

CLASSIFICATION OF TEN RECENT METEORITE FINDS FROM DAR AL GANI, LIBYA.

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Introduction: The continuing meteorite search efforts of Richard and Roland Pelisson have resulted in the classification of ten new meteorites from the Dar al Gani region of Libya. The meteorites reported in this present study are part of a larger number of specimens that were found during several systematic meteorite searches that were conducted from 1998 through 2000. Each meteorite find has been carefully documented by GPS positioning and photographed in-situ. Among the ten meteorites represented in this study are DaG 872, a controversial eucrite, DaG 874, a polymict ureilite and DaG 962, an anomalous mesosiderite.

Results: The classification of ten recent Dar al Gani meteorite finds are listed below in Table 1. Seven of these meteorites are basic ordinary chondrites, with the remaining three representing two very interesting achondrites and an anomalous mesosiderite. DaG 872 has recently been classified as a eucrite [1,2], but subsequent oxygen isotope data suggests a possible lunar origin [3]. Additional studies will be conducted to resolve this apparent contradiction. A preliminary examination of the principal mineralogy of DaG 874 indicates that it is eucritic in composition. A cut section of the meteorite clearly reveals the presence of two distinct lithologies suggestive of a polymict texture. Given the location of find for DaG 874 it is possible that it may be paired with the polymict ureilites DaG 319 and DaG 665. The mesosiderite DaG 962 is an apparently unique meteorite [4]. A cut section reveals a relatively fine-grained metallic matrix containing numerous silicate clasts of varying sizes. Electron microprobe analyses of the silicate clasts present in a polished slice of DaG 962 gave extremely magnesium-rich compositions for olivine (Fa 1.0) and enstatite (Fs 0.84). This data will be compared to other examples of mesosiderites in order to find a possible common relationship.

Table 1. Classification of ten new meteorites from Dar al Gani, Libya.

Name	Type	Mass(g)	Frag	% Fa	% Fs	% Wo
DaG 870	H4	262	1	19.1	15.7	1.2
DaG 871	L6	166	2	25.1	22.2	1.3
DaG 872	EUC ¹	885	1	-	50.1	14.7
DaG 873	L6	136	1	24.3	19.7	1.7
DaG 874	URE ²	64.6	1	-	-	-
DaG 875	H5	585	1	19.1	16.4	1.4
DaG 957	L4	369	2	24.0	20.2	1.6
DaG 958	L5	542	Many	25.9	21.7	1.5
DaG 961	L6	481	3	24.3	21.3	1.5
DaG 962	MESO	130	1	1.0	0.8	1.0

¹ DaG 872: classified as a eucrite, it is the subject of continuing analyses.

² DaG 874: a polymict ureilite currently under study; maybe paired with DaG 319 and DaG 665

References:

1. Patzer, A. et al (2002) LPSC XXXIII, Abstract # 1106
2. MAPS Met. Bul. 86 (in press).
3. Clayton, R (2002) pers. comm.
4. MAPS Met. Bu. 86 (in press)