

THE ESPINO GRABEN - AN AULACOGEN?

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ABSTRACT

The Amazon Valley has long been recognized as a graben with rocks as old as the Cambrian. The Takutu Rift in Guyana has recently been recognized as a Jurassic graben. More recently the Espino Graben has been recognized as a rift extending from Eastern Venezuela to Colombia, with Cambrian to Jurassic rocks. It is postulated here that all three grabens are aulacogens or failed arms of triple junctions.

In the Espino Graben some 8,000 feet of Jurassic redbeds have been penetrated in various wells, together with volcanics of a similar age (162m.y.). The graben also contains up to 20,000 feet of Carboniferous to Cambrian rocks.

The latter include sandstones and siltstones of early Cambrian age, very fine to medium grained metasedimentary rocks of probable Ordovician age and unnamed sandstones of Carboniferous age.

From the lineation, shape and age of the Jurassic rocks of the Espino Graben, it can be postulated that early opening of the Atlantic, Caribbean and Gulf of Mexico occurred almost simultaneously, but that the Espino Graben remained as a failed rift, with the Yucatan Block to the north, and the rest of South America to the south.

A major implication is that the Graben must extend and widen toward the ENE i.e. into the eastern portion of the Eastern Venezuelan Basin and into the Trinidad area, probably in the Caroni and possibly also in the Southern Basin. Gravity and magnetic trends tend to support this concept.