METEORITICS: Comments
Journal of the Meteoritical Society

Ms 1004

Author(s): H.S. Jackson and A.J. Ehlmann
Title: The Kirbyville eucrite

Please make detailed comments below, particularly addressing the quality of the data, soundness and imaginativeness of interpretations, text organization, prose, adequacy of paper's length, omissions or errors of fact, organization of tables, clarity of figures and completeness of reference list. The authors and editors are better served by detailed and specific comments than by those that are too brief. Use additional pages if necessary.

Comments:

This is a very modest description of the Kirbyville eucrite that may be publishable after revision. The authors are clearly not familiar with the literature on eucrites and should, perhaps, do some literature searching before submitting the revised manuscript. The text is verbose in places and a few examples have been modified in the text. There is inconsistency: e.g. 0.4 mm grains cannot contain 1 mm twin lamellae! What are non-ophitic textures? Negative descriptions such as this are not useful. The authors should use terms describing what the texture is, not what is it not. It is not clear that the author understands the difference between exsolution and twinning. The pyroxene compositions quoted, clearly imply exsolution of pigeonite but this is never mentioned in the text.

A small table containing En_{38} Wo_2, $En_{30}Wo_{41}$ pyroxenes and the extremes of the feldspar composition range would be useful. Are the pyroxenes zoned? The authors should read the Reid and Barnard abstracts from Lunar & Planet Sci. Conf. (about 1979) on equilibrated and unequilibrated eucrites.

The modal analysis suffers from the "classic" optical error of overestimating opague mineral abundances. If the authors calculate the bulk of TiO_2 and Cr_2O_3 wt% from their mode and compare with the Mason and Jarosewich data, they will get an indication of the levels of error. They should also reassess their identification of "magnetite" and chromite. No known eucrite contains magnetite that has been confirmed by electron microprobe and almost all contain significant chromite (see Bunch paper). If magnetite is confirmed by Keil electron probe analysis of the oxides it is of extreme importance (and will become the tail that wags the dog in this paper). The mode also misses troilite which is almost certainly present and metal which is probably present. There may also be merrillite and F-apatite at trace levels, but since these are notoriously difficult to spot optically (in eucrites), it is probably not worth the time to search for them by electron probe.

At present, the paper adds very little to Brian Mason's description, but with a little more work, it might make a useful note. By the way, Kirbyville looks nothing like typical Juvinas. The authors should look at the old Duke and Silver (1967?) Geochimica paper as well as various papers by Hiroshi Takeda and numerous abstracts in Lunar and Planetary Science volumes over the past 10 years.

Figures 2B and 2C are quite nice but add little to paper. They should be dropped.

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Please answer each question. Detailed comments should be made on the enclosed Comments sheet. Minor comments may be made on the manuscript.

1. Do you recommend this paper for publication in Meteoritics from the standpoints of originality, importance and effectiveness of presentation?

☐ YES, without significant change.

☒ YES, but needs:

Rewriting:	___ Minor	X Moderate	X Major
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Prose and clarity:	___ Excellent	___ Very Good	___ Good	X Fair	___ Poor
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Figures	✓ Yes	___ No	Eliminate Nos. 2B & 2C.

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I S Delaney 9/3/87.
Signature Date