

## Comment on “ $^{14}\text{C}$ Dates from Tel Rehov: Iron-Age Chronology, Pharaohs, and Hebrew Kings”

The recent interpretation by Bruins *et al.* (1) of new conventional and accelerator mass spectrometry (AMS) radiocarbon measurements from Tel Rehov, northern Israel, ignores previously published samples—from the same site, the same strata, and in some cases even the same loci—that have been carried out at the Weizmann Institute and the University of Arizona laboratories by conventional and AMS techniques and that provide younger dates (2). The study also ignores readings from other sites contemporaneous with Tel Rehov, such as Dor, Tel Hadar, and Megiddo, that also provide younger dates to the same archaeological horizons (3, 4). Analysis of the full collection of data contradicts the interpretation by Bruins *et al.* and supports the Low Chronology system for the Iron IIA strata in the Levant (4). This analysis uses the calibration curve to translate the historical hypotheses to uncalibrated dates and, notwithstanding the wiggles in the curve, to use the measured (uncal-

ibrated) data more conclusively, with smaller uncertainties.

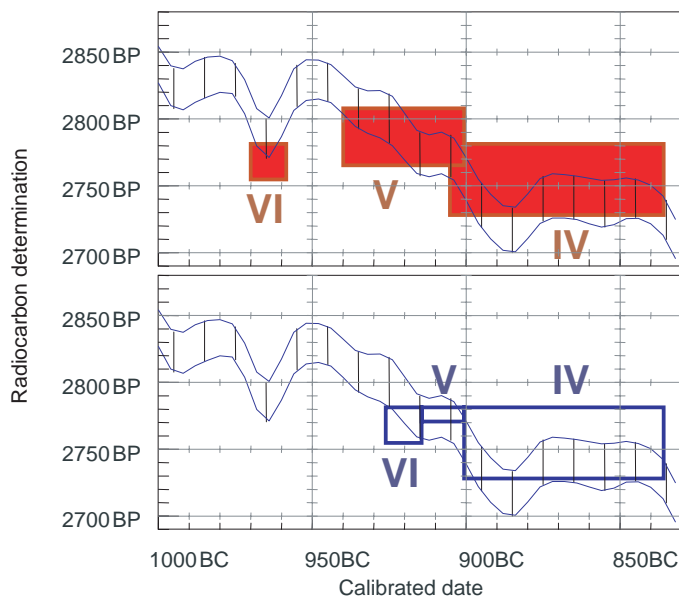
The claim by Bruins *et al.* (1) that they chose only high-quality samples is disputable. Three of the eleven sample locations constitute refuse pits, refuse deposits, and a street surface that may well have been contaminated with old material. This is especially true for Tel Rehov, where Strata VI to IV yielded similar pottery assemblages, which implies that contamination would be difficult to identify. The exact provenance of three more sample locations has not been provided. All in all, only 14 of the 32 new samples from Tel Rehov can be considered highly reliable. In a delicate attempt to determine differences of 70 years in the Iron Age, only absolutely safe samples—that is, material from floors found under a thick accumulation of destruction debris—should be submitted to  $^{14}\text{C}$  tests.

The statement by Bruins *et al.* that the late 10th century B.C.E. campaign of Pharaoh Shoshenq I is the only possible explanation for the destruction of Rehov V is also contestable. First, it is not clear whether a pharaoh who wished to re-establish Egyptian control over Palestine would destroy the cities he conquered—cities that were essential for administrating and economically exploiting the country (5). A victory stele of Shoshenq I was found at Megiddo, and it is questionable whether such a monument would have been erected in a deserted ruin. Second, clashes between the expanding kingdoms of northern Israel and Aram Damascus were equally good candi-

dates for this destruction layer. Hostilities between Israel and Damascus dating to before the mid-9th century B.C.E. are recorded in the opening lines of the Aramaic stele-fragment found at Tel Dan in northern Israel (6).

Bruins *et al.* (1) argue that the data are consistent with their historical interpretation, but they did not check whether theirs is the only or the best historical reconstruction to fit the new measurements. Using the same data, curve, and method, we produced a different sequence that well fits the Low Chronology system. Two alternative interpretations for dating Strata VI to IV at Tel Rehov, both consistent with the data and the stratigraphic sequence, are shown in Fig. 1.

The Tel Rehov data do not contradict and may indeed support the Low Chronology system. Stratum IV ends the Iron IIA sequence at Tel Rehov (Strata VI to IV). At Megiddo, the same sequence comes to an end with Stratum VA. Both were destroyed in a fire and hence they were probably contemporary. Therefore, the date of around 925 to 840/835 B.C.E. given by Bruins *et al.* (1) to Rehov IV seems to confirm the dating of Megiddo Stratum VA in the early 9th century instead of the mid-10th century B.C.E. This is also supported by a series of new, yet unpublished, readings from Megiddo, where Stratum VIA, which ends the Iron I sequence, is dated well within the 10th century B.C.E. Hence, the destruction of Rehov V is also contestable. First, it is not clear whether a pharaoh who wished to re-establish Egyptian control over Palestine would destroy the cities he conquered—cities that were essential for administrating and economically exploiting the country (5). A victory stele of Shoshenq I was found at Megiddo, and it is questionable whether such a monument would have been erected in a deserted ruin. Second, clashes between the expanding kingdoms of northern Israel and Aram Damascus were equally good candi-



**Fig. 1.** The  $^{14}\text{C}$  data from Tel Rehov Strata VI to IV, with two alternative interpretations. The upper (red) panel shows the analysis of Bruins *et al.* (1), and the lower (blue) panel illustrates the alternative interpretation presented here. The boxes represent  $1\sigma$  limits of the measured dates.

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### References

1. H. J. Bruins, J. van der Plicht, A. Mazar, *Science* **300**, 315 (2003).
2. A. Mazar, I. Carmi, *Radiocarbon* **43**, 1333 (2001).
3. A. Gilboa, I. Sharon, *Radiocarbon* **43**, 1343 (2001).
4. I. Finkelstein, E. Piasezky, *Antiquity*, in press.
5. D. Ussishkin, *Bull. Am. Schools Orient. Res.* **277/278**, 71 (1990).
6. A. Biran, J. Naveh, *Isr. Explor. J.* **45**, 1 (1995).
7. I. Finkelstein, *Levant* **28**, 177 (1996).

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