Figure Captions

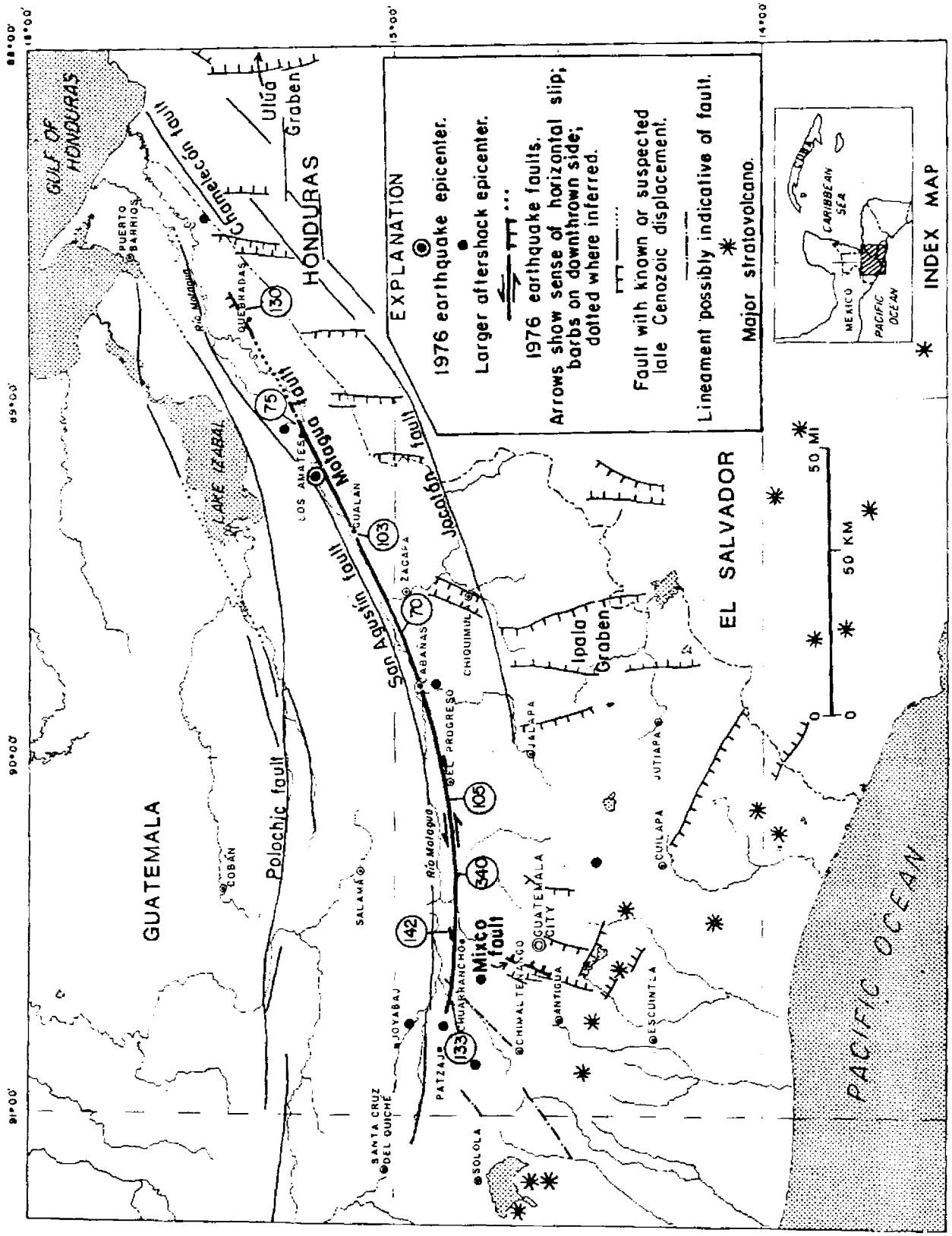


Fig. 1. Map showing the relation of segments of the Motagua and Mixco faults that moved during the earthquake of 4 February 1976 to the main shock epicenter, the larger aftershock epicenters, and major structural and volcanic features in northern Central America. Circled numerals along the Motagua fault indicate selected measured sinistral displacements in centimeters. Faults from Plafker and others (1976) and IGN (1976); epicenters from Langer and others (1976); structural and volcanic features from Dengo and Bohnenberger (1969), Dengo (1968), and Bonis and others (1970).

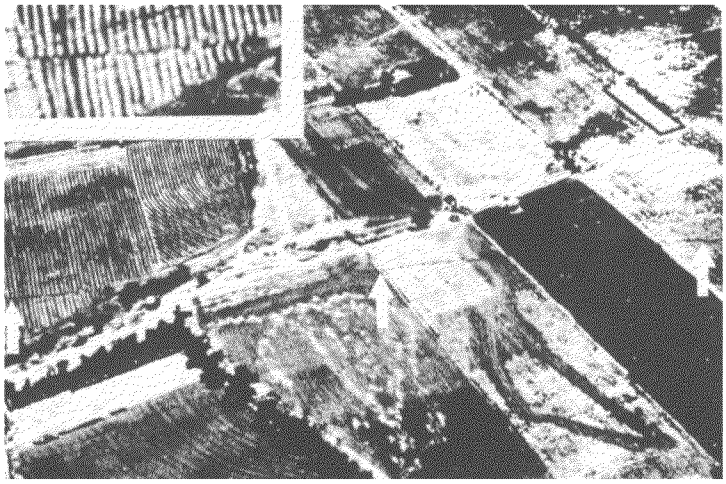
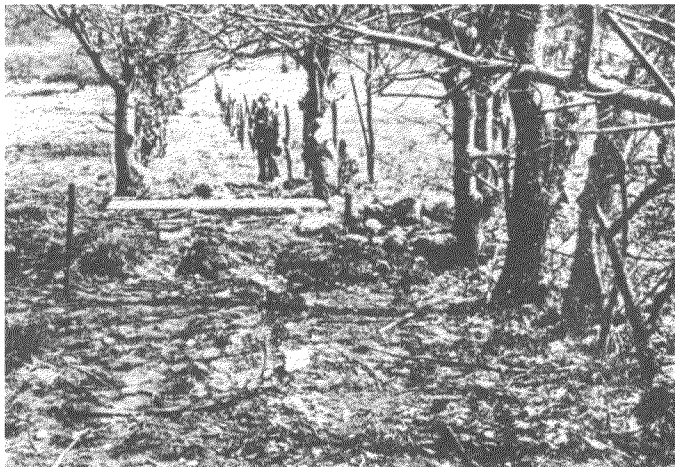


Fig. 2 (left). Oblique aerial view south toward the linear trace of the Motagua fault (arrows) in farmland west of Cabañas. Rows 1 m wide with about 70-cm sinistral offset may be seen in the field at the left side of the photograph and in the enlarged inset. Fig. 3 (right). View west along Motagua fault trace where it crosses a soccer field at Gualán. Note the characteristic right-stepping en echelon fractures and the "mole track" of pressure ridges caused by 92-cm sinistral displacement.



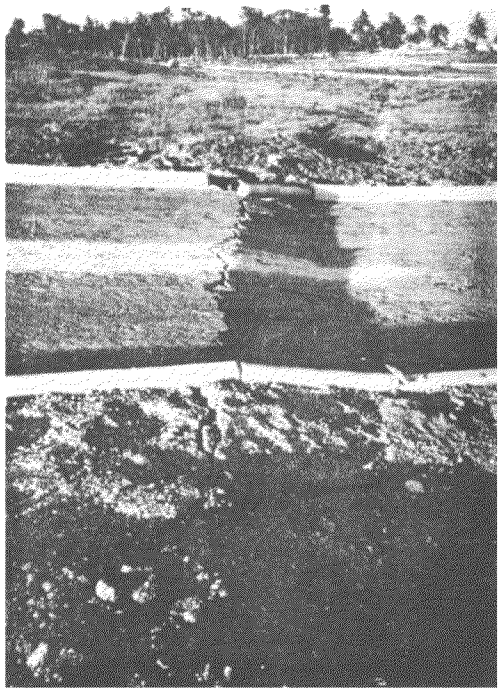


Fig. 4 (left). View south along a row of trees offset about 325 cm in a sinistral sense (indicated by white bar) where it is intersected by the Motagua fault. The man is standing on the fault trace, which is a single fissure oriented perpendicular to the line of trees at this locality.
Fig. 5 (right). View northeast along one of the larger breaks in the Mixco fault zone near Colonia El Milagro in Guatemala City. The displacement here is about 12 cm vertically down to the east and 5 cm dextrally. The break occurred at the base of a degraded scarp that was probably formed by previous late Quaternary displacement of this fault.

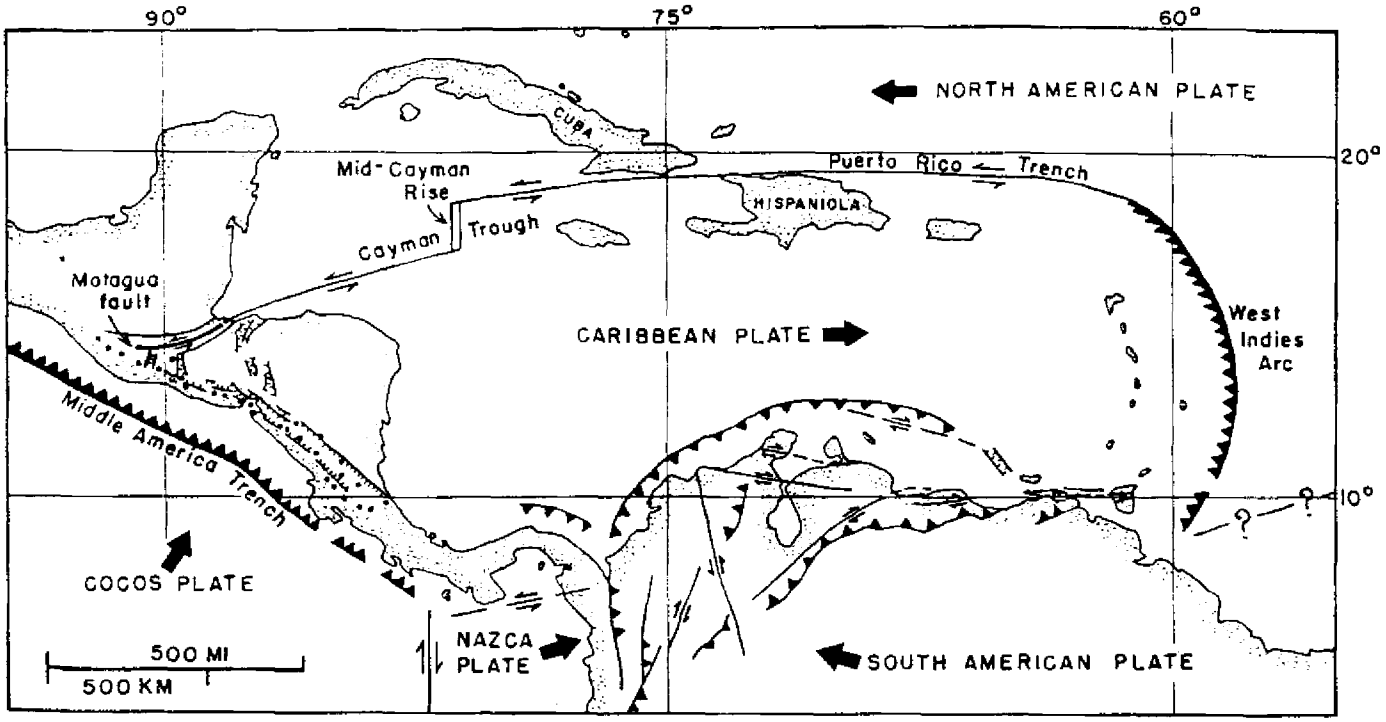


Fig. 6. Map showing the Motagua fault in relation to the boundaries of the Caribbean plate and extensional fault systems within the northwestern part of the Caribbean plate. Large arrows indicate relative plate movement directions; black dots indicate major volcanoes of the Middle American arc. Plate boundaries and directions of relative movement are from Jordan (1975); onshore faults from Bonis and others (1970), Dengo (1968), and Williams and McBirney (1969); volcanoes from Williams and others (1964).

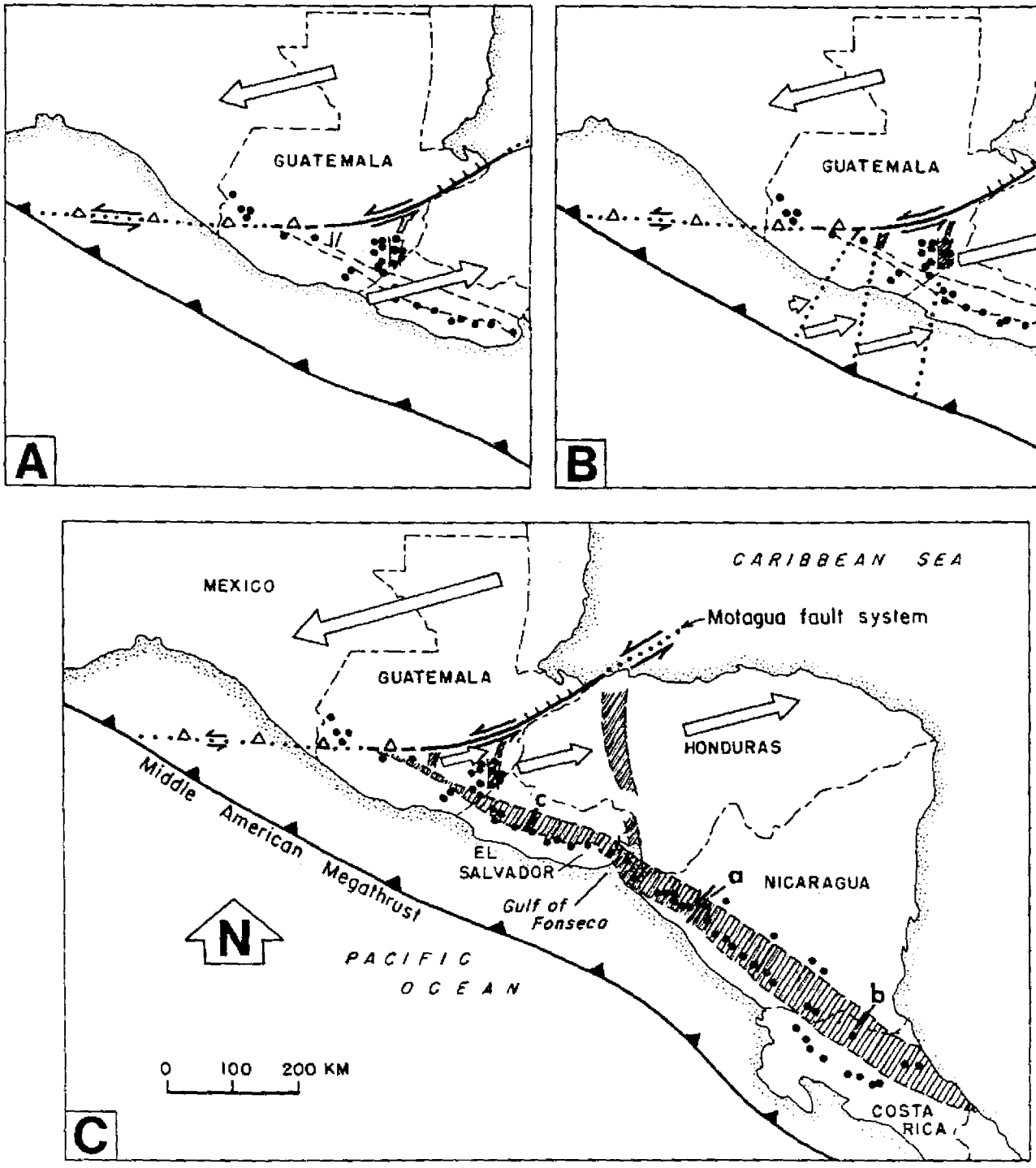


Fig. 7. Schematic diagrams showing three alternative models for the present tectonics of part of Middle America. Inferred plate motion directions and relative velocities are indicated by the open arrows; relative fault displacements are indicated by conventional symbols; black dots indicate major volcanoes; the shaded pattern outlines major zones of extension faults. The locations of the 1972 Managua, Nicaragua (a), 1973 Costa Rica (b), and 1965 San Salvador (c) earthquakes (Brown and others, 1973; Plafker, 1973; Lomnitz and Schultz, 1966) are shown in (C). See text for explanation.

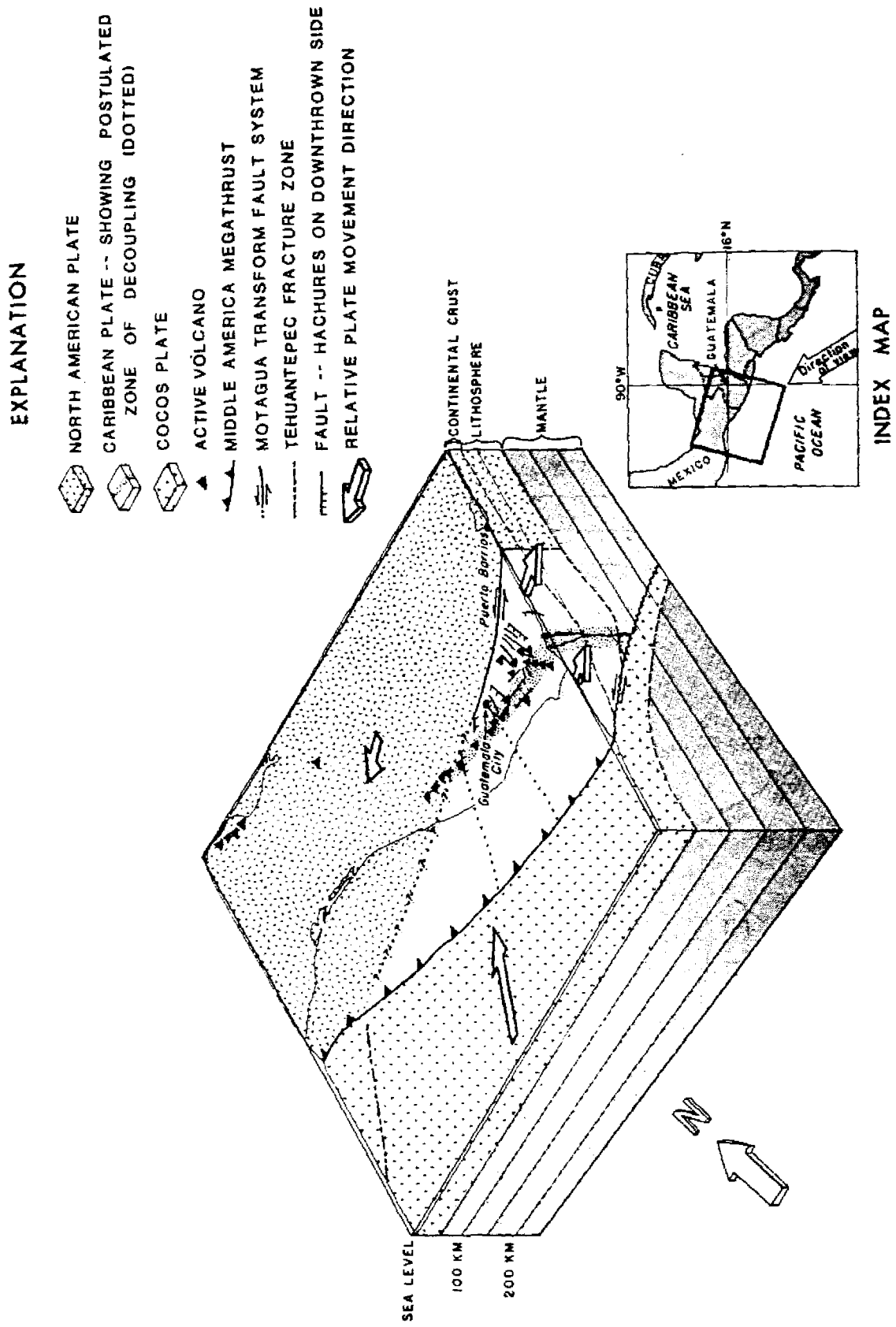


Fig. 8. Block diagram showing the relation of the Motagua fault zone and the inferred zone of decoupling within the Caribbean plate to major tectonic and volcanic elements in Guatemala and contiguous countries.