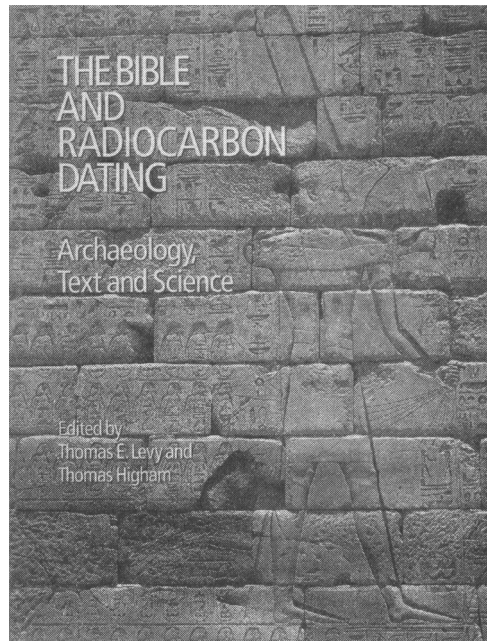


BOOK REVIEW

Thomas E Levy, Thomas Higham, editors. *The Bible and Radiocarbon Dating: Archaeology, Text and Science*. 2005. London: Equinox Publishing Ltd. 450 pages. ISBN: 1845530578. \$39.95 US paperback, \$135 US cloth.

Reviewed by: Israel Carmi, Department of Geophysics and Planetary Science, University of Tel Aviv, PO Box 39040, 61390 Tel Aviv, Israel. Email: carmiisr@post.tau.ac.il.

The relationship between archaeology and radiocarbon dating is not symmetrical: They are defined in the Introduction of the book under review. The editors, Levy and Higham, say explicitly as archaeologists, that "...absolute dating techniques are now an integral part of our tool box..."

The interaction between an archaeologist and a radiocarbon dater is somewhat like this: The archaeologist submits samples for dating, with a perceived notion of what he expects the results to be. When he gets the results, if he does not like them—what can the ^{14}C dater say? "I checked my procedures, backgrounds, standards, and calibrations, and this is what I got."

But what happens if, when looking at the same set of ^{14}C dates, one archaeologist says, "I can't accept them because they do not fit my expectations," and another says, "The data are good and fit my theory perfectly"? This is exactly what happened with the High and Low chronologies of the Bible, and the reviewed book is the output of a conference on the subject.

The High and Low chronologies of the Bible were formed by archaeologists and deal with the relation between archaeological work in the Iron Age and the Bible. The High Chronology attempts to verify the Bible by ascribing monumental sites like Meggido and Hazor to the magnificence of the 2 great kings David and Solomon. The Low Chronology says that there is no archaeological evidence to a monumental Jerusalem of David and Solomon; hence, the monumental archaeological

sites have to be dated to a later time. The difference in time between the High and Low chronologies at the outset of the conference was about 100 yr.

The 3 other papers in the introduction section are by A Mazar from Jerusalem (~900 m asl) who was the proponent of the High Chronology in the meeting, I Finkelstein of Tel Aviv (~40 m asl) who was the proponent of the Low Chronology in the meeting, and AJ Shortland, who spoke on timing the Sheishak expedition to the land of Israel. Mazar reviews the theory of High Chronology in detail and criticizes ^{14}C dating. He shows parallel results from 2 labs, which differ by 100 yr, and claims that with the problems in the calibration curve, ^{14}C dating cannot be of much use for the problems at hand. In the second chapter, Finkelstein presents the case for the Low Chronology. He argues for eliminating the constraint that the Bible imposes on archaeology and claims that his model fits well with the regional (Levant) history. For Finkelstein, ^{14}C dates prove his point. Shortland discusses the uses of documentary data in ancient Egypt, which is fragmentary and difficult to interpret. Nevertheless, he arrives at a temporary estimate of Sheishak's expedition to the land of Israel at ~925 BCE.

A section on "Methodological Issues" follows, with papers by C Bronk Ramsey and by I Sharon et al. For sub-century resolution, a single ^{14}C date is of no use because of the inflation of the range generally caused by the calibration. Bronk Ramsey discusses the application of Bayesian statistics to improve the resolution of ^{14}C dating. The method allows for inclusion of prior information (i.e. archaeological expectations), and this is where the archaeologist can contribute his age estimate. However, to work properly, the method requires a significant number of dates, as is seen in Bronk Ramsey's analysis of the ^{14}C dates from Tel Rehov, where it is impossible (yet) to resolve between destruction dates of 975 and 925 BCE, which is at the heart of the present High-Low Chronology argument. Sharon et al. write the third longest paper for the book, which reports on the early part of their Iron Age Dating Project. They first discuss the archaeological methodology for the selection of samples for the project. They then present a reevaluation of the age of 2 horizons and 1 transition zone in Tel Dor and confirm their previous analysis, which used ^{14}C dates done by this reviewer. They then use an intercomparison between the Rehovot and Arizona labs to calculate the time of transition Ir1/Ir2 with various methods of locating outliers.

Section III of the book is "Around the Eastern Mediterranean in the Iron Age" and includes 3 papers. The first paper is "East Mediterranean Radiocarbon Comparison Project and the Current State of the Play" by Manning et al. The authors examine the assumption that the atmospheric values of ^{14}C are uniform around the globe, when the 2 hemispheres are analyzed separately. They compare high-precision measurements in samples from German and Turkish pines. Their finding is that in modern wood there is hardly any difference between the regions in which the pines grew. For Iron Age pines, the authors claim a difference of up to 20–30 ^{14}C yr between pines grown in temperate and arid regions. The second paper, by E M Newton et al., is on a dendrochronological ^{14}C wiggle-match for the early Iron Age of northern Greece. The project was done at a site in Assiros where a proto-geometric amphora was found, which is similar to the ceramics found in the Iron Age Levant. They estimate the age of the site at 1070 BCE, which they regard as a confirmation of the High Chronology paradigm. The last paper in this section is "High Precision Dating and Archaeological Chronologies" by S Sherrat. The author says that "absolute datings ... are not so much solutions to problems in themselves, as contributory factors to much more complex methodological and theoretical problems concerning chronology and the way in which we interpret the archaeological record." Discussing relative dating by ceramics, Sherrat advocates the use of "fuzzy elastic (dating)" and when she applies this approach to the Iron Age problem, her conclusion is that the High Chronology is the correct interpretation.

Section IV contains 3 papers on Jordan in the Iron Age. The first, by Levy et al., is the second longest in the book: “Lowland Edom and the High and Low Chronology.” The authors describe in detail excavations in Khirbet en-Nahas, in the lowlands of Edom, the site of copper mining. ^{14}C dating shows that the site is older than previous estimates, but it cannot (yet) contribute to the High–Low Chronology debate. In the second paper, Higham et al. apply Bayesian statistics first to the data cited in the Levy et al. paper. The number of ^{14}C results is small, and the analysis is not satisfactory. With more data and repeated use of Bayesian statistics, one may locate and deal with outliers efficiently and come out with age estimates for the different parts of the site. The third paper is “Mesha, the Mishor, and the Chronology of Iron Age Madaba,” by Harrison and Barlow. The authors discuss the history and archaeology of Madaba in ancient Moab east of the Dead Sea. To date the site they present ^{14}C dates and analyze them to suggest that they date to the liberation of Madaba by King Mesha.

Section V is on Israel in the Iron Age, which is at the heart of the debate on the chronologies. Accordingly, it includes 10 papers; the first and the longest in the book is “The Ladder of Time at Tel Rehov” by Mazar et al. The authors present 70 ^{14}C dates from the site and discuss the dates in conjunction with the site stratigraphy. They do a thorough analysis of their data, but reject the dates of this reviewer, disregard dates from Tucson, and discard some of the Groningen data. Their conclusion is that the High Chronology prevails. The second paper in this section is “Quality Control of Groningen ^{14}C Results from Tel Rehov” by van der Plicht and Bruins. The authors discuss the data that they prepared for the site of Tel Rehov and also the difficulties in ^{14}C dating. The third paper, by Bruins et al. is “The Groningen Radiocarbon Series from Tel Rehov.” In it, the authors discuss the extended database of dates and analyze it using the Bayesian statistics of OxCal. The next (4th) paper is “ ^{14}C Results from Megiddo, Tel Dor, Tel Rehov and Tel Hadar” by Piasetzky and Finkelstein. The authors analyze data from these 4 sites using methods applied by the physicist Piasetzky and come to the conclusion that data from 3 different laboratories, Groningen, Arizona, and Rehovot, support the Low Chronology paradigm. Paper #5, by Finkelstein, is “High or Low: Megiddo and Tel Rehov.” The author says that the first set of measurements of samples from Tel Rehov, in 3 labs, supports the Low Chronology. He expresses doubts about the validity of the new results from Groningen because of possibly wrong identification of the collection sites due to the stratigraphy. The destruction layer can be also assigned to clashes with the northern empires, which occurred later than the assumed Sheishak destruction. Finkelstein suggests that Megiddo, with its stone buildings, is better suited to be a pivotal site for the Iron Age, compared to Tel Rehov with its mud bricks buildings. Together with the data from Tel Dor and Tel Hadar, the author’s conclusion is that the Low Chronology prevails. A paper (#6) by N Franklin, “Correlation and Chronology,” deals with a comparison between Tel Megiddo and Samaria. After putting to order the strata in both sites, the author presents a clear correlation between specific strata in the sites. Paper #7 of this section is by Bruins et al., “Iron-Age ^{14}C dates from Tel Dan.” The authors use the stratigraphy of the archaeologists that excavated the site. On the basis of their age determination, the authors decide that the High Chronology is the correct chronology. The next paper (#8), by Master, is “Iron I Chronology at Ashkelon.” The paper is pure archaeology and describes the Iron Age site at Ashkelon. No ^{14}C ages are given, and the paper does not contribute to the debate at hand. Bruins and van der Plicht authored paper #9, “Desert Settlements through the Iron Age.” In it, they present ^{14}C dates from Tel el-Qudeirat, Nahal HaElah, and Horvat Halukim—all in the Negev of Israel. They correlate their dates to the expeditions of Sheishak from Egypt and Nebuchadnezzar from Babylon. The last paper in this section is “Trajectories of Iron Age Settlement in Northern Israel and Their Implications for Chronology” by A Zarecki-Peleg. Models for the development of several archaeological sites make possible the distinction of the transitions in Iron Age II, specifically between Iron Age IIA and Iron Age IIB.

The fourth and last section in the book deals with historical considerations and contains 4 papers. The first paper by S Munger is “Stamp-Seal Amulets and Early Iron Age Chronology.” A thorough study of “mass-produced” amulets relates them to Pharaoh Siamun and Pharaoh Shoshenq (Sheishak). The Egyptological dating of the amulets confirms the tendency towards a Low Chronology. The second paper in this section is “Problems in the Paleographic Dating of Inscriptions” by W M Schniedewind. The main point of the paper is that it is very hard to actually date the Iron Age by paleography. The paleographic data provide evidence that the kings of that time used scribes for their correspondence. The third paper is by W G Dever, “Some Methodological Reflections on Chronology and History Writing.” Dever says that archaeology’s fundamental goal is history writing and, therefore, chronology is of importance. He then mounts a fierce attack on revisionist historians who are beset by ideology. Although Dever is committed to the High Chronology, if evidence should amount to accept a Low Chronology, he will be among the first to shift. The fourth and last paper is by B Halpern, “David Did It, Others Did Not.” Halpern treats the Bible as history and, in a detailed, sophisticated analysis, shows that David and Solomon did exist. On the 3 disciplines that are involved in the High-Low Chronology debate, he says, “Some textual analysis is reliable. Most is not. The same problem exists, albeit not in the same measure, in archaeology. We just do not have the same degree of collaboration, cross-checking and non-competitive openness that we see in radiocarbon.”

It is tempting to end the review following such a statement, but there is one more paper to review, a postlude titled “The View from Mount Nebo” by A Sherrat. Two citations from this paper sum up the impact of the meeting and hence the proceedings: “We have heard lots of examples, over the past few days, of how being honest about the limits of what we know really helps in working out how to improve it,” and “so long as archaeology and radiocarbon dating is being practiced at this Olympic level, with all the competitive edge of truly international sportsmanship, we can be assured that techniques and performance will continue to improve.”

At the end of the meeting, the difference between the High and Low chronologies was reduced to 70 yr. This reviewer waits impatiently for the ~200 Iron Age ¹⁴C dates that Sharon, Gilboa, and Boaretto are measuring in the hope that we will finally know which Chronology is correct: High or Low?