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KEY TO THE COMMON MARINE MOLLUSCS OF TEXAS

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This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature

INTRODUCTION

A dichotomous key is developed which provides the investigator a means for identifying the common marine molluscs on the Texas coast. The key is written as to allow the user to stop or begin at any desired taxonomic level (class, order, superfamily, family, genus, species) depending on prior knowledge or specific need (Table 1). Because of the special importance of bivalves to many studies, species-specific information is provided pertaining to feeding type, relation to substrate, and distribution (Table 2). An illustrated glossary is also provided.

Taxonomic nomenclature and species listed in this paper were selected from the abundant literature concerning Texas marine molluscs (e.g., Mitchell, 1894 Hedgepeth, 1950; Pulley, 1952; Turner, 1954; Hulings, 1955; Simmons, 1957; Brewer, 1957, 1962; Marland, 1958; Kennedy, 1959; Parker, 1959, 1960; Rice, 1960; Keith and Hulings, 1965; Andrews, 1971).

USING THE KEY

The key is in the form of couplets which have three basic parts. First, the couplets are numbered (key-pair number) sequentially on the left hand side of each page. Second, two opposing or descriptive statements about the morphology of the shellfish are presented as to offer a choice to the investigator. Third, the number at the end of each statement refers the user on to the next used couplet.

At the beginning of each couplet, the number of the preceding alternative is in parentheses following the key-pair number to aid in backtracking. Some groups are, by necessity, keyed out more than once. Duplication of this sort is marked by an asterik (to help in backtracking, the user should note couplet number before proceeding).

KEY TO THE COMMON MARINE MOLLUSCS OF TEXAS

1	Dorsal surface with 8 overlapping valves . . . . . Class AMPHINEURA Von Ihering, 1876 Order NEOLURICATA Bergenhayn, 1955 Family ISCHNOCHITONIDAE Dall, 1889 Genus Ischnochiton Gray, 1847 Species papillosus (C. B. Adams, 1845)	
	Organism without 8 overlapping valves dorsally	2
2 (1)	Shell shape curved tapering cylinder with both ends open (Class SCAPHOPODA Brown, 1862)	230
	Shell shape other than cylindrical or, if cylindrical, apical end closed	3
3 (2)	Eight or ten long tentacles or arms; shell internal or absent; well developed eyes (Class CEPHALOPODA Cuvier, 1797)	402
	Lacking numerous tentacles or arms	4
4 (3)	Two valves connected at a hinge area by a ligament (Class BIVALVIA Linne, 1758 = PELECYPODA Goldfuss, 1820)	232
	Univalve (Class GASTROPODA Cuvier, 1797)	5
5 (4)	Shell internal or absent; body sluglike	6
	Shell well developed	7
6 (5)	Shell absent; body sluglike with gill plumes (Order NUDIBRANCHIA Cuvier, 1795 or 1804)	106
	Shell internal or absent; animal is large, slick, plastic form with neck and head narrower than the body; large swimming lobes (Order ANASPIDEA Fischer, 1883 = TECTIBRANCHIA Andrews, 1972; super family APLYSIACEA Lamarch, 1809 = ANASPIDEA Fischer, 1835)	157

7 (5) Nuclear whorls turn sinistrally and/or are at right angles to later whorls (Family PYRAMIDELLIDAE Gray, 1840; Note: Members of this family are extremely difficult to identify, even by experts. The key beyond this point for this family is at best only fair due to the lack of detailed descriptions and positive identifications.) 147

Nuclear whorls do not turn sinistrally and are not at right angles 8

8 (7) Shell tusklike with apical end closed or lozenge shaped with extended hind parts (Order THECOSMATA Blainville, 1824 or PTEROPODA Cuvier, 1804; Superfamily SPIRATELLACEA Thiele, 1926; Family CAVOLINIDAE d'Orbiguy, 1842) 154

Shell not tusklike or lozenge shaped 9

9 (8) Shell limpet shaped 10

Shell not limpet shaped 12

10 (9) Aperture with deck (Order CAENOGASTROPODA Cox, 1959) 29*

Aperture without deck 11

11 (10) Orifice at apical end (Order ARCHAEOGASTROPODA Thiele, 1925) 27*

No orifice at apical end (Order BASOMMATOPHORA Keferstein, 1864) 74*

12 (9) Shell shape pyriform, fusiform, auriform, tubular, discord or spiral (Order CAENOGASTROPODA Cox, 1959) 29*

Shell shape not one of the above 13

13 (12) Shell shape cylindrical (Order CEPHALASPIDEA Fischer, 1883) 71*

Shell shape not cylindrical 14

14 (13) Outer lip of aperture thickened (Order CAENOGASTROPODA Cox, 1959) 29*

Outer lip of aperture thin 15

15 (14)	Strong teeth on outer lip of aperture (Order CAENOGASTROPODA Cox, 1959)	29*
	Teeth on outer lip weak or absent	16
16 (15)	Spire sunken (Order CEPHALASPIDEA Fischer, 1893)	71*
	Spire not sunken	17
17 (16)	Two white plicae on columella; shell brown with narrow cream colored bands (Order BASSOMMATOPHORA Keferstein, 1864) ..	75*
	Shell not as above	18
18 (17)	Shell white and smooth except for fine spiral strictions over basal half; aperture a little more than half the body whorl; columella short with one strong oblique fold (Order CEPHALASPIDEA Fischer, 1883)	71*
	Shell not as described above	19
19 (18)	Decklike callus present	20
	Decklike callus absent	21
20 (19)	Partial area with 3 strong, well developed denticulations; top denticulation the largest; outer lip has one tooth directly opposite the central plica (Order BASSOMMATOPHORA Keferstein, 1864)	75*
	Partiel area with only weak teeth; no strong teeth on outer lip (Order ARCHAEOGASTROPODA Thiele, 1925)	27*
21 (19)	Shell shape turriculate (Order CAENOGASTROPODA Cox, 1959)	29*
	Shell shape not turriculate	22
22 (21)	Umbilicus present	23
	Unbilicus absent (Order CAENOGASTROPODA Cox, 1959)	29
23 (22)	Pronounced single tooth near base of columella (Order CAENOGASTROPODA Cox, 1959)	29*
	Tooth missing	24

24 (23)	Umbilicus with crenulated edge (Order CAENOGASTROPODA Cox, 1959)	29
	Umbilicus without crenulated edge	25
25 (24)	Shell shape turbinate with deep, round, smooth, pronounced umbilicus (Order ARCHAEOGASTROPODA Thiele, 1925)	27*
	Shell shape conical; umbilicus not round	26
26 (25)	Whorls with red spots (Order ARCHAEOGASTROPODA Thiele, 1925)	27*
	Whorls without red spots (Order CAENOGASTROPODA Cox, 1959)	29*
27 (*)	Central apical opening (Superfamily FISSURELLACEA Fleming, 1822; Family FISSURELLIDAE Fleming, 1822)	108
	No apical opening	28
28 (27)	Umbilicus or umbilical chink present; shell shape turbinate or conical (Superfamily TROCHACEA Rafinesque, 1815)	76
	No umbilicus; inner lip with a decklike callus; shell shape globular oval (Superfamily NERITIDAE Rafinesque, 1815; Family NERITIDAE Rafinesque, 1815)	110
29 (*)	Shell shape trochiform, spiral or discoid (Superfamily RISSOACEA Gray, 1897)	77
	Shell shape not one of the above	30
30 (29)	Shell shape limpetlike (Superfamily CALYPTRAEACEA Blainville, 1824; Family CALYPTRAEIDAE Blainville, 1824; Genus Crepidula Lamarck, 1799	190
	Shell shape not limpetlike	31
31 (30)	Shell shape pyriform (Superfamily BUCCINACEA Rafinesque, 1815)	95
	Shell shape not pyriform	32

32 (31)	Shell shape tubular (Superfamily CERITHIACEA Fleming, 1822)	80*
	Shell shape not tubular	33
33 (32)	Shell shape auriform	34
	Shell shape not auriform	36
34 (33)	Shallow and wide umbilicus present (Superfamily RISSOACEA Gray, 1897)	77
	Umbilicus absent	35
35 (34)	Shell translucent, glassy, white; surface with fine, irregular transverse growth lines (Superfamily LAMELLARIACEA d"Orbigny, 1841)	90*
	Shell opaque white on brown; many fine spiral growth lines (Superfamily NATICACEA Gray, 1840; Family NATICIDAE (Swainson), Gray, 1840)	134*
36 (33)	Shell shape ovate	37
	Shell shape not ovate	40
37 (36)	Shell smooth	38
	Shell definitely sculptured	39
38 (37)	Outer lip of aperture thickened (Superfamily CYPRAEACEA Rafinesque, 1815)	92
	Outer lip of aperture thin (Superfamily VOLUTACEA Rafinesque, 1815)	100
39 (37)	Aperture higher than the spire; spire indistinct (Superfamily LAMELLARIACEA d'Orbigny, 1841)	91*
	Aperture lower than spire; spire low or slightly extended (Superfamily TONNACEA Suter, 1913)	93*

40 (36)	Umbilical callus present	41
	Umbilical callus absent	42
41 (40)	Callus weak, extending to body whorl (Superfamily LITTORINACEA Gray, 1840; Family LITTORINIDAE Gray, 1840; Genus Littorina Ferussac, 1821)	159*
	Callus strong, confined to inner lip and umbilical area (Superfamily NATICACEA Gray, 1840; Family NATICIDAE (Swainson), Gray, 1840)	134*
42 (40)	Umbilicus present	43
	Umbilicus absent	46
43 (42)	Umbilicus strongly crenulated (Superfamily ARCHITECTONICACEA Gray, 1850; Family ARCHITECTONIDAE Gray, 1850 ...	122
	Umbilicus not crenulate	44
44 (43)	Shell shape conical	45
	Shell shape trochiform turbinate, spiral, discord or auriform (Superfamily RISSOACEA Gray, 1897)	77*
45 (44)	Shell heavily sculptured with flattened spiral ridges (Superfamily TONNACEA Suter, 1913)	93*
	Whorls smooth (Superfamily AGLOSSA Thiele, 1829; Family MELANELLIDAE=EULIMIDAE Risso, 1826)	131*
46 (42)	Shell shape turbinate (Superfamily CERITHIACEA Fleming, 1822)	80*
	Shell shape not turbinate	47
47 (46)	Shell shape globular conic	48
	Shell shape not globular conic	49

48 (47)	Shell sculpture smooth or faintly striated (Superfamily EPITONIACEA Berry, 1910)	90*
	Spiral sculpture consists of numerous broad flattened ridges, shell definitely sculptured (Superfamily TONNACEA Suter, 1913)	93
49 (48)	Outer lip of aperture thickened	50
	Outer lip of aperture not thickened	61
50 (49)	Outer lip of aperture with strong spines (Superfamily MURICACEA Rafinesque, 1815; family MURICIDAE Rafinesque, 1815)	139*
	Outer lip of aperture without spines	51
51 (50)	Aperture oval shaped with no siphon canals	52
	Aperture oval shaped with siphon canals or aperture not oval	55
52 (51)	Whorls with bladelike costae (Superfamily EPITONIACEA Berry, 1910)	90*
	Whorls without bladelike costae	53
53 (52)	Axial ribs present	54
	Axial ribs absent (Superfamily RISSOACEA Gray, 1897) ...	77*
54 (53)	Strong tooth on inner side of outer lip (Superfamily RISSOACEA Gray, 1897)	77
	No strong tooth on inner side of outer lip (Superfamily EPITONIACEA Berry, 1910)	90
55 (51)	Outer lip crenulated, toothed or denticulate	56
	Outer lip smooth	59

56 (55)	Whorls with very strong transverse varices (Superfamily TONNACEA Suter, 1913)	93
	Whorls without strong transverse varices	57
57 (56)	Anterior siphon canal very long (Superfamily TONNACEA Suter, 1913)	93
	Anterior siphon canal short	58
58 (57)	Columella with 2 strong plicae (Superfamily VOLUTACEA Rafinesque, 1815)	100*
	Columella with one strong tooth or weak crenulations (Superfamily BUCCINACEA Raginesque, 1815)	95
59 (55)	Strong varices or raised former varices present (Superfamily CERITHIACEA Fleming, 1822)	80
	No traces of varices	60
60 (59)	Aperture more than 3/4 shell length (Superfamily VOLUTACEA Rafinesque, 1815)	100
	Aperture about 1/2 shell length or less (Superfamily CONACEA Rafinesque, 1815)	102
61 (49)	Central groove in lower portion of columella (Superfamily LITTORINACEA Gray, 1840; Family LITTORINIDAE Gray 1840; Genus LITTORINA Férussac, 1821)	* 159
	Central groove missing in lower columella	62
62 (61)	Outer lip of aperture very stout, tapering to a sharp edge with regular grooves on the inside (Superfamily LITTORINACEA Gray, 1840; Family LITTORWIDAE Gray, 1840; Genus Littorina Ferussac, 1821)	* 159
	Outer lip not as described above	63
63 (62)	Apical end domelike; costae appear only on the upper part of each whorl (Superfamily RISSOACEA Gray, 1897)	77*
	Shell not as described above	64

64 (63) About 6 regular whorls closely coiled; later whorls detached giving a wormlike appearance (Superfamily CERITHIACEA Fleming, 1822) 80*

Shell not as described above 65

65 (64) Shell shape turriculate (Superfamily CONACEA Rafinesque, 1815) 102*

Shell shape not turriculate 66

66 (65) Shell shape fusiform 67

Shell shape not fusiform 68

67 (66) Long anterior siphon canal (Superfamily BUCCINACEA Rafinesque, 1815) 95*

Short anterior siphon canal (Superfamily CONACEA Rafinesque, 1815) 102*

68 (66) Shell heavy, thick, and definitely sculptured with spiral and transverse features; may have knobby shoulders 69

Shell small and smooth with exception of possible weak axial ribs 70

69 (68) Outer lip with nemerous definite denticulations (Superfamily MURICACEA Rafinesque, 1815; family MURICIDAE Rafinesque, 1815) 139*

Interior of outer lip polished; denticulations very weak or absent; body whorl 4/5 of total shell length
Superfamily STROMBACEA Rafinesque, 1815
Family STROMBIDAE Rafinesque, 1815
Genus Strombus Linne, 1758
Species alatus Gmelin, 1790

70 (68) Aperture smooth, ovate or pyriform shaped; no siphon canals; no sculpture; upper whorls may be curved (Superfamily AGLOSSA Thiele, 1829; Family MELLANELLIDAE= EULIMIDAE Risso, 1826) 131*

Aperture narrow; outerlip with weak denticulations; short siphon canal (Superfamily BUCCINACEA Rafinesque, 1815 ... 95*

71 (*) Shell shape cylindrical 73

Shell shape not cylindrical 72

72 (71) Shell shape globose conical (Superfamily ACTEONACEA d'Orbigny, 1835; Family ACTEONIDAE d'Oribigny, 1835 ..... 153*

Shell shape oval, sunken spire (Superfamily BULLACEA Lamarck, 1801) 95*

73 (71) Columella with distinct plicae 74

Columella without distinct plicae (Superfamily BULLACEA Lamarck, 1801) 95*

74 (73) Spire moderately elevated (Superfamily BULLACEA Lamarck, 1801) 95*

Spire depressed (Superfamily ACTEONACEA d'Orbigny, 1835; Family ACTEONIDAE d'Oribigny, 1835) 153*

75 (*) Shell limpet shaped .....
.....Superfamily SIPHONARIACEA Gray, 1840
Family SIPHONARIIDAE Gray, 1840
Genus Siphonaria Sowerby, 1824
Species pectinata (Linné, 1758)

Shell shape ovate or globose turbinate (Superfamily ELLOBIACEA Adams, 1855; Family ELLOBIIDAE Adams, 1855) .. 158

76 (28) Umbilicus completely absent or very distinct being deep, round, and smooth (Family TROCHIDAE Rafinesque, 1815) ... 109

Umbilicus only a chink .....
.....Family PHASIANELLIDAE Swainson, 1840
Genus Tricola Risso, 1826
Species affinus cruenta Robertson, 1958

77 (*) Shell shape conical 78

Shell shape discord, turbinate, trochiform, auriform, or spiral (Family VITRINELLIDAE Busch, 1847) 112

78 (77) Umbilicus present .....
Family LITTORIDINAE Thiele, 1929
Genus Littoridina Eydoux and Souleyet, 1852
Species sphinctostoma Abbott and Ladd, 1951

Umbilicus absent 79

79 (78) Outer lip thickened (Family RISSOIDAE Gray, 1847; Genus RISSOINA d'Orbigny, 1840) 163

Outer lip not thickened .....
Family TRUNCATELLIDAE Gray, 1840
Genus Truncatella Risso, 1826
Species pulchella Pfeiffer, 1839

80 (*) Shell shape "wormlike" .....
.... Family TURRITELLIDAE Woodward, 1851
Genus Vermicularia Lamarck, 1799
Species farqoi Olsson, 1951

Shell shape not as described above 81

81 (80) Shell shape tubular (Family CAECIDAE Gray, 1850) 123

Shell shape not tubular 82

82 (81) Shell shape turbinate .....
.....Family MODULIDAE Fischer, 1884
Genus Modulus Gray, 1842
Species modulus (Linne, 1758)

Shell shape not turbinate 83

83 (82) Whorls with 5 to 8 strong prominent varices .....
.....Family POTAMIDIDAE H. & A. Adams, 1854
Genus Cerithidea Swainson, 1840
Species pliculosa (Menke, 1829)

Varices very weak or absent 84

84 (83) Aperture "right-handed" 85

Aperture "left-handed" .....
.....Family TRIPHORIDAE Gray, 1847
Genus Triphora Blainville, 1828
Species perversa nigrocinta (C. B. Adams, 1839)

85 (84) Outer lip of aperture thickened 86

Outer lip of aperture not thickened 87

86 (85) Shell heavily sculptured; anterior siphon canal short but distince (Family CERITHIIDAE Fleming, 1822) 124*

Shell weakly sculptured; anterior siphon canal indistinct (Family CERITHIOPSIDAE H. & A. Adams, 1853) 126

87 (85) Shell heavily sculptured 88

Shell smooth except for spiral lines on the base (Family CERITHIIDAE Fleming, 1822) 124

88 (87) Shell with beaded sculpture 89

Shell with strong spiral sculpture (Family CERITHIOPSIDAE H. & A. Adams, 1853 ..... 126*

89 (88) Spire whorls with 3 rows of beads; last whorl may have 4 rows (Family CERITHIOPSIDAE H. & A. Adams, 1853) .. 126*

Spire whorls with 4 or more rows of beads (Family CERITHIIDAE Fleming, 1822) 124

90 (*) Whorls costate (Family EPITONIIDAE Berry, 1910) 128

Whorls smooth or faintly striated (Family JANTHINIDAE Leach, 1823) 130

91 (*) Shell shape auriform .....
Family LAMELLARIIDAE d'Orbigny, 1841
Genus Lamellaria Montagu, 1815
Species rangi Bergh, 1853

Shell shape ovate .....
.....Family ERATOIDAE Gill, 187J
Genus Trivia Gray, 1852
Species suffusa (Gray, 1832)

92 (38) Outer and inner lip of aperture outlined with regular, small riblets .....
.....Family CYPRAEIDAE Rafinesque, 1815
Genus Cypraea Linne, 1758
Species cervus Linne, 1771

Outer and inner lip of aperture without riblets (Family OVULIDAE? Gray, 1853) 133

93 (*) Length of anterior siphon canal much less than 1/2 of aperture length 94

Length of anterior siphon canal about 1/2 or more of aperture length (Family CYMATIIDAE Iredale, 1913) 138

94 (93) Outer lip of aperture thickened (Family CASSIDIDAE Latreille, 1825) 137

Outer lip of aperture not thickened .....
.....Family TONNIDAE Suter, 1913
Genus Tonna Brunnich, 1772
Species galea (Linne, 1758)

95 (*) Shell shape pyriform (Family MELONGENIDAE Gill, 1871; Genus Busycon Roding, 1798) 204

Shell shape not pyriform 96

96 (95) Shell shape fusiform; anterior siphon canal long (Family FASCIOLARIIDAE Gray, 1853) 141

Shell shape not fusiform; siphon canal short 97

97 (96) Whorls with transverse ribs 98

Whorls without transverse ribs (Family COLUMBELLIDAE Swainson, 1840 = PYRENIDAE Suter, 1913) 140*

98 (97) One strong columellar plicae (Family BUCCINIDAE Rafinesque, 1815; Genus Cantharus Roding, 1798) 203

Columellar plicae is weak or absent 99

99 (98) Axial ribs strong; definite beaded appearance (Family NASSARIIDAE Iredale, 1916; Genus Nassarius Dumeril, 1806) 205

Axial ribs weak; spiral striae absent or, if present, do not cross axial ribs (Family COLUMBELLIDAE Swainson, 1840= PYRENIDAE Suter, 1913) 140

100 (*) Outer lip of aperture thickened; columella with 4 strong plicae below .....
.....Family MARGINELLIDAE Fleming, 1828
Genus Prunum Herrmannsen, 1852
Species apicina Menke, 1828

Outer lip of aperture not thickened 101

101 (100) Whorls smooth or with only fine striatae (Family OLIVIDAE Latreille, 1825) 142

Whorls with strong reticulate sculpture .....
.....Family CANCELLARIIDAE Gray, 1853
Genus Cancellaria Lamarck, 1799
Species reticulata (Linné, 1757)

102 (*) Whorls definitely shouldered (Family TURRIDAE H. & A. Adams, 1853) 143

Whorls not shouldered 103

103 (102) One beaded spiral band just below suture 104

Beaded spiral band below suture absent (Family TEREBRIDAE Mörch, 1852) 146

104 (103) Spiral lines cross axial ribs (Family TURRIDAE H. & H. Adams, 1853) 143

Spiral lines do not cross axial ribs (Family TEREBRIDAE Morch, 1852) 146

105 (*) Spire sunken 106

Spire not sunken (Family RETUSIDAE Thiele, 1926) ... 154

106 (105) Aperture longer than body whorl (Family ATYIDAE Thiele, 1826; Genus Haminoea Turton and Kingston, 1830) 223

Aperture as long as body whorl .....
.....Family BULLIDAE Lamarck, 1801
Genus Bulla Linné, 1758
Species striata Bruguiere, 1792

107 (6) Gill plumes not feathery; body color shades of blue; oral tentacles present .....
.....Family GLAUCIDAE Oken, 1815
Genus Glaucus Forster, 1777
Species atlanticus Forster, 1777

108 (27) Apical orifice keyhole shaped .....
.....Genus Diodora (Lamarck, 1822)
Species cayenensis (Lamarck, 1822)

Apical orifice ovule shaped .....
Genus Lucapinella Pilsbry, 1890
Species limatula (Reeve, 1850)

109 (76) Umbilicus present .....
.....Genus Tegula Lesson, 1832
Species fasciata (Born, 1778)

Umbilicus absent .....
.....Genus Calliostoma Swainson, 1840
Species euglyptum (A. Adams, 1854)

110 (28) Shell surface smooth and polished 111

Shell surface with strong spiral cords .....
.....Genus Merita Linne, 1758
Species fulgurans Gmelin, 1791

111 (110) Shell shape globular with expanded body whorl; parietal area white to yellowish .....
.....Genus Neritima Lamarck, 1816
Species reclivata (Say, 1822)

Shell shape obliquely oval with expanded body whorl; parietal area is green .....
.....Genus Smaragdia Issel, 1869
Species viridis veridemaris (Maury, 1917)

112 (77) Shell shape auriform .....
.....Genus Macromphalia Cossmann, 1888
Species palmalitoris Pilsbry & McGinty, 1950

Shell shape not auriform 113

113 (112) Shell shape spiral .....
.....Genus Cyclostramella Bush, 1897
Species humilis Bush, 1897

Shell shape discord, turbinate, or trochiform 114

114 (113) Shell sculptured with pronounced transverse riblets ..
.....Genus Pleuromalaxis Pilsbry & McGinty, 1945
Species balesi Pilsbry & McGinty, 1945

Shell without transverse riblets 115

115 (114) Shell shape trochiform 116

Shell shape discord or turbinate 117

116 (115) Shell surface smooth or with very fine, fiant sculpture
.....Genus Episcynia Morch, 1875
Species inornata (d'Orbigny, 1842)

Shell surface with 8 or 9 distinct spiral ridges and several indistinct ones .....
.....Genus Parviturboides Pilsbry & McGinty, 1950
Species interruptus (C. B. Adams, 1850)

117 (115) Whorls with keel type spiral structures (Genus Cyclostremiscus Pilsbry & Olsson, 1945) 165

Whorls without keel type spiral structure 118

118 (117) Shell smooth; umbilicus closed or nearly so (Genus Teinostoma H. & A. Adams, 1854) 169

Shell with sculpture or, if smooth, the umbilicus is widely open 119

119 (118) Spire is partially covered with a thin callus of shell from each successive whorl 120

Spire without callus .....
.....Genus Anticlimax Pilsbry & McGinty, 1946
Species pilsbryi (McGinty, 1945)

120 (119) Shell shape turbinate (Genus Vitrinella C. B. Adams, 1850) 171

Shell shape discord 121

121 (120) Parietal callus thin or absent (Genus Cochliolepis Stimpson, 1858) 164

Parietal heavy and in most cases extends beyond aperture (Genus Solariorbis Conrad, 1865) 167

122 (43) Aperture round; spiral sculpture of revolving beaded cords; on the periphery there are 2 rows of stronger beads .....
.....Genus Heliacus d'Orbigny, 1845
Species bisculcata (d'Orbigny, 1845)

Aperture subquadrate; body whorl with 4 or 5 prominent sulcations .....
.....Genus Architectonica Roding, 1798
Species nobilis (Roding, 1798)

123 (81) Shell shape tubular with constant diameter or slightly tapered from anterior to posterior end (Genus Caecum Fleming, 1824) 173

Shell shape tubular with swollen center .....
.....Genus Meioceras Carpenter, 1858
Species nitidum (Stimpson, 1851)

124 (*) Anterior siphoned canal well developed but is short and upturned; posterior siphon canal weakly developed (Genus Corithium Bruguiere, 1789) 175

Anterior siphon canal poorly developed or absent; posterior siphon canal absent 125

125 (124) Shell with definite nodulose appearance; aperture shape oval .....
.....Genus Bittium Leach, 1847
Species varium (Pfeiffer, 1840)

Shell with smooth appearance; aperture shape semi-lunar; columella characterized by a strong ridge on the inside edge .....
.....Genus Litiopa Rang, 1829
Species melanostoma Rang, 1829

126 (*) Shell sculpture dominated by beaded appearance (Genus Cerithiopsis Forbes and Hanley, 1849) 176

Shell sculpture other than beaded appearance 127

127 (126) Each whorl with 3 strong flattened spiral ridges; spaces between ridges concave and are marked with fine spiral striations and delicate transverse lines that do not cross the ridges; sutures are only wider spaces giving the initial impression of continuous ridges ..
.....Genus Seila A. Adams, 1861
Species adamsi (H. C. Lea, 1845)

Shell thin and smooth except for numerous very fine spiral striations; raised former varices are characteristic on whorls .....
.....Genus Alaba H. & A. Adams, 1853
Species incerta (d'Orbigny, 1842)

128 (90) Transverse costae numerous, low and irregularly spaced; shell color brown or with brown markings 129

Transverse costae numerous, strong, and bladelike or they are numerous, low and regularly spaced; shell color white (Genus Epitonium Roding, 1798) 178

129 (128) Basal ridge present; shell with definite reticulate sculpture; each whorl with a dark brownish band at the periphery; basal area brown .....
.....Genus Amaea H. & A. Adams, 1854
Species mitchelli (Dall, 1896)

Basal ridge absent; no spiral sculpture, shell brown with white arial ribs .....
Genus Depressiscala de Boury, 1909
Species nautlae (Mörch, 1874)

130 (90) Shell shape glubose with low spire; aperture shape subquadrate (Genus Janthina Roding, 1798) 186

Shell shape moderately elongate conical; aperture oval .....
Genus Recluzia Petit, 1853
Species rollaniana Petit, 1853

130 (*) Deeply umbilicated by a conical depression .....
.....Genus Niso Risso, 1826
Species interrupta Sowerby, 1834

Umbilicus Absent 132

132 (131) Shell very slender; dolumella concave; each whorl with 2 brownish lines .....
.....Genus Strombiformis Da Costa, 1778
Species bilineata (Alder, 1848)

Shell slender; columella convex (Genus Melanella Bowdich, 1822) 189

133 (92) Aperture bordered inside with narrow ridge on collumella and on edge of body whorl or aperture bordered with narrow ridge on only the collumellar side (Genus Neosimnia Fischer, 1884) 192

No longitudinal ridges on either columella on outer lip (Genus Cyphoma Roding, 1798) 193

134 (*) Shell shape auriform (Genus Sinum Roding, 1798) ... 195

Shell shape not auriform 135

135 (134) Shell shape globose; color pattern simple (Genus Polinices Montfort, 1810) 194

Shell shape subglobular; color pattern complex ... 136

136 (135) Columellar margin finely serrate .....
.....Genus Natica Scopoli, 1777
Species canrena (Linne, 1758)

Columellar margin not serrate .....
.....Genus Tectonatica Sacco, 1890
Species pusilla (Say, 1822)

137 (94) Body whorl about 3/4 shell length .....
.....Genus Phalium Link, 1807
Species granulatum (Born, 1780)

Body whorl almost entire length of shell .....
.....Genus Cypraecassis Stutchbury, 1837
Species testiculus (Linné, 1758)

138 (93) Parietal shield absent or, if present, is large and smooth (Genus Cymatium Roding, 1798) 196

Parietal shield large and sculptured with irregular beads and folds .....
Genus Distorsio Roding, 1798
Species clatheata (Lamarck, 1816)

139 (*) Whorls with strong continuous varices (Genus Murex Linné, 1758 201

Whorls without strong continuous varices (Genus Thais Roding, 1788) 200

140 (*) Whorls with axial ribs (Genus Anachis H. & A. Adams, 1853) 202

Whorls smooth, without axial ribs .....
.....Genus Mitrella Risso, 1826
Species lunata (Say, 1862)

141 (96) Whorls smooth or with only fine spiral striae (Genus Fasciolaria Lamarack, 1799) 206

Spiral sculpture consists of strong, irregularly spaced cords, with finer threads in between; transverse growth lines present .....
.....Genus Pleuroploca P. Fischer, 1884
Species gigantea (Kiener, 1840)

142 (101) Aperture length about 1/2 shell length (Genus Olivella Swainson, 1831) 207

Aperture length at least 3/4 shell length .....
.....Genus Oliva Martyn, 1786
Species sayana Ravenel, 1834

143 (*) Single strong spiral cord just below suture .....
.....Genus Crassispira Swainson, 1840
Species tampaensis Bartsch & Rehder, 1939

Spiral cord absent 144

144 (143) Spaces between axial ribs much wider than the ribs ...
themselves .....
.....Genus Rubellatoma Bartsch & Rehder, 1939
Species diomedea Bartsch & Rehder, 1939

Spaces between axial ribs about as wide as ribs or narrower 145

145 (144) Whorls with 12 narrow transverse riblets and granular spiral sculpture; shell color basically white, lineated spirally with yellow brown .....
.....Genus Kurtziella Dall, 1918
Species limonitella (Dall, 1884)

Shell not as described above (Genus Mangelia Risso, 1826) 208

146 (*) Axial riblets do not cross the entire width of each whorl or the riblets become subdued at mid-whorl; spiral sculpture consists of microstriations or punctae (Genus Hastula H. & A. Adams, 1852) 212

Axial ribs cross the entire whorl width plus fine spiral striatae giving a beaded appearance in places, or axial ribs are absent (Genus Terebra Bruguiere, 1792) 213

147 (7) Sutures distinct, V-shaped channels .....
.....Genus Pyramidella Lamarck, 1799
Species crenulata (Holmes, 1859)

Sutures not V-shaped 148

148 (147) Shell smooth 149

Shell definitely sculptured 150

149 (148) Shell very slender .....
.....Genus Sayella Dall, 1885
Species livida Rehder, 1835

Shell ovate conical (Genus Odostomia Fleming, 1817) 215*

150 (149) Transverse sculpture microscopic (Genus Odostomia Fleming, 1817) 215*

Transverse sculpture strong 151

151 (150) Smooth spiral keel above suture (Genus Odestomia Fleming, 1817) 215*

No spiral keel above suture 152

152 (151) Shell shape ovate conic; aperture auriform shaped (Genus Odostomia Fleming, 1817) 215*

Shell shape elongate conic; aperture not auriform shaped (Genus Turbonilla Risso, 1826) 220

153 (*) Aperture length about 1/2 shell length .....
.....Genus Acteon Montfort, 1810
Species punctostriatus (C. B. Adams, 1840)

Aperture length equal to shell length .....
.....Genus Cylichna Loven, 1846
Species bidentata (d'Orbigny, 1841)

154 (105) Aperture about 3/4 of shell length; spire moderately elevated .....
.....Genus Retusa Brown, 1827
Species canaliculata (Say, 1826)

Aperture length equal to shell length; apex spikelike (Genus Volvulella Newton, 1891) 224

155 (8) Shell shape elongated, straight cone .....
.....Genus Creseis Rang, 1828
Species acicula (Rang, 1829)

Shell shape lozenge, globular, triangular, or shield like 156

156 (155) Shell shape lozenge or globular (Genus Djackia Gray, 1842) 225

Shell shape triangular or shieldlike with compressed lateral spines (Genus Cavolina Abildgaard, 1791) .. 226

157 (6) Body surface smooth (Genus Aplysia Linne, 1767 .. 227

Body surface covered with ragged appendages .....
..... Genus Bursatella Blainville, 1817
Species leachi plei (Rang, 1828)

158 (75) Shell thin and rather smooth; columella short with two white plicae .....
Genus Melampus Montfort, 1810
Species mirabilis (Mühlfeld, 1818)

159 (*) Body whorl about 1/2 shell length 160

Body whorl more than 1/2 shell length 161

160 (159) About 6 convex whorls .....
.....Species angulifera (Lamarck, 1822)

Eight to 10 gradually increasing, flat whorls .....
.....Species irrorata (Say, 1822)

161 (160) Transverse striations strong .....
.....Species nebulosa (Lamarck, 1822)

Transverse striations very weak 162

162 (161) Crescent-shaped umbilical slip present .....
.....Species meleagris (Potiez & Michaud, 1838)

Umbilical slit absent .....
.....Species lineolata d'Orbigny, 1842

163 (79) Shell sculptured with riblets .....
.....Species catesbyana d'Orbigny, 1842

Shell smooth .....
.....Species browniana d'Orbigny, 1842

164 (121) Shell smooth except for an occassional growth line ..
.....Species parasitica Stimpson, 1858

Shell sculptured with spiral striations .....
.....Species striata Dall, 1889

165 (117) Body whorl with 4 keel-like structures .....
.....Species jeannae Pilsbry & McGinty, 1946

Body whorl with 3 keel-like structures 166

166 (165) Umbilicus deep, open, and bordered by a spiral ridge ..
.....Species pentagonus (Gabb, 1873)

Umbilicus narrow with flat wall; umbilical ridge joins aperture in middle of the base .....
.....Species suppressus (Dall, 1889)

167 (121) Base with 3 spiral ridges .....
.....Species infracarinata Gabb, 1881

Base smooth 168

168 (167) Umbilicus constricted and may be partially or entirely closed .....
.....Species blakei Rehden, 1944

Umbilicus open, narrow, and deep .....
.....Species mooreana Vanatta, 1903

169 (118) Upper inner angle of lip has a small groove 170

Groove in the upper inner angle of lip missing .....
.....Species leremum Pilsbry & McGinty, 1945

170 (169) Spire covered by a shelly callus .....
.....Species biscaynense Pilsbry & McGinty, 1945

Spire not covered by shelly callus .....
.....Species parvicallum Pilsbry & McGinty, 1945

171 (120) Shell with sculpture 172

Shell without sculpture .....
.....Species floridana Pilsbry & McGinty, 1946

172 (171) Whorls with many revolving dorsal grooves and low radiating ribs on the base .....
.....Species texana Moore, 1964

Whorls with little or no spiral sculpture ....
.....Species helicoidea C. B. Adams, 1850

173 (123) Shell smooth .....
.....Species glabrum (Montagu, 1803)

Shell with strong longitudinal or axial ribs .. 174

174 (173) Apical plug with prong; longitudinal sculpture consisting of about 24 rounded ribs crossed by numerous rings .....
.....Species imbricatum Carpenter, 1858

Apical plug rounded; 25-30 fine, closely arranged axial ribs .....
.....Species pulchellum (Stimpson, 1851)

175 (124) Outer lip of aperture thin on the edge with thickened varix behind edge; 8 whorls .....
.....Species variabile (C. B. Adams, 1845)

Outer lip of aperture thickened into a crenulated varix; 11-13 whorls .....
.....Species floridanum Morch, 1876

176 (126) Three strong spiral rows of raised beads with middle row being less prominent; base is concave .....
.....Species emersonii (C. B. Adams, 1838)

Three equally strong rows of beads (last whorl may have 4 rows of beads); base almost straight ... 177

177 (176) Last whorl has 3 nodulose, spiral ridges .....
.....Species greeni (C. B. Adams, 1838)

Last whorl has 4 nodulose, spiral ridges .....
.....Species iota C. B. Adams, 1845

178 (128) Whorls with bladelike costae 179

Whorls with low, oblique axial ribs .....
.....Species sericifilum (Dall, 1889)

179 (178) Spiral striae between costae 180

Spiral striae between costae missing 181

180 (179) Spiral sculpture has reticulated pattern .....
.....Species novangliae (Conthony, 1835)

Spiral sculpture simple .....
.....Species multistriatum (Say, 1826)

180 (179) Basal ridge well defined 182

Basal ridge absent 183

182 (181) Costae on each successive whorl line up .....
.....Species lamellosum (Lamarck, 1822)

Costae on each successive whorl do not line up .
.....Species rupicola (Kurtz, 1860)

183 (181) Costae irregularly spaced and do not line up with other costae on successive whorls .....
.....Species tollini Bartsch, 1938

Costae regularly spaced and line up with other costae on successive whorls 184

184 (183) Body whorl with less than 10 costae .....
.....Species humphreysi (Kiener, 1815)

Body whorl with more than 10 costae 185

185 (184) Costae on early whorls sharply shouldered .....
.....Species angulatum (Say, 1831)

Costae on early whorls not shouldered .....
.....Species albidum (d"Orbigny, 1842)

186 (130) Outer lip of aperture is deeply indented at the mid-whorl point .....
.....Species umbilicata d'Orbigny, 1840

Outer lip not indented 187

187 (186) Lower edge of outer lip horizontal .....
.....Species janthina (Linné, 1798)

Lower edge of outer lip not horizontal 188

188 (187) Outer lip has sinuous margin .....
.....Species prolongata (Blainville, 1822)

Margin of outer lip only slightly sinuate near the center .....
.....Species pallida (Thompson, 1841)

189 (132) Ten convex whorls; spire with the axis curved to an extraordinary degree in the upper whorls ...
.....Species arcuata (C. B. Adams, 1850)

Twelve to 14 flat-sided whorls; apex only slightly bent .....
.....Species jamaicensis (C. B. Adams, 1845)

190 (30) Internal septum deep seated and convex .....
.....Species convexa Say, 1822

Internal septum not deep seated 191

191 (190) Apex turned to one side .....
.....Species fornicata (Linné, 1767)

Apex depressed .....
.....Species plana Say, 1822

192 (133) Aperture bordered by a long narrow ridge on the inside area of columellar and outer lip .....
.....Species acicularis (Lamarck, 1810)

Aperture bordered by a long narrow ridge only on the columellar side; spiral plication on the posterior end of aperture .....
.....Species uniplicata (Sowerby, 1848)

193 (133) Distinct, rounded mid-dorsal ridge present; body whorl slightly swollen .....
.....Species mcgintyi Pilsbry, 1939

Dorsal ridge weak or absent; body whorl definitely swollen; a strong plication on the upper portion of the twisted columella .....
.....Species intermedium (Sowerby, 1828)

194 (135) Umbilicus white, large, and deep .....
.....Species hepaticus (Roding, 1798)

Umbilicus nearly closed by funicle .....
.....Species duplicatus (Say, 1822)

195 (134) Apex slightly elevated above plane of body whorl; spiral growth lines on the dorsal side very weak
.....Species maculatum (Say, 1831)

Apex on same plane as body whorl; many fine spiral growth lines on dorsal side of whorls .....
.....Species perspectivum (Say, 1831)

196 (138) Transverse varices on body whorl very strong ... 198

Transverse varices on body whorl weak or absent . 197

197 (196) Outer lip of aperture crenulated and slightly expanded .....
.....Species poulsenii (Morch, 1877)

Outer lip of aperture bordered inside with paired teeth opposite the grooves between the external spiral cords
.....species parthenopeum (von Salis, 1793)

198 (196) Parietal area forms a large shield .....
.....Species muricinum (Roding, 1798)

Parietal area does not form a large shield 199

199 (198) Six strong noduled spiral cords interspaced with finr threadlike cords on each whorl; 5-8 transverse varices with 3-5 knobs between each pair of varices
.....Species martinianum (d'Orbigny, 1845)

200 (139) Body whorl has strong angled shoulder .....
.....Species haemastoma haysae Clench, 1927

Shoulder of body whorl weakly angled .....
.....Species haemastoma floridana (Conrad, 1837)

201 (139) Outer lip of aperture with very spinose varix
.....Species fulvescens (Sowerby, 1834)

Outer lip think, crenulated with varix bordering outer edge and without spines .....
.....Species pomum (Gmelin, 1790)

202 (140) Body whorl with 12 rounded axial ribs on upper part and faint spiral sculpture .....
.....Species avara semiplicata (Stearns, 1873)

Body whorl with strong spiral cords that do not cross transverse ribs, giving a reticulated pattern ..
.....Species obesa (C. B. Adams, 1845)

203 (98) Posteriof siphon canal weak or absent .....
.....Species cancellarius (Conrad, 1846)

Posterior siphon canal small and bordered by a plication on the upper part of the inner lip .....
.....Species tintus (Conrad, 1846)

204 (95) Sharp carina at the shoulder is finely beaded
.....Species spiratum plagosus (Conrad, 1863)

Small, short spines circle the shoulder .....
.....Species contrarium (Conrad, 1867)

205 (99) Body whorl dominates the shell .....
.....Species vibex (Say, 1822)

Spire longer than body whorl .....
.....Species acutus (Say, 1822)

206 (141) Spiral striae present just below suture and on base .
.....Species tulipa (Linne, 1758)

Smooth near well-defined sutures .....
.....Species hunteria (Perry, 1811)

207 (142) Fine spiral line above the base .....
.....Species minuta (Link, 1807)

No spiral line above the base .....
.....Species dealbata (Reeve, 1850)

208 (145) Sculpture strongly reticulate .....
.....Species plicosa (C. B. Adams, 1850)

Sculpture not strongly reticulate 209

209 (208) Whorls crossed by 3 strong, rounded, equally distant threads, the third thread defining the suture ..
.....Species oxytata Bush, 1885

Whorls not as described above 210

210 (209) Aperture 1/2 shell length .....
.....Species atrostyla Dall, 1889

Aperture less than 1/2 shell length 211

211 (210) Suture oppressed and undulated .....
.....Species cerina (Kurtz & Stimpson, 1851)

Suture weakly undulated .....
.....Species cerinella (Dall, 1889)

212 (146) Spiral sculpture consists of microstriations ...
.....Species maryleeae R. D. Burch, 1965

Spiral sculpture consists of microscopic rows of punctae; 30 short, dark ribs below suture of each whorl .....
.....Species salleana (Deshayes, 1859)

213 (146) Axial ribs present 214

Axial ribs absent .....
.....Species taurinus (Solander, 1786)

214 (213) Spiral striae cross axial ribs .....
.....Species protexta (Conrad, 1846)

Spiral striae do not cross axial ribs .....
.....Species dislocata (Say, 1822)

215 (*) Whorls smooth or with microscopic sculpture ... 216

Whorls with strong dense sculpture 218

216 (215) Shell shape globose conical; columella with prominent tooth .....
.....Species gibbasa Bush, 1909

Shell shape ovate to elongate conic; columella tooth weak or absent 217

217 (216) One or more deeply marked lines just below suture ..
.....Species bisuturalis (Say, 1822)

Whorls smooth except for microscopic growth striations
.....Species laevigata (d'Orbigny, 1842)

218 (215) Whorls with simple spiral sculpture .....
.....Species impressa (Say, 1822)

Whorls with beaded or cancellate sculpture 219

219 (218) Each whorl with 3 rows of tubercles and a smooth spiral keel above the suture; aperture oval or pear shaped .....
.....Species dux Dall & Bartsch, 1906

Each whorl sculptured by axial ribs cancellated into beads of nodules by 4 low, broad, equidistant ridges; aperture auriform .....
.....Species seminuda (C. B. Adams, 1839)

220 (152) Spiral sculpture consisting of fine incised lines ..
.....Species hemphilli Bush, 1900

Spiral sculpture consisting of strongly incised grooves 221

221 (220) Intercostal spaces wider than axial ribs .....
.....Species portoricana Dall & Stimpson, 1901

Intercostal spaces about equally as wide as axial ribs 222

222 (221) Intercostal spaces crossed by 5 equal spiral lines and 2 finer ones .....
.....Species elegantula Verrill, 1882

Intercostal spaces crossed by 14 subequal spiral lines arranged in pairs which do not cross the axial ribs ..
.....Species interrupta (Totten, 1835)

223 (106) Shell shape rounded oval; parietal area has narrow white inductura .....
.....Species antillarum (d'Orbigny, 1841)

Shell shape cylindrical; parietal without inducture
.....Species succinea (Conrad, 1846)

224 (154) Anterior end tapering; slight umbilical chink present
.....Species persimilis (Morch, 1875)

Anterior end not tapering; no umbilical chink ....
.....Species texasiana Harry, 1967

225 (156) Shell with 3 straight prominent spines, one on either side of the aperture and a longer one behind that may be broken off .....
.....Species trispinosa (Lesueur, 1821)

Shell with weak lateral spines that may be straight or folded back obliquely; never a hind spine .....
.....Species quadridentata (Lesueur, 1821)

226 (156) Dorsal face longitudinally ribbed, extended in front into a long, slightly folded, depressed beak; middle rib strongest and longest; central spine short and truncated .....
.....Species longirostris (Lesueur, 1821)

Dorsal face with 3 low, radiating ribs, turned downward and nearly evenly rounded at the aperture; central spine short, stout, and upcurved .....
.....Species uncinata (Rang, 1836)

227 (157) Dark circles scattered over body 228

Dark circles absent 229

228 (227) Body color light yellow or yellowish green with irregular violet black circles .....
.....Species dactylomela (Rang, 1828)

Body color basically dark with ring-shaped markings; often with spots inside rings .....
.....Species protea (Rang, 1828)

229 (227) Body color uniformly purple black; inside of swimming lobes slightly lighter .....
.....Species floridensis (Pilsbry, 1895)

Body color with irregular mottlings .....
.....Species willcoxi (Heilprin, 1886)

230 (2) Shell tapers continuously from aperture to apex (Family DENTALIIDAE Gray, 1834; Geunus Dentalium Linne, 1758) 231

Shell slightly swollen from aperture to middle ...
.....Family SIPHONODENTALIIDAE Simroth, 1895
Genus Cadulus Philippi, 1844
Species carolinensis Bush, 1885

231 (230) Aperture round .....
.....Species eboreum Conrad, 1846

Aperture hexagonal .....
.....Species texasianum Philippi, 1848

232 (4) Single large muscle scar or 3 muscle scars (Order PTERIOIDA Newell, 1965) 253

Two muscle scars 233

233 (232) Hinge straight or only slightly curved; radial or beaded sculpture dominates; shell shape rectangular, ovate, oblong, or trigonal (Order ARCOIDA Stoilicska, 1871; Superfamily ARCACEA Lamarck, 1809) 282

Shell not as described above 234

234 (233) Shell surface heavily pitted or covered with axial corrugations, scalelike fronds or radial ribs with short heavy spines and coarse granulation (Order HIPPURITOIDA Newell, 1965; Superfamily CHAMACEA Blainville, 1825; Family CHAMIDAE Blainville, 1825) 311

Shell surface not as described above 235

235 (234)	Shell with umbonal reflections and apophyses (Order MYOIDA Stoiliczka, 1870)	279
	Shell without umbonal reflections and apophyses .	236
236 (235)	Hinge teeth chevron type or comblike (Order NUCULOIDEA Dall, 1889)	251
	Hinge teeth not as described above	237
237 (236)	Shell shape subquadrate with spoonlike projection in hinge area (Order PHOLADOMYOIDA Newell, 1965; Superfamily PANDORACEA Rafinesque, 1815)	296*
	Shell not as described above	238
238 (237)	Shell shape semilunar; no hinge teeth; strong ridge along hinge margin (Order PHOLADOMYOIDA Newell, 1965; Superfamily PANDORACEA Rafinesque, 1815)	129*
	Shell not as described above	239
239 (238)	Shell shape elongate; posterior end truncate; no hinge teeth; pallial line indistinct; radial sculpture present (Order PHOLADOMYOIDA Newell, 1965; Superfamily PANDORACEA Rafinesque, 1815)	296*
	Shell not as described above	240
240 (239)	Shell petal shaped; pallial sinus deep and angular (Order MYOIDA Stoiliczka, 1870)	279
	Shell not as described above	240
241 (240)	Shell wedged shaped without hinge teeth or cylindrical with one pointed end or mussel-like without a septum (Order MYTILOIDEA Ferussac, 1822)	252*
	Shell wedged shaped with hinge teeth or cylindrical with both end rounded or mussel-like with a septum or some other shape	242

242 (241)	Interior nacreous (Order MYTILOIDEA Ferussac, 1822)	252
	Interior not nacreous	243
243 (242)	Shell shape elongate or elongated quadrate; shell heavy; concentric sculpture only; shell either very large (5-9 inches) or concentric sculpture is very coarse and irregular (Order MYOIDA Stoiliczka, 1870)	279
	Shell not as described above	244
244 (243)	Shell shape trigonal or subtrigonal	245
	Shell shape not as described above (Order VENEROIDA H. & A. Adams, 1858)	257
245 (244)	Pallial sinus absent or extremely small	246
	Pallial sinus well developed (Order VENEROIDA H. & A. Adams, 1858)	257
246 (245)	Concentric sculpture only	247
	Some radial sculpture present (Order VENEROIDA H. & A. Adams, 1858)	256*
247 (246)	Valve very thin and fragile (Order VENEROIDA H. & A. Adams, 1858)	257*
	Valve not thin and fragile	248
248 (247)	Two or more cardinal teeth (Order VENEROIDA H. & A. Adams, 1858)	257*
	Less than two cardinal teeth	249
249 (248)	Interior ventral margins smooth	250
	Interior ventral margins crenulate (Order VENEROIDA H. & A. Adams, 1858)	257*

250 (249) Chondrophore present (Order VENEROIDA H. & A. Adams, 1858) 257*

Chondrophore absent (Order MYOIDA Stoiliczka, 1870) 279*

251 (236) Ventral interior margin smooth; fine concentric sculpture; hinge teeth chevron-shaped (Superfamily NUCULANACEA Gray, 1824; Family NUCULANIDAE H. & A. Adams, 1858; Genus Nuculana Link, 1807) 350

Ventral interior margin crenulate; sculpture faint; hinge teeth comblike .....
.....Superfamily NUCULACEA Gray, 1824
Family NUCULIDAE Gray, 1824
Genus Nucula Lamarch, 1799
Species proxima Say, 1822

252 (*) Shell wedged shaped (Superfamily PINNACEA Leach, 1819; Family PINNIDAE Leach, 1819; Genus Atrina Gray, 1840) 363

Shell shape trigonal, fan shaped, oval, oblong or cylindrical (Superfamily MYTILACEA Rafinesque, 1815; Family MYTILIDAE Rafinesque, 1815) 300

253 (232) Radial sculpture definite and distinct 254

Radial sculpture lacking or obscure 255

254 (253) Umbones centrally located (Superfamily PECTINACEA Rafinesque, 1815) 284

Umbones not centrally located (Superfamily LIMACEA Rafinesque, 1815; Family LIMIDAE Rafinesque, 1815; Genus Lima Bruguiere, 1797) 367

254 (253) Hinge area without teeth, ridges, or channels (Superfamily ANOMIACEA Rafinesque, 1815; Family ANOMIIDAE Rafinesque, 1815) 309

Hinge area with teeth. ridges, or channels 256

256 (255) Hinge straight (Superfamily PTERIACEA Broderip, 1839) 283

Hinge curved (Superfamily OSTREACEA Rafinesque, 1815) 310

257 (*) Shell shape mussel-like
.....Superfamily DREISSENACEA Gray, 1840
Family DREISSENIDAE Gray, 1840
Genus Congeria Portsch, 1835
Species leucophaeta (Conrad, 1831)

Shell shape not mussel-like 258

258 (257) Sculpture dominated by radial ribs 259

Sculpture not dominated by radial ribs 261

259 (258) Radial ribs regularly spaced and equally strong .. 260

Radial ribs irregularly spaced and/or diminishing in width toward the anterior end (Superfamily VENERACEA Rafinesque, 1815) 294*

260 (259) Less than 20 radial ribs .....
.....Superfamily CARDITACEA Fleming, 1820
Family CARDITIDAE Fleming, 1820
Genus Cardita Bruguiere, 1792
Species floridana (Conrad, 1838)

Thirty or more radial ribs (Superfamily CARDIACEA Lamarck, 1809; Family CARDIIDAE Lamarck, 1809) .. 317*

261 (258) Shell shape cylindrical 262

Shell shape not cylindrical 263

262 (261) Umbones almost at end of valves (Superfamily SOLENACEA Lamarck, 1809; Family SOLENIDAE Lamarck, 1809) 325

Umbomes more or less central (Superfamily TELLINACEA Blainville, 1824) 290*

263 (261) Chondrophore present 264

Chondrophore absent 266

264 (263)	Chondrophore more or less round	265
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265 (264)	Ventral margin sinuate (Superfamily TELLINACEA Blainville, 1824)	287
266 (263)	Interior ventral margin crenulate	267
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267 (266)	Sculpture microscopic (Superfamily CARDIACEA Lamarck, 1809; Family CARDIIDAE Lamarck, 1809)	317*
	Sculpture not microscopic	268
268 (267)	Shell shape circular (Superfamily LUCINACEA Fleming, 1828)	286*
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269 (268)	Two cardinal teeth (Superfamily DONACACEA Fleming, 1828; Family DONACIDAE Fleming, 1828; Genus Donax Linne, 1758)	376
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271 (270)	Pallial sinus absent	272
	Pallial sinus present	275

272 (271) Sculpture microscopic 273

Sculpture not microscopic 274

273 (272) No cardinal teeth (Superfamily GALEOMMATACEA Gray, 1840) 287

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274 (272) Shell shape trigonal .....
.....Superfamily CRASSATELLACEA Ferussac, 1821
Family CRASSATELLIDAE Ferussac, 1821
Genus Crassinella Guppy, 1874
Species lunulata (Conrad, 1834)

Shell shape not trigonal (Superfamily LUCINACEA Fleming, 1828) 286*

275 (271) Pallial sinus narrow 276

Pallial sinus large and/or triangular 277

276 (275) Valve inflated or with ventral edge sinuate posteriorly (Superfamily CORBICULACEA Gray, 1847; Family CORBICULIDAE Gray, 1847) 332

Valve flat; ventral edge not sinuate (Superfamily VENERACEA Rafinesque, 1815) 294*

277 (275) Shell shape lenticular, circular, or trigonal (Superfamily VENERACEA Rafinesque, 1815) 294*

Shell shape not as described above 278

278 (277) Shell thin or with spines on dorsal margin (Superfamily TELLINACEA Blainville, 1824) 290*

Shell heavy (Superfamily VENERACEA Rafinesque, 1815) 294*

279 (*) Shell petal shaped .....
Superfamily GASTROCHAENACEA Gray, 1840
Family GASTROCHAENIDAE Gray, 1840
Genus Rocellaria Blainville, 1828
Species hians (Gmelin, 1790)

Shell shape other than petal-like 280

280 (279) Apophysis and/or umbonal reflection present (Superfamily PHOLADACEA Lamarck, 1809; Family PHOLADIDAE Lamarck, 1809) 345

Apophysis and umbonal reflections absent 281

281 (280) Shell small, less than 12mm (Superfamily MYACEA Lamarck, 1818; Family CORBULIDAE Lamarck, 1818) 343

Shell large, 2-23 cm (Superfamily HIATELLACEA Gray, 1824; Family HIATELLIDAE Gray, 1824) 344

282 (233) Radial ribs flattened with a fine line, not a groove, down the center; muscle scars raised .....
.....Family NOETIIDAE Stewart, 1930
Genus Noetia Gray, 1840
Species ponderosa (Say, 1822)

Radial ribs rounded or square with deep central groves (Family ARCIDAE Lamarck, 1809) 298

283 (256) Hinge with several strong oblong grooves or square sockets (Family ISOGNOMONIDAE Woodring, 1925; Genus Isognomon Solander, 1786 364

Hinge without grooves or sockets (Family PTERIIDAE Broderip, 1839) 306

284 (254) Hinge area with ears (Family PECTINIDAE Rafinesque, 1815) 307

Hinge area without ears 285

285 (284) Valves with long spines .....
.....Family SPONDYLIDAE Gray, 1826
Genus Spondulus Linne, 1758
Species americanus Hermann, 1781

Valves without spines .....
.....Family PLICATULIDAE Watson, 1930
Genus Plicatula Lamarck, 1801
Species gibbosa Lamarck, 1801

286 (*) Lateral teeth present, may be very weak (Family LUCINIDAE Fleming, 1828) 313

Lateral teeth absent (Family UNGULINIDAE H. & A. Adams, 1857; Genus Diplodenta Brown, 1831) .. 372

287 (273) Umbones almost centrally located .....
.....Family LEPTONIDAE Gray, 1846
Genus Lepton Tueton, 1822
Species lepidum Say, 1826

Umbones 1/4 back from posterior end .....
.....Family KELLIDAE Clark, 1851
Genus Mysella Angas, 1877
Species planulata (Stimpson, 1851)

288 (265) Cardinal tooth bifid 289

Cardinal teeth not bifid (Family MACTRIDAE Lamarck, 1809) 319*

289 (288) Posterior slope with ridge(s) (Family MACTRIDAE Lamarck, 1809) 319*

Posterior slope without ridges .....
.....Family MESODESMATIDAE Lamarck, 1809
Genus Ervilia Turton, 1822
Species concentrica Gould, 1862

290 (*) Shell shape cylindrical or elongate rectangular (Family SOLECURTIDAE d'Orbigny, 1846) 330

Shell shape not as described above 291

291 (290) Large pallial sinus with a U-shaped hump at the top
.....Family PSAMMOBILDAE Fleming, 1828
Genus Sanguinolaria Lamarck, 1799
Species cruenta (Solander, 1786)

Pallial sinus without U-shaped hump 292

292 (291) Chondrophore present 293

Chondrophore absent (Family TELLINIDAE Blainville, 1824) 326

293 (292) Shell surface sculptured (Family SEMELIDAE Stoliczka, 1870) 331

Shell surface smooth, polished .....
.....Family SCROBICULARIIDAE H. & A. Adams, 1856
Genus Abra Lamarck, 1818
Species aequalis (Say, 1822)

294 (*) Shell shape elongate; anterior radial ribs predominantly scaled (Family PETRICOLIDAE Deshayes, 1831) 342*

Shell shape not elongate 295

295 (294) Radial sculpture dominant over concentric; pallial sinus semicircular (Family DETRICOLIDAE Deshayes, 1831) 342*

Concentric sculpture dominant or equal to radial sculpture; pallial sinus not semicircular (Family VENERIDAE Rafinesque, 1815) 332

296 (*) Spoon-shaped tooth in hinge area .....
.....Family PERIPLOMATIDAE Dall, 1895
Genus Periploma Schumacher, 1816
Species inequale (C. B. Adams, 1842)

Hinge area without teeth 297

297 (296) Strong ridge along hinge margin .....
.....Family PANORIDAE Rafinesque, 1815
Genus Pandora Bruguiere, 1797
Species trilineata Say, 1822

Hinge margin without ridge .....
.....Family LYONSIIDAE Fischer, 1887
Genus Lyonsia Turton, 1822
Species hyalina floridana Conrad, 1849

298 (282) Shell carinate posteriorly (Genus Arca Linne, 1758) 351

Shell not carinate posteriorly 299

299 (298) Shell surface and/or margins irregular (Genus Barbatia Gray, 1847) 352

Shell surface and margins regular (Genus Anadara Gray, 1847) 355

300 (252) Radial ribs present 301

Radial ribs absent 303

301 (300) Hinge teeth present (Genus Brachidontes Swainson, 1840) 360

Hinge teeth absent 302

302 (301) Umbones nearly terminal (Genus Modiolus Lamarck, 1799 ..... 359*

Umbones definitely not terminal (Genus Musculus Roding, 1798) 361

303 (300) Interior nacreous 304

Interior not nacreous 305

304 (303) Shell shape cylindrical with one pointed end (Genus Lithophaga Roding, 1798) 362

Shell shape oval .....
.....Genus Lioberis Dall, 1898
Species castaneus (Say, 1825)

305 (303) Shell fan shaped; umbones nearly terminal ...
.....Genus Amygdalum Megerle von Muhlfeld, 1811
Species papyria (Conrad, 1846)

Shell shape trigonal; umbones definitely not terminal (Genus Modiolus Lamarck, 1799) 359*

306 (283) Both wings short .....
.....Genus Pinctada Roding, 1798
Species radiata (Leach, 1814)

Posterior wing long .....
.....Genus Pteria Scololi, 1777
Species columbus (Roding, 1798)

307 (284) Radial ribs with central groove .....
.....Genus Pecten Muller, 1776
Species raveneli Dall, 1898

Radial ribs without central groove 308

308 (307) Seven to 9 large, coarse radial ribs that have large hollow nodules .....
.....Genus Lyropecten Conrad, 1862
Species nodosus (Linne, 1758

Twelve to 20 radial ribs which lack large hollow nodules (Genus Aequipecten P. Fischer, 1886) 365

309 (255) Hinge about 1/2 shell width .....
.....Genus Anomia Linne, 1758
Species simplex d'Orbigny, 1845

Hinge almost shell width .....
.....Genus Pododesmus Philippi, 1837
Species rudis (Broderip, 1834)

310 (256) Muscle scar subcentral and colored deep purple .....
.....Genus Crassostrea Sacco, 1897
Species virginica (Gmelin, 1792)

Muscle scar central and not pigmented .....
.....Genus Ostrea Linne, 1758
Species equestris Say, 1834

311 (234) Umbones turn right to left 312

Umbones turn left to right .....
.....Genus Pseudochama Odhner, 1917
Species radians Lamarck, 1819

312 (311) Shell with radial sculpture .....
.....Genus Echinochama P. Fischer, 1887
Species cornuta (Conrad, 1866)

Shell without radial sculpture (Genus Chama Linne, 1758) 368

313 (286) Posterior dorsal slope is rostrata .....
.....Genus Phacoides Gray, 1847
Species pectinatus (Gmelin, 1791)

Posterior dorsal slope not rostrate 314

314 (313) Interior margins crenulate (Genus Lucina Bruguiere, 1797) 370*

Interior margins smooth 315

315 (314) Sculpture reticulate .....
.....Genus Codakia Scopoli, 1777
Species orbicularis (Linne, 1758)

Sculpture concentric 316

316 (315) Hinge margin very thick (Genus Lucina Bruguiere, 1797) 370*

Hinge margin not thick (Genus Anadontia Link, 1807) 369

317 (*) Radial ribs pronounced 318

Shell almost smooth (Genus Laevicardium Swainson, 1840) 373

318 (317) Radial ribs with short spines (Genus Trachycardium Morch, 1853) 374

Radial ribs without spines .....
.....Genus Dinocardium Dall, 1900
Species robustum (Solander, 1786)

319 (*) Sculpture consists of evenly spaced, rounded, broad concentric ribs with fine striations in the intercostal spaces .....
.....Genus Raeta Gray, 1853
Species plicatella (Lamarck, 1818)

Concentric sculpture threadlike 320

320 (319) Posterior slope with radial ridge(s) or keel 321

Posterior slope without radial ridge 322

321 (320) Posterior slope with 2 radial ridges .....
.....Genus Mactra Linne, 1767
Species fragilis Gmelin, 1792

Posterior slope with 1 radial ridge or keel 322

322 (321) Concentric sculpture evident on interior of valve
.....Genus Anatina Schumaker, 1817
Species anatina Spengler, 1802

Concentric sculpture not evident on interior of valve 323

323 (322) Umbones almost central .....
.....Genus Mulinia Gray, 1837
Species lateralis (Say, 1822)

Umbones nearer anterior end (Genus Rangia Des Moulins, 1832) 375*

324 (320) Chondrophore deeply excavated (Genus Rangia Des Moulins, 1832) 375*

Chondrophore not deeply excavated .....
.....Genus Spissula Gray, 1837
Species solidissima similis (Say, 1822)

325 (262) Pallial sinus shallow .....
.....Genus Enis Schumacher, 1817
Species minor Dall, 1900

Pallial sinus long and distinct .....
.....Genus Solen Linne, 1758
Species viridis Say, 1822

326 (292) Spines along entire dorsal margin .....
.....Genus Tellidora H. & A. Adams, 1856
Species cristata (Recluz, 1842)

No spines along dorsal margin 327

327 (326) Lateral teeth present 328

Lateral teeth absent (Genus Macoma Leach, 1819) 377

328 (327) Oblique sculpture 329

Sculpture not oblique (Genus Tellina Linné, 1758) 381*

329 (328) Shell shape oval .....
.....Genus Strigilla Turton, 1822
Species mirabilis (Philippi, 1841)

Shell shape elongate (Genus Tellina Linne, 1758) 381*

330 (290) Oblique radial lines present .....
.....Genus Solecurtus Blainville, 1824
Species cumingianus (Dunker, 1861)

Oblique radial lines absent (Genus Tagelus Gray, 1847) 388

331 (293) Radial ridge on posterior slope .....
.....Genus Cumingia G. B. Sowerby, 1833
Species tellinoides (Conrad, 1831)

No radial ridge on posterior slope (Genus Semele Schumacher, 1817) 389

332 (276) Ventral margin slightly sinuate posteriorly ...
.....Genus Pseudocyrena Bourguignat, 1854
Species floridana (Conrad, 1846)

Ventral margin not sinuate .....
.....Genus Polymesoda Rafinesque, 1820
Species caroliniana (Bosc, 1830)

333 (295) Shell shape circular 334

Shell shape not circular 335

334 (333) Lateral teeth present (Genus Dosinia Scopili, 1777) 392

Lateral teeth absent .....
.....Genus Cyclinella Dall, 1902
Species tenuis (Recluz, 1852)

335 (333) Interior ventral margin smooth 336

Interior ventral margin crenulate 338

336 (335) Pallial sinus touching posterior muscle scar
.....Genus Callocardia A. Adams, 1864
Species texasiana (Dall, 1892)

Pallial sinus not touching posterior muscle scar 337

337 (336) Pallial sinus angled at end (Genus Macrocallista Meek, 1876) 391

Entire pallial sinus angled and small (Genus Mercenaria Schumacher, 1817) 396*

338 (335) Shell wedge shaped .....
.....Genus Anomalocardia Schumacher, 1817
Species cuneimeris (Conrad, 1846)

Shell not wedge shaped 339

339 (338) Sculpture very faint and concentric .....
.....Genus Gemma Deshayes, 1853
Species purpurea (Lea, 1842)

Sculpture strong 340

340 (339) Concentric and radial sculpture present (Genus Chione Megerle von Muhlfeld, 1811) 391*

Concentric sculpture only 341

341 (340) Concentric lines fine and smooth (Genus Mercenaria Schumacher, 1817) 396*

Concentric lines broad or serrated (Genus Chione Megerle von Muhlfeld, 1811) 393*

342 (*) Shell shape elongate; pallial sinus narrow and deep
.....Genus Petricola Lamarck, 1801
Species pholadiformis (Lamarck, 1818)

Shell shape oblong; pallial sinus semicircular
.....Genus Pseudoirus Habe, 1951
Species typica (Jonas, 1844)

343 (281) Umbones turned inward .....
.....Genus Varicorbula Grant & Gale, 1931
Species operculata (Philippi, 1849)

Umbones not turned inward (Genus Corbula Beuguière, 1797) 397

344 (281) Umbones about 1/3 back from anterior end .....
.....Genus Hiatella Daudin, 1801
Species arctica (Linne, 1767)

Umbones almost central .....
.....Genus Panopea Menard de la Groye, 1807
Species bitruncata (Conrad, 1872)

345 (280) Valves divided into two sections by umbonal-sucus 346

Valves without umbonal-sulcus 348

346 (345) Posterior ridges with spines .....
.....Genus Jougnnetia Des Moulins, 1828
Species quillingi Turner, 1955

Nc spines on posterior end 347

347 (346) Anterior ridges denticulated (Genus Martesia G. B. Sowerby I, 1824) 401

Anterior ridges not denticulated .....
.....Genus Diplothyra Tryon, 1862
Species smythi Tryon, 1862

348 (345) Apophyses large, spoon shaped, and hollow at upper end
.....Genus Cyrtopleura Tryon, 1862
Species costata (Linné, 1758

Apophyses not as described above 349

349 (348) Apophyses long, narrow, and bladelike .....
.....Genus Barnea Risso, 1826
Species truncata (Say, 1822)

Apophyses short and broad .....
.....Genus Pholas Linné, 1758
Species campechiensis Gmelin, 1792

350 (251) Sculpture consists of well-defined concentric grooves .....Species *acuta* (Conrad, 1831)

Sculpture consists of very fine concentric growth lines on the vertical half of the valves ....Species *concentrica* Say, 1824

351 (298) Radial ribs crossed with growth lines ....Species *imbricata* Bruguiere, 1792

Radial ribs smooth ....Species *zebra* (Swainson, 1833)

352 (299) Interior reddish brown ....Species *cancellaria* (Lamarck, 1819)

Interior white 353

353 (352) Very distinct, coarse reticulated surface; shingelike growth ridges ....Species *domingensis* (Lamarck, 1819)

Radial ribs weak and only finely beaded 354

354 (353) Typical chevron teeth ....Species *tenera* (C. B. Adams, 1845)

Hinge teeth not parallel, obliquely inclined to center ....Species *candida* (Helbling, 1779)

355 (299) Shell shape trigonal or ovate; less than 30 radial ribs 357

Shell shape obliquely rectangular or transversely oblong; more than 30 radial ribs 356

356 (355) Radial ribs square ....Species *lienosa* Say, 1832

Radial ribs round ....Species *transversa* (Say, 1822)

357 (355) Umbones forward of the center of the ligamental area 358

Umbones about in center of ligamental area ....Species *brasiliana* (Lamarck, 1819)

358 (357) Radial ribs with weak groove .....
.....Species ovalis (Bruguiere, 1789)

Radial ribs without groove .....
.....Species chemnitzi (Philippi, 1851)

359 (*) Sculptured with only fine growth lines .....
.....Species americanus Leach, 1815

Sculptured with numerous strong, beaded radial ribs
.....Species demisus granosissimus (Sowerby, 1914)

360 (301) Shell moderately fan shaped, mussel-like .....
.....Species exustus (Linné, 1758)

Shell shape oval with a strong triangular hook on anterior end .....
.....Species recurvus (Rafinesque, 1820)

361 (302) Radial ribs on either end leaving a disc section with only fine growth lines .....
.....Species lateralis (Say, 1822)

Weak growth lines over entire surface .....
.....Species opifex (Say, 1825)

362 (304) Points at posterior end do not cross; shell color mahogany brown .....
.....Species bisulcata (d'Orbigny, 1845)

Points at posterior end cross in scissor fashion; shell color grayish white .....
.....Species aristata (Dillwyn, 1817)

363 (252) Radial ribs smooth .....
.....Species seminuda (Lamarck, 1819)

Radial ribs with fluted projections .....
.....Species serrata (Sowerby, 1825)

364 (263) Sharply raised ridge separates the interior central area from the marginal area .....
.....Species bicolor (C. B. Adams, 1845)

Interior ridge described above missing .....
.....Species alatus (Gmelin, 1791)

365 (308) Radial ribs with small spines .....
.....Species muscosus (W. Wood, 1828)

Radial ribs without spines 366

366 (365) Shell shape almost circular; ears small .....
.....Species gibbus (Linné, 1758)

Shell fan shaped; ears moderately long .....
.....Species amplicostatus (Dall, 1898)

367 (254) Radial ribs spinose .....
.....Species lima (Linne, 1758)

Radial ribs not spinose .....
.....Species pellucida C. B. Adams, 1846

368 (312) Surface covered with scale-like projections ...
.....Species macerophylla Gmelin, 1791

Surface without projections .....
.....Species congregata Conrad, 1833

369 (316) Anterior muscle scar elongate and nearly parallel to pallial line .....
.....Species alba Link, 1807

Anterior muscle scar at a 30° angle to pallial line .....
.....Species philippiana (Reeve, 1850)

370 (*) Radial ribs present .....
.....Species amiantus (Dall, 1901)

Radial ribs absent 371

371 (370) Fine irregular growth lines; hinge area very thick
.....Species floridana Conrad, 1833

Fine regular concentric threads; hinge area not thickened .....
.....Species multilineata (Tuomey & Holmes, 1857)

372 (286) Numerous concentric rows of microscopic pimples
.....Species semiaspera Philippi, 1836

Shell smooth with only fine concentric growth lines
.....Species soror C. B. Adams, 1852

373 (317) Shell surface highly polished, with faint pimpled concentric lines .....
.....Species mortoni (Conrad, 1830)

Shell surface polished, with obscure radiating ribs
.....Species laevigatum (Linne, 1758)

374 (318) Imbricated scales across entire width of radial ribs
.....Species isocardia (Linne, 1758)

Imbricted scales on anterior or posterior slope of radial ribs with some ribs having double rows of scales .....
.....Species muricatum (Linne, 1758)

375 (*) Posterior lateral hinge tooth long, reaching almost to ventral margin .....
.....Species cuneata (Gray, 1831)

Posterior lateral hinge tooth short .....
.....Species flexuosa (Conrad, 1839)

376 (327) Interior ventral margin smooth .....
.....Species tumidus Philippi, 1849

Interior ventral margin finely crenate .....
.....Species variabilis texasiana Philippi, 1847

377 (327) Pallial sinus confluent with pallial line 378

Pallial sinus not confluent with pallial line .. 379

378 (377) Pallial sinus 1/4 confluent with pallial line ..
.....Species tageliformis Dall, 1900

Pallial sinus 1/2 confluent with pallial line ..
.....Species tenta (Say, 1834)

379 (377) Shell shape oval .....
.....Species brevifrons (Say, 1834)

Shell shape subquadrate 380

380 (379) Irregular concentric growth lines .....
.....Species *constricta* (Bruguiere, 1792)

Regular gaint concentric growth lines
.....Species *mitchelli* Dall, 1895

381 (*) Pallial sinus joins pallial line about midway between muscle scars .....
.....Species *iris* Say, 1822

Pallial sinus joins pallial line close to anterior muscle scar 382

382 (381) Pallial sinus sinuous above 383

Pallial sinus convex above 385

383 (382) Posterior slightly truncate .....
.....Species *alternata* Fischor, 1887

Posterior rounded 384

384 (383) Sculpture consists of weak, finely incised, closely spaced concentric sulci .....
.....Species *versicolor* DeKay, 1843

385 (382) Posterior twisted to the right 386

Posterior not twisted 387

386 (385) Posterior truncated .....
.....Species *aequistriata* (Say, 1824)

Posterior rounded .....
.....Species *lineata* Turton, 1819

387 (385) Shell color glossy pink .....
.....Species *tayloriana* Sowerby, 1867

Shell color white
.....Species *tampaensis* Conrad, 1866

388 (330) Weak anterior radial rib just anterior to the hinge teeth .....
.....Species divisus (Spengler, 1794)

Internal radial rib missing .....
.....Species plebius (Salander, 1786)

389 (331) Concentric sculpture weak, irregular, and fine
.....Species prodicua (Pulteney, 1799)

Concentric ridges pronounced 390

390 (389) Radial ribs present .....
.....Species bellastriata (Conrad, 1837)

Radial ribs absent .....
.....Species purpuracens (Gmelin, 1791)

391 (377) Shell shape oval; shell cream colored with checkered brown spots .....
.....Species maculata (Linne, 1758)

Shell shape elongate oval; shell salmon colored with brown radial lines .....
.....Species nimbosa (Solander, 1786)

392 (334) Pallial sinus touching posterior muscle scar; regular heavy concentric ridges present .....
.....Species elegans Conrad, 1846

Pallial sinus extends to center of shell; concentric ridges fine .....
.....Species discus (Reeve, 1850)

393 (*) Radial ribs present 394

Radial ribs absent 395

394 (393) Pallial sinus small and triangular .....
.....Species cancellata (Linne, 1767)

Pallial sinus small and oblique .....
.....Species grus (Holmes, 1858)

395 (393) Concentric ribs fine with beaded appearance .....
.....Species intapurpura (Conrad, 1849)

Concentric ribs rounded and thick looking .....
.....Species clenchi Pulley, 1952

396 (*) Interior ventral margin finely crenulate .....
.....Species campechiensis texana (Dall, 1902)

Interior ventral margin smooth .....

.....Species campechiensis (Gmelin, 1790)

397 (343) Posterior slope with radial ridge 399

Posterior slope without radial ridge 398

398 (397) Concentric sculpture thread-like
.....Species contracta Say, 1822

Concentric sculpture strong, not thread-like
.....Species krebsiana C. B. Adams, 1852

399 (397) Posterior muscle scar thickened and elevated ....
.....Species dietziana C. B. Adams, 1852

Posterior muscle scar not thickened or elevated 400

400 (399) Umbones sharply angled to the posterior .....
.....Species barrattiana C. B. Adams, 1852

Umbones not sharply angled to the posterior .....
.....Species swiftiana C. B. Adams, 1852

401 (347) Valves divided into two parts by an umbonal-ventral sulcus .....
.....Species cuneiformis (Say, 1822)

Umbonal-ventral sulcus absent .....
.....Species fragilis Verrill & Bush, 1890

402 (3) Ten tentacles, one long pair and 4 short pair; internal and reduced (Order DECAPODA Leach, 1818) 403

Eight arms; shell absent .....

.....Order OCTOPODA Leach, 1818
Family OCTOPODIDAE d'Orbigny, 1835
Genus Octopus Lamarck, 1798
Species vulgaris Lamarck, 1798

403 (402) Shell is partly external and loosely coiled; only the coiled shell is found on the beaches .....
.....Family SPIRULIDAE Owen, 1836
Genus Spirula Kanarcjm k799
Species spirula (Linne, 1758)

Body long, fins near posterior end .....
.....Family LOLLIGINIDAE d'Orbigny, 1835
Genus Lollinguncula Steenstrup, 1881
Species brevis (Blainville, 1823)

GLOSSARY

ACUTE: sharply pointed; when referring to a spire, the angle of the spire is less than 90 degrees.

ANTERIOR: the forward end of a bivalve shell (Fig. 1).

APERTURE: the "mouth", opening, or entrance to a gastropod shell (Fig. 2).

APEX: the tip of the spire in gastropods (Fig. 2).

APICAL PLUG: structure that seals the apical end of Caecum gastropods. (Fig. 3).

APOPHYSES: a peglike, bony protuberance, or spoonlike structure used to support a muscle (Fig. 4).

APPENDAGES: any considerable projection from the body of an animal.

ARMS: see Tentacles.

AURIFORM: shaped like the human ear (Fig. 5).

AXIAL: from the apex to the base of a gastropod; axial ribs are ribs parallel to the edge of the outer lip (Fog. 2); a preferred term is transverse.

BASAL: see Base.

BASAL RIDGE: ridge running along the uppermost part of the base in gastropods.

BASE: in gastropods, the extremity opposite the apex; in bivalves, the margin opposite the umbones.

BEADED: sculpture consisting of roundish moundlike structures; with bends (Fig. 2).

BEAK: in gastropods, reference to the pointed edge of the aperture in some pteropods (Fig. 6); for bivalves see Umbo.

BIFID: separated into two parts by a slit, cleft or groove (Fig. 7).

BLADELIKE: reference to costae which are very thin compared to their width (Fig. 8).

BODY WHORL: the last whorl of a gastropod shell (Fig. 2).

CALLUS: a calcareous deposit, such as enamel, found most around the aperture in gastropods.

CANALS: a tubular prolongation of the lip of the aperture which contains the siphon in many gastropods (Fig. 2).

CANCELLATE: sculpture lines crossing at right angles.

CARDINAL TEETH: the largest teeth located in the hinge area below the umbones in bivalves (Fig. 1).

CARINATE: with a keel-like, elevated ridge.

CHEVRON: a series of closely spaced v-shaped teeth in bivalves (Fig. 9).

CHINK: a small cleft or fissure.

CHITIN: a hard compound found in the hard covering of insects and crustaceans.

CHONDROPHORE: a pit or spoonlike shelf found in the hinges of some bivalves into which fits a chitinous cushion (Fig. 10).

CIRCULAR: Roundish; bivalve shell shape (Fig. 11).

COLUMELLA: the pillar around which the whorls of gastropods form their spiral circuit (Fig. 2).

COMBLIKE: reference to the shape of hinge teeth in bivalves where a series of alternating elongate grooves and ridges make up the teeth pattern (Fig. 12).

CONCAVE; hollowed or rounded inward like the inside of a bowl.

CONCENTRIC: lines of sculpture where one line is inside the next (Fig. 13).

CONFLUENT: flowing together as to form one.

CONIC (conical): cone shape (Fig. 5) found in gastropods.

CONVEX: rounded outward like the outside of a bowl.

CORD: rounded coarse spiral or transverse linear sculpture; smaller than costae (Fig. 2).

CORRUGATIONS: wrinkles, folds, ridges, or grooves.

COSTAE: ribs (Fig. 2).

CRENULATE: notched or scalloped around the margins.

CRESCENT: a figure with a convex and concave edge.

CYLINDRICAL: having the form of a cylinder; sides parallel (for gastropods see Fig. 5, for bivalves see Fig. 11.)

DECAPODA: having 10 appendages; an order of the class CEPHALOPODA; squids (Fig. 14).

DECK: a small platform under the beaks of bivalves; a diaphragm in Crepidula (Fig. 15).

DENTICLES: small projections around the aperture margin in gastropods or margin of bivalves.

DENTIDULATIONS: see Denticles.

DISCORD: whorls of a gastropod being coiled in one plane (Fig. 13).

DISTAL: situated away from.

DORSAL: belonging to the back; in bivalves, the area around the umbones (Fig. 1); in gastropods, the area opposite the aperture.

EARS: see Wing.

ELONGATE: longer than wide; bivalve shell shape (Fig. 5).

EQUIDISTANT: distants or space between a series of objects is the same.

FANSHAPE: like a fan; bivalve shell sha;e (Fig. 5).

FINS: flat, triangular lateral projucts found in decapods (Fig. 14).

FLUTE: a rounded groove.

FUNICLE: a ridge of callus that begins on the outer side of the inner lip and spirals into the umbilicus.

FUSIFORM: spindle shaped (Fig. 13).

GASTROPOD: a snail; univalve (Fig. 2).

GILL: respiratory tissue with a featherlike appearance.

GILL PLUMES: tuffs of respiratory tissue usually external.

GLOBULAR: sphere shaped, like a ball; gastropod shell shape (Fig. 5).

GRANULOSE: covered with minute grains or beads producing a rough surface.

GROOVE: a long narrow channel or depression.

GROWTH LINES: lines on the shell surface indicating rest periods during growth, denoting a former position of the outer lip.

HEXAGONAL: six sides.

HIND PARTS: used in reference to pteriopods; parts opposite the aperature (Fig. 6).

HINGE: where the valves of a bivalve join (Fig. 1).

HINGE MARGIN: outer periphery of the hinge area.

HINGE TEETH: teeth located in the hinge area (Fig. 2).

IMBRICATED: overlapping one another at the margins.

INCISED: sculptured with one or more sharp grooves.

INDENTED: a smooth notchlike curve in the valve margin of some bivalves.

INDUCTURA: smooth shelly layer commonly extending from inner side of aperture over parietal region, columellar lip, and in some cases part or all of shell exterior; a preferred term is parietal callus (Fig. 2).

INFLATED: applied to rotund thin shells; swollen.

INNER LIP: portion of aperture adjacent to axis (Fig. 2).

INTERCOSTAL: placed or occurring between ribs (Fig. 8).

KEEL: the longitudinal ridge; a spiral ridge usually marking a change in slope.

LATERAL: to the side of the axis of the shell.

LATERAL SPINES: spines occurring on the lateral margins of shells (Fig.b).

LATERAL TEETH: hinge teeth which more or less parallel the ventral margin of bivalves (Fig. 1).

"LEFT-HANDED": see Sinistral.

NACREOUS: pearly; see Nacre.

NODULES: knoblike projections.

NODULOSE: sculpture with knoblike projections.

NOTCH: a V-shaped indention.

NUCLEAR WHORLS: the initial whorls formed in the apex of gastropods (Fig. 2).

OBLIQUE: slanting (Fig. 16).

OBLONG: elongated circular form; bivalve shell shape (Fig. 11).

OPAQUE: not transparent; not allowing light to pass through.

ORAL: in the area of the mouth.

ORIFICE: a small opening.

OUTER LIP: the apertural margin of the last part of the body whorl in gastropods (Fig. 2).

OVAL: see Ovate.

OVATE: egg shaped in outline; for gastropods see Fig. 5; for bivalves see Fig. 11.

OVERLAP: one piece partly covering the next.

PALLIAL LINE: a groove or channel near the inner margin of a bivalve; when the line is continuous and not with pallial sinus it is said to be simple (Fig. 1).

PALLIAL SINUS: a U-shaped indentation in the pallial line (Fig. 1).

PARIETAL WALL: area on the body whorl of gastropods near the columella and opposite the outer lip (Fig. 2).

PARIETAL SHIELD: a hard shieldlike plate covering the parietal wall and dorsal side of body whorl (Fig. 17).

PELECYPOD: bivalve; clam (Fig. 1).

PERIPHERY: the perimeter of the external surface.

PETAL-LIKE: shaped like a flower petal (Fig. 11).

PHOLAD: a group of bivalves which bore in wood or hard mud (Fig. 4).

PIMPLES: tiny microscopic round mounds found in the sculpture of some bivalves.

PLANE: a flat or level surface.

PLATE: chitinous or calcareous dorsal accessory of the complicated pholad shell.

PLICAE: a fold or folded part.

POSTERIOR: opposite the anterior; situated away from the anterior end (Fig. 1).

PRONG: a spikelike projection.

PTERIOPED: a pelagic group of gastropods (Fig. 14).

PUNCTAE: marked with minute spots or pits.

PYRIFORM: pear shaped (Fig. 5).

QUADRATE: of rectangular shape (Fig. 11).

RADIAL: fanning out from the umbones to the margin of a valve (Fig. 13).

RECTANGULAR: elongate square; reference to bivalve shell (Fig. 11).

RETICULATE: crossed-like network (Fib. 13).

RIB: a long narrow ridge

RIBLET: a tiny rib.

RIDGE: a narrow elevated crest.

"RIGHT-HANDED": aperture on the right side of shell (Fig. 18).

ROSTRATE: drawn out, like a bird's beak (Fig. 11).

SCULPTURE: a pattern of markings on the shell's surface (Fig. 13).

SEMILUNAR: shaped like a crescent; reference to bivalve shell shape (Fig 11).

SHIELDLIKE: shell shaped like a shield; rounded lozenge shape (Fig. 5).

SHINGLELIKE: with edges overlapping.

SHOULDER: the top or largest diameter, of the outline of a whorl (Fig. 2).

SINISTRAL: turning counter clockwise; "left-handed" (Fig. 18).

SINUATE: see Sinuous.

SINUOUS: undulating; turning in an irregular course.

SIPHON: a tubular structure through which water enters or leaves the mantle cavity.

SIPHON CANAL: a narrow tubularlike structure in a gastroped shell used to house the siphon (Fig. 2).

SLUGLIKE: a body form in gastropods lacking an external shell (Fig. 5).

SLOPE: refers to the face of a bivalve shell; e.g., posterior, central, anterior.

SMOOTH: with reference to sculpture, it means the shell surface has only microscopic sculpture or growth lines (Fig. 13).

SOCKETS: a cavity in the hinge of a bivalve to receive the tooth of the opposite valve.

SPIKE: narrow, sharply pointed protrudence.

SPINES: a pointed outgrowth (Fig. 2).

SPINOSE: with spines.

SPIRAL: revolving; gastropod shell shape (Fig. 5).

SPIRAL SCULPTURE: lines going in the direction of the turning of the whorls.

SPIRE: the upper whorls, from the apex to but not including the body whorl (Fig. 2).

STRIAT: rows of fine grooves or threads, usually very small.

SUB: a prefix indicating "somewhat" or "almost".

SUCCESSIVE: one right after the other.

SUCKERS: round suction discs found in the decapods (Fig. 14).

SULCATIONS: see Sulcus.

SULCI: see Sulcus.

SULCUS: slit or fissure (Fig. 4).

SUTURE: a spiral line or groove separating whorls (Fig. 2).

SWIMMING LOBES: "winglike" fleshy structure used for locomotion (Fig. 19).

TEETH: in a bivalve, the shelly protuberances on the dorsal margin of a valve that fit into corresponding sockets of the opposite valve (Fig. 1).

TENTACLES: any of various elongate flexible tactile or prehensile processes borne by animals chiefly on the head or about the mouth (Fig. 14).

TERMINAL: located at the end.

THREAD: a slender linear surface elevation.

TRANSLUCENT: allowing some light to pass through, but not transparent.

TRANSVERSE: see Axial.

TRIANGULAR: shaped like a triangle.

TRIGONAL: shaped somewhat triangular; reference to bivalve shell shape (Fig. 11).

TROCHIFORM: shell shape toplike; like turbinate shape except base is flattened; see Turbinate.

TRUNCATE: have one end cut off squarely.

TUBERCLES: small, raised projuctions.

TUBULAR: like a tube; gastropod shell shape (Fig. 5).

TURBINATE: conical with a round base; reference to gastropod shell shape (Fig. 5).

TURRICULATE: tower shaped; spire whorls regularly stepped in outline forming a long spire with somewhat shouldered whorls; gastropod shell shape (Fig. 5).

TUSKLIKE: shaped like an elephant's tusk; gastropod shell shape (Fig. 5).

UMBILICAL CALLUS: callus formed in the umbilicus (Fig. 2).

UMBILICUS: a hole or depression in the base of the body whorl of gastropods (Fig. 20).

UMBO: (plural umbones): the upper, or early, part of the bivalve shell (Fig. 1).

UMBONAL REFLECTIONS: hard plates projecting above the umbones (Fig. 4).

UMBONAL-VENTRAL SULCUS: a fissure extending from the umbones to the ventral margin in some bivalve shells (Fig. 4).

UNDULATE: having a wavy surface.

UNIVALVE: a gastropod; complete shell in one piece.

VALVE: one of the shelly halves of a bivalve.

VARIX: (plural varices): a prominent raised rib on the surface of a gastropod, caused by thickening of the outer lip during rest periods in the shell's growth (Fig. 21).

VENTRAL: the lower side, opposite the dorsal (Fig. 1).

WEDGE SHAPE: tapering to a narrow edge; reference to bivalve shell shape (Fig. 5).

WHORL: a complete turn of a gastropod shell (Fig. 2).

WING: somewhat triangular porjections on the dorsal side of a bivalve shell (Fig. 22).

WORMLIKE: irregular in outline; whorls not tightly coiled; gastropod shell shape (Fig. 5).

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Table 1. Index to individual keys for the smaller taxonomic groups (class, order, superfamily, family, genus, species) of the Phylum MOLLUSCA found on the Texas coast. A taxonomic group must have at least two members of the next smaller taxonomic group to be listed. Members of each taxonomic group are listed in alphabetical order.

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Table 2. Species-specific information for Texas bivalves pertaining to feeding type, relation to substrata, and environmental distribution.

Table 2

GENUS/SPECIES	FEEDING TYPE		RELATION TO SUBSTRATE					ENVIRONMENT											
								BAYS AND LAGOONS									OPEN GULF		
									OPEN				HYPER-SALINE				BENTHIC		
	FILTER	DEPOSIT	EPIFAUNAL	SEMI-INFAUNAL	INFAUNAL	BORING INFAUNAL	ATTACHED COMMENSAL	RIVER INFLUENCED	BAY MARGIN	BAY CENTER	HARD SUBSTRATE	LAGUNA MADRE	SOFT SUBSTRATE	HARD SUBSTRATE	INLET INFLUENCED	INLETS	SOFT SUBSTRATE	HARD SUBSTRATE	PELAGIC
Abra aequalis		X			X					X		X					X		
Aequipecten amplicostatus	X		X						X	X		X							
Aequipecten gibbus	X		X														X		
Aequipecten muscosus	X		X															X	
Aligena texasiana	X						X		X	X									
Amygdalum papyria	X			X									X		X				
Anadara brasiliana	X				X												X		
Anadara chemnitzi	X		X														X		
Anadara lienosa	X				X												X		
Anadara ovalis	X			X	X												X		
Anadara transversa	X				X										X		X		
Anadontia alba	X				X				X				X		X				
Anadontia philippiana	X				X												X		
Anatina anatina	X				X												X		
Anomalocardia cuneimeris	X				X							X	X						
Anomia simplex	X		X											X					
Arca imbricata	X		X								X			X				X	
Arca Zebra	X		X															X	
Atrina seminuda	X			X											X		X		
Atrina serrata	X			X													X		
Barbatia cancellaria	X		X														X	X	
Barbatia candida	X		X															X	
Barbatia domingensis	X		X															X	
Barbatia tenera	X		X														X	X	
Barnea truncata	X					X				X	X								
Brachidontes exustus	X		X								X			X		X			

GENUS/SPECIES	FEEDING TYPE		RELATION TO SUBSTRATE					ENVIRONMENT											
								BAYS AND LAGOONS								INLETS	OPEN GULF		
									OPEN					HYPER-SALINE			BENTHIC		
	FILTER	DEPOSIT	EPIFAUNAL	SEMI-INFAUNAL	INFAUNAL	BORING INFAUNAL	ATTACHED COMMENSAL	RIVER INFLUENCED	BAY MARGIN	BAY CENTER	HARD SUBSTRATE	LAGUNA MADRE	SOFT SUBSTRATE	HARD SUBSTRATE	INLET INFLUENCED		SOFT SUBSTRATE	HARD SUBSTRATE	PELAGIC
Brachidontes recurvus	X		X								X								
Callocardia texasiana	X				X					X		X					X		
Cardita floridana	X				X								X		X				
Chama congregata	X		X															X	
Chama macerophylla	X		X															X	
Chione cancellata	X				X				X	X					X				
Chione clenchi	X				X												X		
Chione grus	X				X												X		
Chione intapurpurea	X				X												X		
Codakia orbicularis	X				X												X		
Congeria leucophaeta	X		X					X											
Corbula barrattiana	X				X												X		
Corbula contracta	X				X												X		
Corbula dietziana	X				X													X	
Corbula krebsiana	X				X													X	
Corbula swiftiana	X				X				X						X				
Crassinella lunalata	X				X										X				
Crassostrea virginica	X		X					X	X										
Cumingia tellinoides	X				X				X				X			X			
Cyclinella tenuis	X				X				X						X				
Cyrtopleura costata	X					X			X						X				
Dinocardium robustum	X				X										X		X		
Diplodonta semiaspera	X				X					X	X				X				
Diplodonta soror	X				X										X				
Diplothyra smythi	X						X							X					
Donax tumidus	X				X												X		
Donax variabilis texasiana	X				X												X		

(Table 2 con't)

GENUS/SPECIES	FEEDING TYPE		RELATION TO SUBSTRATE					ENVIRONMENT											
								BAYS AND LAGOONS								INLETS	OPEN GULF		
									OPEN				HYPER-SALINE				BENTHIC		
	FILTER	DEPOSIT	EPIFAUNAL	SEMI-INFAUNAL	INFAUNAL	BORING INFAUNAL	ATTACHED COMMENSAL	RIVER INFLUENCED	BAY MARGIN	BAY CENTER	HARD SUBSTRATE	LAGUNA MADRE	SOFT SUBSTRATE	HARD SUBSTRATE	INLET INFLUENCED		SOFT SUBSTRATE	HARD SUBSTRATE	PELAGIC
Dosinia discus	X				X												X		
Dosinia elegans	X				X												X		
Echinochama cornuta	X		X															X	
Ensis minor	X				X				X				X						
Ervila concentrica	X				X				X	X									
Gemma purpurea	X				X												X		
Hiatella arctica	X					X								X		X		X	
Isognomon atatus	X		X												X				
Isognomon bicolor	X		X												X				
Jouannetia quillingi	X					X												X	X
Laevicardium laevigatum	X				X												X		
Laevicardium mortoni	X				X								X		X				
Lepton lepidum	X						X										X	X	
Lima lima	X		X															X	
Lima pellucida	X		X															X	
Lioberis castaneus	X				X				X							X	X		
Lithophaga aristata	X					X												X	
Lithophaga bisulcata	X					X												X	
Lucina amiantus	X				X										X		X		
Lucina floridana	X				X				X	X					X				
Lucina multilineata	X				X										X		X		
Lyonsia hyalina floridana	X				X				X							X			
Lyropecten nodosus	X		X														X	X	
Macoma brevifrons		X			X				X						X				
Macoma constricta		X			X				X	X									
Macoma mitchelli		X			X			X											
Macoma tageliformis		X			X												X		

(Table 2 con't)

GENUS/SPECIES	FEEDING TYPE		RELATION TO SUBSTRATE					ENVIRONMENT										
								BAYS AND LAGOONS									OPEN GULF	
									OPEN				HYPER-SALINE				BENTHIC	
	FILTER	DEPOSIT	EPIFAUNAL	SEMI-INFAUNAL	INFAUNAL	BORING INFAUNAL	ATTACHED COMMENSAL	RIVER INFLUENCED	BAY MARGIN	BAY CENTER	HARD SUBSTRATE	LAGUNA MADRE	SOFT SUBSTRATE	HARD SUBSTRATE	INLET INFLUENCED	INLETS	SOFT SUBSTRATE	HARD SUBSTRATE	PELAGIC
Macoma tenta		X			X				X				X		X				
Macrocallista maculata	X				X												X		
Macrocallista nimbosa	X				X												X		
Martesia cuneiformis	X					X													X
Martesia fragilis	X					X													X
Mactra fragilis	X				X				X										
Mercenaria campechiensis	X				X												X		
Mercenaria campechiensis texana	X				X				X	X					X				
Modiolus americanus	X		X														X		
Modiolus demissus granosissimus	X		X						X										
Mulinia lateralis	X				X			X	X	X		X	X		X		X		
Musculus lateralis	X			X			X											X	
Musculus opifex	X			X		X												X	
Mysella planulata	X		X						X	X									
Noetia ponderosa	X				X												X		
Nucula proxima		X			X												X		
Nuculana acuta		X			X												X		
Nuculana concentrica		X			X												X		
Ostrea equestris	X		X											X					
Pandora trilineata	X				X					X		X				X			
Panopea bitruncata	X				X											X	X		
Pecten raveneli	X		X														X		
Periploma inequale	X				X					X		X				X			
Petricola pholadiformis	X				X				X						X		X		
Phacoides pectinatus	X				X				X	X			X						
Pholas campechiensis	X					X											X	X	X
Pinctada radiata	X		X															X	

(Table 2 con't)

GENUS/SPECIES	FEEDING TYPE		RELATION TO SUBSTRATE					ENVIRONMENT											
								BAYS AND LAGOONS								INLETS	OPEN GULF		
									OPEN								BENTHIC		
	FILTER	DEPOSIT	EPIFAUNAL	SEMI-INFAUNAL	INFAUNAL	BORING INFAUNAL	ATTACHED COMMENSAL	RIVER INFLUENCED	BAY MARGIN	BAY CENTER	HARD SUBSTRATE	LAGUNA MADRE	HYPER-SALINE SOFT SUBSTRATE	HYPER-SALINE HARD SUBSTRATE	INLET INFLUENCED		SOFT SUBSTRATE	HARD SUBSTRATE	PELAGIC
Plicatula gibbosa	X		X															X	
Pododesmus rubis	X		X												X				
Polymesoda caroliniana	X				X			X				X							
Pseudochama radians	X		X															X	
Pseudocyrena floridana	X				X								X			X			
Pseudoirus typica	X					X												X	
Pteria colymbus	X		X														X		
Raeta Plicatella	X			X													X		
Rangia cuneata	X				X			X											
Rangia flexuosa	X				X			X											
Rocellaria hians	X				X												X		
Sanguinolaria cruenta		X			X												X		
Semele bellastriata		X			X												X		
Semele proficua		X			X					X						X			
Semele purpuracens		X			X												X		
Solecurtus cumingianus		X			X												X		
Solen viridis	X				X											X	X		
Spissula solidissima similis	X				X												X		
Spondylus americanus	X		X															X	
Strigilla mirabilis		X			X											X	X		
Tagelus divisus		X			X				X			X							
Tagelus plebeius		X			X				X				X						
Tellidora cristata		X			X				X							X			
Tellina aequistriata		X															X		
Tellina alternata		X			X				X							X	X		
Tellina iris		X			X											X	X		
Tellina lineata		X			X												X		

(Table 2 con't)

GENUS/SPECIES	FEEDING TYPE		RELATION TO SUBSTRATE					ENVIRONMENT											
								BAYS AND LAGOONS								INLETS	OPEN GULF		
									OPEN				HYPER-SALINE				BENTHIC		
	FILTER	DEPOSIT	EPIFAUNAL	SEMI-INFAUNAL	INFAUNAL	BORING INFAUNAL	ATTACHED COMMENSAL	RIVER INFLUENCED	BAY MARGIN	BAY CENTER	HARD SUBSTRATE	LAGUNA MADRE	SOFT SUBSTRATE	HARD SUBSTRATE	INLET INFLUENCED		SOFT SUBSTRATE	HARD SUBSTRATE	PELAGIC
Tellina tampaensis		X			X								X						
Tellina tayloriana		X			X												X		
Tellina texana		X			X					X									
Tellina versicolor		X			X												X		
Trachycardium isocardia	X				X												X		
Trachycardium muricatum	X				X				X						X				
Varicorbula operculata	X				X												X		

LIST OF ILLUSTRATIONS

Fig. 1. Bivalve shell parts. (Modified from Andrews, 1971)

Fig. 2. Gastropod shell parts. (Modified from Andrews, 1971)

Fig. 3. Lateral view of a generalized Caecum gastropod with a domelike spiral plug.

Fig. 4. Generalized pholad gastropods. A. Internal laterial view. B. Dorsal view. C. External lateral view.

Fig. 5. Diagrammatic gastropod shell shapes. (Modified from Andrews, 1971)

Fig 6. Generalized pteriopod. A. Lateral view. B. Dorsal view.

Fig. 7. Interal lateral view of a diagrammatic bivalve with bifid cardinal hinge teeth.

Fig. 8. Diagrammatic Epitonium gastropod. A. Lateral view of coastae. B. Dorsal view of costae.

Fig. 9. Internal lateral view of a diagrammatic Nuculana gastropod with chevron-type hinge teeth.

Fig. 10. Internal lateral view of a diagrammatic Rangia gastropod with a chondrophore.

Fig. 11. Diagrammatic bivalve shell shapes. (Modified from Andrews, 1971)

Fig. 12. Internal lateral view of a diagrammatic Nucula gastropod with comblike hinge teeth.

Fig. 13. External lateral view of a generalized bivalve with the basic types of bivalve shell sculpture.

Fig. 14. Dorsal view of a generalized decapod mollusc.

Fig. 15. Ventral view of a diagrammatic Crepdula gastropod.

Fig. 16. External lateral view of a bivalve with oblique sculpture.

Fig. 17. Diagrammatic gastropod with a parietal shield.

Fig. 18. A "Right-handed" shell. B. "Left-handed" shell.

Fig. 19. Dorsal view of a diagrammatic aplysiid gastropod with swimming lobes.

Fig. 20. Basal view of an umbilicated gastropod.

Fig. 21. Diagrammatic cerithid gastropod with varices.

Fig. 22. Lateral view of a diagrammatic "winged" bivalve.

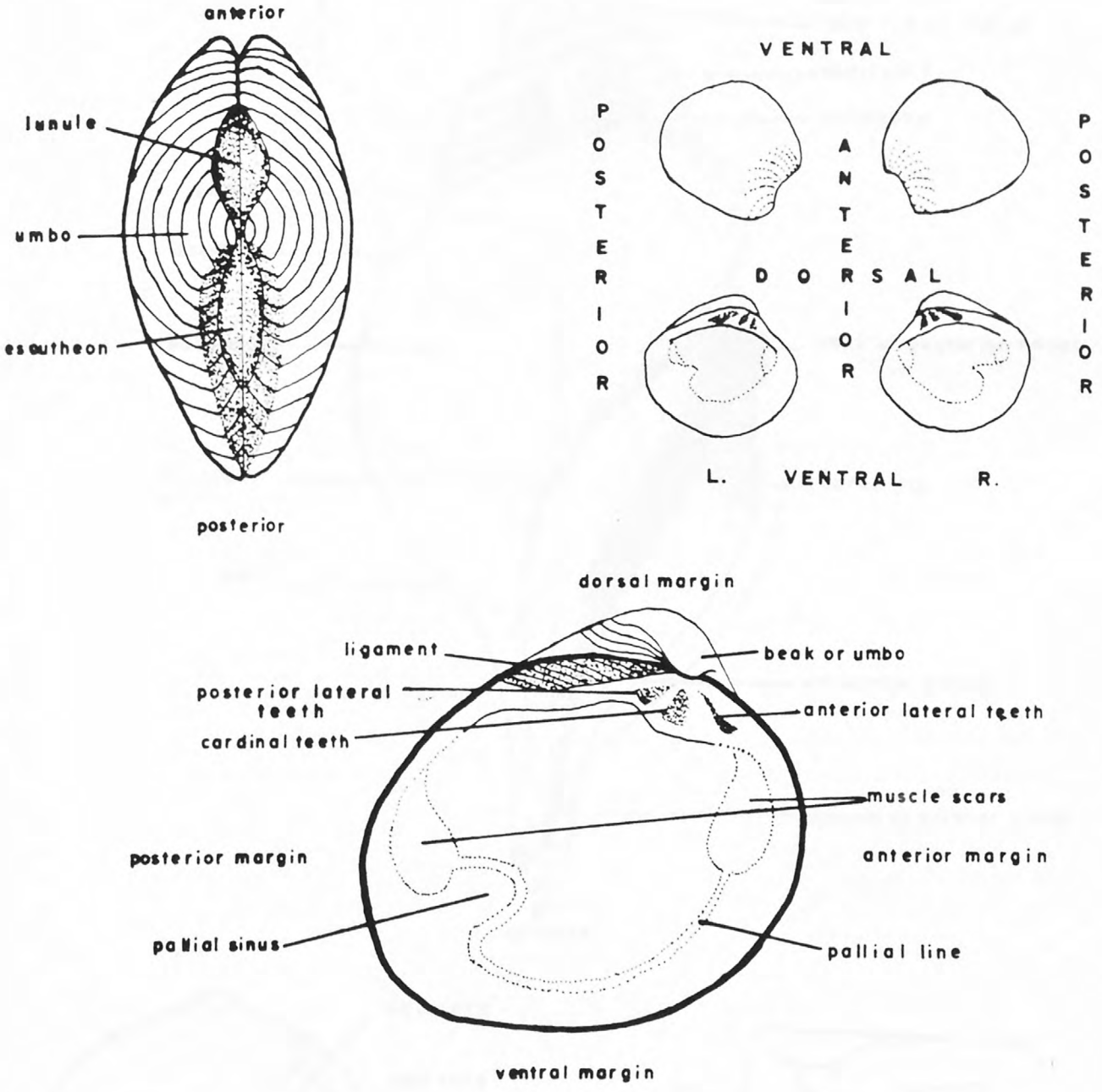

anterior
lunule
umbo
escutheon
posterior
VENTRAL
POSTERIOR
ANTERIOR
DORSAL
POSTERIOR
L. VENTRAL R.
dorsal margin
ligament
beak or umbo
posterior lateral teeth
anterior lateral teeth
cardinal teeth
muscle scars
posterior margin
anterior margin
pallial sinus
pallial line
ventral margin

FIG. 1

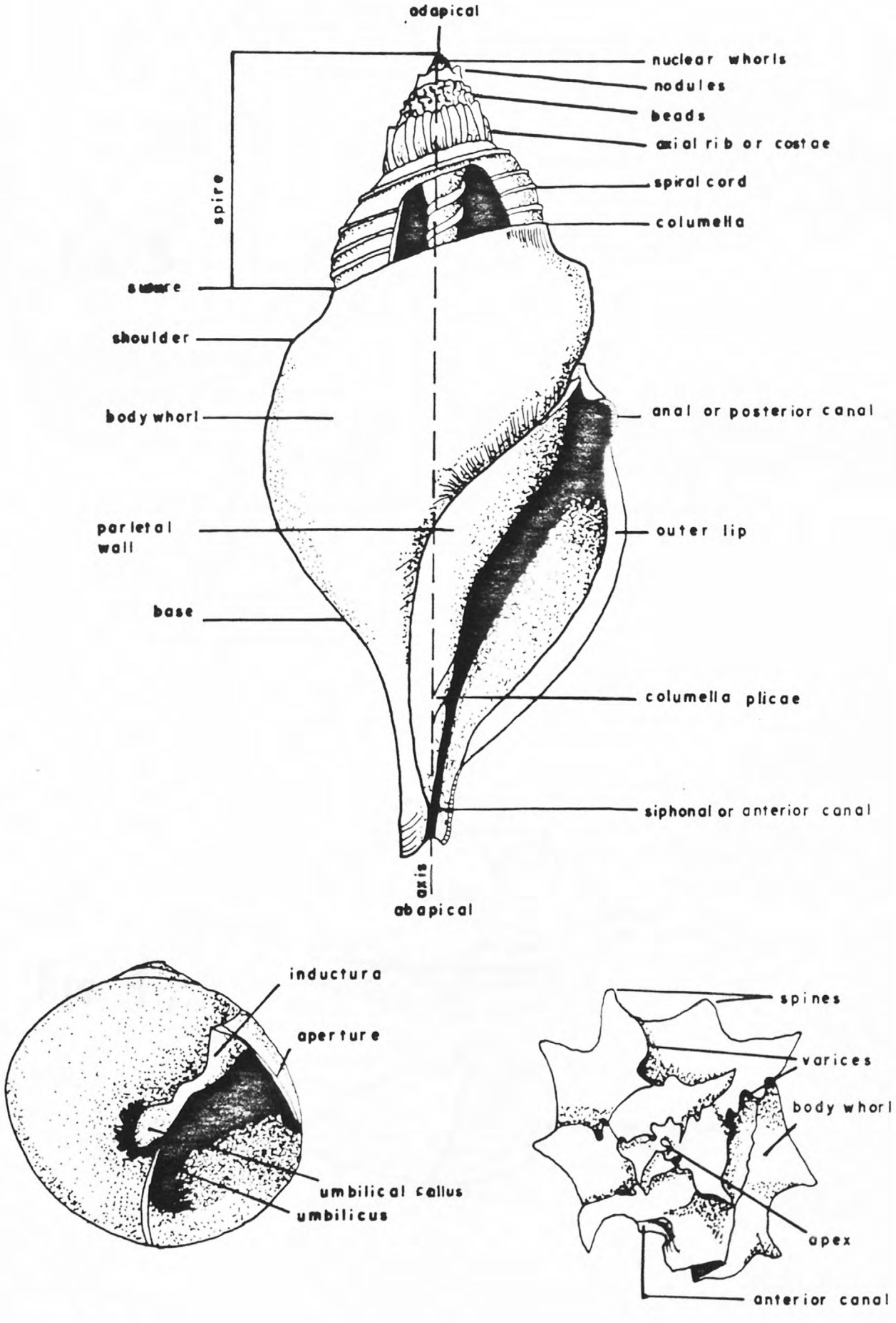

adapical
nuclear whorls
nodules
beads
axial rib or costae
spiral cord
columella
spire
suture
shoulder
body whorl
anal or posterior canal
parietal wall
outer lip
base
columella plicae
siphonal or anterior canal
axis
abapical
inductura
aperture
umbilical callus
umbilicus
spines
varices
body whorl
apex
anterior canal

FIG. 2

FIG. 3

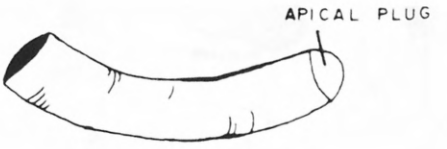
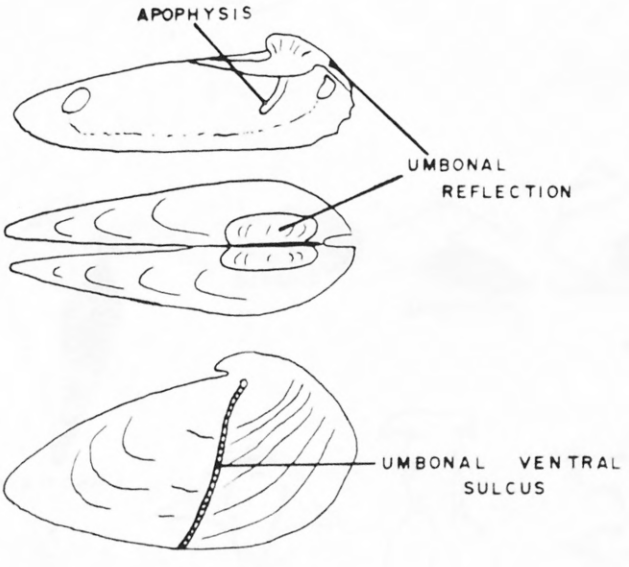

APICAL PLUG

FIG. 4


APOPHYSIS
UMBONAL
REFLECTION
UMBONAL VENTRAL
SULCUS

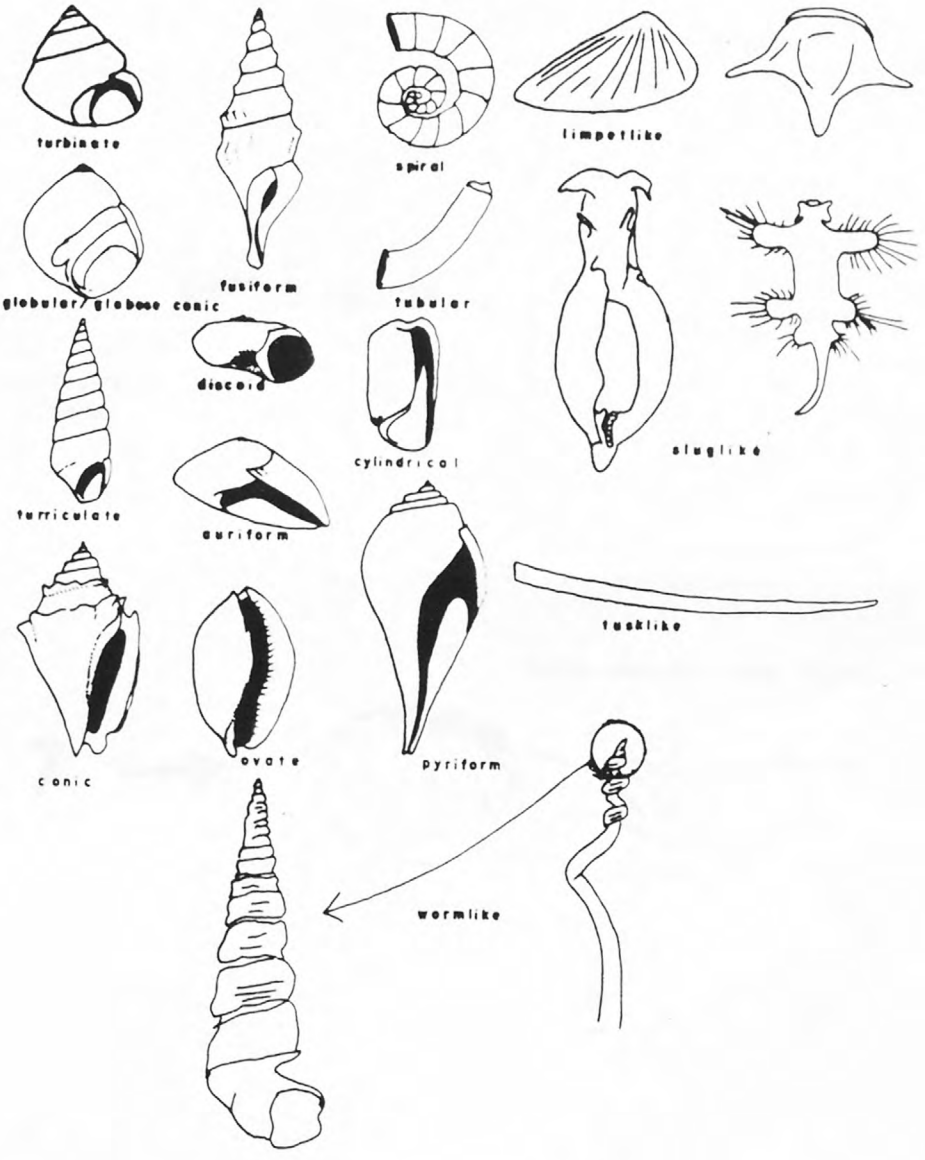
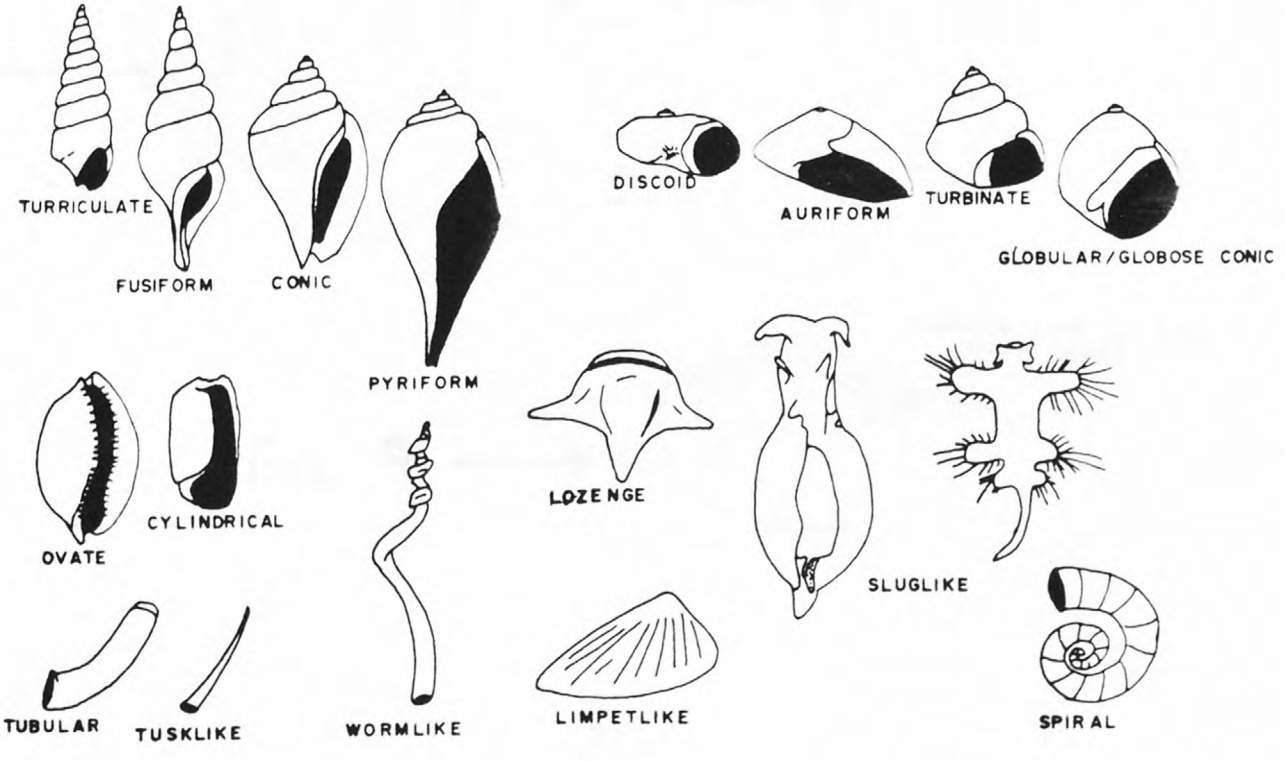
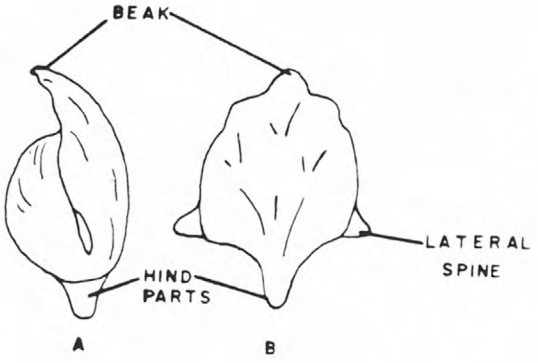

turbinate
fusiform
spiral
limpetlike
globular/globose conic
tubular
discoid
cylindrical
sluglike
turriculate
auriform
tusklike
conic
ovate
pyriform
wormlike

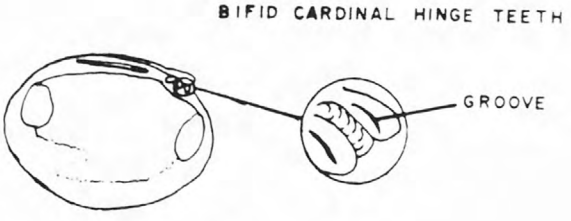
FIG. 5

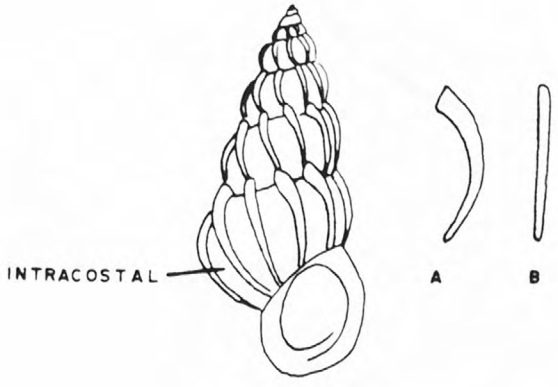

TURRICULATE
FUSIFORM
CONIC
PYRIFORM
DISCOID
AURIFORM
TURBINATE
GLOBULAR/GLOBOSE CONIC
OVATE
CYLINDRICAL
LOZENGE
SLUGLIKE
TUBULAR
TUSKLIKE
WORMLIKE
LIMPETLIKE
SPIRAL



← FIG. 6

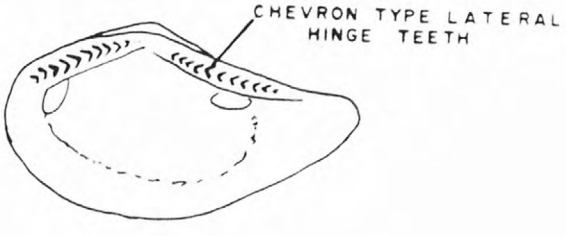
FIG. 7 →





← FIG. 8

FIG. 9 →



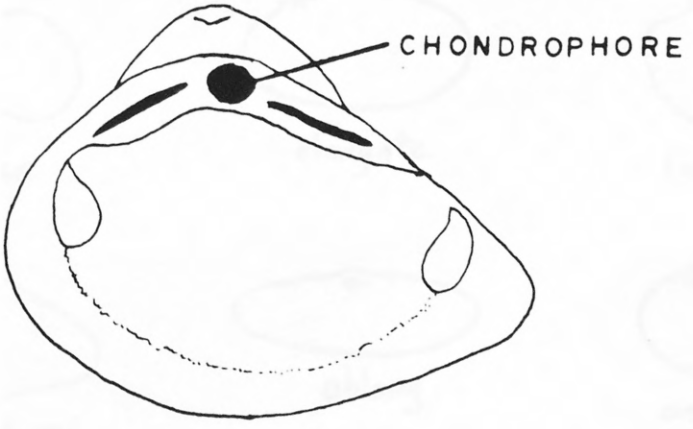
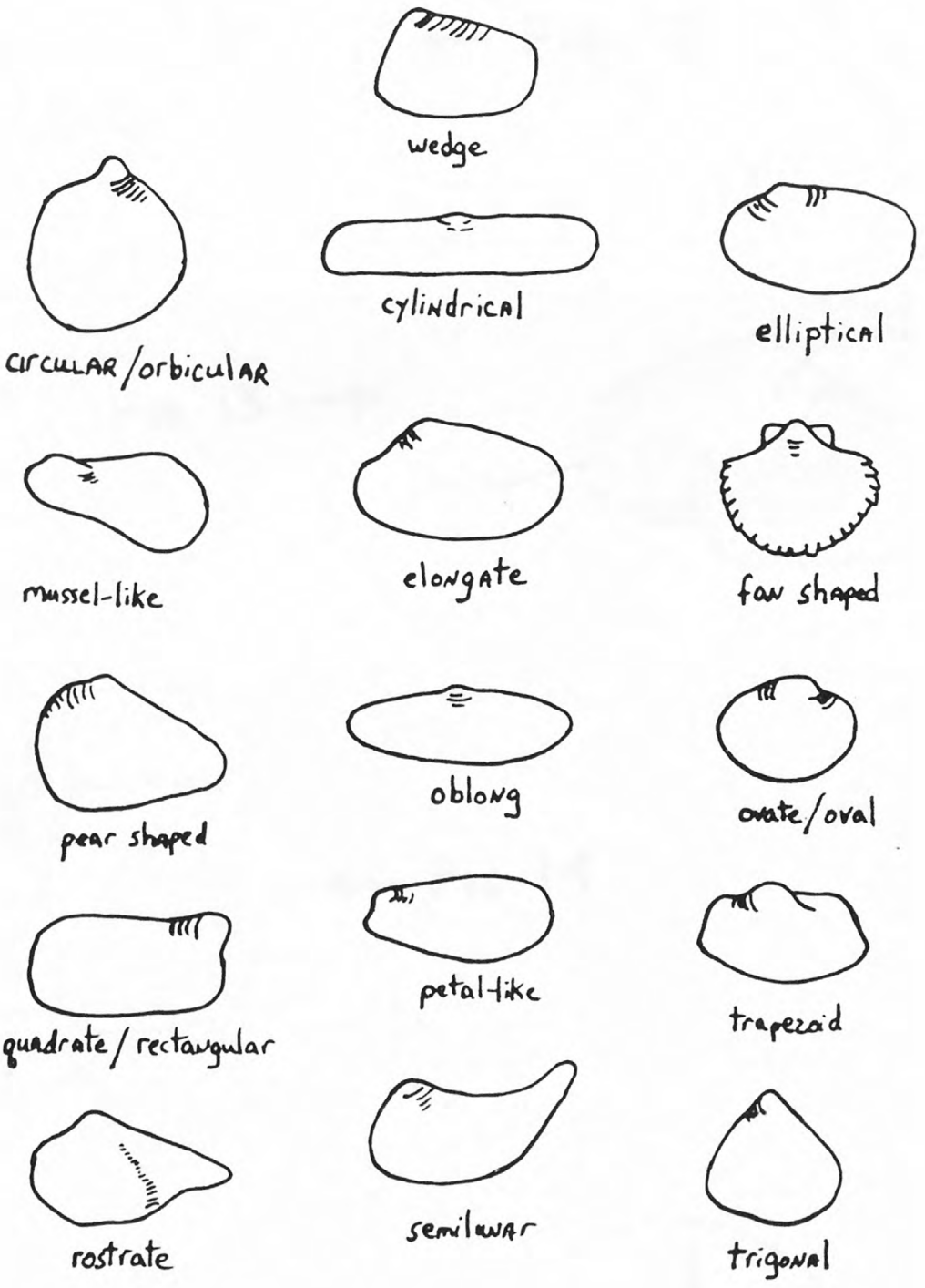
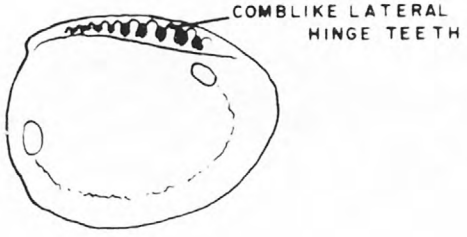


FIG. 10

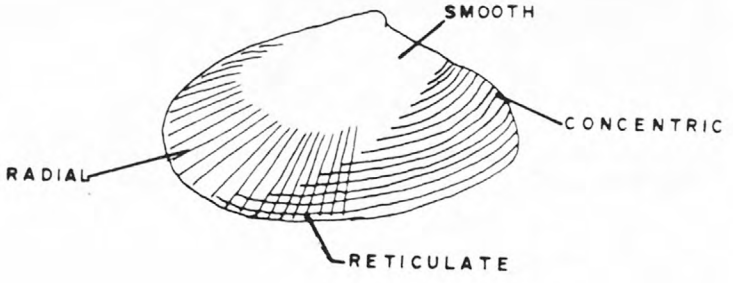
Fig. 11

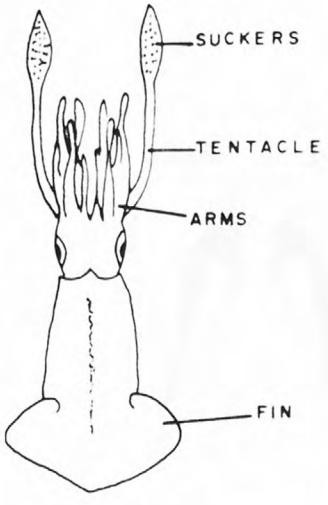

wedge
cylindrical
elliptical
circular/orbicular
mussel-like
elongate
fan shaped
pear shaped
oblong
ovate/oval
petal-like
trapezoid
quadrate/rectangular
semilunar
rostrate
trigonal



← FIG. 12

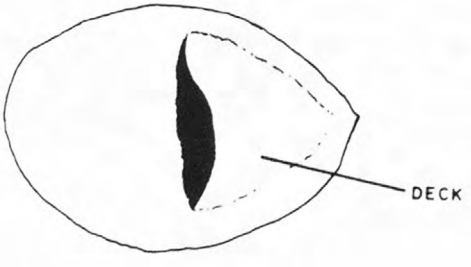
FIG. 13 →

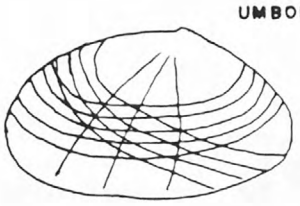




← FIG. 14

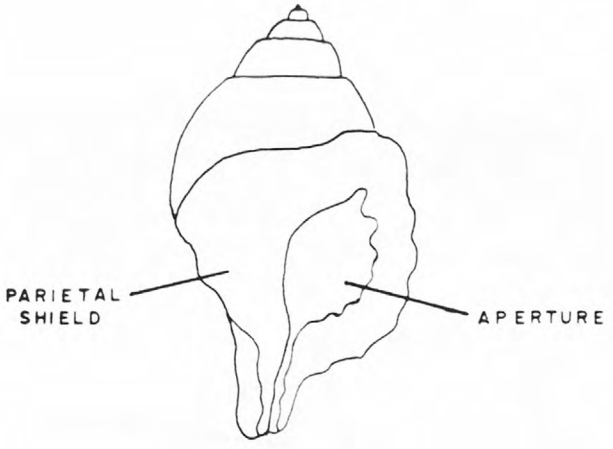
FIG. 15 →

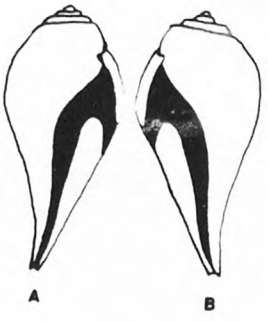




← FIG. 16

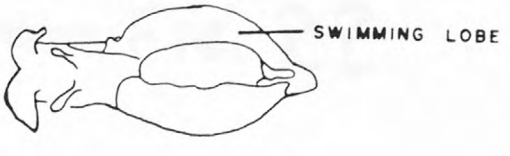
FIG. 17 →





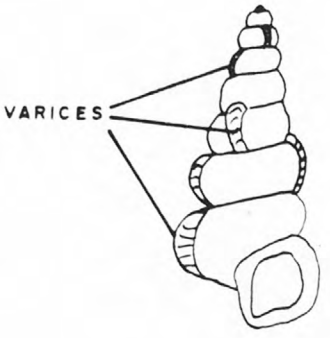
← FIG. 18

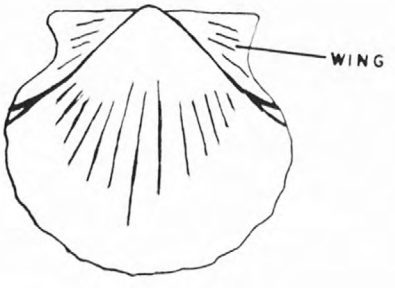
FIG. 19 →



← FIG. 20

FIG. 21 →





← FIG. 22