

AL HAGGOUNIA (MOROCCO) STREWNFIELD.

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Since the fall of 2006, several finds of primitive aubrite or EL chondrite were reported in the Meteoritical Bulletin from NWA countries. According to their description all look quite similar. Aubrites belong to a rare type of achondrites therefore getting similar samples on a short term suggests that they could be paired, i.e. belong to the same event especially when considering their weathered state. The origin of the material was obviously poorly known as it was reported from Morocco, from Algeria or from doubtful origin. We could learn that the place of find was in the south of Morocco, near the village of Al Haggounia. We conducted field work to document the field relations of the stones with the geological environment in order to state whether this was a recent fall or meteorites found in a geological layer, as claimed by some collectors, or eventually transported as exceptionally observed.

Geological relationships: The average size of the meteorite stones varies from centimetric to the south, where numerous stones are still visible on the floor, to nearly fifty cm to the NE where stones are recovered by digging the soil, a number of them exceeding 50 kg. Stones of various sizes are found on the soil of various geological strata, from quaternary lacustrine limestone (dalle à Helix) in the south to cretaceous limestones to the NE. Therefore the meteorites are clearly discordant and cannot belong to any of the strata presently cropping out.

Topographic relationship: The area of find is carved by a quaternary topography with depression of up to 15 m below the flat surface of the region. In particular, Al Haggounia river (presently dry) exhibits two levels of terraces and a wide riverbed. Meteorites are found independently of the elevation and clearly the fall postdates the quaternary topography.

Conclusions: Positioning of the meteorite stones on top of, or in the soil above either quaternary strata (dalle à Helix) or cretaceous limestones clearly indicates that they are not included in any of the geological strata. They are found at their very place of fall.

The position of the stones on a topography dating from the quaternary indicates that the fall postdates the topography.

The occurrence of the stones extends over nearly 40 km in the present state of our knowledge. This corresponds to a typical strewnfield of significant size corresponding to a mass of several tons of extraterrestrial material. At present, no accurate dating of the fall can be done except that it is late quaternary.

The strongly weathered state of the meteorites is expected due to the very unstable mineralogy, a feature shared by both enstatite chondrites and aubrites. Water is necessary for weathering but according to the vegetal coverage, precipitations are presently on the order 60 mm/year on the average. It is known that during cold recent climatic episodes precipitations were more important and that it was the rule before 12 000 a. B.P.

The strewnfield near Al Haggounia, is the most important one reported so far for this kind of meteorite.