

PYRAMIDS AND CEREMONIAL CENTERS IN MESOAMERICA: WERE THEY ORIENTED USING A MAGNETIC COMPASS?

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ABSTRACT

Fuson (1969), see also Carlson (1975), claims that Olmécs and Maya knew and used a (lodestone) compass for the orientation of pyramids, ceremonial and other important buildings, thousand years before Chinese. This hypothesis is tested here with the aid of the new data, namely by comparison of paleomagnetic declinations for that time and area (Korte and Böhnelt, 2005), with orientation data of buildings based also on our measurements at many archaeological localities of México, Guatemala, and in Copán in Honduras by GPS and with a precise compass. After eliminating known astronomical and calendar orientation of some structures, we have found that there is majority of structures with an orientation that clearly deviates from geographic north (pole of rotation of the Earth). When trying to explain this, we can rule out pure chance, local topography, aesthetic, meteorological or defense reasons. Thus, the Fuson hypothesis can still explain the observed site layout and building orientations. But more accurate and extensive information mainly from paleomagnetism and archaeology is needed to reject or accept the hypothesis. A proof of knowledge of a compass in Mesoamerica prior to Chinese would be important for our understanding history of the ancient world.

Key words: Fuson hypothesis, Olmécs/Mayan compass, paleomagnetic declinations