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Probable Earthquake Archaeological Effects in the ancient pyramids of Quetzalcóatl and Sun in Teotihuacán (Central Mexico)

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Teotihuacán was one of the blooming and greater cities of the Prehispanic cultural period within the central valley of México and one of the best archaeological findings of the Earth. During the period of splendour (Middle-Late Classic Period, 350-650 AD), almost 125.000 inhabitants lived in a vast city with more than 2000 stucco and block buildings, including the great religious and ceremonial pyramids: the Great Sun Pyramid, built between 1-150 AD, the Moon Pyramid, built during a large time span (1-650 AD) and the outstanding Quetzalcóatl Pyramid (Feathered Snake Temple), built in two phases: the first original edifice built before 350 AD and the second one mainly are repairs of the west side and dated post-350 AD. The Quetzalcóatl Pyramid (Q- pyramid) shows a quadrangular base of ca. 3500 m2 with an extraordinary decoration of feathered snakes (attributed to the God Quetzalcóatl) and lizards. The second phase of construction consisted in a townhouse façade covering the west side of the pyramid (post 350AD), up to now with no evidence to justify such annexed wrapper of this west side. This ceremonial building was built within the Citadel, a complex area of Teotihuacán with residential and common zones as well (i.e. market). A detailed view of the steps of the west side stairs, displays different patterns of deformation affecting the blocks of the stair. The original and ancient stair exhibits rotated, overturned and displaced blocks, being stronger this deformation at the base of the pyramid. Moreover, the upper corners of the blocks appear broken in a similar form than the seismic-related feature defined as dipping broken corners or chipped corners. However, the horizontal disposition of the blocks suggests lateral vibration between them from horizontal shaking propagation. Besides, this feature appears lesser evident affecting the lower blocks of the annexed west façade, the only originally preserved ones. We have carried out a systematic measurement of this feature across the original west stairs of the Q- pyramid and the first stair level of the Sun pyramid. Furthermore, these horizontal dipping broken corners were also described affecting the new stairs of the annexed façade of the Q- pyramid. This suggests that seismic shaking could produce that deformation with a relative date of 350 AD post-quem. More data are necessary to properly test the earthquake occurrence and to bracket a probable intensity value.