An Annotated List of the Marine Mollusks of Ascension Island, South Atlantic Ocean

JOSEPH ROSEWATER

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ABSTRACT

Rosewater, Joseph. An Annotated List of the Marine Mollusks of Ascension Island, South Atlantic Ocean. *Smithsonian Contribution to Zoology,* number 189, 41 pages, 24 figures, 3 tables, 1975.—Eighty-nine marine mollusks of Ascension are identified and short synonymies, distributional information, and remarks concerning their morphology, relationships, and zoogeography are given. Comparisons are made between the molluscan faunas of St. Helena and Ascension, overall findings showing that species of both islands are derived in similar proportions from the various other world faunal areas. Species endemicity is many times greater on St. Helena than on Ascension, probably due in part to the considerably greater geological age of the former island.

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Joseph Rosewater

Introduction

Ascension in the tropical mid-South Atlantic (7°57'S; 14°22'W) is a young island compared to most nearby land masses. It is fairly well established that Ascension is of Pleistocene origin, and various estimates of its age range from ten thousand to over one million years, with volcanic activity probably having taken place in the past few hundred years (Wilson, 1963; Duffey, 1964; Atkins, et al., 1964). The nearest land mass, the island of St. Helena, is considerably older, probably dating from the Miocene. The geological youth of Ascension makes it of interest faunistically. The marine shallow-water invertebrates living there now must have arrived during the elapsed time since the emergence of the island's cooled volcanic substance. It is, therefore, a kind of laboratory on which one can study the effects of dispersal of marine animals by currents and other means and also the effects of isolation as they may be expressed in the evolution of distinct island species.

The mollusks of Ascension were first well enumerated by E. A. Smith (1890b) in a report which listed 42 species, of which 9 were from deep water and not properly characterized as shallow-water species. Little more has been written on the island except for the reports of Stearns (1893) and Packer (1968), which added virtually no new species to the fauna. Ekman (1953) practically ignored Ascension in his remarks on Atlantic island zoogeography because of lack of information; the same was true of Briggs (1966). In recent years the island has become more accessible. During World War II it was a refueling stop for transoceanic flights and most recently it has served as a missile tracking station. Some of its recent human inhabitants have collected marine animals, including mollusks, and the collection of one such person, Mrs. Kay M. Hutchfield, was sent to me for examination. In 1971 Dr. R. B. Manning visited Ascension and made an intensive collection of shallow-water marine invertebrates. These collections have been studied with some rather interesting results.

The information from the new collections of mollusks, when added to the previous records, results in more than a 100 percent increase in the number of species known to occur at Ascension (89:42). The question immediately arises as to whether these additional species arrived since the initial census by Smith (1890b)? This cannot be answered definitely, of course, although it is possible that some of the species are new arrivals and that this influx will continue, barring some catastrophic occurrence on the island. At least part of the increase may be due to more complete col-

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lections having been made most recently. A rounding of the figures of known species when compared with the supposed geologic age of the island, 100:1,000,000, respectively, yields a possible arrival rate for new immigrants of one each 10,000 years! If the age of the island is even twice that, it would mean one new species each 20,000 years, a really insignificant change when the totality of geologic time is imagined.

THE ASCENSION COLLECTIONS.—Mollusks reported on in this paper come mainly from two sources. The first is a collection sent to this museum by Mrs. K. M. Hutchfield, who for several years resided on Ascension and studied local natural history. Locality information accompanying Mrs. Hutchfield's collection consisted for the most part only of the island name. Mrs. Hutchfield also supplied information about the occurrence on Ascension of certain species not actually represented by specimens in the collections sent here. Where the latter are mentioned in the text, the following phrase, or some modification, is appended, "reported from Ascension by Mrs. K. M. Hutchfield (personal communication, 1972)."

The collections made on the island by R. B. Manning of the Department of Invertebrate Zoology, National Museum of Natural History, who visited Ascension in May 1971 for the purpose of collecting marine animals, especially crustacea, provide the second major source of Ascension

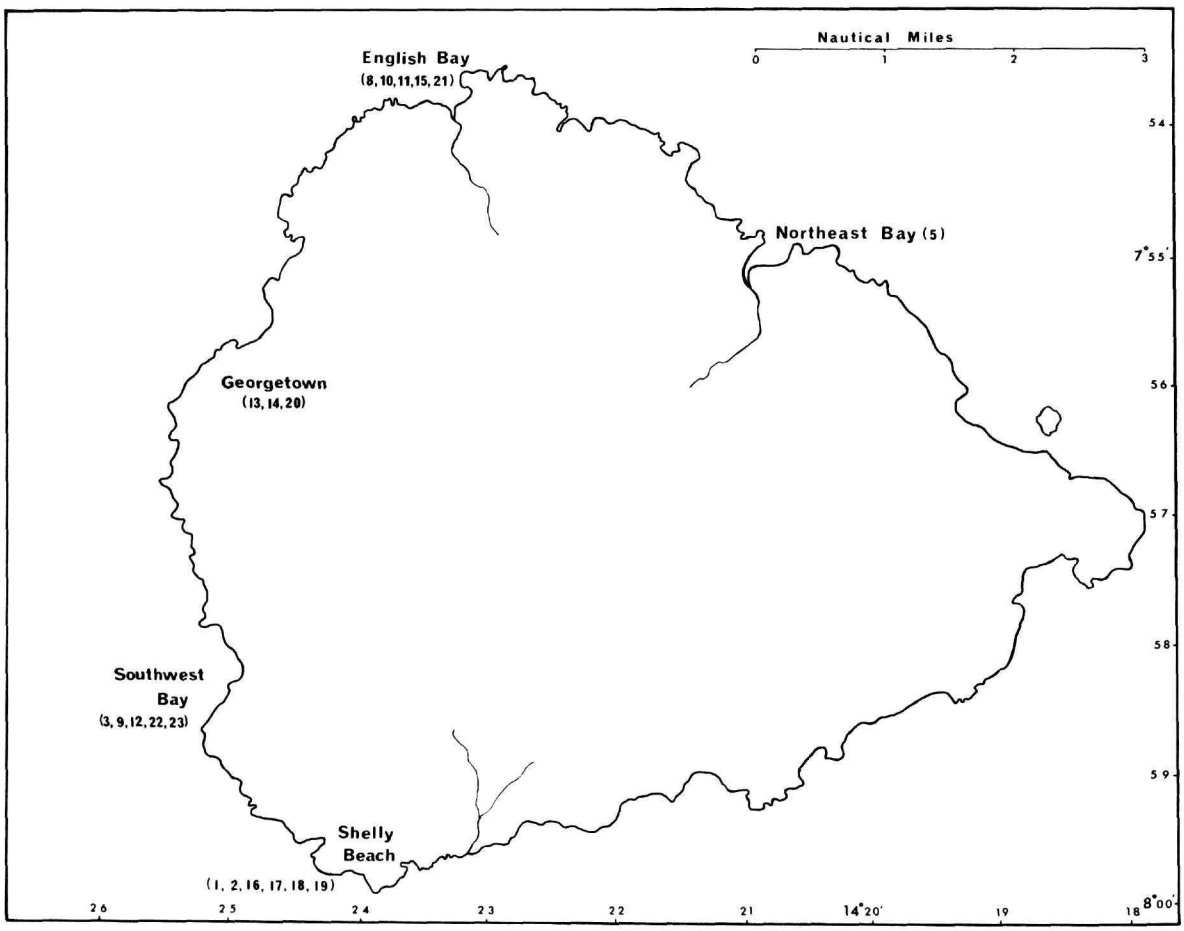

FIGURE 1.—Map of Ascension Island. Place names and numbers of stations where R. B. Manning collected mollusks are indicated.

mollusks. His collecting station numbers are recorded in the consideration of each species preceded by the letters ASC (=Ascension). A list of the stations at which Manning collected (18–25 May 1971) marine mollusks appears below (also see Figure 1):

ASC Station No.	*Description*
1	Inland tide pool number 1, Shelly Beach; water depth 18 inches
2	Inland tide pool number 2, Shelly Beach; water depth 18 inches
3	Beach and rocky point, northern edge South West Bay, Turtle Shell Beach
5	Beach and tide pools, North East Bay
8	Northern edge northernmost beach, English Bay; subtidal boulders and rocks
9	Northern edge South West Bay, Turtle Shell Beach; tide pool with sand bottom in lava flow area (see Station 3)
10	Rocky point, northern edge of English Bay, intertidal pools, subtidal rocky shore, some coarse sand (see number 8)
11	(Same as numbers 8, 10)
12	(Same as numbers 3, 9)
13	Rocky point off Fort Hayes, Georgetown; formalin washes of algae and worm tubes
14	Rocky flat, Cable and Wireless beach, near Collyer Point; dense algal mat
15	(Same as numbers 8, 10, 11); second tidepool from shore as well as more isolated tidepool
16	Shelly Beach; flat exposed at low tide; (same as numbers 1, 2)
17	Shelly Beach; inland tidepool number 1; (same as numbers 1, 2, 16)
18	Shelly Beach; tidepools at low tide, beach drift; (= 1, 2, 16, 17)
19	Shelly Beach; inland tidepool number 2; (= 1, 2, 16, 17, 18)
20	(Same as number 14)
21	(Same as numbers 8, 10, 11, 15)
22	(Same as numbers 3, 9)
23	(Same as numbers 3, 9, 22)

Other sources of Ascension mollusk information have been: the species reported by Smith (1881, 1890b); the several species reported by Stearns (1893), which in most cases are present in the collections of the National Museum of Natural History, under the catalog numbers of the United States National Museum (USNM), and have been available for study; other chance specimens from Ascension in the National Museum of Natural History; the species from Ascension in the Department of Mollusks, Museum of Comparative Zoology, Harvard University; the report of Packer (1968) and an abridged list from the same source (pers. comm., Packer, 1972).

FAUNAL RELATIONSHIPS OF ASCENSION MOLLUSKS.—In Table 1 there is given a list of the 89 species of Ascension mollusks reported on here. Asterisks (*) preceding names indicate the 43 species recorded from the island for the first time. Numbers in parentheses following names are station numbers of Manning's 1971 Ascension stations at which marine mollusks were collected (see preceding station list). It is difficult to see a correlation between locations of the stations on the island and any possible east-west recruitment of the species (see map).

An analysis of distributions of the 89 Ascension species through world marine faunal zones as shown in Table 1 yields the following results: 20 species (22%) occur also in the western Atlantic; 24 (27%) occur also in the eastern Atlantic; 19 (21%) occur also in *both* western and eastern Atlantic; 8 (nearly 9%) *may be* considered endemic; however, 4 of these occur offshore in deeper water and are among the 9 *Challenger* species considered by Smith (1890b) only questionably to belong to the Ascension fauna; 3 are Sowerby species (*Bullata robusta, Pecten keppelianus, Tellina ascensionis*), which may require verification; thus the list of indisputable endemics is narrowed to 1 subspecies, *Nerita ascensionis ascensionis*, already shown by Vermeij (1970) to exist as different subspecies on Fernando de Noronha and Trindade islands; 5 (nearly 6%) occur on Ascension and St. Helena islands only, and therefore may indicate some "mid Atlantic" endemicity; 37 (42%), including the 5 just mentioned, occur on Ascension and St. Helena, but also occur elsewhere; the common occurrence of so many species on these two islands probably indicates the influence of their proximity to each other, marine species apparently being more successful in colonizing a relatively nearby shore than a more distant one; 4 (4%) are pantropical, occurring in the eastern Pacific, Atlantic, and Indo-Pacific; 3 (3%) have distributions ranging from the eastern Pacific eastward to the eastern Atlantic.

When these data for Ascension are compared to the information known for St. Helena (Smith, 1890a), an interesting correlation becomes ap-

TABLE 1.—*Faunal affinities of Ascension mollusks* (asterisks denote new records; numbers in parentheses R. B. Manning's stations)

Ascension Island Mollusca	*East Pacific*	*West Atlantic*	*Ascension*	*St. Helena*	*East Atlantic*	*Indo-Pacific*
•*Scissurella juncunda* Smith (13)			X	X		
Fissurella nubecula (Linné) (5,13,14,15,16,18,19,21)			X		X	
•*Diodora gibberula* (Lamarck) (10,12,13,15,16,19,21)			X	X	X	
Basilissa oxytropis Watson			X			
•*Synaptocochlea picta* (d'Orbigny) (21)		X	X	X		
Nerita ascensionis Gmelin (3,5,10,11,12,13,16,18,21)			X			
Nodilittorina miliaris (Quoy and Gaimard) (1,2,3,5,8,12,13,16,18, 20,21)		X	X	X	X	
Rissoa triangularis Watson			X			
Cingula tenuisculpta (Watson)		X	X		X	
Alaba tervaricosa (C. B. Adams)		X	X			
Rissoina bryeria (Montagu) (5,15,19,21)		X	X	X		
•*Omalogyra atomus* (Philippi) (13)		X	X		X	
•cf. *Philippia* sp.			X			
Petaloconchus cf. *interliratus* Stearns			X		X	
Planaxis lineatus (DaCosta) (5,8,12,13,15,16,18,20,21,23)		X	X	X	X	
•*Triphora grimaldii* (Dautzenberg and Fischer) (15)			X		X	
•*Epitonium turritellulum* (Mörch)		X	X			
•*Janthina janthina* (Linné)	X	X	X	X	X	X
Eulima chyta Watson			X			
•*Eulima atlantica* Smith (13,15)			X	X		
•*Fossarus ambiguus* (Linné) (13,21)			X	X	X	
Strombus latus Gmelin			X		X	
Hipponix antiquatus (Linné) (5,11,15,16,18,21)	X	X	X	X	X	
•*Cheilea equestris* (Linné)	X?	X	X		X	X
Cypraea spurca Linné (12,15,18)		X	X	X	X	
Cypraea lurida Linné (16,18)			X	X	X	
•*Cypraea cinerea* Gmelin		X	X?			
•*Cypraea stercoraria* Linné			X		X	
•*Cypraea tigris* Linné			X?			X
•*Polinices lacteus* (Guilding) (10)		X	X	X	X	
•*Naticarius dillwyni* (Payraudeau)			X	X	X	
Cypraecassis testiculus senegalica (Gmelin) (18)			X	X	X	
•*Charonia variegata* (Lamarck)		X	X	X	X	
•*Cymatium nicobaricum* (Röding) (15)		X	X	X		
Septa pilearis (Linné)	X	X	X			X
Septa parthenopea (vonSalis)		X	X	X?	X	
Bursa corrugata (Perry) (18)	X	X	X	X	X	
•*Tonna galea* (Linné)		X	X		X	X
•*Murex florifer* Reeve		X	X	X		
Thais nodosa meretricula Röding (18)		X	X			
Thais rustica bicarinata (Blainville) (5,9,10,11,12,16,18,20,21)			X	X		
Mitrella ocellata (Gmelin) (5,8,11,12,13,14,15,16,18,20,21)		X	X	X	X	X
Pisania pusio (Linné) (16,18)		X	X			
•*Cantharus consanguineus* (Smith)			X	X		
•*Hinia sanctaehelenae* (A. Adams)			X	X		
Harpa doris Röding			X		X	
•*Marginella lavalleeana* (d'Orbigny) (13,15,19,21)		X	X		X	
Marginella dunkeri Krauss			X		X	
Marginella zonata Kiener			X		X	
Marginella capensis (Dunker)			X		X	
Bullata robusta (Sowerby)			X			
Mitra barbadensis (Gmelin) (16)		X	X			

TABLE 1.— (Continued)

Ascension Island Mollusca	East Pacific	West Atlantic	Ascension	St. Helena	East Atlantic	Indo-Pacific
**Apodosis novimundi* Pilsbry and McGinty (21)		X	X			
**Pedipes mirabilis* (vonMühlfeldt)		X	X			
Williamia gussoni (O. G. Costa)			X	X	X	
**Siphonaria picta* d'Orbigny (18)		X	X			
**Pyramidella dolabrata* (Linné)		X	X	X	X	
**Micromelo undatus* (Bruguière) (15)		X	X		X	
Cylichna cylindracea (Pennant)			X	X	X	
Retusa orycta Watson			X			
Haminea hydatis (Linné) (15,21)			X	X	X	
**Aplysia dactylomela* Rang (14,16)	X	X	X		X	X
**Pleurobranchus areolatus* Mörch (22)		X	X			
**Umbraculum mediterraneum* (Lamarck)			X	X	X	
Nuculana jeffreysi (Hidalgo)			X		X	
Arca noae bouvieri P. Fischer			X	X	X	
Arcopsis adamsi Dall (11,18)		X	X			
Acar domingensis (Lamarck) (5,8,10,11,12,13,15,18,21)		X	X	X	X	
Tetrarca tetragona (Poli)			X		X	
**Lithophaga bisulcata* (d'Orbigny) (13)		X	X	X		
**Malleus candeanus* (d'Orbigny)		X	X			
**Pinna rudis Linné* (English Bay)		X	X	X	X	
**Nodipecten nodosus* (Linné)		X	X		X	
Pecten keppelianus Sowerby			X?			
Spondylus senegalensis Schreibers (18)			X		X	
Spondylus imbutus Reeve			X?			
Saccostrea cucullata (Born) (5,18,21)			X		X	
Thyasira sp.			X			
**Codakia decussata* O. G. Costa (10,11,15,21)			X		X	
**Phacoides filosus* (Stimpson)		X	X?			
**Lasaea adansoni* (Gmelin) (13,17,21)	X	X	X	X	X	
**Pseudochama radians* (Lamarck) (13)		X	X	X	X	
Trigoniocardia medium (Linné)		X	X			
**Papyridea soleniformis* (Bruguière)		X	X		X	
**Tivela mactroides* (Born)		X	X			
Semele modesta (Reeve)		X	X	X	X	
Tellina ascensionis Sowerby			X			
Dentalium agile Sars		X	X		X	
Octopus vulgaris Cuvier (5,11,21,23)		X	X	X?	X	

parent. Approximately 14% of the marine mollusks of St. Helena are from the west and 14% are from the east; 5% occur in both east and west; 16% are pantropical; 51% are endemic. The faunal relationships of the two mid-Atlantic islands are roughly comparable as to the sources of their faunas, but there is a large discrepancy in the numbers of endemic species: 51% on St. Helena and only a maximum of 9% on Ascension.

The reason for the striking difference in endemicities may lie in the comparative ages of the two islands, that of St. Helena being of the order of 20 million years, while Ascension is only 1 to 2 million years old at most. This result, although still rather tentative, supports what probably would be predicted concerning endemicity in the two islands based on their ages. If long-term isolation allows genetic differentiation which engenders speciation, it should be more evident on St. Helena than it is on Ascension, and the figures substantiate this.

It is of interest to compare some of the preceding findings with pertinent information for marine fishes brought together by Cadenat and Marchal (1963), who list a total of 82 species for both As-

TABLE 2.—*Characteristics of spawn and larvae of Ascension mollusks*

Family	*Spawn*	*Larvae*
Scissurellidae	Gelatinous mass?	free swimming?
Fissurellidae	Gelatinous mass (Lebour, 1937)	free swimming (Lewis, 1960)
Trochidae	Gelatinous mass (Lebour, 1937)	free swimming and crawling (Lebour, 1937)
Stomatellidae	Gelatinous mass?	free swimming?
Neritidae	Attached capsules	free swimming and crawling
Littorinidae	Floating capsules; attached masses, ovoviviparous	free swimming, crawling, (Rosewater, 1970a)
Rissoidae	Attached capsules	free swimming (Purchon, 1968)
Omalogyridae	Attached capsules	crawling (Fretter and Graham, 1962)
Architectonicidae	Attached egg mass (Robertson, 1964, 1970)	free swimming (Robertson, 1964)
Vermetidae	Ovoviviparous	free swimming and crawling (Lewis, 1960)
Planaxidae	Ovoviviparous	free swimming and crawling (Thorson, 1940)
Triphoridae	Attached capsules	free swimming (Lebour, 1937)
Epitoniidae	Attached capsules	free swimming (Thorson, 1946)
Janthinidae	Masses of larvae released	free swimming larvae (Bayer, 1963)
Eulimidae	Attached capsules	free swimming (Lebour (1935)
Fossaridae	Unknown	Unknown
Strombidae	Egg strings (Robertson, 1959)	free swimming (Robertson, 1959; D'Asaro, 1965)
Hipponicidae	Attached capsules brooded	crawling (Yonge, 1953)
Calyptraeidae	Attached capsules brooded	crawling (Knudsen, 1950)
Cypraeidae	Attached capsules brooded	free swimming (Lebour, 1937)
Naticidae	Egg collars in sand	Pelagic (Purchon, 1968)
Cassidae	Attached capsules	Pelagic free swimming (Abbott, 1968)
Cymatiidae	Attached capsules (Anderson, 1960; Houbrick and Fretter, 1969)	Pelagic free swimming (Lebour, 1945)
Bursidae	Attached capsules brooded	Pelagic free swimming (D'Asaro, 1970)
Tonnidae	Gelatinous mass (Knudsen, 1950)	Pelagic (Turner, 1948)
Muricidae	Attached capsules	Both pelagic and crawling
Columbellidae	Attached capsules	Both pelagic and crawling
Buccinidae	Attached capsules	Crawling (Radwin and Chamberlin, 1973)
Nassariidae	Attached capsules	Pelagic (Purchon, 1968)
Harpidae	Attached capsules (Risbec, 1932)	Crawling?
Marginellidae	Attached capsules (personal observations)	Crawling (Radwin and Chamberlin, 1973)
Mitridae	Attached capsules (Chess and Rosenthal, 1971)	Pelagic
Ellobiidae	Eggs on substrate (Holle and Dineen, 1957)	Pelagic
Siphonariidae	Attached mass	Pelagic (Ostergaard, 1950)
Pyramidellidae	Attached capsules	Pelagic (Fretter and Graham, 1962)
Hydatinidae	Attached egg ribbon	Pelagic (Ostergaard, 1950)
Scaphandridae	Gelatinous mass	Pelagic (Ostergaard, 1950)
Atyidae	Egg string (Ostergaard, 1950)	Pelagic?
Retusidae	Egg string	Pelagic

TABLE 2.— (Continued)

Family	*Spawn*	*Larvae*
Aplysiidae	Attached egg strings	Pelagic (Ostergaard, 1950)
Umbraculidae	Gelatinous ribbon (Hartley, 1964; Ostergaard, 1950)	Pelagic
Pleurobranchidae	Egg string	Pelagic (Ostergaard, 1950)
Nuculidae	Gametes shed free in water; also, brood protection (Drew, 1899)	Pelagic
Arcidae	Gametes shed	Pelagic
Mytilidae	Gametes shed	Pelagic and nonpelagic (Thorson, 1946; Turner and Boss, 1962)
Malleidae	Gametes shed	Pelagic
Pinnidae	Gametes shed	Pelagic
Pectinidae	Gametes shed	Pelagic
Spondylidae	Gametes shed	Pelagic
Ostreidae	Gametes shed; or larvae brooded	Pelagic (Stenzel, 1971)
Thyasiridae	Gametes shed	Pelagic
Lucinidae	Gametes shed	Pelagic
Erycinidae	Ovoviviparous	Pelagic and nonpelagic (Lebour, 1938)
Chamidae	Gametes shed	Pelagic
Cardiidae	Gametes shed	Pelagic
Veneridae	Gametes shed; also brooded	Pelagic and nonpelagic
Semelidae	Gametes shed	Pelagic (Boss, 1972)
Tellinidae	Gametes shed	Pelagic (Boss, 1966)
Dentaliidae	Gametes shed	Pelagic (Purchon, 1968)
Octopodidae	Attached eggs	Pelagic

cension and St. Helena. A significant number, 20 (24.3%) of the fishes, are known only from the two islands collectively. Endemics of St. Helena number 12 (14.6%); they number 3 (3.6%) at Ascension. Proportions of endemicity are therefore much closer for the fishes of the two islands than for the mollusks, but, nevertheless, endemicity is still higher on St. Helena than on Ascension. The fishes also evidence faunal relationships roughly equally with the western and eastern Atlantic, with some preference for the former.

Regarding the origins of both the molluscan and fish faunas of Ascension, and also of St. Helena, which probably is compatible, the species seem not to have arrived predominantly from either east or west, but rather from both directions and include immigrants from other faunal zones as well.

RECRUITMENT OF THE FAUNA.—As shown above most of the mollusk species now living on Ascension occur elsewhere and probably originally arrived at the island at some time in the past through some means of dispersal. In the cases of those species having planktonic larvae it is generally conceded that ocean currents may transport them over varying distances, depending on length of larval life, flotation mechanisms, and many other variables. In an attempt to gain an understanding of how the species occurring at Ascension have been distributed, the general characteristics of spawn and larvae for each family have been listed in Table 2. While it is obvious that this specific information is not known for all Ascension species, a trend is at least indicated. With a very few exceptions free-swimming larvae probably occur in the life histories. The possible exceptions are Vermetidae and Planaxidae, which are known to be ovoviviparous, but whose living young may at some time be produced at a swimming stage, some Hipponicid and Calyptraeid limpets, Buccinidae, Harpidae (?), and Marginellidae, known to produce egg capsules from which the young crawl away, and some Ostreids and Erycinids that brood their young but that are known also to release them at free-swimming stages.

A few species with exceptionally wide ranges require special mention. *Janthina janthina* and *Aplysia dactylomela* are known to occur in all tropical seas of the world. They, of course, are pelagic with free-swimming larvae. *Septa pilearis, Bursa corrugata,* and *Tonna galea* also have extensive ranges extending into more than one ocean. The first and third are believed to have exceedingly long larval lives and the second probably does also. It is more difficult to explain the extensive distributions of species with crawl-away young like *Hipponix antiquatus* and *Cheilea equestris* and of the ovoviviparous bivalve *Lasaea*. The latter is known to frequent floating algae as is *Omalogyra*. Mollusks also commonly settle on other floating objects (Merrill, 1963, 1965, 1966). Transportation by rafting over long distances via ocean currents undoubtedly has distributed a number of mollusks, especially in their juvenile stages. The zoogeography of other species impossible to explain in any of the mentioned ways may be the result of ancient distributions during Tethyan times. A recently proposed explanation for some unusual distribution patterns in Crustacea involves continental drift (Chace and Manning, 1972). The papers of Scheltema (1968, 1971 a,b), in which North Atlantic drift, the westward-flowing north and south Equatorial currents, the eastward-flowing Equatorial Countercurrent and undercurrent are discussed, are considered to be especially pertinent in explaining Atlantic Ocean distributions. Brennan (1974) reviewed the information on ocean currents and their effect on the biogeography of the Galapagos Islands, an apparently more complex system than that affecting Ascension.

ACKNOWLEDGMENTS.—R. B. Manning arranged to have the collection of Mrs. K. M. Hutchfield sent for my examination. He also traveled to Ascension, where he obtained another excellent series of specimens that I used in the present study. Mrs. Hutchfield was helpful in sending additional information regarding the occurrence of certain species. R. M. Hannay and John E. Packer of the Ascension Historial Society provided information and an annotated copy of *The Ascension Handbook,* authored by the latter. K. J. Boss and R. D. Turner of the Museum of Comparative Zoology graciously allowed me to examine Ascension records in their care. Staff of the Departments of Vertebrate and Invertebrate Zoology and Paleobiology, National Museum of Natural History, offered helpful comments.

Annotated List

In the pages that follow, the species from Ascension are treated in the following way: the current name of each is given, followed by a synonymy, which contains the original and pertinent subsequent taxonomic references that explain the history of the name; whenever possible a figure reference is cited; previous Ascension locality citations, if any, are listed; the material that was available for study and upon which this report is based is detailed; for each group of specimens from a particular station, a representative length measurement is given to characterize the size; the known species distribution is then outlined, based on both museum records and reliable literature; any pertinent remarks are expressed. This information hopefully will allow subsequent identification of additional Ascension material.

It will be noted that certain entire classes of mollusks are missing from the fauna (see Table 3). These include Monoplacophora, Aplacophora, and Polyplacophora. The absence of the Monoplacophora is not surprising because it is known only from deep water, no species having been reported from less than abyssal depths. Such depths are present in the vicinity of Ascension, however, and

TABLE 3.—*Numbers of species of major groups of mollusks occurring on Ascension and St. Helena* (*M* = Monoplacophora, *A* = Aplacophora, *Py* = Polyplacophora, *Pr* = Prosobranchia, *O* = Opisthobranchia, *Pu* = Pulmonata, *Pa* = Palaeotaxodonta, *Pt* = Pteriomorphia, *H* = Heterodonta, *A* = Anomolodesmata, *S* = Scaphopoda, *C* = Cephalopoda)

Location	*M*	*A*	*Py*	*Pr*	*O*	*Pu*	*Pa*	*Pt*	*H*	*A*	*S*	*C*	*Totals*
Ascension	0	0	0	52	8	4	1	12	10	0	1	1	89
St. Helena	0	0	0	131	11	3	0	13	16	1	1	2	178

when they are investigated it would not be too surprising to find the group. It has been reported previously from the South Atlantic Ocean (Rosewater, 1970b). Aplacophora and Polyplacophora may be discovered when more intensive dredging is done in the vicinity of Ascension.

The authors and dates of families of mollusks are taken from the Treatise on Invertebrate Paleontology and from the Traitè de Zoologie (Rosewater, 1973); those for Retusidae and Pleurobranchidae are from Nordsieck (1972); the author and date for Octopodidae were cited in Young (1972:94).

The following abbreviations are used:

ASC = Ascension
MCZ = Museum of Comparative Zoology, Harvard University
ML = mantle length
NMNH = National Museum of Natural History, Smithsonian Institution
USNM = United States National Museum (used only with specimen numbers)

Class GASTROPODA

Subclass PROSOBRANCHIA

Order ARCHEOGASTROPODA

Family SCISSURELLIDAE Gray, 1847

Scissurella jucunda E. A. Smith, 1890

Scissurella jucunda E. A. Smith, 1890a:311, pl. 24: figs. 22, 22*a* [St. Helena, on floating seaweed].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—5 specimens (0.7 mm), ASC 13, R. B. Manning, May 1971.

DISTRIBUTION.—St. Helena and Ascension islands.

Family FISSURELLIDAE Fleming, 1822

Fissurella (Cremides) nubecula (Linné, 1758)

Patella nubecula Linné, 1758:785 [Mediterranean Sea].
Fissurella nubecula Linné.—Nicklès, 1950:37, fig. 9.
Fissurella (Cremides) nubecula Linné.—Nordsieck, 1968:13, pl. 2: fig. 05.00.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Packer (1968) (as *F.? rosea*).

PRESENT MATERIAL.—8 specimens (20 mm) Ascension, K. M. Hutchfield; 2 (9.6 mm) Sta ASC 5; many (14 mm) ASC 13; many (22.9 mm) ASC 14; 2 (7.4 mm) ASC 15; 11 (14 mm) ASC 16; 7 (27.2 mm) ASC 18; 1 (4 mm) ASC 19; 2 (8.2 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—The Mediterranean Sea and in the eastern Atlantic from the Bay of Biscay south to Cape of Good Hope, including the Cape Verde Islands (Nicklès, 1950); Ascension.

REMARKS.—Specimens listed as *Fissurella clenchi* Farfante from Ascension in Department of Mollusks, MCZ, are probably *F. nubecula.*

Diodora gibberula (Lamarck, 1822)

Fissurella gibberula Lamarck, 1822:15 [no locality given]; Reeve, 1850, vol. 6, pl. 16, species 118 [Mediterranean].
Diodora gibberula (Lamarck).—Nordsieck, 1968:13, pl. 2: fig. 04.02.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—3 (10.6 mm) Ascension, K. M. Hutchfield; 3 (12.2 mm) ASC 10; 3 (10.9 mm) ASC 12; 3 (8.7 mm) ASC 13; 11 (8 mm) ASC 15; 1 (10.3 mm) ASC 16; 8 (6 mm) ASC 19; 1 (4.2 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Southwest coast of Europe, Mediterranean, West Africa, and Atlantic islands (NMNH records; also Weinkauff, 1868), Ascension.

REMARKS.—Reported from St. Helena by E. A. Smith (1890a). Specimens from St. Helena collected by Turton, in the Jeffreys collection at the NMNH, are identical with some Ascension Island specimens collected by Manning (ASC 19). When this highly variable species is more completely studied there may be several different forms enumerated or some explanation developed for its variability.

Family TROCHIDAE Rafinesque, 1815

Basilissa oxytropis Watson, 1879

Basilissa oxytropis R. Boog Watson, 1879:693 [*Challenger* Sta 344, 3 April 1876, Ascension Island, 420 fms]; 1886:104, pl. 7: fig. 9.—Smith, 1890b:321.

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is in-

cluded here provisionally as an Ascension inhabitant (Smith, 1890b).

Family STOMATELLIDAE Gray, 1840

Synaptocochlea picta (d'Orbigny, 1842)

Stomatia picta d'Orbigny, 1842, pl. 24; figs. 19–21 [Cuba; name and figure only]; 1842–1853:184 [Cuba].
?*Gena asperulata* A. Adams.—E. A. Smith, 1890a:295 [St. Helena].
Synaptocochlea picta Orbigny [sic].—Warmke and Abbott, 1961:43, pl. 7*b*.

PREVIOUS ASCENSION RECORDS—None.

PRESENT MATERIAL.—2 specimens (2.7 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Florida, Bermuda, Cuba, Jamaica, Virgin Islands, Cayman Islands, Quintana Roo, Mexico, St. Helena?, Ascension.

REMARKS.—The description by E. A. Smith, (1890a,295) of the species he determined as *Gena asperulata* Adams, is of a species very similar to this one. He also states that his specimens were unlike Adams's type and therefore it is strongly suggested that *S. picta* occurs also on St. Helena.

Family NERITIDAE Rafinesque, 1815

Nerita (Theliostyla) ascensionis ascensionis Gmelin, 1791

FIGURE 2

Nerita ascensionis Gmelin, 1791:3683 [Ascension Island].—E. A. Smith, 1881:430; 1890b:321.—Melvill and Standen, 1907:152.
Nerita (Theliostyla) ascensionis ascensions Gmelin.—Vermeij, 1970:135.

PREVIOUS ASCENSION RECORDS.—Gmelin (1791), Smith (1881, 1890b), Stearns (1893), Packer (1968, as *N. fulgurans* Gmelin and *N. scabricostata* Lamarck), Vermeij (1970).

PRESENT MATERIAL.—15 specimens (30.8 mm) Sta ASC 3; 20 (19.2 mm) ASC 5; 4 (12 mm) ASC 10; 5 (1.6 mm) ASC 11; 30 (32.2 mm) ASC 12; 7 (26 mm) ASC 13; 4 (19.2 mm) ASC 16; 2 (16.4 mm) ASC 18; 1 (4 mm) ASC 21, R. B. Manning, May 1971; the NMNH also contains specimens collected on Ascension by Storrs Olson in 1970 and by Rennel Kirby-Smith in 1968, the latter presented by C. I. Aslakson.

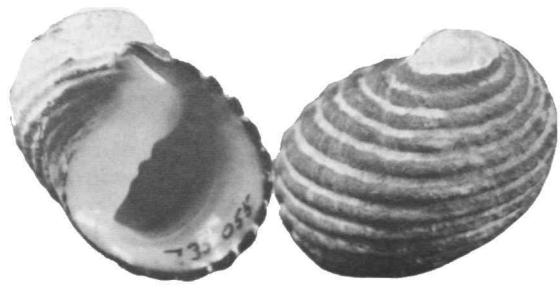

FIGURE 2.—*Nerita (Theliostyla) ascensionis ascensionis*: 35 mm length; Turtle Shell Beach, Southwest Bay, Ascension (ASC–12); USNM 735055.

DISTRIBUTION.—Ascension.

REMARKS.—Vermeij (1970) has shown that *N. ascensionis* sensu stricto is limited in its distribution to Ascension Island. Two other subspecies, *N. ascensionis deturpensis* Vermeij and *N. ascensionis trindadeensis* Vermeij, inhabit Fernando de Noronha and Trindade, respectively. This species is recorded from Ascension in the MCZ, Harvard University.

Order MESOGASTROPODA

Family LITTORINIDAE Gray, 1840

Nodilittorina (Granulilittorina) miliaris (Quoy and Gaimard, 1833)

FIGURE 3

Littorina miliaris Quoy and Gaimard, 1833:484, pl. 33: figs. 16–19 [Ascension].—E. A. Smith, 1890a:283, 1890b:319.
Tectarius miliaris Quoy and Gaimard.—Stearns, 1893:334.
Tectarius granosus Philippi.—Nicklès, 1950:49.
Echininus nodulosus (Pfeiffer).—Packer, 1968:58.
Nodolittorina [sic] *tuberculata* (Menke).—Packer, 1968:59.
Nodilittorina (Granulilittorina) miliaris (Quoy and Gaimard, 1833).—Rosewater, 1970a:424.—Vermeij, 1972:91, 93.

PREVIOUS ASCENSION RECORDS.—Quoy and Gaimard (1883), E. A. Smith (1890a,b), Stearns (1893), Packer (1968, but see synonymy above).

PRESENT MATERIAL.—3 specimens (10 mm) Ascension, K. M. Hutchfield; 1 (20 mm) ASC 1; 6 (17 mm) ASC 2; 8 (8.9 mm) ASC 3; 50+ (12.3 mm) ASC 5; 30+ (8.7 mm) ASC 8; 40+

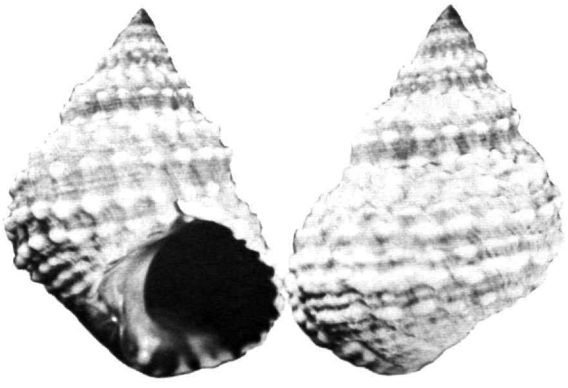

FIGURE 3.—*Nodilittorina* (*Granulilittorina*) *miliaris*: 15.2 mm length; Shelly Beach, Ascension (ASC-2); USNM 735019.

(12.0 mm) ASC 12; 18 (12.5 mm) ASC 13; 8 (10.4 mm) ASC 16; 19 (8.8 mm) ASC 18; 1 (3.1 mm) ASC 20; 20+ (8.6 mm) ASC 21; R. B. Manning, May 1971; the NMNH also contains specimens collected by Storrs Olson in 1970, and by Rennel Kirby-Smith in 1968, the latter presented by C. I. Aslakson.

DISTRIBUTION (based on USNM collections except where noted).—Canary Islands, Senegal (Vermeij, 1972), Liberia, Ghana (Vermeij, 1972), Dahomey, Spanish Guinea, Gabon, Ascension, St. Helena, Fernando de Noronha.

REMARKS.—The variations in shell morphology of this species are extreme as is true for many members of the family Littorinidae. As pointed out by Smith (1890a) there are transitional forms connecting the variants. This species is recorded from Ascension in the MCZ, Harvard University.

Family RISSOIDAE Gray, 1847

Subfamily RISSOINAE Gray, 1847

Rissoa (*Setia*) *triangularis* R. Boog Watson, 1886

Rissoa (*Setia*) *triangularis* R. Boog Watson, 1886:611, pl. 46: fig. 2 [*Challenger* Sta 344, Ascension Island, 420 fms].—Smith, E. A., 1890b:320.

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Cingula tenuisculpta (Watson, 1873)

Rissoa tenuisculpta R. Boog Watson, 1873:389, pl. 36: fig. 28 [Ponta de S Lourenço, 25–45 fms; Funchal Bay, up to 50 fms].—Watson, 1886:607 [*Challenger* Stas 24, N of Culebra, West Indies, 390 fms; and 344, Ascension Island, 420 fms].
Rissoa (*Setia*) *tenuisculpta* Watson.—Smith, 1890b:319.
Cingula tenuisculpta (Watson).—Nordsieck, 1968:46, pl. 7: fig. 26.42 [?] [Madeira, Algiers, etc.].

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Alaba tervaricosa (C. B. Adams, 1845)

Rissoa tervaricosa C. B. Adams, 1845:6 [Jamaica].—Clench and Turner, 1950:350, pl. 34: fig. 3 [lectotype figured].
Rissoa (?) *melanura* C. B. Adams, 1850:116 [Jamaica].
Alaba tervaricosa (C. B. Adams).—E. A. Smith, 1890b:320 [Ascension].

REMARKS.—This species is known from Ascension only through the report of Smith (1890b). As pointed out by C. B. Adams (1850) and also Clench and Turner (1950), its synonymy may include certain other species, the generic status of which are in doubt. More definite statements regarding the affinities of *A. tervaricosa* and its presence on Ascension must await the discovery of additional specimens from that island.

Subfamily RISSOININAE Stoliczka, 1898

Rissoina bryeria (Montagu, 1803)

Turbo bryereus Montagu, 1803:313, pl. 15: fig. 8 [Weymouth].
Rissoina bryerea Montagu.—Tryon, 1887:379, pl. 56: figs. 67, 71.—Warmke and Abbot, 1961:56, pl. 10*m* [Florida to Lesser Antilles].
Rissoina bryeria (Montagu).—Smith, 1890a:287 [St. Helena]; 1890b:319 [Ascension].

PREVIOUS ASCENSION RECORDS.—Smith (1890b).
PRESENT MATERIAL.—1 specimen (3.4 mm) ASC 5; 1 (3.5 mm) ASC 15; 1 (4.0 mm) ASC 19; 4 (3.6 mm) ASC 21, R. B. Manning, May 1971.
DISTRIBUTION.—Florida and the West Indies, St. Helena, Ascension.

Family OMALOGYRIDAE Sars, 1878

Omalogyra atomus (Philippi, 1841)

Truncatella atomus Philippi, 1841:54, pl. 5: fig. 4*a, b, c* [Sorrento, Italy].
Homalogyra atomus Philippi.—Tryon, 1887:399 [Europe].
Omalogyra atomus (Philippi).—Nordsieck, 1968:60.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—4 specimens (0.6 mm) ASC 13, R. B. Manning, May 1971.

DISTRIBUTION.—Europe, New England (Bullock, 1969; Moore, 1971), Ascension.

REMARKS.—*Omalogyra atomus* is usually found on algae which is transported widely by ocean currents. Its eventual appearance at Ascension was to be expected.

Family ARCHITECTONICIDAE Gray, 1850

Philippia sp.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen [lost!] Ascension, K. M. Hutchfield.

REMARKS.—It is unfortunate that this small specimen was lost before specific determination could be made, in view of the interesting distribution of some species of *Philippia* (Robertson, 1964; Scheltema, 1971a). Collectors on Ascension should be on the lookout for additional architectonicids to provide additional proof of their presence. Members of this family are said to occur in association with corals, this relationship perhaps serving as a limiting factor to their successful colonization of new localities (Robertson et al., 1970).

Family VERMETIDAE Rafinesque, 1815

Petaloconchus cf. *interliratus* Stearns, 1893

Petaloconchus cf. *interliratus* Stearns, 1893:333 [Porto Grande, St. Vincent, Cape Verde Islands].

PREVIOUS ASCENSION RECORDS.—Packer (1968: 59), as *Vermicularis*? sp.

PRESENT MATERIAL.—3 segments of coiled shell (36.6 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Tropical east Atlantic islands.

REMARKS.—The material is worn and reveals little concerning the identity of the species. Faint reticulated sculpture is visible externally; internally an elevated ridge or lamella follows the coiling. Final specific placement will await a monograph of the group.

Family PLANAXIDAE Gray, 1850

Planaxis lineatus (Da Costa, 1778)

Buccinum lineatum Da Costa, 1778:130, pl. 8: fig. 5 [Cornwall and the West Indies].
Planaxis lineatus Da Costa.—Smith, 1890b:319.—Stearns, 1893:333.

PREVIOUS ASCENSION RECORDS.—Smith (1890).

PRESENT MATERIAL.—3 specimens (4.6 mm) Ascension, K. M. Hutchfield; 75+ specimens (7.2 mm) ASC 5; 50+ (4.8 mm) ASC 8; 10 (5.9 mm) ASC 12; 17 (4.2 mm) ASC 13; 4 (5 mm) ASC 15; 2 (4.4 mm) ASC 16; 9 (4.6 mm) ASC 18; 44 (4.6 mm) ASC 20; 100 (5.5 mm) ASC 21; 1 (4.4 mm) ASC 23, R. B. Manning, May 1971.

DISTRIBUTION.—Bermuda, Florida, West Indies, Caribbean coast of Central America, Cape Verde Islands, St. Helena, Ascension.

REMARKS.—As pointed out by Nicklès (1950,61) a very similar appearing subspecies, *Planaxis lineatus herrmannseni* (Dunker), occurs on the mainland coast of Africa.

Family TRIPHORIDAE Gray, 1847

Triphora grimaldii (Dautzenberg and Fischer, 1906)

Triphoris grimaldii Dautzenberg and Fischer, 1906:41, pl. 3: figs. 9, 10 [Tenerife, 540 m; Ile de Boa Vista, Cap-Vert, 91 m].
Triphora grimaldii (Dautzenberg and Fischer).—Nordsieck, 1968:74.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (4.5 mm) ASC 15, R. B. Manning, May 1971.

DISTRIBUTION.—Tropical east Atlantic islands.

Family EPITONIIDAE Bronn, 1824

Epitonium (*Asperiscala*) *turritellulum* (Mörch, 1874)

Scala turritellula Mörch, 1874:264 [St. Martin].
Epitonium (Asperiscala) turritellulum Mörch.—Clench and Turner, 1952:298.

PREVIOUS ASCENSION RECORDS.—None.

DISTRIBUTION.—West Indies—Jamaica, Hispaniola, and St. Thomas (Clench and Turner, 1952).

REMARKS.—According to K. M. Hutchfield (pers. comm., 1972) this species was identified from her collections from Ascension Island.

Family JANTHINIDAE Leach, 1823

Janthina janthina (Linné, 1758)

Helix janthina Linné, 1758:772 [Europe, Asia, Africa, Mediterranean, pelagic].
Janthina janthina (Linné).—Laursen, 1953.—Nordsieck, 1968: 84.

PREVIOUS ASCENSION RECORDS.—None.

DISTRIBUTION.—World seas, pelagic.

REMARKS.—Smith (1890b:319) attributed a record of *Janthina globosa* Swainson to Lesson (*ubi?*). Mrs. K. M. Hutchfield (pers. comm.) reported *Janthina janthina* present on Ascension in the breeding colonies of the Sooty Tern and suggested that the birds may pick up the snails far at sea and carry them to shore as food. The birds may fly considerable distances and, therefore, it is possible that the violet snail does not naturally occur close to Ascension.

Family MELANELLIDAE Bartsch, 1917

Eulima chyta R. Boog Watson, 1883

Eulima chyta R. Boog Watson, 1883a:121 [*Challenger* sta 344, Ascension Island, 420 fms].—Watson, 1886:516, pl. 36: fig. 5.—E. A. Smith, 1890b:319.

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Eulima ?atlantica Smith, 1890

Eulima atlantica Smith, 1890a:278, pl. 23: fig. 25 [St. Helena].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (2.9 mm) ASC 13; 1 specimen (4.3 mm) ASC 15, R. B. Manning, May 1971.

DISTRIBUTION.—St. Helena and Ascension islands, South Atlantic Ocean.

REMARKS.—The present specimens are considerably shorter than the 7 ⅓ mm length mentioned by Smith in the original description. They are very similar to specimens from St. Helena deposited in the National Museum of Natural History by W. H. Turton in 1892, and which very probably are part of the material studied by Smith (i.e., paratypes).

Family FOSSARIDAE Troschel, 1861

Fossarus ambiguus (Linné, 1758)

Helix ambigua Linné, 1758:775 [Mediterranean].
Fossarus ambiguus Linné.—Nicklès, 1950:72, fig. 95 [Gulf of Gascony to Angola].—Nordsieck, 1968:93, fig. 52.10 [Mediterranean to Senegal].—Rios, 1970:54.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—19 specimens (2.6 mm) ASC 13; 6 specimens (3.2 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Gulf of Gascony and south through the Mediterranean to Angola, West Africa, Cape Verde and Canary islands, St. Helena (Smith 1890a), and Ascension; ?Fernando de Noronha Island and off Pernambuco; Ubatuba (Rios, 1970).

Family STROMBIDAE Rafinesque, 1815

Strombus latus Gmelin, 1791

FIGURE 4

Strombus latus Gmelin, 1791:3520 [no locality].—Abbott, 1960:122.
Strombus bubonius Lamarck.—E. A. Smith, 1890b:320 [Ascension].—Nicklès, 1950:76, fig. 106.

PREVIOUS ASCENSION RECORDS.—Smith (1890b).

PRESENT MATERIAL.—2 specimens (106.7 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Cape Verde Islands and West Coast of Africa from Rio de Oro to Angola (Nicklès, 1950); Ascension.

REMARKS.—This species is recorded from Ascension in the MCZ, Harvard University.

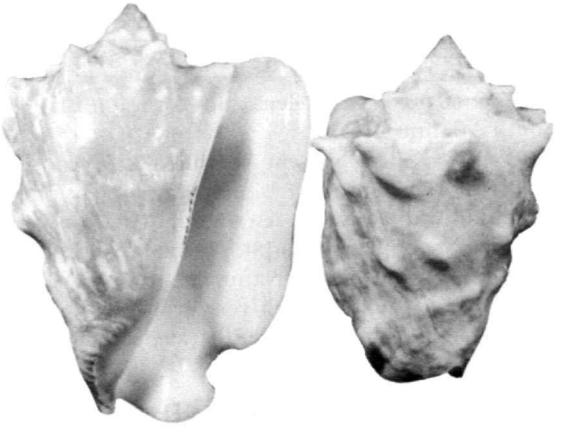

FIGURE 4.—*Strombus latus*: 94.4 mm length; Ascension; USNM 735700.

Family HIPPONICIDAE Troschel, 1861

Hipponix (Antisabia) antiquatus (Linné, 1767)

Patella antiquata Linné, 1767:1259 [no locality].
Hipponyx antiquata Linné.—E. A. Smith, 1881:430 [Ascension].
Hipponyx antiquatus Linné.—E. A. Smith, 1890a:293; 1890b: 320 [West Indies, Fernando Noronha, Trindade, St. Helena, Ascension].
Amalthea antiquata Linné.—Nicklès, 1950:72 [Senegal].
Hipponix antiquatus Linné.—Yonge, 1953; 1960 [eastern Pacific].—Warmke and Abbott, 1961:84 [southeast Florida and West Indies].—Packer, 1968:59 [Ascension].—Abbott, 1968a: 98 [eastern Pacific and western Atlantic].—Vermeij, 1972:91.
Antisabia antiquatus (Linnaeus).—Morrison, 1965:34.

PREVIOUS ASCENSION RECORDS.—E. A. Smith (1881, 1890a, b).

PRESENT MATERIAL.—3 specimens (9 mm) Ascension, K. M. Hutchfield; 11 specimens (9.5 mm) ASC 5; 6 (9.0 mm) ASC 11; 1 (2.6 mm) ASC 15; 1 (11 mm) ASC 16; 3 (11 mm) ASC 18; 4 (8 mm) ASC 21.

DISTRIBUTION.—Eastern Pacific, western and eastern Atlantic.

REMARKS.—The young of *Hipponix antiquatus* develop in egg capsules retained within the mantle cavity as shown by Yonge (1953, 1960). Although not observed by Yonge it is presumed that the fully developed young crawl away from the parent to settle and attach in a favorable spot. It is difficult in the absence of a swimming larva to explain the broad distribution of the species unless, and this may be the case, it has lived in the eastern Pacific and on both shores of the Atlantic, including the Atlantic islands, for a very long time. Morrison (personal communication) considers the western Atlantic population to be the true *H. antiquatus*, with eastern Pacific and eastern Atlantic elements appearing quite similar. Additional study may prove the latter to be distinct species or subspecies, but for the present they are here considered to belong to the same superspecies.

Family CALYPTRAEIDAE Blainville, 1824

Cheilea equestris (Linné, 1758)

Patella equestris Linné, 1758:780 [O. Indico].
Mitrularia dillwyni (Gray).—E. A. Smith, 1890b:320 [Ascension].
Cheila [sic] *equestris*, Packer, 1968 [Ascension].
Cheilea equestris Linné.—Abbott,, 1968a:98, figs. [southeastern Florida to Brazil].

DISTRIBUTION.—Cosmopolitan according to Nordsieck (1968:94), occurring in all major marine faunal zones except eastern Pacific. Keen (1971: 458) suggests that it may occur there also, known under the name *Cheilea cepacea* (Broderip). Cernohorsky (1972) reported it from the western Pacific.

REMARKS.—Although several literature records indicate the species occurs on Ascension, I have not yet seen specimens which would confirm its presence to my satisfaction.

Family CYPRAEIDAE Rafinesque, 1815

Cypraea spurca spurca Linné, 1958

Cypraea spurca Linne, 1758:724 ["Mare Mediterraneo"].—E. A. Smith 1881:430; 1890a:283; 1890b:319 [Ascension].—Packer, 1968:58.—Burgess, 1970:156, pl. 10: figs. J, K, L.
Erosaria (Ravitrona) spurca (Linné).—Nordsieck, 1968:100 [Mediterranean, St. Helena, West Indies].

PREVIOUS ASCENSION RECORDS.—E. A. Smith (1881, 1890a, b), Packer (1968), Burgess (1970).

PRESENT MATERIAL.—2 specimens (29.2 mm) Ascension, K. M. Hutchfield; 1 (28 mm) ASC 12; 3 (35.3 mm) ASC 15; 4 (35.8 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—Eastern Atlantic and Mediter-

ranean; in west Africa to Luanda, Angola; Atlantic islands.

REMARKS.—As pointed out by Burgess (1970) the western Atlantic populations of *C. spurca* characterized by a white base appear distinct and are considered to be a separate subspecies, *C. spurca acicularis* Gmelin. The nominate subspecies, *C. spurca spurca* Linné, inhabits the eastern Atlantic. It is characterized by a yellow to brown base, a more prominent labial callus, and more produced extremities than the western Atlantic subspecies. This species is recorded from Ascension in the MCZ, Harvard University.

Cypraea lurida Linné, 1758

Cypraea lurida Linné, 1758:720 ["M. Mediterraneo"].—E. A. Smith, 1881; 1890a:282; 1890b:319 [Ascension].—Packer [1968:58, as *C. lurida oceanica* Schilder].—Burgess, 1970:43, pl. 2: figs. E, E1.
Cypraea (Talparia) lurida Linné.—Nicklès, 1960:84.
Luria lurida (Linné).—Nordsieck, 1968:100.

PREVIOUS ASCENSION RECORDS.—E. A. Smith (1881, 1890a, b), Packer (1968).

PRESENT MATERIAL.—2 specimens (30.2 mm) Ascension, K. M. Hutchfield; 2 (36 mm) ASC 16; 2 (41.2 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—The Mediterranean; southward through west Africa to Luanda, Angola, including islands off the coast; Ascension and St. Helena (Burgess, 1970).

REMARKS.—*Cypraea lurida* appears to maintain constant shell morphology throughout its range, eliminating need for separation into subspecies on that basis. The name *C. lurida oceanica* Schilder apparently is an absolute synonym. This species is recorded from Ascension in the MCZ, Harvard University.

Cypraea cinerea Gmelin, 1791

Cypraea cinerea Gmelin, 1791:3402 [no locality].—Packer, 1968:58.—Burgess, 1970:39.

REMARKS.—This species is reported from Ascension by Packer (1968). Its range is given by Burgess (1970) as western Atlantic, from southern Florida and the Caribbean south to Bahia, Brazil, including Fernando de Noronha. With such a distribution its occurrence on Ascension would not be unusual, although creating a new record which must be verified.

Cypraea stercoraria Linné, 1758

Cypraea stercoraria Linné, 1758:719 [no locality given].—Burgess, 1970:239 [West Africa, near Dakar, Senegal, and the offshore islands to Luanda, Angola].

DISTRIBUTION.—Tropical West Africa.

REMARKS.—This species is found on Ascension according to K. M. Hutchfield (personal communication). It may be the *Cypraea*? sp. "to 2 ½ in." reported by Packer (1968). Burgess (1970) suggested collection information and shell morphology indicate a heavy surf habitat, which may explain why it is not collected more frequently.

Cypraea tigris Linné, 1758

Cypraea tigris Linné, 1758:721 [in Madagascar].

REMARKS.—*Cypraea tigris* Linné was found on Ascension according to K. M. Hutchfield (pers. comm.). It is a widespread Indo-Pacific species and a favorite of collectors. Its presence on Ascension may be advectitious.

Family NATICIDAE Swainson, Gray, 1840

Polinices lacteus (Guilding, 1834)

FIGURE 5

Naticina lactea Guilding, 1834:31 [Caribbean].
Natica lactea Guilding.—Tryon, 1886:49.
Natica (Polinices) porcellana d'Orbigny.—E. A. Smith, 1890a: 271 [St. Helena].
Polinices lacteus (Guilding).—Nordsieck, 1968:102 [Canaries, Madeira, West Indies, Brazil].—Nicklès, 1950:77, fig. 107 [as *Polynices*].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (23.1 mm) ASC 10, R. B. Manning, May 1971.

DISTRIBUTION.—Eastern and western Atlantic, and the Atlantic islands.

REMARKS.—It seems unusual that this species has not been reported from Ascension previously, since it occurs at St. Helena and in both eastern and western Atlantic. The specimen was alive when collected.

FIGURE 5.—*Polinices lacteus*: 23.1 mm length; English Bay, Ascension (ASC-10); USNM 735045.

Naticarius dillwyni (Payraudeau, 1826)

Natica dillwyni Payraudeau, 1826:120, pl. 5: figs. 27, 28 [Island of Corsica, France, Mediterranean Sea].—E. A. Smith 1890a:270 [St. Helena, Mediterranean; Mauritius and South Pacific islands?].
Naticarius dillwyni (Payraudeau), Nordsieck, 1968:105.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—2 specimens (7.8 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Mediterranean, and Atlantic islands.

REMARKS.—Following an examination of the extensive material resembling these specimens in the National Museum of Natural History, I am prone to agree with Smith (1890a) in considering West Indian and Indo-Pacific forms to be very similar. Further intensive study of these populations can be expected to show the nature of this species complex. The two Ascension specimens presently in hand are insufficient evidence upon which to base such a weighty conclusion. The specimens were collected dead.

Family CASSIDAE Latreille, 1825

Cypraecassis testiculus senegalica (Gmelin, 1791)

Buccinum senegalicum Gmelin, 1791: 3477 [Senegal].
Cassidea crumena Bruguière, 1792:428 [Ascension; based on Lister, 1770, pl. 1002: fig. 67].
Cassis testiculus var. [sic] E. A. Smith, 1890a:267 [St. Helena].
Cassis testiculus Linné var. *senegalica* Gmelin.—Nicklès, 1950: 85 [Cape Verde Islands, Senegal, Sao Thomé, Gabon, French Congo].
Cassis testiculus (Linn.).—Packer, 1968:58 [Ascension].
Cypraecassis testiculus subspecies *senegalica* (Gmelin, 1791).—Abbott, 1968b:72.

PREVIOUS ASCENSION RECORDS.—Lister (1770), Packer (1968).

PRESENT MATERIAL.—1 specimen (63+ mm, spire missing) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—West Africa from Senegal to Angola; Cape Verde, Ascension, and St. Helena islands.

REMARKS.—The specimen collected by Manning exhibits the characters upon which the subspecific separation is based—large, smooth axial folds on the last whorl. *Cypraecassis t. senegalica* reaches a larger size than the more finely sculptured western Atlantic *C. t. testiculus*. Although Abbott (1968b) states that a small proportion of eastern Atlantic specimens resembles the nominate subspecies, a large enough number are different to make valid the subspecies separation. This subspecies is recorded from Ascension in the MCZ, Harvard University.

Family CYMATIIDAE Iredale, 1913

Charonia tritonis variegata (Lamarck, 1816)

Triton variegatum Lamarck, 1816:5, pl. 421: fig. 2*a, b*.
Charonia variegata Lamarck.—Clench and Turner, 1957:193 [synonymy].—Packer, 1968:58.
Charonia tritonis variegata Lamarck.—Beu, 1970a:209.

PREVIOUS ASCENSION RECORDS.—Packer (1968).

DISTRIBUTION.—Tropical eastern and western Atlantic.

REMARKS.—I have not seen specimens from Ascension; however, *C. variegata* was reported from there by both Packer (1968) and Hutchfield (personal communication). Clench and Turner (1957) reported it from St. Helena, Canary, and Cape Verde islands. The latter records were probably based on E. A. Smith (1890a:267), who used the name for the Indo-Pacific species *Charonia tritonis* Linné. There seems little doubt that *Charonia variegata* occurs on Ascension. Scheltema (1971a) pointed out that *C. variegata* larvae were frequently encountered in the North Atlantic and in the south Equatorial Current, possibly explaining the amphi-Atlantic distribution of this species.

Cymatium (Cymatriton) nicobaricum (Röding, 1798)

Tritonium nicobaricum Röding, 1798:126.
?*Triton turtoni* E. A. Smith, 1890a:268 [St. Helena].
Cymatium (Cymatriton) nicobaricum Röding.—Clench and Turner, 1957:210 [synonymy].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—3 specimens (44.7 mm) Ascension, K. M. Hutchfield; 1 (31.7 mm) ASC 15, R. B. Manning, May 1971.

DISTRIBUTION.—In the western Atlantic, from Florida to the West Indies and southward along the coast of Central America to Honduras; northeast Brazil (Clench and Turner, 1957; Rios, 1970). In the eastern Atlantic there are specimens from Ascension in the National Museum of Natural History and MCZ; also reported from Ascension by Hutchfield (pers. comm.); St. Helena (Smith, 1890a).

REMARKS.—It is probable that *Cymatium turtoni* Smith is an absolute synonym of *C. nicobaricum* and, therefore, that it has been present in the eastern Atlantic for some time. Scheltema (1971a) discussed the larvae of Cymatiidae, including *C. nicobaricum,* and noted that it was not found by him in eastern Atlantic samples.

Septa (Septa) pilearis (Linné, 1758)

FIGURE 6

Murex pileare Linné, 1758:749.
Cymatium (Septa) pileare Linné.—Clench and Turner, 1957: 216 [synonymy].—Packer, 1968:58 [as *C. martinianum*].—Keen, 1971:507.
Septa (Septa) pilearis (Linnaeus).—Beu, 1970b:226.

PREVIOUS ASCENSION RECORDS.—Packer (1968).

PRESENT MATERIAL.—3 specimens (38.9 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Indo-Pacific, eastern Pacific, western Atlantic, Ascension.

REMARKS.—The specimens contributed by Hutchfield agree with the concept of *S. pilearis* engendered by Clench and Turner's monograph. Although not previously reported from so far eastward in the Atlantic before Packer's record, the species does occur in the Indo-Pacific from east Africa to Hawaii and in both the eastern Pacific and western Atlantic and it is, therefore, not difficult to conceive of its transport to Ascension perhaps from the West Indies via the Gulf Stream or the Equatorial Countercurrent.

FIGURE 6.—*Septa (Septa) pilearis*: 34.4 mm length; Ascension; USNM 735705.

Septa (Monoplex) parthenopea parthenopea (von Salis, 1793)

FIGURE 7

Murex parthenopeus von Salis, 1793:370 [Bay of Naples].
Triton olearium (Linné).—E. A. Smith, 1890a:267.
Lotorium grandimaculatum Reeve.—Melvill and Standen, 1907:152.
Cymatium costatum Born.—Nicklés, 1950:86.
Cymatium (Monoplex) parthenopeum von Salis.—Clench and Turner, 1957:228 [synonymy].—Nordsieck, 1968:109.
Septa (Monoplex) parthenopea parthenopea (Salis, 1793).—Beu, 1970b:229 [synonymy].

PRESENT MATERIAL.—2 specimens (71.1 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Western Mediterranean, Azores, and south to South Africa; Bermuda, Florida, and Mexico; the West Indies and south to Brazil, Japan, eastern Australia, northern New Zealand, and Portuguese East Africa.

REMARKS.—The records of *"Lotorium" grandimaculatum* (see synonymy) and the *Cymatium*

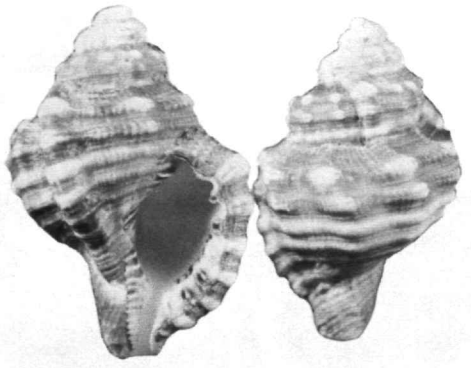

FIGURE 7.—*Septa (Monoplex) parthenopea parthenopea*: 71.2 mm length; Ascension; USNM 735704.

sp. cf. *caribbaeum* reported by Hutchfield (personal communication) may be this species also. Scheltema (1971a) discussed the larvae of Cymatiidae, including *Septa parthenopea,* showing that it was found in water samples from all around the North Atlantic.

Family BURSIDAE Thiele, 1925

Bursa (Colubrellina) corrugata (Perry, 1811)

FIGURE 8

Biplex corrugata Perry, 1811, pl. 3 [5]: fig. 1 [locality unknown].

Ranella caelata Broderip, 1833:179 [Panama (Pacific)].—E. A. Smith, 1890a:268, 1890b:318..—Keen, 1971:508.

Ranella pustulosa Reeve, 1844a:137 [Ascension Island].—Reeve, 1844b, pl. 3: fig. 11 *a, b.*

Ranella ponderosa Reeve, 1844a:137 [locality unknown].—Reeve, 1844b, pl. 3: fig. 14.

Bursa pustulosa jabik Fischer-Piette, 1942:216, pl. 6: fig. 2.—Nicklés, 1950:87.

Bursa corrugata Perry.—Warmke and Abbott, 1961:103, pl. 18: fig. M.—Packer, 1968:58.

Bursa (Crossata) pustulosa (Reeve).—Nordsieck, 1968:110, fig. 67.10.

Bursa (Colubrellina) corrugata (Perry).—Rios, 1970:74.

PREVIOUS ASCENSION RECORDS.—Reeve (1884a), Smith (1890a, 1890b), Packer (1968).

PRESENT MATERIAL.—1 specimen (40 mm) Ascension, K. M. Hutchfield, 2 specimens (47.7 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—Panamic Province (eastern Pacific), Florida and the West Indies to Brazil; tropical west Africa, St. Helena, and Ascension.

REMARKS.—Reeve (1844a) presumed when he named *Bursa pustulosa* that, although it resembled *B. caelata,* it must be a distinct species because no species was believed to occur in both the eastern Pacific and eastern Atlantic. A comparison of the specimens from these regions reveals that they are identical and subject to similar variation in size of tubercles. Smith (1890a, b) did not hesitate to synonymize them. Subsequent workers, such as Warmke and Abbott, and Packer and Rios have recognized *B. corrugata* as the oldest name for the entity.

This species is recorded from Ascension in the MCZ, Harvard University.

Data with three specimens from St. Helena (USNM 637178) (the largest measuring 47 mm) indicate that they were taken from the stomach of an *Octopus,* presumably *O. vulgaris,* q.v.

The range of this species is comparatively extensive, from the eastern Atlantic westward to the eastern Pacific. Bursidae produce egg capsule masses, which the parents brood (Thorson, 1940). Evidence on embryological development (Thorson, 1940) indicates that veligers may be released from the capsules, although the length of the larval stage is not known. The extensive range of *B. corrugata* may be the result of long habitation of the areas where it is now found, especially the eastern Pacific. Scheltema (1971a) does not report any Bursidae larvae from the samples taken in the open Atlantic, although they may occur there and have not been recognized as yet. The weight of

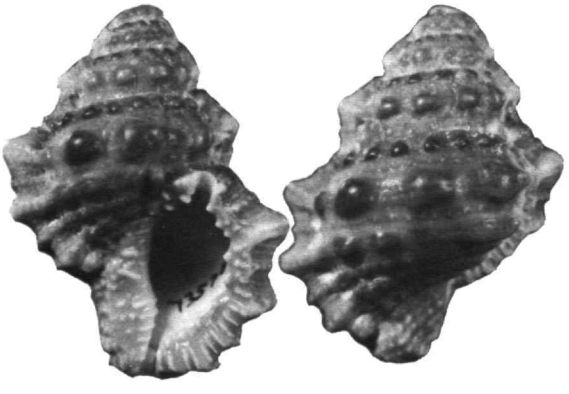

FIGURE 8.—*Bursa (Colubrellina) corrugata*: 40 mm length; Ascension; USNM 735706.

evidence suggests that *B. corrugata* has lived where it is now found for a long time.

Family TONNIDAE Latreille, 1825 (Doliidae)

Tonna galea (Linné, 1758)

Buccinum galea Linné, 1758:734 [Mediterranean].
Tonna galea Linné.—Turner, 1948.—Nicklès, 1950.—Nordsieck, 1968.

PREVIOUS ASCENSION RECORDS.—None.

DISTRIBUTION.—Eastern and western Atlantic and Indo-Pacific (Turner, 1948).

REMARKS.—*Tonna galea* was reported from Ascension by Mrs. K. M. Hutchfield (personal communication, 1971). It is not surprising that the species should have been found at Ascension as its range is very broad. Scheltema (1971a) has shown that larvae of *T. galea* have been found throughout the tropical Atlantic.

Order NEOGASTROPODA

Family MURICIDAE Rafinesque, 1815

Subfamily MURICINAE Rafinesque, 1815

Murex (Chicoreus) florifer Reeve, 1846

Murex florifer Reeve, 1846:36, fig. 188 [Honduras].
Murex (Chicoreus) adustus Lamarck.—E. A. Smith 1890a:258 [St. Helena].
Murex (Chicoreus) florifer Reeve.—Clench and Farfante, 1945.

PREVIOUS ASCENSION RECORDS.—None.

DISTRIBUTION.—Southern Florida, Bahamas, Greater Antilles, Central America, St. Helena, Ascension.

REMARKS.—*Murex florifer* was reported from Ascension by Mrs. K. M. Hutchfield, as *M. adustus* (pers. comm.), probably based on E. A. Smith (1890a). *Murex adustus,* however, is the name of the common Indo-Pacific species. As pointed out by Clench and Farfante (1945), *M. florifer* and *M. adustus* are very similar analogues. To my knowledge *M. florifer* does not occur in either the Mediterranean or on the West Coast of Africa, but it apparently does reach Ascension and St. Helena.

Subfamily THAIDINAE Suter, 1909

Thais (Thais) nodosa meretricula Röding, 1798

FIGURES 9, 10

Murex fucus Gmelin, 1791:3538 [composite species].
Thais meretricula Röding, 1798:54 [no locality; refers to Gmelin, 1791, species 44, and to Martini, 1777, pl. 100: figs. 961–962 (the 4-spotted, smooth, Ascension and Fernando de Noronha subspecies)].
Purpura ascensionis Quoy and Gaimard, 1833:559, pl. 37: figs. 20–23 [Ascension].—E. A. Smith, 1890b:318.
Thais nodosa ascensionis Clench, 1947:69.—Lopes and Alvarenga, 1955:172.—Rios, 1970:81.

PREVIOUS ASCENSION RECORDS.—Quoy and Gaimard (1833), E. A. Smith (1890b).

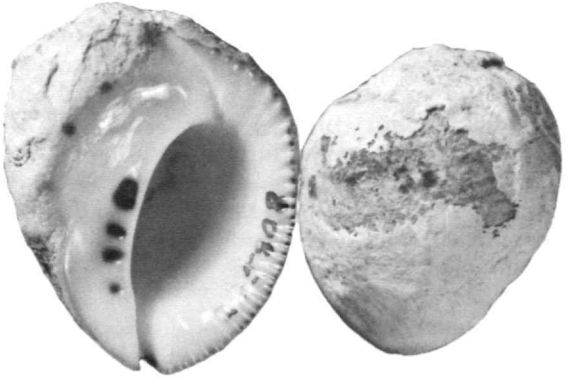

FIGURE 9.—*Thais (Thais) nodosa meretricula*: 39.7 mm length; Ascension; USNM 225808 (see Figure 10).

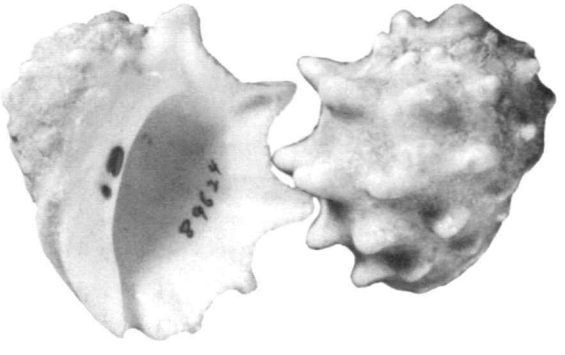

FIGURE 10.—*Thais (Thais) nodosa nodosa*: 30.3 mm length; "West Africa"; USNM 89624 (see Figure 9).

PRESENT MATERIAL.—5 specimens (38.5 mm) Ascension, K. M. Hutchfield, 10 specimens (35.2 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—Ascension, Fernando de Noronha.

REMARKS.—*Thais nodosa nodosa* Linné, the nominate subspecies, inhabits the mainland coast of West Africa. It differs from *T. nodosa meretricula* in being more distinctly nodose to spinose and in having usually only two spots of brown on the columella. (see Figure 10). *Thais n. meretricula* is usually quite smooth and rather uniformly possesses 3 or 4 spots on the columella. (see Figure 9).

Thais n. meretricula may appear occasionally in collections misidentified under the name *Purpura patula,* and worn specimens of the former do somewhat resemble the latter.

The rather complex nomenclatorial history of this species was worked out by W. K. Emerson, and I had access to his notes in the National Museum of Natural History Mollusk collections. In brief, *Murex fucus* Gmelin may be considered a composite species that Röding separated as *Thais lena* [= *T. nodosa nodosa* Linné, 1758] and *Thais meretricula*. The subsequently described *Purpura ascensionis* is an absolute synonym of *T. meretricula*.

It is interesting to note the occurrence of *T. n. meretricula* on Fernando de Noronha (Lopes and Alvarenga, 1955). When additional material from both Ascension and the latter location is available, an analysis should be made to see whether there is subspeciation taking place similar to that described by Vermeij (1970) for *Nerita ascensionis*.

This species is recorded from Ascension in the MCZ, Harvard University.

Thais (Stramonita) rustica bicarinata (Blainville, 1832)

FIGURE 11

Purpura bicarinata Blainville, 1832:215 [St. Helena; refers to "Quoy et Gaymard [sic], *Astrolab.* Zoolog. pl. 59 [39], f. 7–10"].

Purpura helena Quoy and Gaimard, 1833:573, Atlas, pl. 39: figs. 7–10 [St. Helena and Ascension].—E. A. Smith, 1890a: 264; 1890b:318.

Thais (Stramonita) rustica bicarinata de Blainville.—Clench, 1947:82.

PREVIOUS ASCENSION RECORDS.—Quoy and Gaimard (1833), E. A. Smith (1890a, b), Clench (1947).

PRESENT MATERIAL.—3 specimens (56.1 mm) Ascension, K. M. Hutchfield; 13 (44.3 mm) ASC 5; 1 (30.9 mm) ASC 9; 3 (31.3 mm) ASC 10; 1 (17.4 mm) ASC 11; 2 (25.1 mm) ASC 12; 9 (39 mm) ASC 16; 11 (35.1 mm) ASC 18; 6 (52.9 mm) ASC 20; 1 (30.3) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—St. Helena and Ascension islands.

REMARKS.—E. A. Smith (1890b) considered *Purpura fasciata* Reeve, 1846, a synonym of *T. rustica bicarinata,* but Clench (1947) placed *P. fasciata* in the synonymy of *T. rustica rustica* Lamarck, the nominate subspecies, which is limited to the western Atlantic. As pointed out by Clench, *T. r. bicarinata* is close in many of its characteristics to *T. r. rustica,* differing in developing stronger nodules, in being broader in proportion to length, and in having stronger apertural ridges than the latter. The subspecies *T. r. bicarinata* is known only from these two Atlantic islands.

Several other species' names have been applied invalidly to *Thais r. bicarinata,* probably based on superficial resemblance. The species appears in collections apparently misidentified, as *Thais deltoidea* Lamarck, which is known only from the western Atlantic and as *Thais forbesii* Dunker, a subspecies of *Thais haemastoma* Linné occurring in West Africa (Clench, 1947:76).

This species is recorded from Ascension in the MCZ, Harvard University.

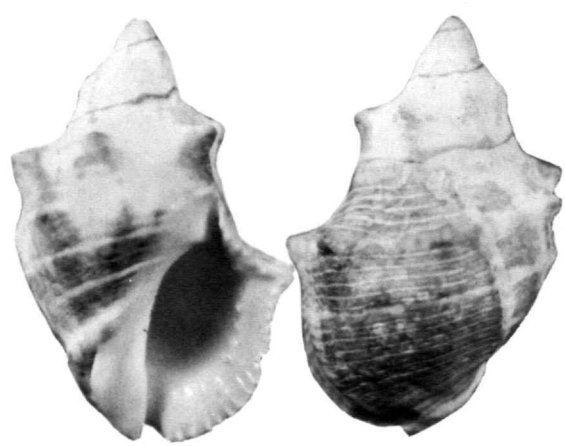

FIGURE 11.—*Thais (Stramonita) rustica bicarinata*: 56.1 mm length; Ascension; USNM 735707.

Family COLUMBELLIDAE Swainson, 1840

Subfamily PYRENINAE Iredale, 1916

Mitrella ocellata (Gmelin, 1791)

FIGURE 12

Voluta ocellata Gmelin, 1791:3455.
Columbella (Mitrella) cribraria Lamarck.—E. A. Smith, 1890a:262; 1890b:318.—Lamy, 1941:306.
Pyrene cribraria Lamarck.—Nicklès, 1950:96.—Knudsen, 1956: 30.
Nitidella ocellata Gmelin, 1791.—Warmke and Abbott, 1961: 112, pl. 20*j*.
Mitrella ocellata (Gmelin).—Rehder, 1962:130.—Radwin [1968]:160
Columbella (Nitidella) ocellata (Gmelin).—Nordsieck, 1968: 125.

PREVIOUS ASCENSION RECORDS.—Smith (1890a, b).

PRESENT MATERIAL.—3 specimens (8.5 mm) Ascension, K. M. Hutchfield. 8 (11.6 mm) ASC 5; 1 (1.3 mm) ASC 8; 1 (9.7 mm) ASC 11; 2 (10.2 mm) ASC 12; 23 (9.2 mm) ASC 13; 9 (4 mm) ASC 14; 1 (8.9 mm) ASC 15; 8 (10 mm) ASC 16; 3 (11 mm) ASC 18; 5 (10.8 mm) ASC 20; 1 (8.5) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Occurs in the western Atlantic from Bermuda, south through Florida, the West Indies, and Central America to Venezuela (Radwin [1968]); Brazil (Rios, 1970); in tropical West Africa in Mauritania and Senegal (Nicklès, 1950); St. Helena (Smith, 1890a); Indian Ocean (Radwin [1968]; Knudsen, 1956; Nordsieck 1968); Gulfs of Aden and Aqaba (Lamy, 1941).

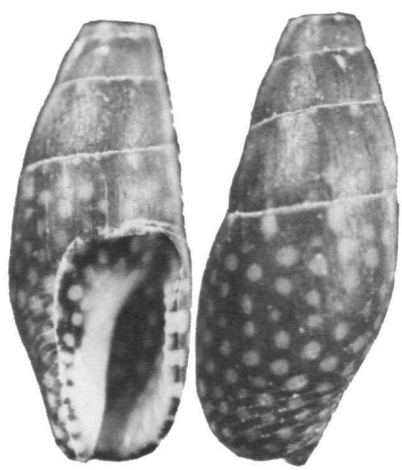

FIGURE 12.—*Mitrella ocellata*: 10.7 mm length; Collyer Point, near Georgetown, Ascension (ASC-20); USNM 735132.

REMARKS.—*Mitrella ocellata* is a widely distributed species, occurring in both eastern and western Atlantic and having been reported from the Indo-Pacific as well. It was previously thought to live also in the tropical eastern Pacific, but Keen (1971:591) states that it is the very similar appearing species, *Mitrella guttata* Sowerby, that lives there.

This species is recorded from Ascension in the MCZ, Harvard University.

Family BUCCINIDAE Rafinesque, 1815

Pisania pusio (Linné, 1758)

FIGURE 13

Murex pusio Linné, 1758:754 ["M. Mediterraneo" (in error)].—Dodge, 1957:171 [tropical western Atlantic].
Pisania pusio (Linné).—Smith, 1890b:318.—Abbott, 1954:233, pl. 13*o*.—Warmke and Abbott, 1961:117, pl. 21*e*.—Packer, 1968:59.—Work, 1969:672.—Rios, 1970:91.

PREVIOUS ASCENSION RECORDS.—Smith (1890b). —Packer (1968).

PRESENT MATERIAL.—2 specimens (18.8 mm) Ascension, K. M. Hutchfield; 1 specimen (39 mm) ASC 16; 7 (40.8 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—Southeast Florida, the West Indian islands, and along the coast of Central and South America to Brazil (Work, 1969); also occurs on Ascension.

REMARKS.—This species is recorded from Ascension in the MCZ, Harvard University.

?*Cantharus (Pollia) consanguineus* (Smith, 1890a)

Cantharus (Tritonidea) consanguineus Smith, 1890a:260 [St. Helena].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (6 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Known only from St. Helena and Ascension.

REMARKS.—The present specimen is worn but resembles the original figure of Smith and voucher specimens of this species from Turton in the

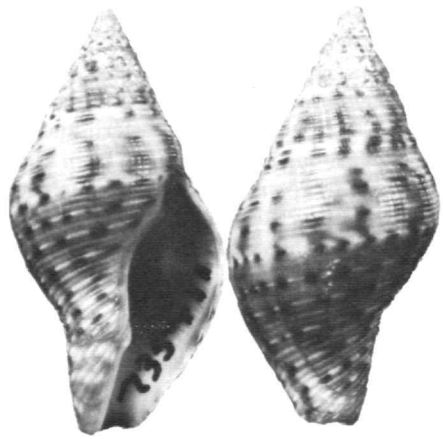

FIGURE 13.—*Pisania pusio*: 18.8 mm length; Ascension; USNM 735711.

National Museum of Natural History (USNM 123949). The generic classification is that of Smith, with the change in subgeneric nomenclature recommended by Nordsieck (1968:132) for related species.

Family NASSARIIDAE Swainson, 1840

Hinia (Uzita) sanctaehelenae (A. Adams, 1852)

Nassa sanctaehelenae A. Adams, 1852:110 [St. Helena].—Reeve, 1853, pl. 28: figs. 188*a*, *b*.—Smith, 1890a:263.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (10.4 mm) Ascension, Kay M. Hutchfield.

DISTRIBUTION.—St. Helena and Ascension islands.

REMARKS.—This species resembles *N. sanctaehelenae* A. Adams. Smith's (1890a) redescription allows considerable variation. The present specimen is more slender than the type, and the coloration is faded, although recognizable. It seems likely that the Ascension specimen is identifiable with Adams's species. The generic and subgeneric nomenclature follows Nordsieck (1968:142).

Family HARPIDAE Bronn, 1849

Harpa doris Röding, 1798

Harpa doris Röding, 1798:150.—Rehder, 1973:255, pl. 189: figs. 12–16.

Harpa rosea Lamarck.—E. A. Smith, 1890b:318.—Nicklès, 1950:113, fig. 204.

Harpa nobilis (Bolt.).—Packer, 1968:59.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Packer (1968).

PRESENT MATERIAL.—Reported by Hutchfield (personal communication 1972), MCZ collection, K. Jourdan collection.

DISTRIBUTION.—From Cape Verde Islands to Luanda, Angola; Ascension (Rehder, 1973).

REMARKS.—Refer to Rehder's monograph of the Family Harpidae (1973:255). This species is recorded from Ascension in the MCZ, Harvard University.

Family MARGINELLIDAE Fleming, 1828

Marginella (Gibberula) lavalleeana (d'Orbigny, 1842)

Marginella lavelleeana d'Orbigny, 1842–1853:101; 1842, pl. 20: figs. 36–38 [as *M. lavalleana*; = *Marginella minuta* L. Pfeiffer, 1840, not of Gray, 1826].

Persicula (*Gibberula*) *lavalleeana* Orbigny.—Warmke and Abbott, 1961:128.

Gibberula philippii (Monterosato).—Nordsieck, 1968:153.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—2 specimens (2 mm) ASC 13; 4 (2.1 mm) ASC 15; 1 (2.2 mm) ASC 19; 3 (2.3 mm) ASC 21, R. B. Manning, May 1971.

REMARKS.—As this species is common to both eastern and western Atlantic, it is not unusual for it to occur also on Ascension. The generic nomenclature follows Coan (1965) in this and in the following species.

DISTRIBUTION.—Florida and the West Indies (Warmke and Abbott, 1961), Portugal, Spain, Mediterranean, Canary Islands, northwest Africa (NMNH records).

The following four species of Marginellidae are cited by literature reference only as inhabitants of Ascension. No specimens have been available for examination by me.

Marginella dunkeri Krauss, 1848

Marginella dunkeri Krauss, 1848:126, pl. 6: fig. 23.—Weinkauff, 1879:28 [Ascension].—Smith, 1890b:319.

Marginella zonata Kiener, 1841

Marginella zonata Kiener, 1841:41, pl. 13: fig. 4.—Weinkauff, 1879:28 [Ascension].—Smith, 1890b:319.

Marginella capensis (Dunker) Krauss, 1848

Marginella capensis (Dunker).—Krauss, 1848:125, pl. 6: fig. 21.—Weinkauff, 1879:23 [Ascension].—Smith, 1890b:319.

Bullata (Cryptospira) robusta (Sowerby, 1904)

Marginella (Cryptospira) robusta Sowerby, 1904:175, fig. [Ascension].

Family MITRIDAE Swainson, 1831

Mitra (Mitra) barbadensis (Gmelin, 1791)

FIGURE 14

Voluta barbadensis Gmelin, 1791:3455 ["Oceano americano"].
Mitra striatula Lamarck.—Smith, 1890b:319 [= *M. barbadensis* according to Cernohorsky, 1970:35] [Ascension].
Mitra barbadensis Gmelin.—Stearns, 1893:328 [Ascension].—Warmke and Abbott, 1961:124, pl. 22-*o*.—Cernohorsky, 1970:35.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Stearns (1893).

PRESENT MATERIAL.—2 specimens (16.9 mm) ASC 16, R. B. Manning, May 1971.

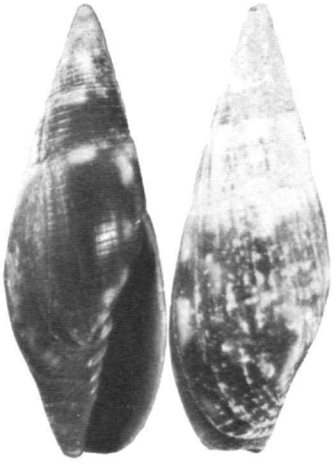

FIGURE 14.—*Mitra (Mitra) barbadensis:* 17.2 mm length; Shelly Beach, Ascension (ASC-16); USNM 735105.

DISTRIBUTION.—Southeast Florida and the West Indies (Warmke and Abbott, 1961), Ascension Island.

Subclass PULMONATA

Order BASOMMATOPHORA

Family ELLOBIIDAE Adams, 1855

Apodosis novimundi Pilsbry and McGinty, 1949

Apodosis novimundi Pilsbry and McGinty, 1949:9 [New Providence, Bahamas].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—15 specimens (2 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Florida, Bahamas, Jamaica (personal communication, J. P. E. Morrison), Ascension.

REMARKS.—It is somewhat surprising to find *A. novimundi* at Ascension, since all previous records for the species have been from the western Atlantic. The small size of the shells suggests that the living animal could readily be rafted on floating material, and it may have a pelagic larval stage, both possibilities for easy transport from place to place.

Pedipes mirabilis (Megerle von Mühlfeldt, 1816)

Turbo mirabilis Megerle von Mühlfeldt, 1816:8, pl. 2: figs. 13*a, b*.
Pedipes mirabilis Megerle von Mühlfeldt.—Clench, 1964:119, pl. 76: figs. 1–3.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (4.1 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—Florida, Texas, Bermuda, south to Brazil (Clench, 1964), Ascension.

REMARKS.—This is the first record for *P. mirabilis* outside of the western Atlantic. Smith (1890a) reported *Pedipes pedipes* Bruguière (as *P. afer* (Gmelin)), the eastern Atlantic species, from St. Helena, but the latter is easily distinguished from *P. mirabilis,* the two species having markedly different outer lip armament: *P. pedipes* with a large and a small tooth and *P. mirabilis* with only one tooth.

Family SIPHONARIIDAE Gray, 1840

Williamia gussoni (O. G. Costa, 1829)

Ancylus gussonii O. G. Costa, 1829: cxx, cxxv.
Williamia gussonii (Costa).—E. A. Smith, 1890a:296.—1890b: 321 [Ascension].
Williamia gussoni (Costa).—Franc, 1968:522.

PREVIOUS ASCENSION RECORDS.—Smith (1890a,b).

PRESENT MATERIAL.—7 specimens (5.7 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—The Mediterranean, Canary Islands, Cape Verde Islands (Nicklès, 1958:41), St. Helena, and Ascension.

Siphonaria picta d'Orbigny, 1835

Siphonaria picta d'Orbigny, 1835–1846:469 [Antilles]; 1847, pl. 56: figs. 7–10 [name and figure].—Morrison, 1963:8.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (4.4 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—Fernando de Noronha Island, Abrolhos Islands, coast of Brazil (Morrison, 1963), Ascension.

REMARKS.—Although the specimen collected by Manning was a young individual, its identification as a member of this species was corroborated by Dr. J. P. E. Morrison, who has made a study of this family.

Subclass OPISTHOBRANCHIA

Order ENTOMOTAENIATA

Family PYRAMIDELLIDAE Gray, 1840

Pyramidella dolabrata (Linné, 1758)

Trochus dolabratus Linné, 1758:760.—Dodge, 1958:205.
Obeliscus dolabratus Linné.—Smith 1890a:275 [St. Helena].
Pyramidella dolabrata Linné.—Stearns, 1893:332.—Nicklès, 1950:71; 1958:41.

PREVIOUS ASCENSION RECORDS.—None.

DISTRIBUTION.—Tropical western Atlantic, west Africa, St. Helena, and Ascension.

REMARKS.—Reported from Ascension by Mrs. K. M. Hutchfield (pers. comm., 1972).

Order CEPHALASPIDEA

Family HYDATINIDAE Pilsbry, 1893

Micromelo undatus (Bruguière, 1792)

FIGURE 15

Bulla undata Bruguière, 1792:380.
Micromelo undata Bruguière.—Pilsbry, 1893:386, 391, pl. 59: figs. 20–24.—Johnson, 1934:148.—Warmke and Abbott, 1961: 141.
Micromelo undatus Brug. [sic].—Nicklès, 1958:39.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—2 specimens (7.7 mm) Ascension, K. M. Hutchfield; 2 specimens (11.3 mm) [one collected alive] ASC 15, R. B. Manning, May 1971.

DISTRIBUTION.—Lower Florida Keys and West Indies (Warmke and Abbott, 1961), Cape Verde Islands (Nicklès, 1958), Ascension.

REMARKS.—The fact that *M. undatus* was noted by Nicklès (1958) as a species recently introduced to the west African fauna may indicate that there is some agent affecting its transportation across the Atlantic. Its presence at Ascension is assured by the living specimen collected by Manning in 1971 (see "Present Material," above).

Family SCAPHANDRIDAE Sars, 1878

Cylichna cylindracea (T. Pennant, 1777)

Bulla cylindracea T. Pennant, 1777:117, pl. 70: fig. 85.
Cylichna cylindracea Watson, 1886:663 [*Challenger* Sta 344, off Ascension Island, 420 fms].—E. A. Smith, 1890b:321.—Nicklès, 1958:39.

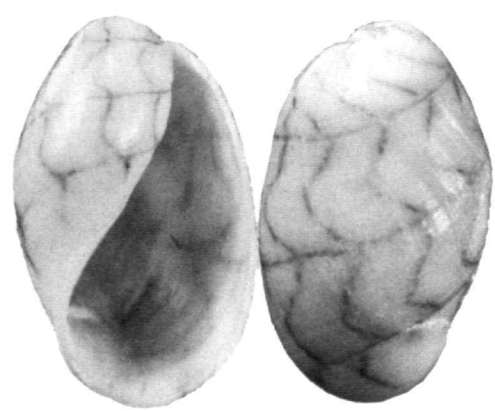

FIGURE 15.—*Micromelo undatus*: 7.7 mm length; Ascension; USNM 735715.

DISTRIBUTION.—Throughout the northeastern Atlantic from the Lofoten Islands to the Mediterranean; the Canary Islands and Mogador (Essaouira) (Watson, 1886); Bay of Gorée, Senegal (Nicklès, 1958); St. Helena and Ascension Islands (Smith, 1890a, b).

REMARKS.—Recorded as a recent introduction by Nicklès (1958) under Retusidae. This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Family RETUSIDAE Thiele, 1926

Retusa orycta (R. Boog Watson, 1883)

Utriculus oryctus R. Boog Watson, 1883b:337 [*Challenger* Sta 344, Ascension Island, 420 fms].—Watson, 1886:653, pl. 48: fig. 12.—E. A. Smith, 1890b:321.
Retusa oryctus Watson (sic.).—Pilsbry, 1893:227, pl. 21: fig. 5.

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b). The trivial name *orycta* is an adjective according to Watson (1886) and, therefore, should agree in gender with the feminine generic name *Retusa*.

Family ATYIDAE Thiele, 1926

Haminea hydatis (Linné, 1758)

Bulla hydatis Linné, 1758:726.—Dodge, 1955:22.
Haminea hydatis Linné.—E. A. Smith, 1890a:297; 1890b: 321.—Pilsbry, 1893:354, pl. 41: figs. 19, 20.—Riedl, 1963: 381, pl. 132.

PREVIOUS ASCENSION RECORDS.—E. A. Smith (1890a, b).

PRESENT MATERIAL.—3 specimens (8.8 mm) Ascension, K. M. Hutchfield; 1 specimen (4.6 mm) ASC 15; 2 specimens (2.5 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—In the eastern Atlantic from southern England southward along coasts of France and Spain, the Mediterranean including the Adriatic; St. Helena and Ascension.

REMARKS.—Apparently not yet reported from the West Coast of Africa, but living at Ascension and St. Helena.

Order ANASPIDEA

Family APLYSIIDAE Lamarck, 1809

Aplysia (Varria) dactylomela Rang, 1828

Aplysia dactylomela Rang, 1828:56, pl. 9.—Eales, 1960:307.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—3 specimens (3.8 mm [young]) ASC 14; 1 specimen (75 mm) ASC 16, R. B. Manning, May 1971.

DISTRIBUTION.—Worldwide in warm seas.

REMARKS.—This is such a large, usually common, and easily recognizable *Aplysia,* it is surprising that it has not been reported from Ascension previously. The suddenness of its appearance could indicate that *A. dactylomela* and some of the other new arrivals may have landed at Ascension and have become established because of some recent change in the environment, which affected their normal path of distribution.

Order NOTASPIDEA

Family PLEUROBRANCHIDAE Deshayes, 1830

Pleurobranchus (Pleurobranchus) areolatus Mörch, 1863

Pleurobranchus areolatus Mörch, 1863:28.—Marcus and Marcus, 1962:466; 1967:44.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (21 mm) ASC 22, R. B. Manning, May 1971.

DISTRIBUTION.—Southern Florida and the West Indies, Ascension.

Family UMBRACULIDAE Dall, 1889

Umbraculum mediterraneum (Lamarck, 1819)

FIGURE 16

Umbrella mediterranea Lamarck, 1819:343.—E. A. Smith, 1890a:299.—Nicklès, 1958:41.
Umbraculum mediterraneum Lamarck.—Pilsbry, 1895–1896: 179.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen, shell only (55 mm), Ascension, K. M. Hutchfield.

FIGURE 16.—*Umbraculum mediterraneum*: 55 mm length; Ascension; USNM 735713.

DISTRIBUTION.—Mediterranean and Adriatic seas, Cape Verde Islands, St. Helena, (Pilsbry, 1895–1896), Senegal (Nicklès, 1958), Ascension.

REMARKS.—This species, like a number of others with similar eastern Atlantic distributions which include the Cape Verde Islands and/or the mid-western coast of Africa, has also reached the mid-Atlantic islands of St. Helena and Ascension, probably via the south Equatorial, or Equatorial Countercurrent.

Class BIVALVIA

Subclass PALAEOTAXODONTA

Order NUCULOIDA

Family NUCULANIDAE H. and A. Adams, 1858

Nuculana jeffreysi (Hidalgo, 1877)

Leda jeffreysi Hidalgo, 1877:136 [new name for *Leda lata* Jeffreys, 1876:431, not Hinds].—E. A. Smith, 1885:234 [*Challenger* Sta 344, off Ascension in 420 fms].
Nuculana jeffreysi (Hidalgo).—E. A. Smith, 1890b:322.

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Subclass PTERIOMORPHIA

Order ARCOIDA

Family ARCIDAE Lamarck, 1809

Arca noae bouvieri P. Fischer, 1874

Arca bouvieri Fischer, 1874:206 [Archipel du Cap Vert].—Nordsieck, 1969:19, pl. 2: fig. 10.01.
Arca sanctaehelenae Smith, 1890a:305, pl. 22: figs. 8*a*, 8*b* [St. Helena]; 1890b:322 [Ascension].
Arca noe [sic] *bouvieri* P. Fischer.—Nicklès, 1947:16; [*noae* used] 1955:114; 1958:44.
?*Arca zebra* (Swainson).—Packer, 1968:59.

PREVIOUS ASCENSION RECORDS.—Smith (1890a, b), Nicklès (1955:114, 115).

PRESENT MATERIAL.—This subspecies is reported from Ascension in the MCZ, Harvard University; also reported from Ascension by Mrs. K. M. Hutchfield (personal communication, 1972).

DISTRIBUTION.—Cape Verde Islands, São Tomé, Annobón, Ascension, and St. Helena; west Africa from Mauritania to the Congo Republic (Nicklès, 1955).

REMARKS.—The use by Nicklès of the name *Arca noe* appears to be an unjustified emendation of *A. noae* Linné, the word "noae" being the Latin genitive of Noah!

Arcopsis adamsi (Dall, 1886)

FIGURE 17

Arca adamsi Dall, 1886:243 [off Havana and near Santa Lucia (West Indies); new name for *Arca lactea* Linné, C. B. Adams, not Linné, and for *Arca caelata* Conrad, not Reeve].—Smith, 1890c:499.—Lamy, 1907:104.
Arca (*Acar*) *lactea* Linné.—E. A. Smith, 1890b:322.—Stearns, 1893:320.
Arcopsis adamsi Dall.—Warmke and Abbott, 1961:159.

PREVIOUS ASCENSION RECORDS.—E. A. Smith (1890b), Stearns (1893 — as *Arca lactea* [?]).

PRESENT MATERIAL.—1 specimen (10.8 mm) ASC 11; 5 specimens (9.6 mm) ASC 18, R. B. Manning, May 1971; 1 specimen (7.8 mm) Ascension, USNM 125406, U.S. Eclipse Expedition, 1889–1890 (Stearns, 1893).

DISTRIBUTION.—North Carolina to Brazil (Warmke and Abbott, 1961), Bermuda (Lamy, 1907), Fernando de Noronha (Smith, 1890c), Ascension.

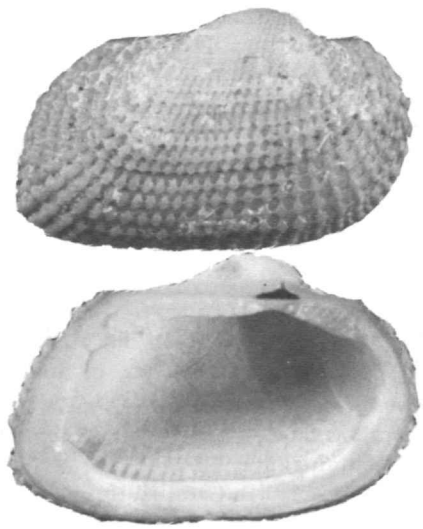

FIGURE 17.—*Arcopsis adamsi*: 8 mm length; Shelly Beach, Ascension (ASC-18); USNM 744746.

REMARKS.—The newly acquired specimens of this species were originally mixed with somewhat similar appearing specimens of *Acar dominguensis* in material from Ascension collected by Manning. Characteristics of the hinge and ligament are very distinct in each species, *Arcopsis* having only a very limited triangular ligament, while that of *Acar* is much more elongate. The shapes of the shells and sculptural characteristics of the two species may be somewhat convergent at times. Both may evidence reticulate sculpture, which tends to produce small pustules at the junctions of incremental and radial threads.

It seems extremely probable to me that Smith's use of the name *A. lactea* for his Ascension material was based on the species *A. adamsi*. This is certainly the case with Stearn's use of *lactea*, as the specimen in the NMNH collection upon which he was reporting is *A. adamsi*. This is another West Indian species which occurs also at Ascension Island in the mid-Atlantic.

The synonymy of *Arcopsis afer* Gmelin, 1791, may possibly include *A. adamsi*. The former species is reported from west Africa by Nicklès (1955 and 1958). The illustrations in Fischer-Piette's (1942) clarification of Adanson's work on Senegal mollusks do not permit a conclusive comparison, unfortunately, nor have adequate specimens of *A. afer* been available for comparison. This synonymy, if substantiated, would establish yet another amphi-Atlantic marine mollusk species (Rosewater and Vermeij, 1972).

The species *Striarca lactea* Linné is clearly a different entity, having an elongate ligament and a radially sculptured shell, rather than a reticulately sculptured one.

Arcopsis adamsi is a member of the genus *Arcopsis* Koenen, 1885, based on comparison with illustrations of the type-species of that genus (Newell, 1969:N263, fig. C10–6*a*, *b*).

Acar domingensis (Lamarck, 1819)

FIGURE 18

Arca domingensis Lamarck, 1819:40 [l'Océan des Antilles, à S. Domingue].
Arca (*Acar*) *domingensis* Lamarck.—E. A. Smith, 1890a:305; 1890b:322 [St. Helena; Ascension].
Barbatia (*Acar*) *domingensis* Lamarck.—Woodring, 1925:36–38.—Warmke and Abbott, 1961:158.—Waller, 1973:40.
Arca plicata Chemnitz [Dillwyn, 1817:227].Nicklès, 1955:115; 1958:44 [in part?].
Acar reticulata (Gmelin).—Nordsieck, 1969:21.
Acar domingensis (Lamarck).—Woodring, 1973:497.

FIGURE 18.—*Acar domingensis*: 20.2 mm length; English Bay, Ascension (ASC-10); USNM 735041.

PREVIOUS ASCENSION RECORDS.—Smith (1890a, b).

PRESENT MATERIAL.—3 specimens (2 paired and 1 single right valve, 16.4 mm) Ascension, K. M. Hutchfield; 14 (22 mm) ASC 5; 2 (14.7 mm) ASC 8; 1 (20.2 mm) ASC 10; 3 (9.7 mm) ASC 11; 10 (15.1 mm) ASC 12; 12 (13.4 mm) ASC 13; 13 (23.6 mm) ASC 15; 1 (11.8 mm) ASC 18; 1 (9.7 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—North Carolina to West Indies (Woodring, 1973), Cape Verde Islands (Nordsieck, 1969), St. Helena and Ascension (Smith, 1890a,b).

REMARKS.—As pointed out by Woodring (1925) the name *Arca reticulata* was applied to this entity by some authors. However, when the original description of *A. reticulata* is consulted (Gmelin, 1791:3311), several plate references are found which show the name to be in all probability that of a composite species. Lamarck apparently recognized this fact when he supplied the name *A. domingensis* for one of the originally cited plate references, "List. Conch. t. 233. f. 67" (Lister, 1770). The species is common in the tropical western Atlantic. It has been known from St. Helena and Ascension since E. A. Smith's reports (1890a, b).

This species is also recorded from Ascension in the MCZ, Harvard University.

Tetrarca tetragona tetragona (Poli, 1795)

Arca tetragona Poli, 1795:137, pl. 25: figs. 12, 13.—Stearns, 1893:320.—Lamy, 1907:41.

Tetrarca tetragona tetragona Poli.—Nordsieck, 1969:20.

PREVIOUS ASCENSION RECORDS.—Stearns (1893).

PRESENT MATERIAL.—2 specimens (13.4 mm) Ascension, Stearns, 1893, USNM 125402.

DISTRIBUTION.—Southern Norway to Cape Verde Islands; Ascension.

REMARKS.—The smallish specimens reported on by Stearns (1893) appear to possess the more posteriorly direct umbos, sharp keel, and restricted ligament, which distinguish the species *A. tetragona* from *A. bouvieri*. The genus *Tetrarca* was erected for *A. tetragona* by Nordsieck (1969), also because of these differences. It is somewhat difficult to verify these differences in young specimens, as there is often much variation present within species of the family Arcidae.

Order MYTILOIDA

Family MYTILIDAE Rafinesque, 1815

Lithophaga (Diberus) bisulcata (d'Orbigny, 1842)

FIGURE 19

Lithodomus bisulcatus d'Orbigny, 1842–1853:333; 1842, pl. 28: figs. 14–16 [Cuba, Jamaica, Martinique, Guadeloupe, Santo Domingo].

Lithodomus biexcavatus Reeve.—Smith, 1890a:305 [St. Helena].

Lithophaga (Diberus) bisulcata d'Orbigny.—Turner and Boss, 1962:110.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (8.1 mm) ASC 13, R. B. Manning, May 1971.

DISTRIBUTION.—North Carolina through the West Indies to Brazil; St. Helena (Turner and Boss, 1962), Ascension.

FIGURE 19.—*Lithophaga (Diberus) bisulcata*: 8.1 mm length; Georgetown, Ascension; USNM 735062.

REMARKS.—Identification of the present small specimen from Ascension might be equivocal were it not for the known presence of the *L. bisulcata* at St. Helena. Specimens in the NMNH collection from the latter locality verify the occurrence of the species in the mid-Atlantic. The distinctive calcareous network at the posterior end of the shell facilitates identification of both subgenus and species.

Family PINNIDAE Leach, 1819

Pinna rudis Linné, 1758

FIGURE 20

Pinna rudis Linné, 1758:707.—Nicklès, 1950:173.—Turner and Rosewater, 1958:304.
Pinna rugosa Sowerby.—Smith, 1890a:305 [St. Helena].—Salvat and Salvat, 1972:43.
Pinna pernula Chemnitz.—Smith, 1890a:306 [St. Helena].

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—1 specimen (318 mm) Ascension, K. M. Hutchfield; 1 specimen (390 mm) English Bay, Ascension, obtained by divers below tidal level, R. B. Manning, May 1971.

DISTRIBUTION.—Western Mediterranean, Madeira, Canary, and Cape Verde islands; the west coast of Africa south to Angola; St. Helena and Ascension islands; sporadically in the West Indies (Turner and Rosewater, 1958).

REMARKS.—As pointed out by Turner and Rosewater (1958), *Pinna rudis*, although primarily an eastern Atlantic species, also occasionally may be found in the tropical western Atlantic, its larvae probably carried there via the north and/or south Equatorial currents. Evidence is not great for the establishment of thriving breeding populations of *P. rudis* in the western Atlantic, however, and its presence probably is due to occasional recruitment. Breeding populations of *P. carnea* are present in the western Atlantic (Turner and Rosewater, 1958), but this species does not inhabit the eastern Atlantic. References to its presence there (Nordsieck, 1969) are errors for *P. rudis*.

It is apparently rather difficult to collect *P. rudis* at Ascension. Specimens were taken at a depth of from 60–80 feet by divers. A specimen received in 1963 from A. Loveridge, St. Helena, was removed from an underwater cable.

This species is recorded from Ascension in the MCZ, Harvard University.

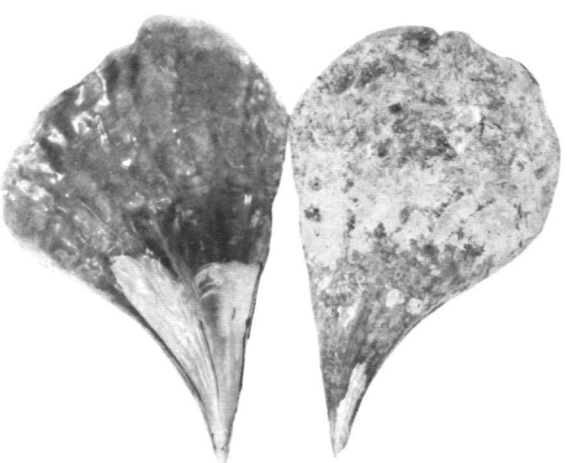

FIGURE 20.—*Pinna rudis:* 390 mm length; English Bay, Ascension; USNM 735153.

Order PTERIOIDA

Family MALLEIDAE Lamarck, 1819

Malleus (Parimalleus) candeanus (d'Orbigny, 1842)

FIGURE 21

Avicula candeana d'Orbigny, 1842, pl. 28: figs. 25–27.
Malleus regula (Forskål).—Smith, 1881:430–431; 1890b:322 [Ascension].
Perna perna Linné, Stearns, 1893:318–319 [Ascension].
Malleus (Parimalleus) candeanus d'Orbigny.—Boss and Moore, 1967:87.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Stearns (1893).

PRESENT MATERIAL.—2 specimens (11.3 mm) Ascension, K. M. Hutchfield; 3 specimens (23.1 mm) Ascension, USNM 125403, U.S. Naval Eclipse Expedition, 1889–1890.

FIGURE 21.—*Malleus (Parimalleus) candeanus:* 23.1 mm greatest length; Ascension: USNM 125403.

DISTRIBUTION.—Bermuda, Florida, Mexico, the West Indies (Boss and Moore, 1967), Ascension.

REMARKS.—Boss and Moore (1967) have pointed out the unusual morphology of the shell of this species, which has three separate portions as an adult—a first-formed lamellose area near the hinge, a light-colored shank area, and a fan-shaped distal extension. Once recognized this growth form is easily identified and unlike any other Atlantic bivalve. Contrary to Boss and Moore's statement, however, this species does travel eastward in the Atlantic, at least as far as Ascension.

Family PECTINIDAE Rafinesque, 1815

Nodipecten nodosus (Linné, 1758)

FIGURE 22

Ostrea nodosa Linné, 1758:697.
Pecten corallinoides d'Orbigny.—Smith, 1890a:306. [St. Helena].—Nicklès, 1955:137 [Ascension].
Lyropecten corallinoides (d'Orbigny).—Nordsieck, 1969:54.
Lyropecten nodosus Linné, 1758.—Warmke and Abbott, 1961: 169.
Pecten ?nodosus Packer, 1968:59.
Nodipecten nodosus Linné.—Grau, 1959:127–128.

PREVIOUS ASCENSION RECORDS.—Nicklès (1955: 137) Packer (1968:59).

PRESENT MATERIAL.—1 valve (22 × 21.5 mm) Ascension, K. M. Hutchfield.

DISTRIBUTION.—North Carolina to the West Indies and Brazil, islands off West Coast of Africa (Grau, 1959), Ascension.

REMARKS.—Dodge (1952) considered *P. corallinoides* d'Orbigny merely a variety of *P. nodosus* and that course is followed here because of the large number of other western Atlantic species which have reached Ascension. The only apparent other course would be to consider it a subspecies or a separate entity and it is very similar to *nodosa*.

This species is recorded from Ascension in the MCZ, Harvard University.

Pecten keppelianus Sowerby, 1905

Pecten keppelianus Sowerby, 1905:279 [Ascension Island?].

REMARKS.—There is a specimen of *P. keppelianus* in the collections of the National Museum of Natural History from the Cape Verde Islands (USNM 225825). It appears very close in its relationship to both *Pecten maximus* and *P. jacobaeus*. Sowerby stressed the fact that he was somewhat unsure of Ascension as a correct locality, other shells from the same source having originated on the coast of Africa. The presence of *P. keppelianus* at Ascension is therefore in doubt.

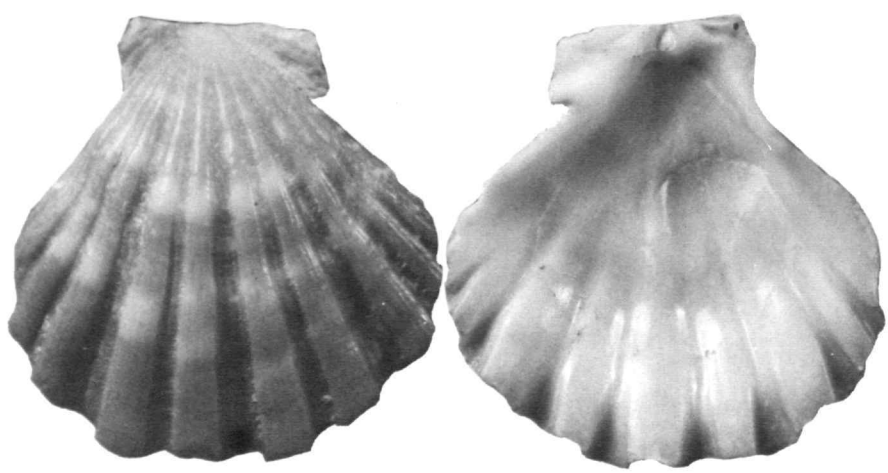

FIGURE 22.—*Nodipecten nodosus*: 22 mm greatest length; Ascension; USNM 735723.

Family SPONDYLIDAE Gray, 1826

Spondylus senegalensis Schreibers, 1793

Spondylus senegalensis Schreibers, 1793:162.—Lamy, 1938: 293.—Nicklès, 1955:138, 139.
Spondylus sp. Smith, 1890b:322.
Spondylus powelli Smith, 1892:70.—Nicklès, 1950:176.—Grau, 1959:139, 140.—Nordsieck, 1969:56.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Grau (1959).

PRESENT MATERIAL.—8 specimens (48.7 mm) Ascension, K. M. Hutchfield; 1 specimen (84.2 mm) ASC 18, R. B. Manning, May 1971.

DISTRIBUTION.—West Coast of Africa, Madeira, Cape Verde Islands, Ascension.

REMARKS.—As shown by Lamy (1938), Schreibers first named the eastern Atlantic *Spondylus* species which has long been known as *S. powelli*. Although the present specimens from Ascension are worn, they fit the color and sculpture descriptions of the various authors.

Spondylus imbutus Reeve, 1856

Spondylus imbutus Reeve, 1856, pl. 15: species 55.—Stearns, 1893:318.—Lamy 1938:287.

PREVIOUS ASCENSION RECORDS.—Stearns (1893).

PRESENT MATERIAL.—Based on Stearns's report.

REMARKS.—Lamy (1938) listed the known locality records for *S. imbutus* as Ascension (Stearns, 1893) and Philippines (Hidalgo, 1905:383). Dall (1898:760) listed *S. imbutus* in the synonymy of *S. echinatus* Martyn [=*S. americanus* Hermann?]. As *S. imbutus* was described without a locality the true identity of the species is somewhat in question. It is included here only because of the Stearns reference, which may be attributable to *S. senegalensis*. Unfortunately the lot referred to by Stearns, USNM 125411, cannot be found and examined to confirm its identity.

Family OSTREIDAE Rafinesque, 1815

Saccostrea cucullata (Born, 1778)

FIGURE 23

Ostrea cucullata Born, 1778:100; 1780:114, pl. 6: figs. 11, 12.—Smith, 1890b:322.—Lamy, 1929:153.—Nicklès, 1950:182; 1955:142 [?*Pycnodonta hyotis* (Linné)].
Ostrea mordax Gould.—Stearns, 1893:318 [not *Ostrea mordax* Gould, 1850].
Saccostrea cucullata Born.—Stenzel, 1971:N1134.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Nicklès (1950).

PRESENT MATERIAL.—2 specimens (46.9 mm greatest length) Ascension, K. M. Hutchfield; many specimens (91.6 mm) ASC 5; many (93.5 mm) ASC 18; 1 (30.4 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—West Coast of Africa; islands of Sao Thomé, Principe, and Ascension (Nicklès, 1950:182).

REMARKS.—This is a readily identifiable species with an undulating shell margin, a flattened convex or concave upper valve, and a deeply sacculate lower valve.

The species is recorded from Ascension in the MCZ, Harvard University.

Subclass HETERODONTA

Order VENEROIDA

Family THYASIRIDAE Dall, 1901

Thyasira species

Cryptodon sp. E. A. Smith, 1885:25,194 [*Challenger* Sta 344, off Ascension Island, in 420 fms].—Smith, 1890b:322.

REMARKS.—This is one of the nine *Challenger* species from deeper water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Family LUCINIDAE Fleming, 1828

Codakia (Ctena) decussata (O. G. Costa, 1829)

FIGURE 24

Lucina decussata O. G. Costa, 1829:8.
Ctena decussata (O. G. Costa, 1830).—Nordsieck, 1969:85.
Codakia (Ctena) decussata Costa.—Britton [1970]:325.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—2 specimens (11.4 mm) Ascension, K. M. Hutchfield; 4 specimens (14.2 mm) ASC 10; 4 (11.5 mm) ASC 11; 2 (16.2 mm)

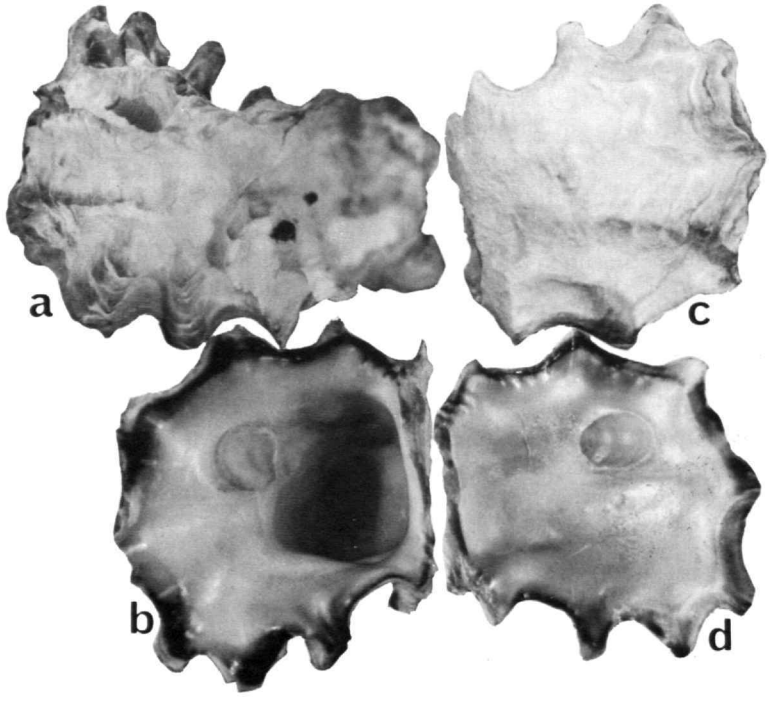

FIGURE 23.—*Saccostrea cucullata*: 28.9 mm greatest length of flatter valve (*c,d*); Northeast Bay, Ascension; USNM 735023. (Note sacculate concavity in *b*.)

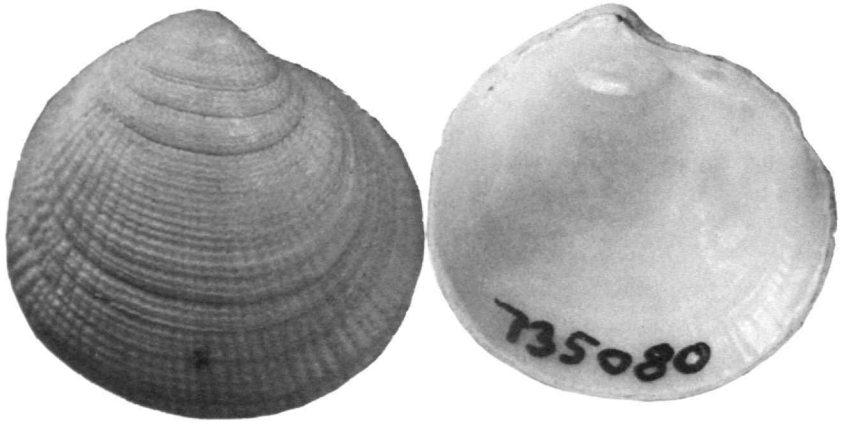

FIGURE 24.—*Codakia* (*Ctena*) *decussata*: 16.2 mm length; English Bay, Ascension; USNM 735080.

ASC 15; 1 (5.5 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Mediterranean, west Africa, Canary Islands, Ascension.

REMARKS.—Several other Lucinids have been mentioned from Ascension. Unfortunately they are not represented by specimens in our collection. They are *Lucina (Codakia) imbricatula* (Smith, 1890b:321), *Codakia orbicularis* and *Codakia costata* (both personal communications, Mrs. K. M. Hutchfield).

?*Phacoides (Lucinoma) filosus* (Stimpson, 1851)

Lucina filosa Stimpson, 1851:17.
Phacoides filosus Stimpson.—Abbott, 1954:389.—Packer, 1968: 59?

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—Record based on Packer (1968), who questioned the name.

DISTRIBUTION.—East coast of North America from New Brunswick to Florida, in the Gulf of Mexico, off coasts of Cuba and Jamaica (Britton [1970]), ?Ascension (Packer, 1968).

REMARKS.—Considering that the occurrence of *P. filosus* at Ascension is based on Packer's doubtful reference, its presence there must be questioned until verified.

Family ERYCINIDAE Deshayes, 1850

Lasaea adansoni (Gmelin, 1791)

Tellina adansoni Gmelin, 1791:3239.
Cardium rubrum Montagu, 1803:83.
Lasaea adansoniana Récluz.—Smith, 1890a:304 [St. Helena].
Lasaea adansoni Gmelin.—Fischer-Piette, 1942:318.—Nordsieck, 1969:87.
Kellya adansoni Gmelin.—Nicklès, 1950:193.

PREVIOUS ASCENSION RECORDS.—None.

PRESENT MATERIAL.—7 specimens (1.3 mm) from algae and worm tube washes, ASC 12; many (3.7 mm) ASC 17; 20 (2 mm) ASC 21, R. B. Manning, May 1971.

DISTRIBUTION.—Atlantic, North Pacific, Mediterranean, Azores, St. Helena, Ascension.

REMARKS.—*Lasaea adansoni* is frequently found in algae and often occurs at fairly great depths. The species is ovoviviparous, and therefore a single gravid individual rafted on floating material to a new location could start a colony in that area.

Family CHAMIDAE Lamarck, 1809

Pseudochama radians (Lamarck, 1819)

Chama radians Lamarck, 1819:96.
?*Chama* sp., Smith, 1890a:303.—?Packer, 1968:59.
Pseudochama radians Lamarck.—Nordsieck, 1969:96.

PREVIOUS ASCENSION RECORDS.—?Packer (1968).

PRESENT MATERIAL.—1 specimen (76.2 mm) Ascension, K. M. Hutchfield; 1 (8.3 mm) ASC 13, R. B. Manning, May 1971.

DISTRIBUTION.—Tropical western Atlantic, eastern Atlantic islands, St. Helena, Ascension.

REMARKS.—Smith (1890a) called *Chama* a "difficult group" about which a "positive opinion" should not be given without "special study." This is still the case, although it appears fairly certain that a large species of Chamidae is living at Ascension, to which the name *"radians"* seems to be applicable.

Family CARDIIDAE Lamarck, 1809

Trigoniocardia (Americardia) medium (Linné, 1758)

Cardium medium Linné, 1758:678.
Cardium (Fragum) medium Linné.—Smith, 1890b:322.
Trigoniocardia (Americardia) medium Linné.—Dodge, 1952: 56.—Packer, 1968:59.

PREVIOUS ASCENSION RECORDS.—Smith (1890b), Packer (1968).

PRESENT MATERIAL.—None.

DISTRIBUTION.—Southeastern United States and West Indies (Warmke and Abbott, 1961), Ascension.

REMARKS.—Reported to occur at Ascension by K. M. Hutchfield (pers. comm.).

This species is also recorded from Ascension in the MCZ, Harvard University.

Papyridea soleniformis (Bruguière, 1789)

Cardium soleniformis Bruguière, 1789:235.
Papyridea soleniformis (Bruguière).—Warmke and Abbott, 1961:182.—Packer, 1968:59.—Nordsieck, 1969:103.

PREVIOUS ASCENSION RECORDS.—Packer (1968).
PRESENT MATERIAL.—None.
DISTRIBUTION.—Southeastern United States and West Indies (Warmke and Abbott, 1961), Cape Verde Islands (Nordsieck, 1969), Ascension (Packer, 1968).
REMARKS.—Reported as uncommon at Ascension (Packer, 1968). Also reported from Ascension by K. M. Hutchfield (pers. comm.).

Family VENERIDAE Rafinesque, 1815

Subfamily MERETRICINAE Gray, 1847

Tivela mactroides (Born, 1778)

Venus mactroides Born, 1778:52.
Tivela mactroides Born.—Warmke and Abbott, 1961:188, pl. 39*e*.

PREVIOUS ASCENSION RECORDS.—None.
PRESENT MATERIAL.—Record based on report of K. M. Hutchfield.
DISTRIBUTION.—West Indies to Brazil (Warmke and Abbott, 1961; Rios, 1970:188).
REMARKS.—Reported from Ascension by K. M. Hutchfield (pers. comm., 1972). As the range of this species extends to Brazil, it is not too surprising to find it reported from Ascension also. Equatorial currents may transport larvae in both easterly and westerly directions.

Family SEMELIDAE Stoliczka, 1870

Semele modesta (Reeve, 1853)

Amphidesma modesta Reeve, 1853, pl. 6: figs. 35*a,b*.
Semele cordiformis (Chemnitz).—Smith, 1890a:301; 1890b: 321; 1890c:498.
Semele modesta (Reeve).—Boss, 1972:13.

PREVIOUS ASCENSION RECORDS.—Smith (1890a,b), Boss (1972).
PRESENT MATERIAL.—The species is included here based on the record of K. M. Hutchfield (pers. comm., 1972) for *Semele proficua*.
DISTRIBUTION.—Islands of Gulf of Guinea, coast of central west Africa, St. Helena, Ascension, Brazil (Boss, 1972).
REMARKS.—Boss (1972) pointed out that there are two Semele species in west Africa, *S. modesta* and *S. lamyi* Nicklès, 1955. Only one, *S. modesta*, so far as is known, reaches Ascension.

Family TELLINIDAE deBlainville, 1814

Tellina (Peronaea) ascensionis Sowerby, 1905

Tellina (Peronaea) ascensionis Sowerby, 1905:279.

REMARKS.—This species was described as coming from Ascension. Sowerby also compared it to "the . . . smaller Mediterranean *T. nitida* Poli" [=*Angulus (Peronidia) albicans* Gmelin, according to Nordsieck, 1969:134]. I can find no record from Ascension for this species after Sowerby's original description.

Class SCAPHOPODA

Family DENTALIIDAE Gray, 1840

Dentalium (Antalis) agile M. Sars, 1872

Dentalium agile M. Sars, 1872:31, pl. 3: figs. 4–15 [Lofoten Islands, 200–300 fms, and near Aalesund, Norway, 200–220 fms; new name for *D. incertum* Philippi, 1844; not Deshayes, 1826].—Knudsen, 1949:3 [range detailed].
Dentalium entalis var. *agile* R. Boog Watson, 1886:6 [*Challenger* Sta 344, Ascension Island, 420 fms].—E. A. Smith, 1890b:321.

REMARKS.—This is one of the nine *Challenger* species from deep water off Ascension. It is included here provisionally as an Ascension inhabitant (Smith, 1890b).

Class CEPHALOPODA

Subclass COLEOIDEA (Dibranchia)

Order OCTOPODA

Family OCTOPODIDAE d'Orbigny, 1845

Octopus vulgaris Cuvier, [1797]

Octopus vulgare Cuvier, [1797]:381 [coast of France].—Hemming, 1954:278, 288, 291–293.
Octopus vulgaris Lamarck, 1798:130.—Stearns, 1893:339.—

Robson, 1929:57–62.—Adam, 1952:117–125.—Pickford, 1955: 156.—Lane, 1957:221.

Octopus occidentalis Hoyle, 1886:77.

PREVIOUS ASCENSION RECORDS.—Hoyle (1886); dredged in 20–30 fathoms, according to Stearns (1893).

PRESENT MATERIAL.—3 ♀ (ML 22, 28, 80 mm) ASC 5; 2 ♀ (ML 11, 42 mm) ASC 11, 21; 1 ♀ (ML 28 mm) ASC 23, R. B. Manning, May 1971.

DISTRIBUTION.—North and South Atlantic (east and west), Mediterranean Sea, North Sea (Adam, 1952).

REMARKS.—A note with three shells of *Bursa corrugata* (USNM 637178), the largest measuring 47 mm, indicated they were taken from the stomach of an *Octopus*, presumably this species. Smith's (1890a) record of an *Octopus* on St. Helena is probably this species.

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