ARDÓN: A LONG HIDDEN L6 CHONDRITE FALL.

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Introduction: We describe a L6 ordinary chondrite fall that occurred in Ardón, León province, Spain (longitude 5.5605º W, latitude 42.4364º N) on July 9th, 1931. The 5.5 g single stone was kept hidden for 83 years by Rosa González Pérez, at the time an 11 year old who had observed the fall and had recovered the meteorite. According to various newspaper reports, the event was widely observed in Northern Spain. Ardón is a very well preserved, fresh, strongly metamorphosed (petrologic type 6) and weakly shocked (S3) ordinary chondrite with well equilibrated and recrystallized minerals.

Technical procedure: Three sections of Ardón were used to infer its nature and mineralogy. Small chips were used to get O isotope, noble gases, and trace elements composition.

Conclusions: Many of the data obtained in this study of Ardón, when compared to data published in the literature, clearly indicate that the meteorite is an L6 (S3) ordinary chondrite [1]. The L group classification of this equilibrated chondrite is evident from the compositions of the meteorite's constituent minerals (olivine $Fa_{23.7\pm0.3}$, low-Ca pyroxene $Fs_{20.4\pm0.2}Wo_{1.5\pm0.2}$, plagioclase $An_{10.3\pm0.5}Ab_{84.3\pm1.2}$). Bulk physical properties are typical for L6 chondrites. Short-lived radionuclides confirm that the meteorite constitutes a recent fall. The ^{21}Ne and ^{38}Ar cosmic ray exposure ages are both about 20-30 Ma, similar to values for many other L chondrites. Interestingly, the cosmogenic $^{22}Ne/^{21}Ne$ ratio indicates that preatmospheric Ardón was a relatively large body. The fact that the meteorite was hidden in private hands for 83 years makes one wonder if other meteorite falls may have experienced the same fate, thus possibly explaining the anomalously low number of falls expected in continental Spain in the 20th century. Other potential meteorite-dropping events are being studied.

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References: [1] Trigo-Rodríguez J.M. et al. 2014. *Meteoritics and Planetary Science*, in press.