METACHONDRITES: RECRYSTALLIZED AND/OR RESIDUAL MANTLE ROCKS FROM MULTIPLE, LARGE CHONDRITIC PARENT BODIES. A. J. Irving[1], T. E. Bunch[2], D. Rumble, III[3] and T. E. Larson[4], [1]Earth & Space Sciences, University of Washington, Seattle, WA 98195 irving@ess.washington.edu; [2]Dept. of Geology, Northern Arizona University, Flagstaff, AZ 86011; [3]Geophysical Laboratory, Washington, DC 20015; [4]Los Alamos National Laboratory, NM 87545.

Although the concept that multiple, relatively large, and differentiated planetary bodies existed in the early asteroid belt is not new [1], only recently has evidence from meteorite samples has been marshalled to support this idea [2]. The recovery of new specimens from Northwest Africa has made it possible to forensically reconstruct such planetary bodies from fragments representing core, mantle, crust and regolithic rocks. This relies on the assumption that such fragments will share common oxygen isotopic signatures. Some specimens are highly recrystallized rocks devoid of chondrules which possibly represent mantle samples. The term ***primitive achondrite*** has been applied to such rocks; yet, if they are texturally evolved rocks from chondritic precursors, we suggest that ***metachondrite*** is a better term.

Metachondrite Groups: At least five different groups of metachondrites can be recognized, and each can be affiliated with a specific chondrite class utilizing oxygen isotopes:

CV **NWA 3133, NWA 1839** [2]

CR **NWA 3100, Tafassasset, LEW 88763** [2]

CH **Lodranites, acapulcoites** [3]

NWA 1463, NWA 1058 **Winonaites (+ IAB irons)**

H **NWA 2353, NWA 2635, NWA 3145 (+ IIE irons)**

Unique chondrites NWA 1463 [4] and NWA 1058 [5] may represent the regolith of the winonaite parent body [3]. Since these specimens contain obvious chondrules, they should not be termed achondrites (despite a likely genetic relationship).

Metachondrites From the H Chondrite Parent Body: NWA 2353 (paired with NWA 3145) and NWA 2635 have polygonal-granular textures, no chondrules and, respectively: mean grainsize (0.2; 0.5 mm), olivine ($Fa_{17.9\text{-}18.7}$, FeO/MnO = 34-38; $Fa_{18.9}$, FeO/MnO = 35), orthopyroxene ($Fs_{15.6}Wo_{3.1}$ to $Fs_{16.6}Wo_{4.2}$, FeO/MnO = 19-26; $Fs_{16.8}Wo_{2.9}$, FeO/MnO = 20), plagioclase ($An_{12.3}Or_{6.7}$ to $An_{27.4}Or_{2.8}$; $An_{15.1}Or_{4.7}$), with accessory metal, chromite, merrillite and troilite. Clinopyroxene ($Fs_{7.4}Wo_{43.4}$ to $Fs_{8.5}Wo_{40.4}$, FeO/MnO = 16-22) occurs only in NWA 2353/3145. Their oxygen isotopic compositions ($\delta^{18}O$ = 5.51, 5.10; $\delta^{17}O$ = 3.31, 3.16; $\Delta^{17}O$ = +0.440, +0.510 per mil for NWA 2353; $\delta^{18}O$ = 3.23, 2.98; $\delta^{17}O$ = 5.03, 4.37; $\Delta^{17}O$ = +0.575, +0.676 per mil for NWA 2635) overlap those of H chondrites [6] and IIE irons [7].

References: [1] Wetherill G. 1992 *Icarus, 100*, 307-325; Chambers J. and Wetherill G. 2001 *MAPS, 36*, 381 [2] Irving A. et al. 2004 *EOS, 85*, #P31C-02; Bunch T. et al. 2005 *LPS XXXVI*, #2308 [3] Rumble D. et al. 2005 *68th Met. Soc. Mtg.*, #5138 [4] Benedix G. et al. 2003 *66th Met. Soc. Mtg.*, #5125 [5] Russell S. et al. 2003 *Met. Bull. 87* [6] Clayton R. et al. 1991 *GCA, 55*, 2317-2337 [7] Clayton R. and Mayeda T. 1996 *GCA, 60*, 1999-2018.