^{14}C DATING OF AN ISRAELITE BIBLICAL SITE AT KUNTILLET AJRUD (HORVAT TEMAN)

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ABSTRACT. The Israelite site of Kuntillet Ajrud in northern Sinai contains unique drawings and inscriptions in ancient Hebrew and Phoenician. It is a single-phase site dated archaeologically to *ca.* 800 BCE. We considered this site a good test case for comparing archaeological with ^{14}C datings. The dates are in agreement, confirming that ^{14}C dating is useful in dating Iron-Age II sites.

INTRODUCTION

Kuntillet Ajrud is an Iron Age II hill site dating to *ca.* 800 BCE (see Meshel 1993 for full description). The site is located in northern Sinai *ca.* 50 km south of Kadesh-Barnea and 10 km west of Darb Ghazza, which is the road to Elat and southern Sinai (Fig. 1). The isolated hill is situated in the broad bed of Wadi Quraya, which is a natural east-west route. Several shallow wells dug at the foot of the hill created one of the only permanent water sources in this arid region.

SITE DESCRIPTION

The site contains two single-period buildings (Fig. 2): a main building (A) and a secondary building (B) to its east. Structure A is rectangular, with four protruding corner rooms and an indirect entrance on the east. Stone benches along the walls and white plaster, both decorated and undecorated, characterize the entrance complex, the eastern wing of the main building (A), and the subsidiary building (B). The building's single entrance led to what was termed the "bench room"—a long, narrow room that apparently was the most important part of the building. The plastered stone benches surrounding each wing occupy most of the area, with only a narrow passageway in between. The benches appear to have been an important feature of this room.

Among the fragments of wall plaster in the bench room were two fragmentary inscriptions, written in black ink in Phoenician script. Part of a third inscription was found *in situ* on the northern jamb of the entrance leading to the inner courtyard. Apart from the plaster inscriptions, most of the unique finds were from the "bench room", the adjacent corner rooms and other nearby areas. The finds include two large pithoi (large storage jars) decorated with inscriptions and drawings and several large and small stone bowls, four of them bearing the names of their donors incised on the rims. The plan and contents of the "bench room", in particular the inscriptions, attest to its function: storing vessels and objects offered at the site by donors asking for a blessing.

The long narrow room south of and parallel to the courtyard and the room west of the courtyard (Fig. 2) were used as storerooms. The bases of pithoi and storage jars were found *in situ*, sunk in the beaten earth floor and covered with the fragments of the vessels' upper parts. The shoulders of many of the vessels bore incised names, titles and marking letters.

Inscriptions and Drawings

The most important finds at Kuntillet Ajrud are the inscriptions and drawings. Written in old Hebrew script or Phoenician, the inscriptions can be divided into several types:

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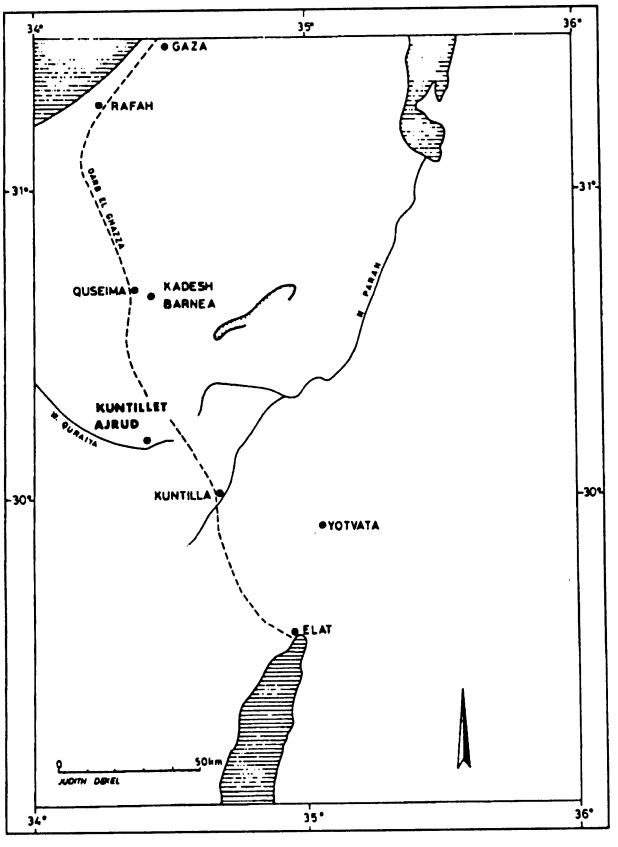

Fig. 1. Location map of the site near the ancient route leading to the Red Sea coast

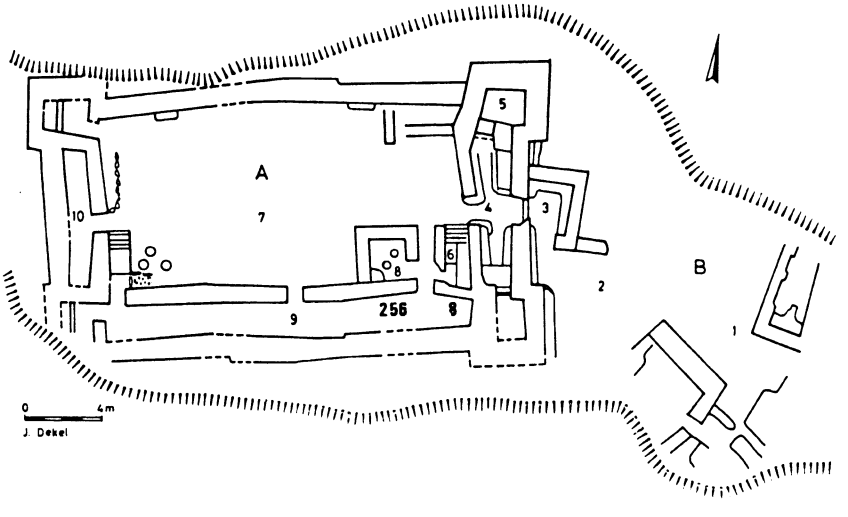

Fig. 2. Plan of the site of Kuntillet Ajrud, showing the loci within the site from which samples for dating were taken (**8** and **256**). Also marked are: 1. eastern building; 2. outer courtyard; 3. entrance room; 4. bench room; 5. "inscription" room; 6. stairwell; 7. inner courtyard; 8. kitchen area; 9. southern storeroom; 10. western storeroom.

1. *Letters Incised on Pottery Vessels Before Firing.* Most of the pithoi (mainly from the storerooms) bore 1 or 2 incised letters on their shoulders. As far as we know, such attributes were found only at the City of David in Jerusalem. This supports the opinion of Meshel (1993) that the letters are abbreviations indicating offerings and tithes. The marks were incised before the vessels were fired at the place of their manufacture. This may mean that the inhabitants of Kuntillet Ajrud received offerings and tithes.
2. *Inscriptions Incised on the Rims of Stone Bowls.* The most complete of the four inscriptions incised on the rims of stone bowls reads: "[belonging] to 'obdyw the son of a 'adnh, blessed be he of YHW[H]". The stone bowls were offered at the site by donors who sought the Lord's blessing (Fig. 3).

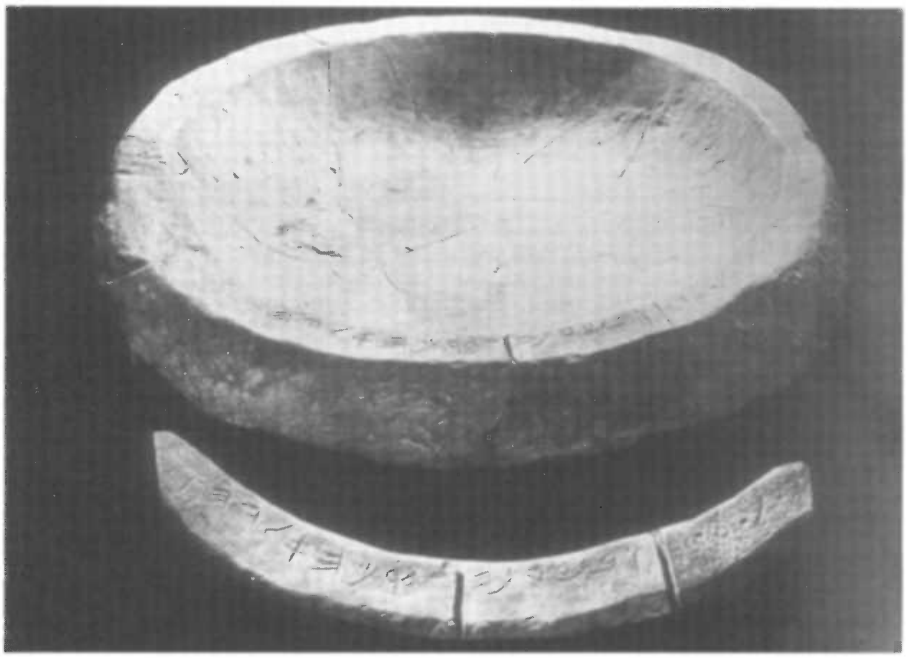

Fig. 3. Stone bowl with inscription

3. *Ink Inscriptions on Wall Plaster.* Fragments of three inscriptions, written in Phoenician script in red ink, were found on wall plaster in the bench room; fragments of two other inscriptions, in old Hebrew script in black ink, were found in the debris of the entrance to the western storeroom. Only one inscription was discovered *in situ*, on the door jamb of the entrance leading from the bench room to the courtyard; it was extremely fragmentary and faded. All the fragments were found among the debris after they fell from the walls, as described above, so that only very small parts of the inscriptions were preserved. A two-line inscription was reconstructed by Meshel (1993):

> ... your days may be prolonged
> and you shall be satisfied
> ... give YHWH of Teman
> and his ASHERAH
> ... YHWH of Teman
> and his ASHERAH favored ...

This evidently represents a benediction or prayer directed to the god of Teman, the far south, and his Asherah (consort).

4. *Ink Inscriptions and Drawings on Pottery Vessels.* (Figs. 4, 5) Two large pithoi bore inscriptions and drawings in red ink; one was found in the bench room, and the other came from the eastern edge of the adjoining courtyard. We assumed that the pithoi were originally in the storerooms, as they have incised letters on their shoulders: א (*aleph*) on one and רק (*qof* and *resh*) on the other. Their surface area is wide and seems to have been used as a sort of board for writing and drawing. Two inscriptions are reminiscent of both an opening formula of a letter and the priestly benediction. Meshel (1993) has deciphered the first inscription (Fig. 4) as follows:

> A[shy]o the K[ing] said:
> tell x, y, and z,
> may you be blessed by YHWH
> of Shomron (Samaria) and his ASHERAH.

Discussion of Inscriptions

The drawings and decorations found at Kuntillet Ajrud are unique in Iron Age Israel, both in quantity and in variety. They were drawn on wall plaster, mostly on door jambs, as well as on pottery vessels—mainly on the two pithoi mentioned above; in one case, they were drawn directly on one of the stones in the jamb of the entrance to the southern storeroom.

Among the drawings on the pithoi, the following scenes are most noteworthy: two figures resembling the Egyptian god Bes, with a lyre player (Fig. 5); two ibex flanking a tree of life; a lion; a procession of animals; a cow licking the tail of a nursing calf; five figures raising their hands in prayer; and an archer shooting a bow. The artistic execution of the drawings is not exceptional, and the

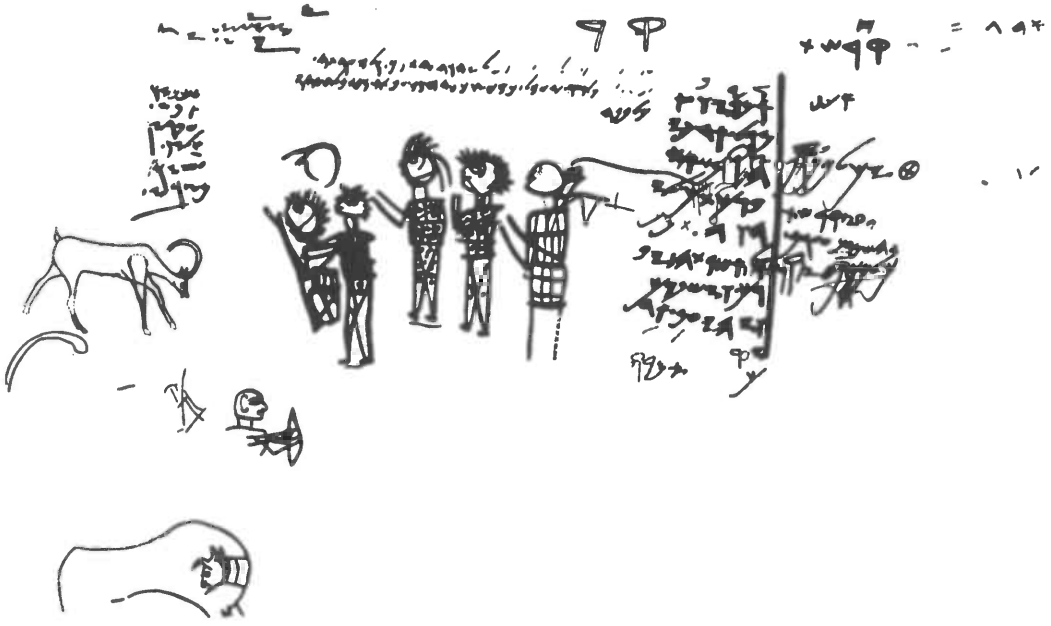

Fig. 4. Drawing on the second *pithoi* accompanied by prayers and blessings

Fig. 5. Drawing on one of the *pithoi* showing figures of dieties and an inscription

majority of motifs are well known from the Syro-Phoenician world; a southern desert influence may also be detected.

The quality of the plaster drawings is higher than that for the pithoi scenes, and they depict different subjects; however, the Syro-Phoenician artistic influence is common to both. Most of the parallels belong to the eighth century BCE. If the excavator, Zeev Meshel, is correct in dating the site to *ca.* 800 BCE, these drawings represent some of the earliest known examples of Phoenician art.

^{14}C Dating the Kuntillet Ajrud Site

The uniqueness of the site and its finds, on the one hand, and the historical and biblical interpretations, on the other hand, made Kuntillet Ajrud an interesting candidate for ^{14}C sampling. Its estimated relative age, determined archaeologically by pottery, typology and paleography, needed to be validated by another method of dating. A single component site with many organic remains, such as wood, textiles and fruits, well preserved in the arid climate of the desert, with no apparent disturbance, no later occupation and an abundance of local uncarbonized beams (mainly *Tamarix* cut in the nearby wadi while building or a few years earlier), made it an ideal site for ^{14}C dating.

A series of 11 uncarbonized wood samples were dated in the Rehovot Radiocarbon Laboratory (Table 1). The standard laboratory procedures were applied: acid-alkali-acid pretreatment, followed by conversion to CO_2, lithium carbide, acetylene and finally ethane (to fill the gas counters to high pressure). The overall efficiency of the chemical treatment was 95–100%. The 500-ml gas counters were filled with ethane to 2100 torr (~1.5 g C) (Carmi 1987).

The dating results are given in Table 2. Two samples, 1827 and 1829, were prepared and counted twice for purposes of internal checking. Figure 6 shows the calibrated age ranges (cal BCE) calculated using the CALIB 3.0 program (Stuiver and Reimer 1993). The results show a good statistical

TABLE 1. Samples from Kuntillet Ajrud Dated by ^{14}C

Sample (RT- no.)	Species*	Locus†	Depth‡
1826	*Tamarix*	--	Near surface
1827	*Tamarix*	256	0.5–1.0
1828	*Arundo/Phragmites*	256	0.5–1.0
1829	*Tamarix*	256	0.5
1830	*Acacia raddiana*	8	1.0–2.0
1831	*Tamarix*	8	1.0–2.0
1832	*Tamarix*	--	Near surface
1833	*Tamarix*	256	0.5
1834	*Tamarix*	--	Near surface
1835	*Tamarix*	8	0.5–1.0
1836	*Phoenix dactylisera*	8	0.5–1.0

*Botanical identification by Nili Lifschitz of Tel Aviv University
†See Fig. 2.
‡In meters below surface

TABLE 2. ^{14}C Dates from Kuntillet Ajrud

Sample (RT-no.)	$\Delta^{14}C$ (‰)	$\delta^{13}C$ (‰)	^{14}C age (yr BP)	Calibrated age (cal BC)*	Relative probability (%)†
1826	−250.6 ± 3.7	−23.2	2275 ± 40	399–202	--
1827‡	−283.4 ± 4.2	−20.9	2635 ± 45	830–787	--
1827*	−290.0 ± 5.0	−20.9	2710 ± 60	899–812	--
1828	−263.3 ± 4.0	(−21)§	2410 ± 45	752–713	20
				529–404	80
1829*	−284.4 ± 3.9	−21.4	2645 ± 45	891–886	6
				846–798	94
1829*	−285.5 ± 5.0	−21.4	2660 ± 50	895–876	16
				856–792	84
1830	−264.5 ± 6.4	−21.02	425 ± 70	759–640	37
				549–404	63
1831	−276.2 ± 4.0	−21.42	555 ± 45	800–759	38
				675–553	61
1832	−289.0 ± 4.3	−21.52	695 ± 50	896–874	26
				860–808	74
1833	−280.3 ± 4.2	−21.8	2600 ± 45	822–763	93
				617–604	7
1834	−271.9 ± 5.3	−21.0	2505 ± 60	775–709	--
1835	−283.8 ± 4.3	−22.4	2640 ± 50	846–793	--
1836	−269.5 ± 4.4	−17.3	2480 ± 50	763–619	63
				602–518	37
2094#	−285.8 ± 4.2	−22.8	2660 ± 45	845–794	--

*Calculated at the 1 σ confidence level
†For multiple-range calibrated dates
‡Samples were prepared and counted twice.
§Estimated
#RT-2094 was added after this article was written.

cluster for an undisturbed single-component site. Ten of the 11 samples match well with the archaeological estimate of the age to *ca.* 800 BCE. The 11th sample, 1826, deviates significantly. As it was sampled from the surface, it could have been deposited at the site at a later time. Six of the results (samples 1827, 1829, 1832, 1833, 1834 and 1835) fully agree with the archaeological age. Four results (1828, 1830, 1831 and 1836) have two calibrated age ranges owing to the wiggles in the calibration curve in this region of conventional dates, and one of these possible ranges is consistent with the consensus result, giving an average range between 830 and 760 cal BCE.

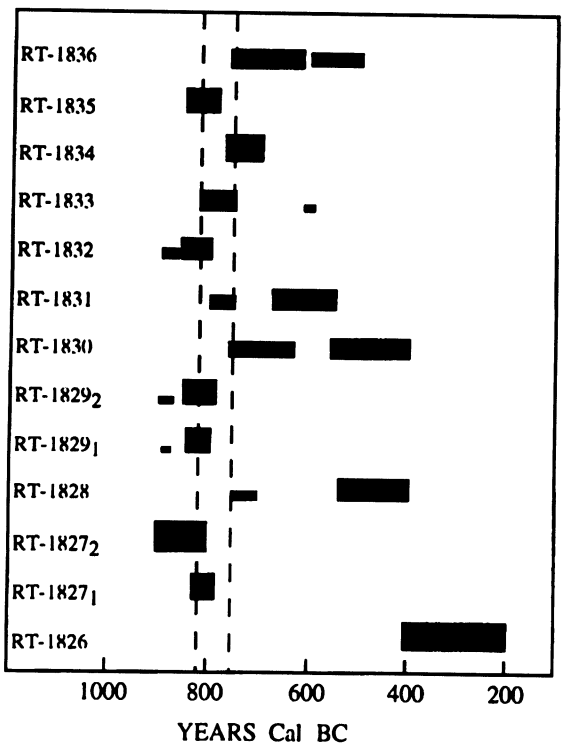

Fig. 6. Calibrated age ranges of samples from Kuntillet Ajrud. Where more than one age range is possible, the thickness of the range represents its relative probability.

Discussion

The unusual finds at the site, especially the inscriptions and the drawings, attest to its uniqueness. The site differs in both date and character from the Iron Age sites in the Negev known as "Israelite fortresses" (Meshel 1994). The contents of the inscriptions, the mention of various deities and the vessels dedicated to the site all suggest that it was a religious center. However, the lack of objects related directly to cult, as well as the settlement's secular plan, indicate that the site was not a temple. Meshel (1994) suggests that Kuntillet Ajrud was a type of wayside shrine that, because of its location, was related to the royal journeys to Elat and Ezion-Geber, and perhaps also to pilgrimages to southern Sinai. These journeys occurred on the road (Darb Ghaza) leaving Kadesh-Barnea, passing near Kuntillet Ajrud. This route was the main road to Elat and also marked the kingdom's Negev border. Passersby would stop and leave their offerings dedicated to God in the bench room and receive blessings in return.

According to Meshel's (1994) interpretation, the site reflects a strong northern (Israelite, not Judean) influence, and its construction should be attributed to the kingdom of Israel—perhaps to King Joash,

after his defeat of Amaziah, king of Judah, in the conflict that may have been, in part, over shipping rights in the Red Sea. This influence can be discerned in various forms: the term "YHWH of Samaria"; the Phoenician writing; the style of the drawings and decorations; the origin of several of the pottery types; and perhaps also in the mention of several deities, along with the combinations "YHWH of Samaria and his Asherah" and "YHWH of Teman and his Asherah". The site, which was probably occupied for only a few years, was inhabited by a small group of priests, perhaps sent from the kingdom of Israel, and headed by a *sar* (officer). They subsisted on tithes and donations, including supplies, sent mostly from Judah, and provided cultic services for travelers.

Conclusion

The dating of Kuntillet Ajrud is very important for two reasons. First, it proves that Biblical sites from the Iron II period can be dated accurately by ^{14}C even though the calibration curve at this time is untidy. (For a reliable result one should measure more than one sample.) Second, the ^{14}C dating in this case validates the classical methods of archaeological dating: pottery typology, paleography and architectural comparisons. This is the first time that the dating of Iron II period Hebrew and Phoenician scripts has been confirmed by ^{14}C, an achievement that constitutes an important contribution to paleography.

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