EARLY IRON AGE RADIOMETRIC DATES FROM TEL DOR: PRELIMINARY IMPLICATIONS FOR PHOENICIA AND BEYOND

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ABSTRACT. The absolute date of the Iron Age I and IIa periods in Israel, and by inference in the Southern Levant at large, are to date among the hottest debated issues in Syro-Palestinian archaeology. As there are no pegs of absolute chronology throughout this range, conventional chronology had been established on proposed correlations of the material record with events and social phenomena as portrayed in historical and literary sources, chiefly the Hebrew Bible. With the growing impact of so-called "revisionist" notions in Biblical studies, which to various extents question the historicity of the Bible, it is imperative to try to establish a chronological framework for the Iron I–IIa range that is independent of historical and so forth considerations, inter alia in order to be able to offer an independent archaeological perspective of the biblical debate. The most obvious solution is to attempt a radiocarbon-based chronology. This paper explores the possible implications of a sequence of 22 radiometric dates obtained from a detailed Iron I–IIa stratigraphic/ceramic sequence at Tel Dor, on Israel's Mediterranean coast. To date, this is the largest such sequence from any single early Iron Age site in Israel. Having been part of the Phoenician commercial sphere in the early Iron Age, Dor offers a variegated sequence of ceramics that have a significant spatial distribution beyond Phoenicia, and thus transcend regional differences and enable correlation with the surrounding regions. By and large, the absolute dates of these ceramics by the Dor radiometric chronology are up to a century lower than those established by conventional Palestinian ceramic chronology. The ramifications of the lower Dor dates for some Phoenician, Israelite, and Cypriot early Iron Age archaeological issues are explored.

INTRODUCTION

A few years ago Israel Finkelstein of Tel Aviv University suggested that the chronology of large stretches of the Iron Age in Israel, the so-called Israelite period, should be drastically revised (e.g., Finkelstein 1996; 1998a). In a nutshell, the claim was that absolute dates for (mainly) the late Iron I and Iron IIa periods (conventionally 11th to 10th centuries BCE) should be lowered by 75 to 100 years, i.e., 11th century archaeological strata and various material phenomena should be assigned to the 10th, and 10th century ones to the 9th. The material record, claims Finkelstein, favors this low chronology better than the higher conventional one.

Acceptance of the low chronology would entail a revolution in our perception of nearly every aspect of Iron Age archaeology in Israel and in the Southern Levant at large, and, in their wake, of major historical and historiographic issues—both Biblical and Classic. To provide just one example—perhaps the most bitterly contested one—assigning strata conventionally attributed to the 10th century, i.e. David's and Solomon's United Monarchy according to Biblical chronology, to the 9th century, would by and large "rob" the United Monarchy of material remains compatible with an organized state, much less an empire (see more on this below).

In the background of this debate looms an even more fundamental dispute. In the course of the last two decades, a very conspicuous by now group of "revisionist" Biblicists, so-called inter alia deconstructionalists, nihilists, and more, have suggested that the Hebrew Bible, in large parts or in its entirety, be moved from the realm of history to that of myth. The United Monarchy, for example, was claimed to be a figment of late pre-exilic and/or post-exilic socio-political aspirations, and imagination (for a recent, albeit negative review of these suggestions, with extensive references, see Dever 1999). As Finkelstein's low chronology is perceived by some scholars as lending support for such notions, the archaeological debate, alas, assumed religious, nationalistic, and political overtones.

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The particulars of Finkelstein's archaeological arguments, and those of his opponents, cannot be reviewed here (for the former see e.g. Finkelstein 1996, 1998a, 1998b, 1999; for the latter, see e.g. Mazar 1997; Zarzeki-Peleg 1997; Ben-Tor and Ben-Ami 1998; Cahill 1998). The crux of the matter, however, is that, as Finkelstein claims (and as most archaeologists would concur, though not always explicitly admit), for the entire debated chronological range there are no pegs of absolute chronology whatsoever—no stratified objects bearing kings' names and the like. Absolute dates, Finkelstein's included, rest on conjectured correlations of the material record with political events and demographic and socioeconomic processes as portrayed in the Bible. In "revisionist" eyes, this renders the interpretation of the archaeological record of Iron Age Israel totally irrelevant for assessing their views, based as it is, according to them, on correlation with fiction.

Finkelstein's low chronology has won some approval, but has failed to convince many. A fair assessment would be that the first round of chronological controversy ended with a tie or rather a stalemate. Neither traditional nor a lower chronology can really be proven and neither can be established independently of historical, literary, and other such considerations.

This tail chasing begs to be halted by some other means. One likely possibility is to revert to archaeology's bread and butter—establishing detailed and accurate relative sequences of artifactual assemblages—coupled with radiometric dates. This paper unfolds one such attempt based on Ephraim Stern's excavations at Tel Dor on Israel's Carmel coast.

THE TEL DOR SEQUENCE

After two decades of excavations Dor offers the most extensive exposures and the fullest stratigraphical sequence of the early Iron Age on the northern Levantine coast. All in all, within the Iron I–IIa continuum there are to date seven stratigraphical phases distinguishable both architecturally and artifactually, each probably of relatively short duration. (For principal overviews of the Iron Age at Dor, and interpretations, see e.g. Stern 1990, 1991, 1999, 2000: 85–148, including references to the preliminary stratigraphic reports; Sharon and Gilboa 1997; Gilboa 1998.) Three excavation areas were chosen for this study as they offer the most detailed stratigraphical sequences and the most abundant and well-stratified ceramic assemblages: Area B1 on the eastern fringes of the tell, Area D2 on its southern perimeter, and Area G in its center (see map in Stern 2000: Figure 244). The correlation between the disparate sequences in these three areas is presented in Tables 1A and 1B.

Radiocarbon dates were obtained to date only from the latter part of this sequence—from four phases we termed "late Iron Ia", "Iron Ib", "transitional Iron I/IIa" and "Iron IIa." The very beginning of the Iron Age is, thus, beyond the scope of this presentation. The labels assigned to these horizons at Dor do not per force conform to conventional ones, but it is not labels that count here but ceramic contents.

The general pottery repertoire of Iron Age Dor, as everywhere else in this period, is a very localized one and as an assemblage can accurately be correlated only to sequences in the very immediate regions (different facets of this assemblage have been presented in Gilboa 1998, 1999a, 1999b). This paper, thus, deals with only two classes of pottery, which have a significant spatial distribution outside Phoenicia and are of a wider chronological bearing: decorated Phoenician containers and Cypriot ceramics.

The late Iron Ia ceramic horizon at Dor (Phase 12 in Area B1, Phase 9 in Area G) constitutes an extension of the Late Bronze Age pottery tradition (e.g. Gilboa 1998: Figures 1 and 6). By and large, the only vessels bearing any decorations are small containers—flasks and strainer-spouted jugs that

were employed in overseas trade. They are decorated with monochrome-red concentric circles, and occasionally other designs (Gilboa 1998: Figure 3: 4–14).

The Iron Ib assemblages (Phases 11 (?) and 10 in Area B1; 11–9 in D2; 8 (?) and 7 in G) evolve from the former. This is the phase that witnesses the emergence in abundance of the famed Phoenician Bichrome containers, still alongside the monochrome ones. That this is indeed the initial occurrence of Phoenician Bichrome containers is deduced not only by the fact that they simply do not occur earlier, but by our ability to follow, in sealed contexts of this horizon, their evolution from the monochrome containers, both morphologically, and in their decoration. Generally, the monochrome containers start exhibiting the very distinct decorative syntax that will soon become the hallmark of Bichrome—the wide band enclosed by narrow ones and other compositions of Cypriot derivation. (For a summary of these issues, see Gilboa 1999a, esp. Figures 1, 2, 4–7; see Stern 2000: Plate IX: 5.)

During Iron Ib, Cypriot imports start occurring (Gilboa 1999b: Figures 1, 2) typologically reflecting an early to mid-Cypro-Geometric I horizon (and on the opposite shore—the profile of the Phoenician decorated containers of this phase is attested to in Cyprus in mid-Cypro-Geometric burial contexts).

The assemblages termed at Dor "transitional Iron I/II" (e.g. Gilboa 1989: Figures 1–3; 1998: Figure 2: 6–20) continue to evolve from the Iron Ib ones. The Bichrome style is now canonized on the commercial containers and is employed on a larger variety of forms (Gilboa 1999a: Figures 10, 11); monochrome practically disappears.

The numerous Cypriot imports (e.g. Gilboa 1999b: Figures 4, 5: 1– 6) reflect a Cypro-Geometric Ib/II horizon (and the Phoenician containers of this phase, in turn, are mirrored in CG IB/II assemblages in Cyprus). This is the period, in which the first (very rare) Greek imports are attested, of Euboean Mid/Late Proto-Geometric types (N Coldstream and I Lemos, personal communication; see Stern 2000: Plate IX: 4).

Not a single sherd of the very conspicuous Black-on-Red (so-called "Cypro-Phoenician") pottery could be attributed to this horizon. This is a crucial fact and requires some elaboration. Though Black-on-Red is never really abundant at Dor, its absence in the "transitional" phase is not accidental. Typologically, Black-on-Red, of whatever origin, is a Cypro-Geometric III phenomenon, and thus would be out of place in contexts where the rest of the Cypriot assemblage is typologically earlier.

Black-on-Red at Dor appears, as it should, in the immediate next phase, of the "classic" Iron IIa, along various other Cypro-Geometric III imports (e.g. Gilboa 1999b: Figure 8).

RADIOMETRIC DATES AND PRELIMINARY REPERCUSSIONS

This ceramic sequence is anchored by the largest yet sequence of ^{14}C dates for this period in Israel. Samples were taken only from secure contexts that also produced abundant ceramic assemblages, mostly in-situ ones and a few other sealed deposits.

Our main focus, contrary to usual practice, was to date the transitions between the different horizons, rather than the horizons themselves. This was achieved by a mathematical treatment dubbed "transition dating" (Sharon 2001; the dates and the nature of the samples are presented in Figure 1 and its legends). A different mathematical approach—Bayesian inference using the Oxford Calibra-

Table 1A The Dor Iron Age I-IIa stratigraphic scheme

Period designation	Area B1	Area G	Area D2
LB | Iron I	Missing	Phases 12, 11	(Unexcavated)
Late Iron Ia	Phases 13, 12 Massive city wall and adjacent store rooms	Phases 10, 9 Residential quarter-"cottage industry"	(Unexcavated)
	Destruction	Destruction	(Unexcavated)
Iron Ia | b	Phase 11	Phase 8	Phase 12
Late Iron Ib	Phase 10 Humble residential structures	Phase 7 Attempts to repair and re-build the quarter along the previous plan. Room of cultic nature	Phases 11-9 Monumental construction-three massive structures of obviously public nature: "Monumental Stone Building;" "Bastion;" "Brick Building"
		// Destruction (?) //	
Iron I | II	Phase 9 Domestic (?) quarter	Phase 6b Residential quarter	Phase 8c "Brick Building" disused; smaller stone structure built over it
Iron IIa	Phase 8 City wall built and new domestic structures	Phase 6a Continuation of residences; possible cult room	Phase 8b Upper floor in smaller stone structure

tion package (Bronk Ramsey 1995) was also employed and produced very similar results. Our point of departure here are the transition dates obtained (Table 1B, column 5).

By and large, for the entire sequence we investigated these dates are about a century later than one would expect based on conventional local ceramic chronology (compare columns 4 and 5 in Table 1B). The three archaeological-historical test cases surveyed below illuminate this discrepancy and some concomitant implications.

The Beginning of Phoenician Expansion Overseas and the Transmission of the Alphabet to Greece

One of the problems confronting scholars for many decades now is the discrepancy between the ancient Greek and Latin literary sources, that place the initial Phoenician colonization immediately following the Trojan war (the 12th century BCE) and the archaeological record that implies a much later Phoenician impact in the west, probably not earlier than the 8th century. Determining the proper historical context is, of course, a prerequisite of any attempt at interpreting the stamina of this process.

There are currently three major schools of thought as to the formation of the Phoenician diaspora in the west. Some, indeed, date it on archaeological and epigraphic evidence as late as the 8th and 7th centuries, with possibly a limited preamble in the 9th century in Kition in Cyprus (e.g. Muhly 1970). An intermediate chronology (based mainly on biblo-historical considerations) dates the initial expansion to the 10th century—the days of Solomon and Hiram of Tyre (e.g. Albright 1950:175; Aubet 1993:170–172).

In the last decades, however, it seemed as if evidence in favor of "early" (i.e. 11th century) expansion has been accumulating. This evidence was of dual nature. First, new Phoenician epigraphic finds in the west, chief among which are the Nora fragment (not the Nora stele) and the Tekke bronze bowl in Crete, both dated by Joseph Naveh and Frank Moore Cross (two of the most prominent Semitic paleographers of our times) to the 11th century (e.g. Cross 1980:15–17; Naveh 1982: 40–41; see also Peuch 1983:390). And second, the abundant Phoenician Bichrome pottery uncovered in the cemetery of Palaepaphos-*Skales* in western Cyprus (Karageorghis 1983) dated, as is con-

Table 1B The Dor Iron Age I-IIa chrono-typological scheme

Period designation	Main features of typological horizon	Foreign corollaries	Conventional (Comparative) date	^{14}C date at Dor
LB | Iron I	Not defined in detail yet** (has only been excavated in the last two seasons)	Philistia: "Myc IIIC?" "Post Late Bronze Age import?" Late Cypriot IIC? IIIA? Egyptian imports	Late 13th(?) / early 12th c. BCE	?
Late Iron Ia	Canaanite; containers decorated with monchrome red circles; pithoi of both "Collared Rim" and "Wavy band" varieties; a few "Philistine Bichrome" sherds	'Philistine Bichrome'? (early phases) Late Cypriot IIIB? (jug in LC IIIB style) Egyptian imports	12th to mid-11th c. BCE	Till 975 BCE (at least)
Iron Ia | b	Same as above, changes in undecorated assemblage	End of LC IIIB and early CGI?		?
Late Iron Ib	The earliest types of "Phoenician Bichrome" evolve from monochrome predecessors; a period of overlap of the two styles. Gradual Changes in the rest of the assemblage. Cypro-Geometric impact on monochrome and Bichrome production	Earliest Cypro-Geometric imports: early or mid-CG I. "Philistine Bichrome"? (late phase) Egyptian imports	Second half of 11th / early 10th c. BCE	c. 975–880 BCE
Iron I | II	"Phoenician Bichrome" reaches its zenith, incorporating new classes of vessels. Monochrome nearly extinct. Cypriot impact continues. Gradual changes in undecorated assemblage	Cypro-Geometric import reaches its zenith, CG IB/II Rare Greek imports, Mid/Late Euboean Proto-Geometric Rare Egyptian imports	Early 10th c. BCE Davidic?	c.880–c.850 BCE
Iron IIa	Bichrome expands further. First occurrences of red-slipped pottery. Undecorated assemblage hardly altered	Cypro-Geometric III import including first occurrence of Black-on-Red	10th c. BCE Solomonic	After 850 BCE

ventional, to the 11th century (Bikai 1983). The latter was considered as exemplifying the earliest overseas Phoenician ventures, a small, but decisive step on the trail leading west (e.g. Bikai 1994: 31).

Sass has recently questioned the paleographic hypotheses, arguing for a lamentable inability of Semitic paleography to pinpoint any date within the 11th-9th century range (Sass 1991:3, 96–97). The earliest Phoenician Bichrome pottery in Cyprus is no less problematic. Contrary to common wisdom, it probably does not embody the first move in the Phoenicians' westbound enterprise (see Negbi 1992:611, note 83; Gilboa 1998:423). But, for those who would insist, at Dor a date after 975 BCE is suggested for the initial occurrence of Phoenician Bichrome on the mainland. Unless one chooses to date its appearance in Cyprus earlier than its supposed origins, the first occurrences of Phoenician Bichrome overseas should be interpreted in the context of the mid-10th century BCE, rather than in the 11th.

On the other hand, the first hints of a genuine burst of east-west commercial activity are evident in the chronological horizon that parallels Cypro-Geometric II in Cyprus, and the transition from Middle to Late Proto-Geometric in Euboea, in northeastern Greece (for a convenient summary of these issues, see Coldstream 1999). According to the absolute chronology of Dor, this horizon, to be nearly overly prudent, cannot antedate the turn of the 10th century, at the very earliest.

These dates will probably also affect the controversy over the transmission of the Phoenician alphabet to Greece. An 11th century transmission was advocated primarily by Naveh (1982) and Cross (1980), based chiefly on Greek and West-Semitic paleographic considerations, *contra* most Greek archaeologists that argue for the lack of epigraphic materials at this early stage. The paleographic reconstruction, as already mentioned, has been challenged. But apart from paleographic considerations such a theory needs to establish some sort of common ground at which this transfer could have been made. One would need evidence for either Phoenicians in the west in the 11th century or for Greeks in the Levant, or for both being present on some "neutral ground", presumably Cyprus or Crete. Substantial archaeological support for such a background, by the Dor radiometric chronology, as delineated above, does not exist prior to the end of the 10th century.

The Implications for Davidic and Solomonic Strata

According to the Dor radiometric data, the Iron Ib, characterized by the first appearance of Phoenician Bichrome, dates to about 975–870 BCE, i.e. by and large postdates the reign of David as conventionally calculated (1000–965 BCE). This affects the chronology of other "Phoenician Bichrome bearing strata". For instance, Tell Keisan 9a-b—supposed to have been destroyed by David, or at least during his reign; Megiddo VIA (the so-called pre-Davidic occupation); the latest phase of Tell Abu Hawam V (on conventional chronology, the next stratum, IV, ends about 980 BCE); Tell Qasile X (representing the heyday of Philistine hegemony and reputedly destroyed by David); and Tel Masos II and Izbet Sartah II—usually considered "Israelite settlement" sites (for the conventional dates of these sites and strata, see Mazar 1990:300, Table 6).

The Cypro-Geometric III typological horizon, including Black-on-Red ware, starts according to the Dor evidence after 850 BCE. This implies that all "Black-on-Red bearing strata" in the Southern Levant, or at least their terminal dates postdate Solomon by some 75 years (if the biblical chronology for his reign, 965–928 BCE, holds). Included in this list are sites explicitly mentioned in the Bible as having benefited from this monarch's building operations. A few major examples will suffice: Hazor X (the Solomonic establishment); Megiddo Va-IVb (Solomonic); Yoqne'am XIV (10th century); Tell Abu Hawam – the latest phase of Stratum IV; Beer Sheva VII and VI (these Strata, and possibly also the subsequent one, V, are nowadays considered the United Monarchy habitation); Beth Shean Lower V (often the subsequent stratum, Upper V, is considered Solomonic), and more (for the conventional dates of these strata, see Mazar 1990:372–373, Table 7). Among the two dozens or so strata conventionally assigned to the United Monarchy, at least ten produced Black-on-Red vessels, and some have Black-on-Red preceding them.

The ascription of Iron IIa strata such as Megiddo Va-IVb or Hazor X to Solomon (or to David) is of more than titular significance. As long as the social interpretation of the material differences between the Iron I and the Iron IIa is maintained, this is the earliest Iron Age cultural horizon to which might be ascribed phenomena such as fortifications, public buildings, central provisioning system, and pronounced site hierarchy that are normally taken to be the material correlates of centralized state formation (for a convenient overview of these two periods, see Mazar 1990: chapters 8, 9).

Cypriot 'Dark Age' Chronology

Cypro-Geometric chronology, that can offer no absolute dates of its own, is to a large extent dependent on the Levantine chronological scheme, i.e. mainly on Cypriot artifacts found in datable contexts there. Dor produced the largest body of well-stratified Cypro-Geometric pottery ever found outside Cyprus.

The dates obtained accord better with parts of the Cypriot chronology than the "traditional" Palestinian one. For example, the transition between the Dor "transitional" Iron I/II phase and the subsequent one, of the Iron IIa—i.e. the transition between Cypro-Geometric II and III, occurs about the mid-9th century, exactly as on conventional Cypriot chronology (e.g. Karageorghis 1982:9, table A). This solves the inexplicable situation whereby Black-on-Red pottery, of undoubtedly Cypriot (CG III) derivation, occurs on the mainland about a hundred years earlier than in Cyprus. Now it does not.

On the other hand, acceptance of the low chronology for Phoenician Bichrome will probably also necessitate some readjustments in Cyprus. These ceramics, that according to the Dor evidence start after 975 BCE, are well represented in Cyprus at least from the middle of Cypro-Geometric I (e.g. Karageorghis 1983: Figure CVIII:93), a period that on conventional Cypriot chronology dates to 1050–950 BCE (Karageorghis 1982:9, Table A). Not much room then is left for the subsequent, rather hazy Cypro-Geometric II. But this will probably come as no surprise neither to Cypriot, nor to Greek "Dark Age" specialists, some of whom have lately pointed out, on independent considerations, the need to "shorten" this period (Coldstream 1999).

CONCLUSIONS

If the chronology established at Dor is adopted, the chronological adjustments and concomitant archaeological, historical, and historiographical implications, as very sketchily delineated above are merely the very tip of the iceberg.

This is precisely why we do not suggest that significant stretches of the early Iron Age Mediterranean chronology be modified forthwith on the basis of 22 ^{14}C determinations from a single site. (Indeed, even for Dor, we still lack dates for both the very beginning and the end of the Iron Age sequence.) A much wider study is now under consideration and even now more dates are rapidly accumulating from other Iron Age excavations in the region (e.g. Stepanski et al. 1996; Mazar 1997: note 6; 1999:40–1 and note 39; 2001; Ilan 1999:138–44; Carmi and Segal 2000).

We would, however, insist on two points: first, that empirical evidence has now shifted towards a "low" chronology of the Levantine Iron Age. This chronology can no longer be brushed away and must be tested further. Second, that it is indeed feasible to construct strictly archaeological chronologies even for "historical" periods. Moreover, not only is it feasible for the period in question, but, diverse research goals notwithstanding, it should be a prime target for any Iron Age excavation conducted in the near future in our region. This is the only way by which Syro-Palestinian archaeology will be able to offer an empirically based, independent, and dispassionate view of the wider cultural disputes.

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