

Southern Lesser Antilles Arc Platform Pre-late Miocene Stratigraphy, Structure, and Tectonic Evolution

by R.C. Speed, P.L. Smith-Jorowitz, K.v.S. Perch-Nielsen, J.B. Saunders, and A.B. Sanfilippo, a special paper 277 of the Geological Society of America, ISBN 0-8137-2277-2, published by the Geological Society of America, Inc.

Review by Christopher G. Kendall

As the title of this slim volume suggests this book describes the pre-late Miocene stratigraphy, structure, and tectonic evolution of Lesser Antilles. The book begins with the description of the regional structure and tectonic style of the area touching on the plate orientation and seismicity, and relationships to Southern Lesser Antilles Arc system (SLAAP). It then goes on to discuss the structure of the Arc Platform, focusing on morphology, crustal structure, flank structure, crestal structures, and Neogene magmatism of the area. It describes the geology of the major islands of the Antilles including Grenada, Carriacou, Union Island, Prune Island, Jamesby, Baradel, Mayreau, Canouan, Mustique, and then synthesizes the island geology in terms of the regional stratigraphy, the magmatism of the area, the sedimentary depositional environments, and the deformation of the area. Finally the book deals with the tectonics of the Southern Antilles in terms of the six-stage evolution of the SLAAP putting together regional correlations and interpretations, and relating these to Paleogene magmatic Arc, touching on the uplift, westerly contraction, and Neogene magmatism of the area.

The book is well referenced and well illustrated. There are numerous maps, diagrams, and cross sections of the area. There are also included charts showing the relationships of various geological sections and their tie to geological time. There are descriptions of the properties of various rock units in a series of summary sheets. There are geological maps of the islands tied to geological cross sections, structural orientation data for the variety of the islands, various lists for the different fauna and nanno-flora identified in the rocks of the islands. There are also lists of foraminifera, locating them in the geological sections of the various islands. There are also interpreted cross-section derived from seismic lines and various maps showing the plate relationships and island topography. This well written and nicely constructed book is aimed at specialists who have interest in Southern Antilles. It places a strong emphasis on the structural character of the area, but there is some description of the sedimentary stratigraphy and the regional geology. This is an area of active geological deformation where the sediments record extensive folding and thrusting, as it is related to the development of the Antilles Island Arc. It is an area noted for its volcanigenic and carbonate classic sedimentation in the middle Eocene and Oligocene times. Graduate students and professionals who have interest in this area or island arcs will find this book extremely useful to them. I recommend this book to you and I am glad to have it on my shelves.