

SURVEY OF THE GEOLOGY OF HAITI

GUIDE TO THE FIELD EXCURSIONS IN HAITI

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By

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STRATIGRAPHY

Geologic information available to date on Hispaniola gives little evidence to suggest the presence of rocks older than lower Cretaceous or possibly Jurassic. Claims of probable Paleozoic rocks at the island of La Tortue (Spreznioslo, 1976; in Pierre, 1982), are doubtful at best. So far the oldest dated rocks reported in the literature yielded minimum ages of 123 to 127 m.y. for a metamorphic event that effected the basement complex of the Duarte Formation in the Dominican Republic (Bowin, 1966; Kesler et al., 1977). These absolute dates thus indicate that the metamorphosed rocks of the Duarte Formation must have been deposited at least during Early Cretaceous time, Neocomian stage. Their maximum age is still unknown. Recent structural studies in the northern areas of the Central Cordillera in the Dominican Republic (Draper and Lewis, 1980), further suggested that the Amina schist may be older than the Duarte Formation. These authors also indicated that there are remarkable similarities between the Amina schist and the schists found at the island of La Tortue. This suggestion may therefore support earlier contention concerning the more ancient character of the rocks found at La Tortue relative to other Cretaceous rocks on Hispaniola, but an exact date is still to be determined.

From the geologic evidence at hand there is, however, general consensus that the Central Cordilleran series are the oldest rocks of the Mesozoic-Cenozoic Hispaniolan island-arc system. The Cul-de-Sac/Enriquillo grabben would mark the natural boundary between the recognized northern island-arc system and the Southern Peninsula, which is now considered an uplifted analog of the adjacent Caribbean crust (Maurrasse et al, 1977, 1979a; Maurrasse, 1982c; Sayeed et al., 1978).

The oldest radiometric dates available for the Southern Peninsula have given a whole rock K/Ar age of 75 ± 1.5 m.y, Early Campanian to latest Santonian (Sayeed et al., 1978), for a coarse dolerite intruded in the upper part of the Dumisseau Formation (Maurrasse et al., 1979a). The lower part of this formation has also yielded radiolarian taxa which also suggest the presence of the early Late Cretaceous, Turonian stage. Based on the stratigraphic position of the radiometrically dated level, Maurrasse et al, 1979a) further concluded that the lowermost part of the formation may lie within the Early Cretaceous.

Reeside (1947) also described Aptian - Albian Caprinids and Ammonoids from rocks collected by Woodring at a locality northeast of Jacmel. Geochemical data from the Dumisseau rock complex (Maurrasse et al., 1977; Sayeed et al., 1978; Crews, 1978) led to further suggestion that the geotectonic environment of the Cretaceous rocks in the Southern Peninsula was analogous to a back-arc spreading system (Maurrasse, 1982c).

OUTLINE OF THE PRINCIPAL ROCK FORMATIONS OF HAITI

CRETACEOUS - PALEOGENE

TROIS RIVIERES FORMATION: Butterlin, 1954; p. 151. Named After the River "Trois Rivieres" in Northern Haiti.