, the largest posterior. Parietal callus, when present, is narrow, sharp-edged, and bears a number of teeth, which are the ends of the spiral striae. Columella is smooth. Shell is dull, color varying from straw-yellow to chestnut-brown, often with spiral streaks of white, especially at subsutural knobs and angulation of periphery, emphasizing these characters. Juveniles are without thickened lip or callus, and with the periphery sharply angulated.

Operculum elliptical, concentric, with eccentric nucleus.

The radula is rachiglossan; the median tooth is a flat plate; the lateral tooth has three cusps, with the proximal one rounded (Text-fig. 1b).

Pigmentation of head and foot similar to that of *A. avara* (*q.v.*), except that the white posterodorsal tip of the foot is small and grades into the mottling of the rest of the foot.

Egg capsule volcano-shaped, ringed by sculpture of concentric ridges, with one ridge more pronounced than the rest (Text-fig. 2b).

Remarks. The shell of *A. translirata* is differentiated from that of *A. avara* by its usually more flattened whorls and greater height, and by the spiral subsutural stria that crosses the axial ribs and is the widest stria. (This stria may not be evident on all whorls, especially on an eroded or fouled specimen.) In *avara,* the spiral striae are usually not as pronounced and do not cross the ribs. The ribs of the first two post-larval whorls of *avara* are therefore smooth, whereas those of *translirata* are beaded. Juveniles of the two species are easily distinguished by the difference in width-length ratio, which is less variable in juveniles and therefore more obvious, and by the shape of the body whorl, which is sharply angulated in *translirata* but rounded in *avara* (Pl. 1, figs. 5, 6). The posterodorsal tip of the foot and the egg case of each species

also serve to differentiate them. The lateral teeth of the radulae have one small consistent difference between the two species: in *avara* the proximal cusp bears a denticle; in *translirata* it is rounded (Text-figs. 1a, b).

The Pliocene fossil figured as *Anachis (Costoanachis) avara translirata* (Ravenel) by Gardner (1948, pl. 30, figs. 36, 37) is probably not this species.

Habitat and distribution. This species lives on shelly bottoms, rocks, pilings, or other firm substratum, from below mean low water to 48 fathoms, from Cape Cod Bay and Georges Bank south to Florida (see Table 1). It is very common subtidally in New England, where it can also be found in beds of eel grass with *A. avara.*

Specimens examined. The entire collections of *translirata* of the MCZ and the USNM were examined. Shell measurements and descriptions are based on specimens from the following localities:

Nobska Point, Woods Hole, Mass.	
(Scheltema collection)	19 (living)
Quicks Hole, Mass.	
(Scheltema collection)	54 (29 living)
Sullivans Island, S.C. (MCZ 260887)	34
Hadley Harbor, Mass. (R. Parker collection)	30
Wellfleet, Mass. (MCZ 19372)	32
Beaufort, N.C. (MCZ 256848)	1 (living)

Radulae were examined from four of the specimens taken from Quicks Hole. Descriptions of the pigmentation of the head-foot are based on the 19 specimens from Nobska Point.

ANACHIS AVARA (Say)

Plate 1, figs. 3-5, 7-10; Text-figs. 1a, 2a, 3 and 4; Table 1

Colombella [sic] avara Say 1822, Jour. Acad. Nat. Sci. Philadelphia **2**: 230 (no fig.) ("coast of the southern states"). [Lectotype, here selected, Academy of Natural Sciences of Philadelphia No. 16887, *ex* Mrs. Say's collection, "Florida."] *Non C. avara* Duclos 1840, Histoire Naturelle Coquilles Univalves Marines, pl. 1, figs. 1, 2.

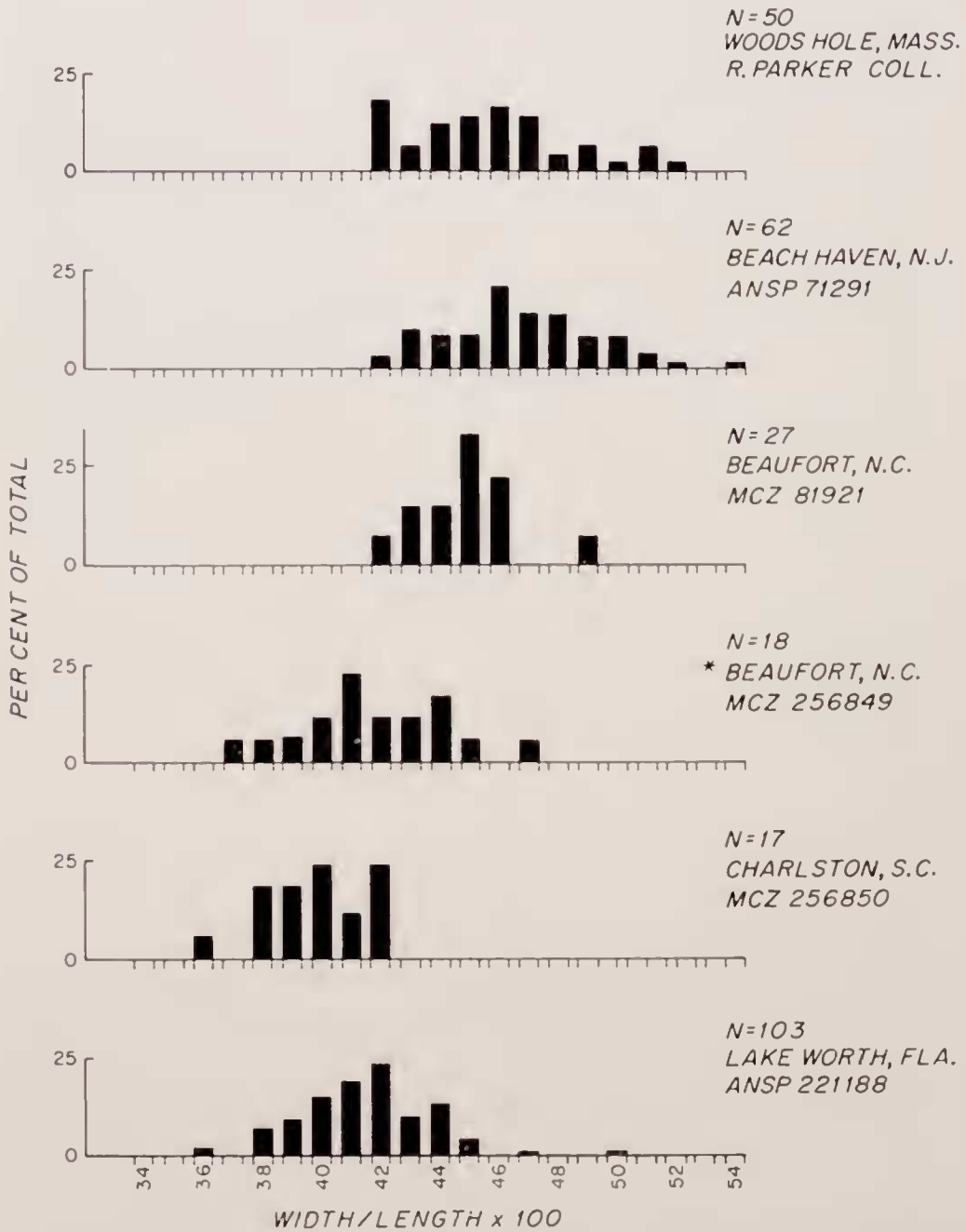
Columbella avara Say. Gould 1841, Invertebrata of Massachusetts, pp. 313-314 (in part, not fig. 197); DeKay 1843, Natural History of New York **5**, Mollusca: 139-140, pl. 8, fig. 179.

Amycla (Astyris) avara (Say). H. and A. Adams 1858, Genera of Recent Molluscs **1**: 187.

Anachis avara (Say). Perkins 1869, Proc. Boston Soc. Nat. Hist. 1869-1871, **13**: 113 (in part).

Anachis avara 'Perkins.' Verrill 1873, Rept. U.S. Comm. Fish and Fisheries 1871-1872: 643-644 (no fig.).

Anachis similis (Ravenel). Verrill 1873, Rept. U.S. Comm. Fish and Fisheries 1871-1872: pl. 21, fig. 109 (fig. only, not description pp. 644-645).



Text-Fig. 3. Frequency distribution of width to length ratios of *Anachis avara* from selected localities between Massachusetts and Florida (expressed in percentage). N is sample size. Larvae were reared from the Beaufort, North Carolina, population indicated by an asterisk.

Anachis avara translirata (Ravenel). M. Smith 1945, East Coast Marine Shells, p. 119, pl. 46, fig. 23.

Anachis translirata (Ravenel). Abbott 1954, American Seashells, pl. 25, fig. ff (fig. only).

Description. Shell variable, elevated, conical, whorls slightly ventricose and ribbed. Height to 14.5 mm, width to 6.3 mm, median range in height 10.5 to 12.0 mm. Width-length ratio ranges from 0.37 to 0.56; the more slender shells (ratio less than 0.42) occur in populations south of Cape Hatteras (Pl. 1, figs. 7, 8, 9). Aperture about one-half total height of shell, slightly less in slender shells, slightly more in broad shells. Larval whorls (protoconch) three, smooth, rounded, and translucent. Post-larval whorls six to eight, with variable sculpture. Suture indented. Axial ribs on first two or three post-larval whorls; very rarely absent. Succeeding whorls ribbed (Pl. 1, fig. 3) or smooth (Pl. 1, figs. 4, 7, 8, 9). Ribs present on body whorls straight or curved, highest at the periphery; however, those near the lip disappear above the periphery. Outer lip often thickened so as to obliterate one or more ribs. Ribs on body whorl range in number from 7 to 21; populations north of Cape Hatteras range from 10 to 21 (Pl. 1, figs. 4, 10), those south of Cape Hatteras from 7 to 14 (Pl. 1, figs. 7, 8, 9). Ribs heaviest on shells from southern populations. Spiral striae faint to strong, but not crossing ribs, and strongly impressed below periphery. Aperture elliptical, wider in northern populations than in southern. Outer lip thin or thick, recurved anteriorly to form a short, slightly recurved siphonal canal; when lip is thickened, it is recurved posteriorly into an anal notch. Teeth often present on outer lip if it is thickened, and range from 4 to 12 (average 8 or 9) in number. Largest tooth usually penultimate one before anal notch. Parietal callus, when present, is narrow and sharp-edged, and bears a number of teeth, which are the ends of spiral striae. The columella is smooth. Juveniles (Pl. 1, fig. 5) without thickened lip or parietal callus, body whorl with or without ribs. Shell color varying from straw-yellow to chestnut-brown, and usually with conspicuous white round or elliptical mottlings, although these may be lacking (Pl. 1, fig. 4) in some populations; ribs of body whorl often tipped with white at suture. Shell may be dull or lustrous.

Operculum elliptical, concentric, with eccentric nucleus.

The radula is rachiglossan; the median tooth is a flat plate; the lateral tooth has three cusps, the proximal one ending in a sharp denticle (Text-fig. 1a).

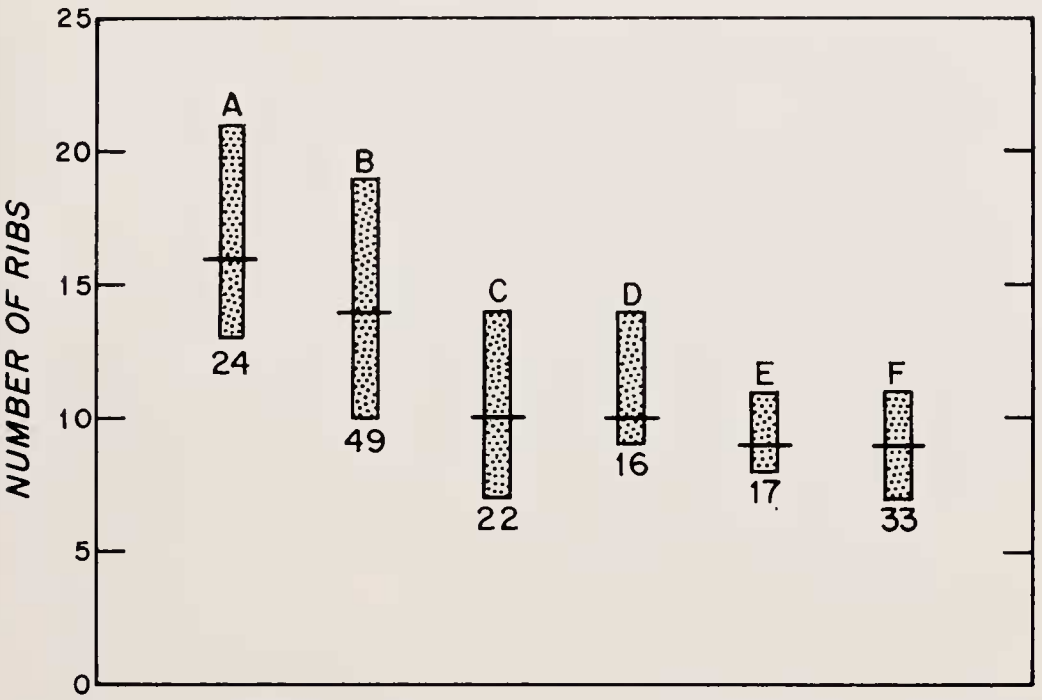
Head and foot are mottled black and white. Tentacle and siphon tips are white, and usually have a black stripe around them. The anterodorsal part of the foot has two large white spots; the posterodorsal tip of the foot is white, and is sharply demarcated from the mottling of the rest of the foot.

Egg capsule volcano-shaped, sculptured by fine striae running from base to apex (Text-fig. 2a).

Remarks. (See also remarks under *A. translirata.*) Northern and southern populations of *A. avara* are sufficiently different (Pl. 1, figs. 4, 7) in shell character to warrant investigating the possibility of the existence of subspecies. A number of populations from throughout the range of *avara* (listed below under *Specimens examined*) were examined in detail to determine whether there is any basis for differentiating subspecies by shell characters alone. Lengths and widths of about 440 shells were measured, and ribs on the body whorl and teeth on the outer lip were counted. Shell color, thickness, luster, and number of post-larval whorls were noted. Width to length ratios and rib numbers show an essentially clinal change north to south, from short, broad shells with many ribs to tall, slender ones with few ribs (Text-figs. 3, 4). The more slender shells may have an extra whorl. The numbers of teeth seem to bear no relationship to other shell characters; for example, the range is 4 to 12 in the population from Hadley Harbor, Massachusetts, and 7 to 11 in one from Beaufort, North Carolina. Shells with high luster are in collections from Delaware Bay, Chincoteague Bay, and Lake Worth. The thinnest, darkest colored shells occur from New Jersey northward. As in many shelled mollusks of the eastern United States, the largest shells are from Chincoteague Bay.

These data on shell characters do not provide sufficient evidence for differentiating subspecies. Also, the length of larval life (up to 5 weeks in the laboratory) is long enough for the larvae to be dispersed over considerable distances, making genetic interchange likely between local populations. That the slenderest, heaviest shells and fewest specimens are from South Carolina, Georgia, and Florida (see Table 1) may be a reflection of greater isolation of populations, for suitable habitats (see below) may be separated by vast stretches of sand banks and large backwater areas with black, sulfurous muds bordered by marsh grass.

Two shells from southern localities (the paralectotype from "Florida" [Pl. 1, fig. 3] and a single shell from Sullivan's Island, South Carolina) have the shape and rib count of northern shells. They may have been collected from the ocean side of the outer



Text-Fig. 4. Range in rib number on body whorl of *Anachis avara* from selected localities between Massachusetts and Florida. Means are indicated by horizontal lines; sample sizes by numbers under the vertical bars. Those individuals with body whorl incompletely ribbed are not included. Letters above bars refer to locality: A, Woods Hole, Mass. (MCZ 203663); B-F as in Text-Fig. 3: B, Beach Haven; C and D, Beaufort; E, Charleston; F, Lake Worth.

sand banks, rather than from the embayments from which most of the *avara* collections south of Cape Hatteras have been made.

Habitat and distribution. A. avara is found chiefly in eel grass; it is also common below mean low water on a variety of firm substrata, often with *translirata.* It is distributed along the entire coast from Massachusetts Bay and Nantucket Island to Lower Matecumbe Key, Florida (Table 1). It is chiefly subtidal, but has been taken from the following depths: Massachusetts Bay, 5 fathoms; Chesapeake Bay, 25 fathoms; off Cape Charles, 10 fathoms; off Beaufort, N.C., 9 fathoms; off Cape Kennedy (Canaveral), 10 fathoms.

Specimens examined. The entire collections of *avara* in the MCZ, USNM, and ANSP were examined. The descriptions are based on specimens from the following localities:

Gunning Point, Woods Hole, Mass.
(Scheltema collection) 12 (living)

Nobska Point, Woods Hole, Mass. (Scheltema collection)	2 (living)
Beaufort, N.C. (MCZ 256849)	20 (living)
Hadley Harbor, Woods Hole, Mass. (R. Parker collection)	50
Woods Hole, Mass. (MCZ 203663)	24
Beach Haven, N.J. (ANSP 71291)	85
Barnegat Bay, N.J. (ANSP 106708)	23
Delaware Bay, Cape May, N.J. (ANSP 182645)	8
Delaware Bay, Little Creek, Del. (MCZ 198032)	13
Chincoteague Bay, Va. (MCZ 197795)	6
Beaufort, N.C. (MCZ 81921)	27
Beaufort, N.C. (ANSP 145680)	21
Charleston, S.C. (MCZ 256850)	17
St. Augustine, Fla. (USNM 416015)	17
St. Augustine, Fla. (ANSP 140800)	8
Lake Worth, Fla. (ANSP 221188)	107

Radulae of three specimens from Gunning Point, two from Beaufort, N.C., and one from Lake Worth, Fla. (ANSP 221188), were examined.

NOTES ON RELATED SPECIES

The following remarks on some other western Atlantic species of *Anachis* are offered as notes. Anatomical studies, such as those of Marcus and Marcus (1962, 1964) on Brazilian Columbellidae, are greatly needed for species along the entire coast and Gulf of Mexico.

ANACHIS SIMILIS (Ravenel)

Columbella similis Ravenel 1861, Proc. Acad. Nat. Sci. Philadelphia 1861: 41-42 (no fig.) ("common on the coasts of North and South Carolina").

No type material has been found (see footnote 3 under *A. translirata*), and it is impossible from the description to know precisely to what species Ravenel was referring. The description fits juvenile *A. avara* as well as a number of small species of Columbellidae. Probably the small, ribbed columbellid common in shallow water in western Florida should not be referred to *A. similis* (e.g., Perry and Schwengel, 1955). Gardner (1948) has figured a fossil *A. avara similis* (Ravenel) that is too large to fit Ravenel's description.

Anachis similis (Ravenel) should be considered a *nomen dubium*.

ANACHIS SEMIPLICATA Stearns

Plate 1, figure 13

Anachis semiplicata Stearns 1873, Proc. Acad. Nat. Sci. Philadelphia 1873; 344-347, 4 text-figs. (west coast of Florida); Perry and Schwengel 1955, Marine Shells of the Western Coast of Florida, p. 159, pl. 51, fig. 345 (egg capsules); *non avara semiplicata* 'Stearns' of various authors (western and northern Gulf of Mexico).

This appears to be a valid species that is endemic to southwestern Florida. The shell is higher and narrower (average width to length ratio 0.36, 20 specimens from ANSP 221189) than that of *avara* and either lacks spiral striae or has only very faint ones; the egg capsules, as described by Perry and Schwengel (1955), seem to be different from those of *avara,* although unfortunately the figure is not clear. In addition, the juvenile shells are more elongate than those of juvenile *avara.* The radula has not been studied.

The northern and western Gulf of Mexico species of *Anachis* found on jetties, pilings, and oyster beds (Pl. 1, fig. 12) does not appear to be *A. semiplicata* (e.g., Puffer and Emerson, 1953; Pulley, 1952). It most closely resembles Beaufort, N.C., populations of *avara,* but is smaller (median range in length, 9.1-10.0 mm, 29 specimens from USNM 606003). The lateral radular tooth (1 specimen examined) is the same as that of *avara.* The status of this species is not at all clear; it may possibly be a relic population (see Deevey, 1950) of *avara* now differentiated at either a specific or subspecific level, or it may have affinities with populations of *Anachis* sp. to the south (see Weisbord, 1962: 313-315). Abbott (1954) has included both this species and *A. semiplicata* in his range for *avara.*

ANACHIS FLORIDANA Rehder

Plate 1, figure 11; Text-figure 2c

Anachis floridana Rehder 1939, Nautilus **53** (1): 20, pl. 6, fig. 6 (near Cape Canaveral, Brevard County, Florida, in 30 feet of water; USNM 473202).

This species differs from *A. avara* in having a smooth rather than an indented suture and flattened whorls lacking spiral striae. Egg capsules obtained from animals held in the laboratory most closely resemble those of *A. brasiliana* (Marcus and Marcus, 1962). The lateral radular tooth (1 specimen examined) is similar to that of *A. translirata* and lacks the pointed denticle on the proximal cusp of *avara.*

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TABLE 1

Distributions of *Anachis avara* (Say) and *Anachis translirata* (Ravenel) based upon collections of the U.S. National Museum (U), Museum of Comparative Zoology (M), Academy of Natural Sciences of Philadelphia (A), and the author's (S).*

Locality or Region	*Collection*	*Anachis avara*	*Anachis translirata* *Inshore*	*Offshore*
? Maine — Grand Manan Island	U	+	+	
off Georges Bank (1 juvenile, dredged)	M			45 fms
Massachusetts				
Boston	A	+		
Cape Cod Bay — Duxbury	M, U	+(U)	+(M)	
off Wellfleet (dredged)	M	5 fms	5 fms	
Cape Cod, all shores (numerous localities)	U, M, S	+	+	
Nantucket (several localities)	U, M	+	+	
Martha's Vineyard (several localities)	U, M	+	+	
off Gay Head (dredged)	U		+	
Vineyard Sound (dredged)	U	+	+	
Buzzards Bay (dredged)	U	7 fms	7 fms	
Shores of Buzzards Bay (numerous localities)	U, M, S	+	+	
Elizabeth Is. (dredged)	S	+	+	

* Specimens from inshore that were obviously dead when collected are not included. A few "dead" or "drilled" specimens from offshore, so noted, are listed. *Anachis avara* has been collected only from inshore localities.

Locality or Region	*Collection*	*Anachis avara*	*Anachis translirata* *Inshore*	*Offshore*
Rhode Island				
Sakonnett Pt.	M	+	+	
Narragansett Bay (dredged, several localities)	U		8-19 fms	
Bristol	M	+	+	
Westerly	U, M	+	+	
Connecticut and New York				
Stonington	U		+	
off Fisher's Is. (dredged)	M		+	
Long Island — Montauk Pt.	U	+	+	
Greenport	U	+	+	
Peconic Bay (? dredged)	U		+	
Long Island Sound (? dredged)	U		+	
New Haven	U	+	+	
New Jersey and Delaware				
Atlantic City	U	+		
Spray Beach	M	+		
Barnegat Bay	U, A	+		
Beach Haven	A	+		
Cape May	U		+	
off Cape May (dredged)	U		+	
Delaware Bay — Cape May	A	+		
Little Creek	M	+		
Maryland and Virginia				
Chincoteague	U, M, A	+		
Smith Is. (Va.)	U	+		
Isaacs	U	+		
off Cape Charles	U	10 fms		
off Cape Henry	U	4½ fms		
Chesapeake Bay (dredged, several localities)	U	4-25 fms	12 fms	
35 mi. east of Wallops Is. (shell drilled)	M			18 fms
North Carolina				
48 mi. East of Currituck Sd. ("dead" shell)	M			18 fms
23 mi. east of Currituck Sd. ("dead" shell)	M			18 fms
27 mi. east of Pamlico Sd.	M			24 fms
off Cape Hatteras	U			13, 16, 48 fms
Cape Hatteras Pt.	U		+	

Locality or Region	*Collection*	*Anachis avara*	*Anachis translirata*	
			Inshore	*Offshore*
Cape Lookout	U	+		
Shackleford Is., Sound shore	M	+		
Beaufort region (several localities)	M, U, A, S	+	+	
off New River	U	+	+	
South Carolina				
Pawleys Is.	M	+		
Winyah Bay (mouth)	U	+		
Sullivans Is.	M	+	+	
Charleston	M	+	+	
Cooper R.	M	+		
Ashley R. (dredged)	M	+		
Beaufort	U	+		
off Beaufort	U	6-9 fms		
Georgia				
Tybee	U	+		
St. Simons	U	+		
Florida				
St. Augustine	A, U	+		
off Cape Canaveral (Kennedy)	U	10 fms		
Lake Worth	A	+		
off Lake Worth (drilled shells)	M			83-92 fms
Waveland, Dade Co.	U	+	+	
Lower Matecumbe Key	U	+		
15-35 mi. off Ft. Walton	M			13-19 fms

Plate 1

FIGS. 1 and 2: *Anachis translirata* (Ravenel), Sullivans Island, South Carolina. MCZ 260887.

FIG. 3: *Anachis avara* (Say), paralectotype, "Florida." ANSP 306058. Note the similarity to the northern form shown in Fig. 4.

FIG. 4: *A. avara*, Wellfleet, Massachusetts. MCZ 19372.

FIG. 5: *A. avara*, juvenile, Woods Hole, Massachusetts.

FIG. 6: *A. translirata*, juvenile, Woods Hole, Massachusetts.

FIG. 7: *A. avara*, Lake Worth, Florida. ANSP 221188.

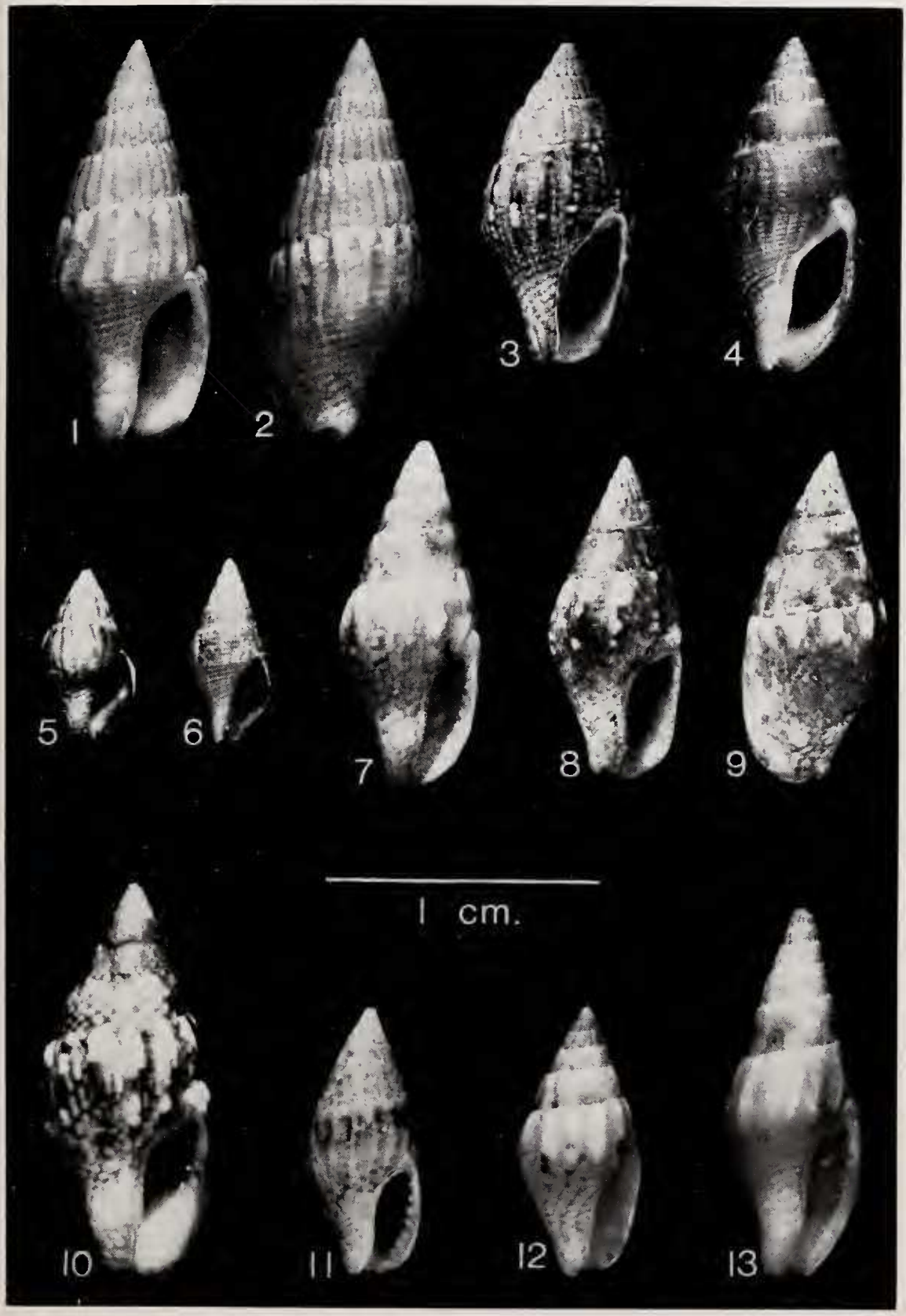
FIGS. 8 and 9: *Anachis avara* (Say), lectotype, "Florida." ANSP 16887.

FIG. 10: *A. avara*, Chincoteague, Virginia. MCZ 197795.

FIG. 11: *Anachis floridana* Rehder, Matanzas Inlet, Florida.

FIG. 12: *Anachis* sp., Aransas Bay, Texas. USNM 606003.

FIG. 13: *Anachis semiplicata* Stearns, Venice Bay, Florida. ANSP 221189.


1
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1 cm.
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