SEM/EDX ANALYSIS OF TENHAM METEORITE CHONDRULES.

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The Tenham meteorite belongs to the L6 group of ordinary chondrites. L6 chondrites are characterized by their blurred chondrule outlines formed as a result of extensive thermal metamorphism [1]. The Tenham meteorite is classified in the S5-S6 shock stage due to the presence of high-pressure mineral phases and shock melt veins [2,3]. Analyzing a 5.4 gram sample under a Scanning Electron Microscope (SEM) revealed a low volume of chondrules visible. Chondrule textures identified include a Barred Olivine texture (BO) as well as a "fine-grained" texture featuring iron inclusions present within a silicate matrix. Energy dispersive X-ray analysis (EDXA) of the chondrules revealed a low Ca and a low Fe atomic weight percentage present, suggesting that these chondrules are type 1 chondrules [4]. One chondrule featuring a BO texture under EDXA contained a relatively high atomic weight percentage of Al and Na, suggesting an enrichment of the feldspathic component (Fig 1) [5]. It is interesting to note that some of the non BO texture chondrites contained similar bulk atomic weight percentages as the BO texture chondrites for Al and Na , suggesting a high degree of shock metamorphism present, resulting in the alteration of plagioclase, pyroxene, and olivine in the chondrules into their high-pressure mineral phases; plagioclase having altered into an Na and Al-rich Hollandite structure (Lingunite), pyroxene having altered into a more Ca-poor phase (either an OPX or a low Ca CPX), and olivine having altered into a more Mg-rich, Fe-poor phase (Wadsleyite/Ringwoodite) [6].

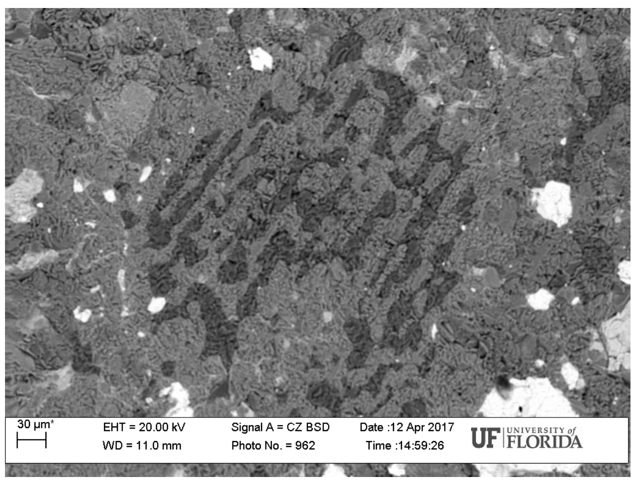

Fig. 1. Barred Olivine texture (BO) chondrule in Tenham meteorite.

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