PYROXENE-RICH PALLASITES ZINDER AND NWA 1911: NOT LIKE THE OTHERS. T. E. Bunch[1], D. Rumble, III[2], J. H. Wittke[1] and A. J. Irving[3] [1]Dept. of Geology, Northern Arizona University, Flagstaff, AZ 86011; tbear1@cableone.net [2]Geophysical Laboratory, Washington, DC 20015; [3]Dept. of Earth & Space Sciences, University. of Washington, Seattle, WA 98195.

Two pyroxene-rich pallasites from Northwest Africa are different from the other two known examples, Vermillion and Yamato 8451 [1], and their disparate oxygen isotopic compositions suggest that numerous pallasitic specimens from various differentiated parent bodies may exist.

Zinder: A 46 gram, fresh (W1) and mostly crusted meteorite found in a field near Zinder, Niger in 1999 consists of 28 vol.% orthopyroxene (Mg/(Mg+Fe) = 0.87, $Wo_{2.2}$, molar FeO/MnO = 20), 27 vol.% olivine (Fa_{11}, molar FeO/MnO = 32) and 44 vol.% metal (7.15 wt.% Ni, 0.58 wt.% Co), with accessory troilite and chromite (Cr/(Cr+Al) = 0.85).

NWA 1911: A 53.1 gram, fresh (W1-2), complete stony-iron meteorite found in Morocco in 2002 consists of 40.2 vol.% olivine ($Fa_{10.8}$, molar FeO/MnO = 34.5), 34.5 vol.% orthopyroxene (Mg/(Mg+Fe) = 0.875, $Wo_{2.1}$, molar FeO/MnO = 21.6) and 24.3 vol.% metal (kamacite and taenite), with accessory troilite and chromite (Cr/(Cr+Al) = 0.85).

Oxygen Isotopes: Replicate analyses of acid-washed silicate material from each specimen by laser fluorination gave $\delta^{18}O$ = 3.39, 3.27; $\delta^{17}O$ = 1.79, 1.81; $\Delta^{17}O$ = +0.01, +0.09 per mil for Zinder, and $\delta^{18}O$ = 3.23, 3.42; $\delta^{17}O$ = 1.51, 1.62; $\Delta^{17}O$ = -0.20, -0.19 per mil for NWA 1911. Neither has oxygen isotopic compositions like those for Vermillion and Yamato 8451 [1]. NWA 1911 plots with the main group olivine-rich pallasites, and therefore may represent a more pyroxene-rich variant from the same parent body. In contrast, Zinder plots essentially on the TFL (which cannot be a consequence of terrestrial weathering), and this specimen must derive from yet another separate body. Two of three analyses by [2] of olivine from the Marjalahti pallasite also plot close to the TFL; however, a whole sample of this 1902 fall analyzed by [3] gave a very different result and plots with main group.

Evidence For Multiple Pallasite Parent Bodies: Like other pallasites, including the anomalous olivine-rich examples Eagle Station, Itzawisis and Milton (which have $\Delta^{17}O$ values within the range for CV chondrites [2, 3]), these new pyroxene-rich specimens may represent the core-mantle regions of various now-disaggregated, differentiated planetary bodies present in the early inner Solar System. An intriguing possibility is that Zinder might be a sample from an asteroid derived from a portion of the interior of Theia ejected by the Moon-forming collision.

References: [1] Boesenberg J. et al. 1995 *Meteoritics, 30*, 488-489 [2] Jones R. et al. 2003 *LPS XXXIV*, #1683 [3] Clayton R. and Mayeda T. 1996 *GCA, 60*, 1999-2018.