

Contents

Volume 1

Abstract.....	8
Resumen.....	8
Zusammenfassung	9
Acknowledgments	10
1. Introduction.....	11
2. Annotated catalogue of the three collections.....	15
2.1. The Old Collection of fossils from Venezuela (F1).....	15
2.1.1. Holocene and Late Pleistocene	18
2.1.2. Unnamed beds, Paraguaná, Pleistocene.....	23
2.1.3. Casa Ventura Beds, Pleistocene	24
2.1.4. Cumaná Formation, Early-Middle Pleistocene.....	25
2.1.5. Caigüire Formation, Plio-Pleistocene.....	29
2.1.6. Playa Grande Formation, Early Pleistocene.....	33
2.1.7. Mare Formation, Pleistocene	34
2.1.8. San Gregorio Formation, Late Pliocene	40
2.1.9. Tucupido Formation, Pliocene.....	42
2.1.10. Paraguaná Formation, Early Pliocene	46
2.1.11. Punta Gavilán Formation, Early Pliocene	49
2.1.12. Codore Formation, Late Miocene-Early Pliocene	62
2.1.13. Cubagua Formation, Late Miocene-Early Pliocene	65
2.1.14. Urumaco Formation, Middle-Late Miocene	74
2.1.15. El Veral Formation, Early-Middle Pliocene	82
2.1.16. La Vela Formation, Late Miocene-Early Pliocene	90
2.1.17. Ojo de Agua Formation, Late Miocene-Pliocene	104
2.1.18. Freites Formation, Middle Miocene	119
2.1.19. Caujarao Formation, Middle-Late Miocene	121
2.1.20. Capadare Limestone, Late Miocene	142
2.1.21. Pozón Formation, Middle to Late Miocene	144
2.1.22. Socorro Formation, Middle Miocene	148
2.1.23. Agua Linda Formation, Middle Miocene	151
2.1.24. La Rosa Formation, late Early Miocene.....	152
2.1.25. Cantaure Formation, late Early Miocene	155
2.1.26. Riecito Formation, Early-Middle Miocene	168
2.1.27. Querales Shales, Middle Miocene	170
2.1.28. Cerro Pelado Formation (lower part), late Early Miocene	171
2.1.29. Cauderalito Member?, Early Miocene?.....	173
2.1.30. Agua Clara Formation, Early Miocene (Aquitanian)	173
2.1.31. Santa Inés Group, Miocene	175
2.1.32. Casupal Formation, Late Oligocene?-Early Miocene.....	177
2.1.33. Churuguara Formation, Late Oligocene-Early Miocene.....	181
2.1.34. Chaguaramas Formation, Late Oligocene-Middle Miocene	182
2.1.35. "Mitare Group", Late Oligocene.....	183
2.1.36. Guacharaca Formation, Oligocene	184
2.1.37. Areo Formation, Late Oligocene	185
2.1.38. Roblecito Formation, Late Middle Eocene-Early Miocene	186
2.1.39. Botalón Conglomerate, Late Eocene	187
2.1.40. La Victoria Formation, Late Eocene	187
2.1.41. Jarillal Formation/Raetomya Shales, Middle-?Late Eocene	188
2.1.42. Pagüey Formation, Middle-?Late Eocene	191
2.1.43. Caús Formation, Middle Eocene	191
2.1.44. Guárico Formation, Maastrichtian-Middle Eocene.....	192

2.2. The Gibson-Smith Collection of fossils from Venezuela (F2)	192
2.2.1. Boca Chica Formation, Isla Margarita, Holocene.....	193
2.2.2. Boca Chica Formation, Araya, Holocene.....	195
2.2.3. El Manglillo Formation, Isla Margarita, Late Pleistocene.....	198
2.2.4. Castillo de Araya Formation, Araya, Late Pleistocene	199
2.2.5. Chariamata Formation, Isla Margarita, Late Pleistocene	203
2.2.6. Barrigón Formation, Araya, Early Pleistocene	204
2.2.7. Cumaná Formation, Cumaná, Early-Middle Pleistocene	204
2.2.8. Caigüire Formation, Cumaná, Plio-Pleistocene	209
2.2.9. Playa Grande Formation, Early Pleistocene.....	210
2.2.10. Mare Formation, Pleistocene.....	213
2.2.11. Paraguaná Formation, Late Miocene-Early Pliocene.....	229
2.2.12. Punta Gavilán Formation, Early Pliocene	234
2.2.13. Cubagua Formation, Araya, Late Miocene-Early Pliocene	243
2.2.14. Caujarao Formation, Middle-Late Miocene	250
2.2.15. Unnamed beds above Cantaure Formation, Middle-Late Miocene	263
2.2.16. El Porvenir Beds, Paraguaná, Early? Miocene	266
2.2.17. Buenevara Adentro Beds, Paraguaná, Late? Miocene	271
2.2.18. La Rosa Formation, late Early Miocene.....	277
2.2.19. Oyster bank above "Querales Shales", Paraguaná, Late? Miocene.....	279
2.2.20. Unnamed beds ("Querales Shales"), Paraguaná, Middle? Miocene.....	280
2.2.21. La Candelaria Beds, Paraguaná, Early Miocene.....	281
2.2.22. Altagracia Beds, Paraguaná, late Early Miocene.....	286
2.2.23. Cantaure Formation, Paraguaná, late Early Miocene (Burdigalian)	287
2.2.24. Agua Clara Formation/Cauderalito Lst., Paraguaná, Aquitanian	311
2.3. Gibson-Smith Fossil Collection lots from extra-Venezuelan areas (F2)	315
2.3.1. Florida, Caloosahatchee Formation.....	315
2.3.2. Costa Rica, Caribbean side, Río Banano Formation	324
2.3.3. Panama, Caribbean side, Bocas del Toro.....	326
2.3.4. Panama, Caribbean side, Gatún Formation.....	326
2.3.5. Northern Colombia, Tubará Formation	328
2.3.6. Northern Colombia, Las Perdices Formation	330
2.3.7. Northern Colombia, Tubará or Las Perdices Formation	332
2.4. The Gibson-Smith Collection of Recent shells (R).....	338
2.4.1. Venezuela	338
2.4.2. Florida	393
2.4.3. Rhode Island	404
2.4.4. South Carolina	405
2.4.5. Georgia.....	405
2.4.6. Texas	405
2.4.7. Mexico.....	406
2.4.8. Honduras	407
2.4.9. Panamá (Caribbean)	407
2.4.10. Guyana	408
2.4.11. Brazil	412
2.4.12. Bermuda	412
2.4.13. Bahamas.....	412
2.4.14. Cuba.....	414
2.4.15. Grand Cayman Island.....	424
2.4.16. Haiti	426
2.4.17. Dominican Republic	427
2.4.18. Puerto Rico.....	429
2.4.19. Virgin Islands.....	430
2.4.20. Antigua	430
2.4.21. Guadeloupe	431
2.4.22. Barbados.....	431
2.4.23. Carriacou (Grenadines)	435
2.4.24. Aruba	435

2.4.25. Curaçao	437
2.4.26. Bonaire	438
2.4.27. Trinidad	439
2.5. Notes in the Catalogue	440
2.5.1. Collection F1: notes 1-1057	440
2.5.2. Collection F2: notes 1058-2137	471
2.5.3. Gibson-Smith Recent: notes 2138-2614	498
2.5.4. Added to F1, F2 in a late stage of compilation: notes 2615-2741	508

Volume 2

3. Notes on stratigraphic units, by Vernon F. Hunter, with text figures 1-4	518
Text-fig. 1. The districts of the Estado Falcón	520
Text-fig. 2. Chart of stratigraphic correlations in western Venezuela	528
Text-fig. 3. Map of Tertiary depositional basins in Venezuela	538
Text-fig. 4. Chart of stratigraphic correlations in eastern Venezuela.....	548
4. Contents of the Old Collection (F1), with its formations in approximate stratigraphic order, with NMB localities in each.....	553
5. Contents of the Gibson-Smith Fossil Collection (F2), by formations, with NMB localities and included lot numbers.....	559
6. Annotated list of families, genera and subgenera, fossil and living, presently known from the Western Atlantic, with a key to those known from the NMB collections and/or in the literature.....	562
6.1. Notes 1-269	606
7. Data on the NMB localities of all three collections	614
7.1. Introduction, with text-figure 5	614, 616
7.2. F1, parts 1 and 2	620
7.3. F2.....	690
7.4. Gibson-Smith Recent, Venezuela.....	696
7.5. F2, extra-Venezuelan (Western Atlantic)	701
7.6. Gibson-Smith Recent, extra-Venezuelan (Western Atlantic)	702
8. Annotated and indexed bibliography.....	707
9. Notes on particular titles in bibliography	799
10. Index to references in the bibliography by subjects	838
10.1. Taxonomy	838
10.1.1. Families	838
10.1.2. Suprafamilial groups	848
10.1.3. Classification.....	849
10.1.4. Handbooks	849
10.1.5. Online publications	849
10.1.6. Catalogues and descriptions of museum collections	849
10.1.7. Reviews and revisions	849
10.1.8. Republications.....	849
10.1.9. Glossaries.....	849
10.1.10. Extensive bibliographies	849
10.2. Biology	850
10.2.1. Ecology	850
10.2.1.1. Particular habitats	850
10.2.1.1.1. Deep water.....	850
10.2.1.1.2. Reefs.....	850
10.2.1.1.3. Brackish water	850
10.2.1.2. Ecology, functional morphology, life habits	850
10.2.2. Anatomy, radulae, reproduction, life histories, genetics	850
10.2.3. Larval and juvenile shells of gastropods.....	850
10.3. Geographical distribution by regions, areas, formations.....	851
10.3.1. Monographs on molluscan communities, Recent and fossil.....	881

10.3.1.1.-10.3.1.26. U.S. East coast (New Jersey to Georgia) to Brazil
and "Western Atlantic" 851-853

10.3.2. Descriptions and lists of species and genera, mostly new or rare,
Recent and fossil..... 853

10.3.2.1.-10.3.2.27. U.S. East coast (New Jersey to Georgia) to Brazil,
"South America" and "Western Atlantic" 854-858

10.3.3. Zoogeography, paleogeography, paleoceanography, provinces,
diversity, endemism, extinction patterns 858

10.4. Geology, stratigraphy 858

10.4.1.-10.4.17. U.S. Atlantic Coastal Plain (Maryland to Texas) to Mexico, to
Trinidad and Tobago, "Caribbean", "Western Atlantic" 858-859

Plates 1-113 861

Explanations 861

Plates 862-1087