

Chopping a Title Hides the Truth

Dr. Kevin R. Henke

The following material may be freely copied and distributed as long as the author is properly acknowledged and the material is not altered, edited or sold.

Young-Earth creationist (YEC) John Woodmorappe (1999) is infamous for combing the literature to find statements (often out of context) to malign the validity of K/Ar, $^{40}\text{Ar}/^{39}\text{Ar}$ and other dating methods. As an example, Woodmorappe (1999, p. 43) quotes the following statement from Lo Bello et al (1987, p. 61) to argue that conventional K/Ar dating is not adequately self-checking (that is, anomalously old ages may not always be detected with this particular method):

"With conventional K-Ar dating, the only tests for anomalously high ages are stratigraphic control and the reproducibility of the age measurements. Unfortunately, stratigraphic control is frequently lacking or inadequate, and anomalously high ages can be very reproducible."

However, Woodmorappe (1999, p. 43) is only presenting a small portion of the theme in Lo Bello et al. (1987). Woodmorappe (1999, p. 43 and elsewhere) fails to mention the major topics of Lo Bello et al (1987), which are to demonstrate the USEFULNESS of the $^{40}\text{Ar}/^{39}\text{Ar}$ method, its ability to detect anomalously old dates, and its capacity to supplement or better resolve the ages of complex volcanics that cannot be easily dated with the conventional K/Ar technique. In particular, Woodmorappe (1999, p. 43) ignores the subsequent statements from Lo Bello et al (1987, p. 61-62), which argue that $^{40}\text{Ar}/^{39}\text{Ar}$ dating is as an important diagnostic tool in detecting excess argon. In context, the full statement from Lo Bello et al (1987, p. 61-62) is:

"With conventional K-Ar dating, the only tests for anomalously high ages are stratigraphic control and the reproducibility of the age measurements. Unfortunately, stratigraphic control is frequently lacking or inadequate, and anomalously high ages can be very reproducible. However, with the $^{40}\text{Ar}/^{39}\text{Ar}$ step-heating method, disturbances in the samples are FREQUENTLY revealed by the Ar age spectrum ...[reference omitted]. In particular, the well-known 'saddle-shaped' spectrum...[reference omitted] is a USEFUL diagnostic tool for detecting the presence of 'excess ^{40}Ar ', i.e., extraneous ^{40}Ar which has been included in the sample during its formation. However, despite extreme care in sampling, and even when excess ^{40}Ar is

detected, it MAY be impossible to deduce the true eruption age of a pumice unit using the standard technique." [my emphasis]

Certainly, not all samples can be successfully dated with K/Ar, $^{40}\text{Ar}/^{39}\text{Ar}$ and other radiometric methods. Like ANY analytical method, radiometric methods have limitations. However, rather than presenting a balanced and accurate summary of the successes and failures of K/Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ dating, Woodmorappe (1999, p. 37-60, 73-79) simply slanders the methods to protect his antiquated view of Genesis.

By making simple observations on the conditions of K-feldspar grains from a pumice flow from Neschers, France, Lo Bello et al (1987, p. 61) conclude:

"The K-feldspars form two populations: (1) a group of euhedral [grains with abundant uncorroded crystal faces] and clear crystals; and (2) a group of rounded cloudy grains. By $^{40}\text{Ar}/^{39}\text{Ar}$ dating of individual grains by laser fusion it was possible to demonstrate that the clear grains are 0.58 Ma [million years] old, while the cloudy grains are contaminating ancient feldspars with ages as old as 330 Ma."

The feldspars in the first group are well-crystallized and clear, which probably means that they crystallized late from the melt and are well-preserved. In contrast, the grains in the second group, which are worn and cloudy, indicate a longer battered history. The feldspars in the second group are probably xenocrysts. Xenocrysts are older mineral fragments that are picked up from surrounding rocks by magmas (melts) as the magmas rise towards the surface. Depending on the temperature of the magma and the melting point of the xenocrysts, the xenocrysts may largely or partially survive rather than entirely dissolve into the melt.

Considering that the melting points of different minerals and the temperatures of various magmas and lavas are well-known from laboratory and field studies (e.g., Hyndman, 1985, p. 81-122, 295-315; Klein and Hurlbut, 1999, p. 318-330), it makes perfect sense that certain minerals may survive in melts (such as calcium-rich feldspars in granitic magmas), while others will not. It is also reasonable that any surviving xenocrysts could become very worn and scratched (cloudy) during transport. The variations in shape and clarity of the K-feldspar grains, alone, clearly indicate that the two populations have different histories and origins. Rather than recognizing the validity of these common sense observations on the feldspar xenocrysts, Woodmorappe (Figure 8 on p. 21, 30-31, 74-75, etc.) improperly dismisses xenocrysts as "fictitious rationalizations" to "explain away" anomalously old radiometric dates (also see Woodmorappe's index, p. 118 for additional inappropriate descriptions of

xenocrysts). When the optical properties and subsequent radiometric results of the feldspars are examined, it is clear that Lo Bello et al (1987) did not invoke any satan-inspired "uniformitarianism" to avoid the hell fire and brimstone of the Bible.

Distorting and misquoting references are nothing new for Woodmorappe. However, in the case of Lo Bello et al (1987), Woodmorappe (1999, p. 43) not only misrepresents the contents of the article, he also fails to properly cite the FULL title of the article in his bibliography. According to Woodmorappe (1999, p. 103), the title of Lo Bello et al. (1987) is:

" $^{40}\text{Ar}/^{39}\text{Ar}$ Step-Heating and Laser Fusion Dating of a Quaternary Pumice from Neschers Massif Central, France."

However, the actual title boldly proclaims:

" $^{40}\text{Ar}/^{39}\text{Ar}$ Step-Heating and Laser Fusion Dating of a Quaternary Pumice from Neschers Massif Central, France: THE DEFEAT OF XENOCRYSTIC CONTAMINATION." [my emphasis]

When Lo Bello et al (1987) is read in its entirety and context (including the title!), the results are bad news for Woodmorappe and his unrealistic form of creationism. $^{40}\text{Ar}/^{39}\text{Ar}$ methods certainly have the ability to routinely detect and avoid argon contamination from xenocrysts. Therefore, YECs simply have no basis for claiming that all ancient K/Ar and $^{40}\text{Ar}/^{39}\text{Ar}$ radiometric dates can be explained away by "undetectable" excess argon.

Now, nobody is perfect. Perhaps, Woodmorappe's omission of a very relevant portion of the title of Lo Bello et al (1987) was just an accident. Nevertheless, even if it was an innocent mistake, Woodmorappe's sloppiness and misuse of the contents of Lo Bello et al (1987) is still evident and inexcusable. Such blatant misquotations undermine any confidence in Woodmorappe's ability to properly summarize the literature. If historians used Woodmorappe's selective and biased approach to the literature, they could easily make Stalin look like a saint and depict Mother Theresa and Ghandi as thugs.

REFERENCES

Hyndman, D.W., 1985, Petrology of Igneous and Metamorphic Rocks, McGraw-Hill, New York.

Klein and Hurlbut, 1999, Manual of Mineralogy, John Wiley & Sons, New York.

Lo Bello, Ph.; G. Feraud, C.M. Hall, D. York, P. Lavina, and M. Bernat, 1987, "40Ar/39Ar Step-Heating and Laser Fusion Dating of a Quaternary Pumice from Neschers, Massif Central, France: The Defeat of Xenocrystic Contamination," Chem. Geol. (Iso. Geosci. Sec.), v. 66, p. 61-71.

Woodmorappe, J., 1999, The Mythology of Modern Dating Methods, Institute for Creation Research, El Cajon, CA.