

LITERATURE REVIEWS

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ARE RADIOISOTOPE DATING METHODS RELIABLE?

*Reviewed by R. H. Brown
Yucaipa, California*

THE MYTHOLOGY OF MODERN DATING METHODS. John Woodmorappe. 1999. El Cajon, CA: Institute for Creation Research. 118 p. Paper, \$16.00.

When two individuals have distinct disagreement regarding the interpretation of significant data, it is apparent that at least one of them is in error. Age determinations based on radioisotope data are commonly considered to be in substantive agreement with geological age criteria. The massive literature survey made by John Woodmorappe demonstrates that in actuality there is often major disagreement, and that the presumed mutually supportive relationship can be demonstrated only with carefully selected data. His compilation of 494 references, mostly from recent professional geologic publications, is a major contribution to an understanding of the relationships between real time and radioisotope ratios.

One of the principal values of this book is the impressive examples in Chapter 3 of disagreement between radioisotope age and corresponding geological age assignment. The following chapters contain additional examples. The reader should keep in mind that such a list, however long, is not proof that daughter/parent isotope ratios are *never* time significant. The statement made on page v in the Foreword by Henry M. Morris that “the various assumptions on which radioactive dating techniques are based are *all* wrong” (emphasis mine) is apt to cause many potential readers who have a foundation knowledge in physics or geochemistry to lay aside the book without discovering its many significant contributions. In stating that “John Woodmorappe is

very positive (and sometimes rather abrasive ...)" (p vi), Dr. Morris gently prepares the reader for a feature of the book that diminishes the quality of recognition it would receive otherwise.

In his Introduction the author unfortunately makes what may be taken as a clearly false statement: "no one has performed an overall review of isotope dating" (p vii). Actually, several excellent treatments are available.¹ Evidently he intended to say "no one [from the viewpoint of biblical chronology]."

Another statement that may foster an initial prejudicial attitude toward the book is located on the first page of Chapter 1: "... very little isotopic-dating work is experimental in nature." It is unfortunate that a more appropriate wording was not used, such as: "Any radioisotope age/date is derived from a theoretical interpretation, as well as the basic experimental data."

The book fully develops the insight expressed on p 83b, "Uniformitarian geochronology is indefinitely adaptable to every conceivable possibility!"; and on p 85a, "... the uniformitarian geochronologist cannot lose, no matter what turns up." A radioisotope age that agrees with geological expectations is readily accepted as confirmation and quantification of the designated age. Radioisotope ages that are significantly greater (or less) than conformable with geological assignment are reasonably explainable on the basis of postulated parent loss and/or daughter gain (or parent gain and/or daughter loss), as a result of solution penetration and/or heating in one or more episodes since the initial formation of the mineral.

The author does not call attention to the equal capability of a biblically compatible geochronology. Radioisotope ages may be reasonably explained on the basis of either uniformitarian geology or young-earth biblical geology. The chemical and thermal modifications of isotope ratios necessary for a reasonable explanation of the data may be postulated as having occurred during an unspecified time between primordial creation of matter and creation of organic life on planet Earth, as allowed by the definition for *earth* given in Genesis 1:10; during, the third day of Creation Week; and during, as well as subsequent to, the Flood episode of Genesis 6-8. A choice between an "old-earth" concept and a "young-earth" concept must be made on a basis other than success in the development of a reasonable explanation for radioisotope daughter/parent ratios.

When the physical measurement of a radioisotope half-life (disintegration rate) has a large range of uncertainty, it is only reasonable for geochronologists to use the boundary value that produces radioisotope ages most closely in accord with expectations based on geologic criteria. The relatively few cases in which the investigator has a significant option for selection of a half-life value do not justify a categorical statement such as found on p 95a: “the decay constants used in isotopic-dating systems are tainted by past and present practice which raise questions about their objectivity.” A statement such as this unfortunately raises a question concerning the objectivity of the author. We should recognize that significant results are often obtained from nonobjective research.

Figure 30 on p 82 presents 96 age determinations for the three U-Pb methods on 32 individual zircon grains from the same igneous rock. There is no specification as to whether these data are taken from the geochemical literature, or are hypothetical values chosen to illustrate the concepts of concordance and open-system resetting. The unlikelihood of 96 radiometric age determinations on one rock sample indicates that the data probably are fictitious. This consideration does not diminish the tutorial value of Figure 30.

Chapter 9 contains many problems for comprehension by the readership to whom the book is directed. There is need for an explanation of what the author intends by a “lack of regional standardization of isotope dates” (p 87a). Lack of a standardized radioisotope age to represent each geologic region? Diversity rather than uniformity of the radioisotope age determinations for samples from a geologic region? The data base for Figure 33 should be specified. *All* published dates? What basis for selection of the dates represented? And what are “lists (D) and (H)”, and “lists (B) and (C)”? Figure 33 has little meaning if these terms are not readily understandable from the text. Why is Figure 33(a) described as log-normal, while 33(b) is represented as log-linear, and the associated text indicates log-linear?

According to the estimates presented in Chapter 9, randomly selected radioisotope ages will be in agreement within precision of measurement in 2.1% of pair selections, and 0.03% of triplet selections. These estimates indicate the significance of agreement between two or more methods of radioisotope age determination on the same sample. For their derivation to be understandable to the target readers, this section must be extensively revised and elaborated.

The present (first) edition of *The Mythology of Modern Dating Methods* will appeal mostly to individuals who are seeking assurance for a previous commitment to a biblical young-earth viewpoint. Several features will impede due recognition by the scientific community-at-large of the significant contributions to radioisotope science that are presented in this book. In addition to the problems with Chapter 9 noted above, the myth versus reality/fact format used throughout the book will inhibit its consideration as a scientific treatise. The range of potential readers who might respond favorably would be increased by using a simple statement of topic as an introduction to each section.

Derogatory categorization of individuals who do not have the same viewpoint as does the author diminish the quality and effectiveness the book should have. For example: on p 96b, “Torture the data long enough, and it will say whatever you want. And if one ‘torture technique’ does not produce the desired result, try another”; and on p 35b,

Having been exposed in their earlier-made blustery claims about the wonderful reliability of isotopic dating, [apologists for isotope dating] now give us a song and dance about the fact that they are the ones who have discovered the flaws in these dating methods.

Who else would have obtained the data necessary for more detailed understanding? It is highly important for biblical creationists to recognize that individuals who hold diverse viewpoints may be just as honest and professional in reaching their conclusions as we consider ourselves to be.

At the beginning of this review it was noted that where substantive conflict exists between viewpoints/conclusions A and B, one of them must be incorrect. Woodmorappe has amply demonstrated that geologic age assignments are often in conflict with corresponding radiometric age determinations. In such cases one or the other must be incorrect. A second possibility is that *both* are incorrect. Woodmorappe concludes Chapter 10 with a call to disregard both fossil sequence and radioisotope age as having extended time significance (p 94b). The book of Genesis provides a basis for a third explanation which allows basic geological principles for interpretation of sequence and circumstances of fossil deposit, and also allows radioisotope data to indicate source material characteristics and circumstances for open-system modification since initial creation.

I urge every reader of this review to check my comments against his/her own reading of the full 96 pages of text. For a broad-based perspective on the book, I highly recommend the excellent review by Michael J. Oard on p 19-22 in Vol. 14 (no. 1, 2000) of *Creation Ex Nihilo Technical Journal* (tjeditors@AnswersinGenesis.com).

ENDNOTES

1. For example: (a) Geyh MA, Schleicher H. 1990. Absolute age determination. NY: Springer Verlag; (b) Fauré G. 1986. Principles of isotope geology. 2nd ed. NY: John Wiley & Sons.