

PALEOZOIC DEFORMATION OF THE CHUACÚS GROUP IN THE
SIERRA DE LAS MINAS RANGE, GUATEMALA

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ABSTRACT

At least three phases of approximately co-axial folding have been recognized in the southwestern end of the Sierra de las Minas range in Guatemala. F_1 isoclinal folds are subhorizontal, F_2 folds are predominately overturned to the south, and F_3 is represented by open flexural-slip folds. Textural studies indicate that no significant recrystallization occurred during F_2 or F_3 , suggesting that F_1 , F_2 , and F_3 represent three pulses of one orogenic event which probably occurred during the middle Paleozoic. Horizontal displacement by F_1 folding was greater than 1 mile, and therefore qualifies this structure as a nappe. This type of structure has been recognized along approximately 90 km. of the Sierra de las Minas range, suggesting that much, if not all, of the southern portion of this mountain range is an east-west trending refolded nappe.

INTRODUCTION

The purpose of this paper is to outline the nature and tectonic significance of Paleozoic deformation in the Chuacús Group in the southwestern part of the Sierra de las Minas range in Guatemala. Subsequent late Mesozoic and Tertiary tectonism of these rocks is beyond the scope of this report. However, it is necessary to be able to understand ancient structures in order to distinguish more clearly later structural events that are superimposed on these rocks.

King (1959) noted that the north-south trending Cordilleran orogen in western North America extends southward into Mexico. Burchfiel and Davis (1972; 1975) suggested that this trend may be partially disrupted by faulting in northern Mexico and Southern California. However, King (1959) and Kesler (1971) have shown that, near the border between Mexico and Guatemala, the Central American Cordillera makes a sharp eastward bend, and crosses Guatemala in an east-west direction, terminating in British Honduras, rather than continuing southeastwardly down the west side of Central America (Fig. 1). These ranges are characterized by complex metamorphic assemblages of pre-late Paleozoic rocks.

The location of the study area (Fig. 1 and 2) is in El Progreso quadrangle on the southwestern side of the Sierra de las Minas range. Earlier reconnaissance studies in this vicinity by McBirney (1963) and Bosc (1971), unpublished) had significant discrepancies between them. These conflicting views justified a re-evaluation of this region in 1971 by the author. In addition to this study Newcomb (1975) mapped the San Agustín Acasaguastlán quadrangle to the east of El Progreso and the Río Hondo quadrangle to the northeast of the San Agustín quadrangle along the southern side of the Sierra de las Minas range. These studies indicate that this mountain system is composed chiefly of a complex group of metasedimentary and metaigneous rocks which are collectively known as the Chuacús Group.

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