

**DIVERSITY AMONG 40 SELECTED SPECIMENS FROM A LARGE COLLECTION OF NORTHWEST AFRICAN CHONDRITES.** P.P. Sipiera<sup>1</sup>, A.J. Irving<sup>1,2</sup>, S.M. Kuehner<sup>2</sup>, C.A. Sipiera<sup>1</sup>, C.M. Hollis<sup>1</sup>, C. Wragg<sup>1</sup>, and R. G. Shaw<sup>1</sup>.<sup>1</sup> Planetary Studies Foundation, Galena, IL 61036 USA. [psipiera@planets.org](mailto:psipiera@planets.org); <sup>2</sup> Dept. of Earth & Space Sciences, University of Washington, Seattle, WA 98195 USA.

**Introduction:** Over a period of several years Conrad Wragg, a meteorite collector from Illinois, accumulated an estimated 25,000 undocumented Northwest African stone meteorites. This collection included 11 individuals ranging in mass from 7,968 to 26,902 grams along with hundreds of 1 to 5 kilogram individuals and fragments. In addition there were thousands of <1 gram to < 1 kilogram individuals and fragments. Initially it was believed that the vast majority of these specimens could be attributed to either the NWA 869 (L3-6) or the NWA 4293 (H6) chondrite strewnfields. In 2015 Mr. Wragg sold his collection to Christina Hollis. In an effort to determine the make-up of this collection 40 meteorites were selected for study based on their size and physical appearance.

**Results:** The data collected in this study revealed a surprising amount of diversity in the 40 analyzed specimens (see Table 1). The most interesting discoveries came from NWA 10952, a 17,208 gram EL4 chondrite[1], and NWA 10954 a 14,056 gram highly shocked but extremely fresh L4. Although both specimens were on display in a museum for over two years along with other large stones, they were not recognized as being significantly different. Eventual microprobe and magnetic susceptibility analyses of these stones produced three L3, three H4, one H3-4, one H4-5, one L4, one L6 and the EL4. Another unexpected discovery was NWA 10793, a 6.9 gram Mesosiderite which was picked out from a tray filled with hundreds of <10 gram stones. Analyses of all forty meteorites suggest possible pairings within several types (Table 1) but no definitive correlation to specific common falls can be made.

Table. 1  
Classification of 40 undocumented northwest African meteorites.

H3	H3/4	H3/5	H4	H4/5	H5	H6
NWA 10660	NWA 10970	NWA 10286	NWA 10797 NWA 10795 NWA 10852 NWA 10984 NWA 11016	NWA 10282 NWA 10856	NWA 10543 NWA 10547 NWA 10622 NWA 10698	NWA 10541
L3		L3/6	L4	L4/5	L5	L6
NWA 10284		NWA 10283	NWA 10285	NWA 10506	NWA 10624	NWA 10545
NWA 10508		NWA 10694	NWA 10792	NWA 10619		NWA 10680
NWA 10858			NWA 10954			NWA 10682
NWA 10972						NWA 10974
NWA 10982						
NWA 11124						
LL4	LL6	MESO	EL4	H/L5		
NWA 10794	NWA 10557	NWA 10793	NWA 10952	NWA 10287		
NWA 10978						
NWA 10980						

**Conclusion:** Classifying the huge number of meteorites coming out of northwest Africa, Oman, Libya and other African locations is a very daunting task. Selective study of the more obvious meteorite types from these locations has greatly expanded the database for the rarer types of meteorites. Nevertheless, it is important that the ordinary chondrites must not be overlooked [2]. Finding eighteen different types from among the forty specimens examined in this study clearly demonstrates the diversity that can exist within these bulk purchase collections.

**References:** [1] Kuehner, S.M. et al. (2017) *LPS XXXXVIII*, Abstract #2047; [2] Sipiera, P.P. (2014) 77<sup>th</sup> Meteoritical Society Meeting, Abstract 5200.