

# REACTIONS

*Readers are invited to submit their reactions to the articles in our journal. Please address contributions to: ORIGINS, Geoscience Research Institute, 11060 Campus St., Loma Linda, California 92350 USA.*

## **Re: Brown: Correlation of C-14 Age with the Biblical Time Scale (ORIGINS 17:56-65)**

Dr. R. H. Brown deserves the full appreciation of all recent creationists for his tireless efforts to integrate C-14 observations with a Biblical Flood framework. His article represents a major, quantitative step forward in his endeavor. The article presents an empirically derived relationship for converting C-14 age to “real” age. I doubt that anyone could produce a better relationship for this much-needed conversion than that which Dr. Brown has presented, if one begins with the assumption that an Ussher-like date for the Flood is correct, as Dr. Brown has done.

However, the application of this conversion relationship produces some strange results which seem to argue strongly against its general validity, and prompt reconsideration of the assumptions upon which it is built. For example, consider the case of certain trees. Individual tree specimens of bristlecone pine containing several hundred or even several thousand consecutive growth rings are known to exist. C. W. Ferguson (see Fig. 1, p. 239 of Nobel Symposium 12, Ingrid U. Olsson, ed.) used one such tree exhibiting 580 consecutive growth rings in the construction of his bristlecone pine chronology. The C-14 age of the first growth ring of this tree is roughly 5700 B.P. while that of its final growth ring is roughly 6150 B.P. When I rescale these C-14 ages according to Dr. Brown’s relationship I find that the “real” age of the first growth ring is about  $T = 4340$  years and for the final growth ring it is about  $T = 4420$ . If these dates are correct, then this tree produced 580 growth rings in 80 years. That is, it averaged more than 7 growth rings per year!

This example could be augmented with that of many more trees of similar radiocarbon age from various locations on the globe. For those trees with the greatest C-14 ages, Dr. Brown’s conversion relationship implies a growth rate of up to 20 rings per year. But these are trees which normally produce only one ring per year today. This, of course, does not mean that they could not have produced 20 growth rings per year in the

past, but it is not at all obvious how any environmental conditions, no matter how different from those normal at the present time, might bring about such a feat.

As one further example, consider the following archaeological data from Jericho (see, for example, John R. Bartlett, “Cities of the Biblical World: Jericho,” Eerdmans, 1982). At one location in the ancient mound 26 building stages were excavated all belonging to the PPNB period. This data implies that a succession of 26 consecutive house building programs was undertaken at this site during the PPNB. Houses of this period were ruggedly constructed of mortared brick, with carefully plastered rectangular rooms. Conventional radiocarbon dates imply that the PPNB lasted a little more than one millennium, roughly coinciding with the seventh millennium B.C., which suggests that houses had to be rebuilt at Jericho about once every forty years — a conclusion which seems entirely reasonable. Now let us suppose that these radiocarbon dates are wrong and need to be rescaled as Dr. Brown’s conversion relationship suggests. We will have to compress these 1000 radiocarbon years of the PPNB period into about 70 “real” years. But this immediately leads to the unreasonable conclusion that these brick houses had to be completely rebuilt during the PPNB at Jericho once every 2.7 years! Even modern houses last longer than this!

As I stated at the outset, I do not think anyone could do any better with the radiocarbon data than Dr. Brown has done, if their thinking is constrained by an Ussher-like date for the Flood. The problem is that presently available radiocarbon, tree-ring, and archaeological data appear totally irreconcilable with the Flood date in either the third or fourth millennia B.C. It seems the Flood must have occurred well before these dates.

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**Brown’s reply:**

Before publication it was recognized that “Correlation of C-14 Age with the Biblical Tune Scale” would produce extensive negative reaction from a wide range of viewpoints. The treatment in that paper was offered as the best that can be done with the limited knowledge available. I must thank Dr. Aardsma for the opportunity to elaborate my initial presentation.

Given the capability of trees for producing more than one growth ring within a calendar year under appropriate circumstances (Glock & Agerter 1963, Gladwin 1976), our uncertainty concerning the climate patterns at bristlecone pine growth sites over the first three millennia after the Genesis flood as a consequence of all the climate changes associated with glaciation and deglaciation and the continental plate movement that must have occurred during that time, I see 1000 ring sequence wood samples as a challenge to dendrochronology, but not as definitive evidence against a time frame based on the data in the eleventh chapter of Genesis.

I do not have sufficient knowledge of Jericho archaeological evidence to discuss whether the available data must be interpreted as requiring rebuilding every 2.7 or every 40 years. The interpretive model for C-14 age that was presented in the last issue of *Origins* brings the age of an Alaskan musk ox down from 7000 years to a reasonable 50 years, and the dung accumulation from a viable population group of ground sloths in the Grand Canyon from an average of about one dung deposit every three years up to at least one dung deposit every four days (Brown 1986). Given a choice between this interpretive model and one chosen to avoid an archaeological interpretation which indicates home rebuilding every 2.7 years, I will choose the former and hold the archaeological interpretation in question.

Where our knowledge limits or our biases prevent a satisfactory resolution of such difficulties, I am confident that sufficient information will eventually become available for validating to everyone's satisfaction the testimony which has been collected in the Bible.

I hope that a competent archaeologist will discuss in *Origins* the issue that Dr. Aardsma has raised concerning the remains of ancient Jericho. From my personal inquiries to individuals who have done site work in this area and are well informed concerning archaeological study in the Middle East, I have been informed that the Jordan Valley experienced an all-time high rainfall during the Neolithic; that during this time Jericho houses were of mud-brick construction, rarely, if ever, plastered on the outside; that these houses needed frequent major repair, possibly on an average of every two years at some locations; that the floor level of many of the houses needed constant (every few years) raising to prevent rainwater from running in off the street, since erosion of the mud-brick houses produced a continual rise of the reed-paved streets, and consequently of the city mound (tell). This information gives me increased appreciation of

the need for a paradigm that brings the real-time equivalent of C-14 ages prior to 3500 BP into harmony with the chronological data in the Bible.

R. H. Brown

## REFERENCES

- Brown RH. 1986. Radiometric dating from the perspective of biblical chronology. Proceedings of the First International Conference on Creationism, Vol. II. Pittsburgh, PA: Creation Science Fellowship, p 31-53, specifically p 48.
- Gladwin HS. 1976. Dendrochronology, radiocarbon and bristlecones. *Anthropological Journal of Canada* 14:2-7.
- Glock WS, Agerter S. 1963. Anomalous patterns in tree rings. *Endeavour* 22(85):9-13.