# Personal Names on Iron Age I Bronze Arrowheads: Characteristics and Implications

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## Abstract

This study analyzes 110 personal names found on 63 Phoenician inscribed bronze arrowheads, each owned by a different individual. Except for one item discovered *in situ*, all the arrowheads came from the antiquities market. Most of the arrowheads are paleographically dated to the Iron Age I. The study reveals similarities between the arrowhead onomasticon and the Iron Age II Phoenician onomasticon. These similarities suggest that the arrowhead onomasticon is a typical Phoenician collection of names and that most of the arrowheads are probably authentic. The few differences between the two onomastica may be attributed to changing onomastic trends over time, from the Iron Age I to the Iron Age II.

## 1. Introduction

### 1.1. Bronze arrowheads with Phoenician inscriptions

The corpus of inscribed Phoenician bronze arrowheads has grown continuously since 1926, when the first one was discovered in Ruweiseh in southern Lebanon. In 1982, the corpus included 20 arrowheads (Bordreuil 1982: 187–192; Starcky 1982:

179–186; Abousamra 2014: 47) and by 1999 the corpus had grown to 51 (Deutsch and Heltzer 1999: 13–19). By 2020, the number had reached 68: 67 pieces were counted by Abousamra (2014: 47–48) and one was recently published by Mitchell (2020: 44–52). Apart from the first arrowhead from Ruweiseh, which was found *in situ*, all the others came from the antiquities market and their provenance is therefore doubtful. Four arrowheads published by Elayi (2005: 35) were said to have been found in Lebanon, that of *'d' bn b'l* was said to come from "Barouk," possibly Baruk in Lebanon (Mitchell 2020: 45), and the arrowheads of *'bdlb't* and *'bdlb't bn'nt* were said to have been discovered in el-Khaḍr, near Bethlehem (Deutsch and Heltzer 1999: 13, II–IV, 14, XI). Some arrowheads were purchased in Lebanon, some in London, and one in Damascus, those said to be from el-Khaḍr were purchased in Jerusalem and Amman, and the provenance of many others is unknown (Deutsch and Heltzer 1999: 13–19). However, the Phoenician script and a few references in the inscriptions to gentilics, such as the Sidonian, the Tyrian, and king of Amurru (Deutsch and Heltzer 1999: 14, VI, 16, XXVI, XXIX), suggest that these inscribed bronze arrowheads originated in Lebanon, the site of ancient Phoenicia.

The arrowheads are dated paleographically to the Iron Age I and the beginning of the Iron Age II. There is no agreement, however, on their absolute date. Cross (2003: 202) dated most of them to the 11th century and a few to ca. 1000–950 BCE.[1] Sass proposed lowering their date by a century, to the 10th and 9th centuries (2005: 43–44; 2010: 62), but his proposal was rejected by Heltzer (2004), Rollston (2008), and Lemaire (2012a).[2] Misgav, Garfinkel, and Ganor proposed that all of the arrowheads belong to a single period and that the differences in their script are not chronological but regional, that is, north (Lebanon) vs. south (Bethlehem and its environs). They noted, however, that the arrowheads' provenance is unverifiable because they came from the antiquities market (Misgav, Garfinkel, and Ganor 2009: 249).

The use of these arrowheads is also a subject of debate amongst scholars. Iwry (1961: 27–32) and Puech (2000: 260–262) suggested they were used in belomancy, i.e., divination by means of arrows. Mitchell (1985: 147–148) proposed that they were used in archery contests. Heltzer suggested that their use was military: they were inscribed in order to identify who had killed the enemy (Deutsch and Heltzer 1995: 36). He also attributed the arrowheads to freelancers who were under the command of a successful gang leader (Heltzer 2000: 68). Lemaire (2013: 184) suggested that because bronze was relatively expensive, soldiers tried to recover their own arrowheads after use. Sass (2010: 66) asserted that no comprehensive theory can be formed based on the limited

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1  Henceforth, all dates are BCE.

2  For a summary of early Iron Age epigraphy and chronological revision, see van der Veen 2015.

information on the arrowheads. In fact, the limited information available supports two assumptions: 1) A military use for the few arrowheads that bear names followed by military titles, such as *rb* ("commander"; de Tarragon 1991: 244–251), *rb 'lp* ("commander of a thousand"; Cross 2003: 207–212), and *rb ṣb'* ("army commander"; Abousamra, 2014: 51–53); 2) A funerary function for the arrowhead from Ruweiseh, which was found in a tomb (Guigues and Ronzevalle 1926: 323–358). The use of the other arrowheads cannot be determined due to lack of context.

The Phoenician inscribed arrowheads constitute the bulk of the epigraphic material of the southern Levant in the Iron Age I and the beginning of the Iron Age II, since very few inscriptions on artifacts found in archaeological contexts are dated to this period (Finkelstein and Sass 2013: 204–205, Table 1). Thus, these arrowheads can contribute to our knowledge of the beginning of the linear alphabet in the southern Levant.

The arrowheads also provide information on the Iron Age I onomasticon of this region. Deutsch and Heltzer analyzed the personal names found on the arrowheads published through 1995, referring to the ethnic or geographic origin of the arrowheads' owners, their titles, theophoric elements of the names, and the common use of abbreviated names (Deutsch and Heltzer 1995: 32–35). Hess examined the 55 personal names on Phoenician inscribed arrowheads that were published up to 2007, discussing the few non-Semitic names, theophoric elements of the names, and names containing elements that were previously attested only from the Bronze Age (Hess 2007: 113–129). He concluded that the names on the arrowheads create a kind of missing link between the Late Bronze Age West Semitic onomasticon and that of the Iron Age II, but have stronger connections with the former rather than the latter (Hess 2007: 122). Furthermore, Hess suggested that these stronger connections with Late Bronze Age names support the arrowheads' authenticity, since one would expect forged names to resemble biblical names as opposed to names known from less familiar Late Bronze Age West Semitic texts (Hess 2007: 122).

## 1.2. The goals of the study

As noted above, previous studies of the arrowheads have emphasized specific personal names and elements of names that provide some information about their owners, such as their ethnicity, the deities that they worshipped, and their social or military status. Previous studies have also examined whether the names on the arrowheads are similar to those appearing in nearby archives and/or the Bible. In contrast, the present study quantitatively analyzes these names and compares their characteristics to names from other archives in order to better understand

the culture that these arrowheads represent. More specifically, the goal is to answer two questions: What are the characteristics of the personal names inscribed on these finds? And are these characteristics similar to or different from those of other Phoenician names? The results will indicate whether the arrowhead onomasticon is typical of Phoenicia or represents a group of individuals with its own unique onomastic characteristics.

Finally, the list of Phoenician inscribed bronze arrowheads has been updated to include arrowheads published since 1999, when the list was last revised. The updated list of arrowheads (Appendix A) and the list of names inscribed on them (Appendix B) can be used for further study.

## 2.  **Methodology**

### 2.1.  **Collecting the names**

The corpus of the Iron Age bronze arrowheads analyzed in this study is based on Cross's list (1996: 14*–16*, Appendix A; 2003: 200–202, Appendix A) and Deutsch and Heltzer's updated list (1999: 13–17). In addition, 18 arrowheads published since 1999 are included in this corpus. Two arrowheads classified as spurious, *ḥṣ špṭ bn zm'* and *ḥṣ g' b[..]*[3] (Cross 2003: 202, b, c), are excluded. Arrowheads with illegible inscriptions are also excluded, since the emphasis in this study is on names. When more than one arrowhead is inscribed with a name denoting the same person, such as *ḥṣ 'bdlb't*, *ḥṣ 'bdlb<'>t*, and *ḥṣ 'bdl<b>'t*, only one arrowhead (in this case *ḥṣ 'bdlb't*) is listed in the corpus, with references to the others (see the *Bibliography* and *Comments* columns below). The arrowhead *ḥṣ 'bdlb't bn'nt*, however, belongs to a different person, since it dates from a later period than *ḥṣ 'bdlb't* (Cross 2003: 202, Appendix B).

The arrowheads are listed in a table (Appendix A). They are ordered according to Cross's list (1996: *14–*16; 2003: 200–202) with a reference to Deutsch and Heltzer's last updated list (1999: 13–19). The additional arrowheads are listed according to the date of their publication. Each row in Appendix A refers to one or more arrowheads belonging to one specific individual. Columns represent the following categories:

*Reference number*: identifies the arrowhead in the index of names (Appendix B).

*Inscription*: in addition to the name of the arrowhead's owner, the inscription usually includes the name of the owner's father, sometimes that of the owner's

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3  Bordreuil (1992: 210, XXII) and Deutsch and Heltzer (1999: 16, XXIII) read *p'* instead of *g'*.

commander, in one case that of the owner's brother, and/or a title. In a few cases the inscription has more than one reading (see the *Comments* column below).

*Date*: as given in the publication, from the early 11th to mid-10th century. In the absence of archaeological context for all but one of the arrowheads, the date has been determined by paleography.

*Bibliography*: comprises references to the first publication of the arrowhead, to Cross's list (2003: 200–202), and to Deutsch and Heltzer's list (1999: 13–19). Other references are listed in this column when they provide additional data that did not appear in the original publication.

*Comments*: these mostly refer to an alternative reading of the inscription. When several arrowheads bear the same or a similar inscription, such as *ḥṣ ʿbdlbʾt*, *ḥṣ ʿbdlb<ʾ>t*, and *ḥṣ ʿbdl<b>ʾt*, the comments specify their different origin.

In Appendix B the personal names inscribed on these arrowheads are listed in alphabetical order. Each row in the list presents an occurrence of a name and where it appears, i.e., the arrowhead's reference number. Gentilics used as titles, such as *ṣdny* (the Sidonian) and *kty* (the Kittian) (Cross 2003: 201, 202) are excluded from the list of names and the analysis. Names in which most of the letters are poorly preserved or illegible, such as *g/l/pb̊ ʿh̊(?)[ ]* and *t̊(?)r̊/å.[ ]* (Elayi 2005: 41–42), are also excluded.

Each name in the list denotes a specific individual. Names denoting the same person, such as *ymn* and his commander *ʿbdy* found on two arrowheads (Appendix A, #27 and #46; see the *Comments* column) are listed in Appendix B only once. Deutsch and Heltzer (1997: 23–24) suggest that *ʾlʿm, mhrn, mlkyrm*, and *šʾ* were brothers, whose father was *ʿbdy* and grandfather was *mlkyrm*. This suggested family tree, however, is uncertain: while the father's arrowhead (*ʿbdy bn mlkrm*) is paleographically dated to the first half of the 10th century (Deutsch and Heltzer 1997: 11), the arrowheads of three of his sons are paleographically dated to the 11th century (Deutsch and Heltzer 1995: 18, 20). When creating the list of names, I therefore assumed that *ʿbdy* denotes five different individuals rather than one.

## 2.2.  Analyzing the names

The quantitative analysis of the arrowhead names is an additional tool that can enhance our understanding of this unique corpus of arrowheads. It is based on previous published examinations of the arrowheads, i.e., readings of inscriptions and assessments of authenticity. Analyzing the arrowhead names as a group according to the criteria described below enables an overall look at the names and can reveal general onomastic characteristics not observed in individual examinations. The disagreements among epigraphers regarding the reading of a few names (see the

*Comments* column in Appendix A), whether arrowheads #14 and #28 are the same arrowhead, or whether the two arrowheads classified as spurious by Cross are authentic (see above), will not affect the general conclusions.

Theophoric elements comprise a central criterion in categorizing Iron Age West Semitic personal names, since many of these names are theophoric. Thus, the personal names are sorted into the following three main groups:

1) *Theophoric names*: these are sentence names in which the subject is a divine name or a divine appellative and the predicate is a verb or a noun. Examples of divine names are Anat (*'nt*), and Astarte (*'štrt*). Examples of divine appellatives are king (*mlk*), lord (*'dn*), and father (*'b*). Baal and El may be interpreted as divine names (as Canaanite-Phoenician deities) or as divine appellatives (general terms for God) (Benz 1972: 266–267, 288–290).

2) *Hypocoristic theophoric names*: these are abbreviated theophoric names usually formed by omitting the theophoric element, such as *zkr* (an abbreviation of *zkrb'l*). In a few cases, however, the hypocoristic name comprises only a theophoric element, such as *b'l'*.

3) *Other names:* these are names devoid of religious meaning, such as those denoting origin: *'ky*—the one from Akko (Albertz 2012: 607) and physical traits: *mrṣ*—ill (Hess 2007: 121; Albertz 2012: 605). This group also includes names whose interpretation is questionable, such as *yṭl* (Hess 2007: 123).

I further sorted the theophoric names according to their theophoric elements, such as *'b* (divine father), *'l* (El, god), *B'l* (Baal), *mlk* (king), and *'nt* (Anat). These classifications (the three main types and the theophoric elements) create specific distributions that characterize the collection of names inscribed on the arrowheads.

In addition, the personal names were analyzed according to their root. When a personal name is a sentence name rather than a one-word name, the root of the name is defined according to that of the predicate. This analysis reveals the most common roots among the names, a characteristic of this onomasticon. Very few names have more than one possible root and the root analysis of several others is uncertain, but they have no impact on the identification of the most common roots.

## 2.3.  Comparing the names

As noted above, one of this study's goals was to determine whether the names on the arrowheads were similar to or different from other Phoenician names. The names were compared to Iron Age II rather than Iron Age I Phoenician names, since other Iron Age I Phoenician inscriptions, such as the Byblos inscriptions (Lemaire 2012a: 291–295) and other Iron Age I inscriptions from the southern Levant, contain too few names for meaningful comparison.

Iron Age II Phoenician names have already been assembled from relevant publications by Albertz in his study on family and household religion in ancient Israel and the Levant (Albertz 2012: 258). He includes names occurring on artifacts found in archaeological excavations or purchased in the antiquities market but excludes those considered to be forgeries by one or more scholars (Albertz 2012: 249). Albertz tried, as far as possible, to restrict the assemblage to Phoenician names of the 10th to 6th century, but due to the imprecise dating of this epigraphic material he was unable to exclude those from later centuries, as he did for other polities. He did, however, exclude Punic names, since they mostly originated in later periods (Albertz 2012: 258). Although the Phoenician names in Albertz's study span a much longer period of time than that of the arrowheads (at least 400 years vs. 150 years), they can nevertheless reveal general characteristics of Phoenician names. His quantitative analysis of occurrences of the different theophoric elements in Iron Age II Phoenician names (Albertz 2012: 512–513, Table 5.12) was used in this study for comparison. The large number (581) of these names (Albertz 2012: 506, Table 5.3) and the growing corpus of arrowheads inscribed with 110 names of unique individuals (see below) enable us to apply quantitative methods and reach meaningful conclusions.

## 3. Results

Appendix A lists 63 arrowheads, each owned by a different individual. In cases when more than one arrowhead belonged to the same person, only one arrowhead is listed in the corpus. According to Lemaire, this total number of arrowheads is 62 rather than 63. He claims that the arrowheads *ywḥnn 'š 'zb'l* (#14) and *pqḥy 'š zr'y* (#28) are in fact the same arrowhead, and instead of these two very different readings proposes *ḥṣ pqḥy 'š 'zb'l* (Lemaire 2012a: 294, n. 25; 2012b: 6, n. 39).

Appendix B lists 110 names collected from these arrowheads, each name denoting a specific person (see above, section 2.1). The following sections present the various distributions of the arrowheads and their names.

### 3.1. Chronological distribution of the arrowheads

Fig. 1 presents the chronological distribution of the arrowheads. Since all but one of the arrowheads came from the antiquities market, their dating is determined entirely by paleography. Of the arrowheads, 63% (40/63) are dated to the middle to end of the 11th century: 25 to the mid-11th century, seven to the second half of this century, and 8 to the late/end of this century. Two additional arrowheads are dated to the early 11th century and eight to the 11th century in general. Only 13% of the arrowheads (8/63) are dated to the first half/mid-10th century.
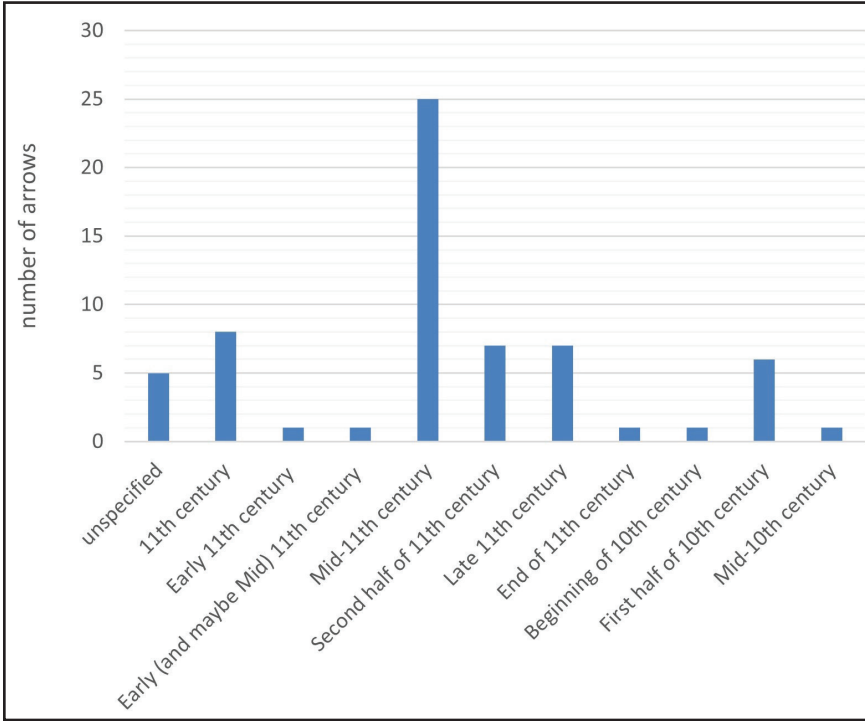
**Figure 1.** Chronological distribution of the arrowheads according to paleographic dating.

## 3.2. Distribution of the three main types of names

Table 1 displays the distribution of the three main types of names on the arrowheads (theophoric names, hypocoristic theophoric names, and other names) in percentages and in absolute numbers (in parentheses). The table shows that almost half of the names are hypocoristic theophoric (44%). The second large group is theophoric names (35%), followed by other names (21%). The distribution of these three groups in Iron Age II Phoenician names was not presented in Albertz's study, and consequently no comparisons could be made.

**Table 1.** Distribution of the three main types of names.

| Theophoric names | Hypocoristic theophoric names | Other names | Total |
|---|---|---|---|
| 35% (39) | 44% (48) | 21% (23) | 100% (110) |

### 3.3.  Distribution of theophoric elements

Table 2 displays the distribution of the theophoric elements found in the names on the arrowheads (first row): *'b* (divine father), *'dn* (lord), *'ḥ* (divine brother), *'l* (El, god), *'lm* (gods), *b'l* (Baal), *dgn* (Dagan), *yw* (Yhwh), *lb't* (lioness), *mlk* (king), *'nt* (Anat), *'štrt* (Astarte), *ṣdq* (Ṣidqu), and *trk* (Tarku/Tarḫu[nt], the Luwian great storm god [Lemaire 2012b: 9]). The second row displays the distribution of these theophoric elements in Iron Age II Phoenician names as calculated by Albertz (2012: 512–513, Table 5.12). Each cell in the table contains two numbers: 1) in parentheses, the absolute number of names with the specified theophoric element; 2) the percentage of this number out of the total number: 110 for the names on the arrowheads (see Table 1) and 581 for the Iron Age II Phoenician names (Albertz 2012: 506, Table 5.3).[4]

Table 2 reveals a distribution of the arrowhead theophoric names that includes Baal as the most common element (17%) and a variety of infrequent theophoric elements (up to 4% each). A similar distribution of theophoric elements appears in Iron Age II Phoenician names: Baal as the most common element (17.9%) and a variety of infrequent theophoric elements (up to 4.1% each). There is, however, one exception: the element *mlk* appears in 10.7% of Phoenician names vs. 4% of the names on the arrowheads. In addition, the theophoric element *'šmn* (Eshmun), which is absent from the arrowheads, appears in 8.9% (52/581) of the Iron Age II Phoenician names (Albertz 2012: 512–513, Table 5.12). Note that the rare theophoric elements *ṣdq* and *trk*, which appear on the arrowheads, are absent from Iron Age II Phoenician names, and additional infrequent theophoric elements that are found in Iron Age II Phoenician names, such as Melqart (2.6% [15/581]), Resheph (1.4% [8/581]), and Ṣid (1.5% [9/581]; see Table 5.12), are absent from the arrowheads. Nevertheless, the absence of these infrequent elements from the arrowhead onomasticon may be attributed to its smaller size (one-fifth of the Iron Age II Phoenician onomasticon): that is, had there been as many names in the arrowhead onomasticon as in the Phoenician onomasticon, the likelihood of finding these infrequent elements would have been greater.

In summary, both onomastica include Baal as the most common element (ca. 17%) and a variety of infrequent theophoric elements. The two onomastica, however, differ in the prevalence of the elements *mlk* and *'šmn*.

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4  Note that the number of names with theophoric elements (45, the total of the first row of Table 2) is larger than the number of theophoric names (39, see Table 1) because six hypocoristic names with a theophoric element, such as *'b'*, *'ḥ'*, *b'l'*, and *mlky*, were also included.

**Table 2.** Distribution of theophoric elements in names on arrowheads and their prevalence in Phoenician names.

| | *’b* (divine father) | *’dn* (lord) | *’ḥ* (divine brother) | *’l* (El, god) | *’lm* (gods) | *b‘l* (Baal) | *dgn* (Dagan) | *yw* (Yhwh)[5] | *lb’t* (Lioness) | *mlk* (king) | *‘nt* (Anat) | *‘štrt* (Astarte) | *ṣdq* (Ṣidqu) | *trk* (Tarku) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Names on arrowheads | 3% (3) | 1% (1) | 2% (2) | 4% (4) | 1% (1) | 17% (19) | 1% (1) | 1% (1) | 2% (2) | 4% (4) | 4% (4) | 1% (1) | 1% (1) | 1% (1) |
| Iron Age II Phoenician names | 2.1% (12) | 3.3% (19) | 1.4% (8) | 2.9% (17) | 1.2% (7) | 17.9% (104) | 0.2% (1) | 0.3% (2) | 0.2% (1) | 10.7% (62) | 0.5% (3) | 4.1% (24) | – | – |

## 3.4. Most common roots

The root analysis of the names on the arrowheads reveals many different roots: most appear only once, several appear twice, and two roots appear three times. The most common roots, appearing in four or more names, are listed in Table 3. The table also displays the prevalence of these roots in the arrowhead names and in the Iron Age II Phoenician names, calculated according to the lists of Albertz (2012: 534–609, Tables B1–B6). Each cell in the table presents two numbers: 1) in parentheses, the absolute number of names with the specified root; 2) the percentage of this number out of the total number: 110 for the names on the arrowheads (see Table 1) and 581 for the Iron Age II Phoenician names (see Albertz 2012: 506, Table 5.3).

Table 3 shows that *‘bd* (“servant”) is the most popular root in both the arrowhead names and the Iron Age II Phoenician names (11% and 16%, respectively). It is followed, by a significant margin (5%–4% in the arrowheads and 2%–1% in the Phoenician names), by *rwm* (“to be high, exalted”), *bny* (“to create”), *zkr* (“to remember”), and *špt* (“to govern, judge”). There is, however, one exception: the root *ytn* (“to give” [Benz 1972: 328–329]) appears in 55 Phoenician names (9.5%) (Albertz 2012: 593–594) but in only one arrowhead name, *yt’* (1%) (Deutsch and Heltzer 1995: 33), though the derivation of this name may be related to the root *’th* (“to come” [Hess 2007: 124]). No other root appears at more than 5% of the Iron Age II Phoenician names.

In summary, *‘bd* is the most popular root in both onomastica. All other roots appear at no more than 5% in both, excluding *ytn*, which is common in Iron Age II Phoenician names but not in arrowhead names. In contrast, the root *‘bd* is not popular in the onomasticon of the Iron Age II southern Levant,[6] appearing in

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5 Epigraphers disagree about the occurrence of the element *yw* on arrowhead #14 (see Appendix A).

6 The onomasticon was made available online at www.onomasticon.net (see Golub 2021). The site was developed by the Research Software Company (www.researchsoftware.co.il), which provides software development resources for academic researchers. Special thanks to Itay Zandbank, CEO.

the names of only 12 out of 873 unique individuals: 7 from Judah (1%), 3 from Israel (2.5%), and 2 from Ammon (4%). The popular roots in names from Judah are שלם, נחם, שוב, אח, and שמע; in Israel, the popular root is בעל (Golub in press).

**Table 3.**  Most common roots in arrowhead names
and their prevalence in Phoenician names.

| Root | Names on arrowheads | Iron Age II Phoenician names |
|------|---------------------|------------------------------|
| *'bd* | 11% (12) | 16% (93) (Albertz 2012: 565–566) |
| *rwm* | 5% (5) | 2% (12) (Albertz 2012: 572) |
| *bny* | 4% (4) | 2% (12) (Albertz 2012: 569–570) |
| *zkr* | 4% (4) | 1% (6) (Albertz 2012: 536–537) |
| *špt* | 4% (4) | 1% (6) (Albertz 2012: 544, 555) |

## 4.  Discussion

Before discussing the study results, it is worth noting that the existence of forged arrowheads among the 63 investigated here cannot be ruled out, as all but one of the arrowheads came from the antiquities market and two arrowheads (excluded from this study) have already been found to be forgeries. Nevertheless, names on a few forged arrowheads can have little impact on the overall conclusions.

In the absence of archaeological context, the dating of the arrowheads is based on paleography. Their dating spans from the early 11th century to the mid-10th century BCE; most are dated to the mid–end of the 11th century and only a few to the 10th century. It is important to note that dating by paleography alone may be inaccurate and in any case is approximate, since the arrowheads constitute most of the epigraphic material of the Iron Age I southern Levant and very few inscriptions of known provenance are available for comparison (see the Introduction). Moreover, the inscriptions on the arrowheads are short, comprising a small number of letters.

The analysis of the three main types of names (theophoric names, hypocoristic theophoric names, and other names) shows a strong tendency toward hypocoristic names: close to half of the names are hypocoristic. This characteristic of the arrowhead onomasticon was already noted by Deutsch and Heltzer when the corpus included only 43 arrowheads, two-thirds of its current size. They suggested that the extensive use of hypocoristic names may be explained by the owners of the arrowheads, a group or several groups of warriors who called one another by an abbreviated name (Deutsch and Heltzer 1995: 34). However, military use can be assumed only for the small number of arrowheads that bear titles such as *rb ʼlp* and *rb ṣbʼ* (see the Introduction), and the use of the others is still a subject of debate. Moreover, the tendency to use hypocoristic names may be interpreted as an onomastic trend in the Iron Age I. In a study of Iron Age II Hebrew hypocoristic theophoric names, I showed that the use and forms of hypocoristic names are dependent on chronology: while the percentage of these names in the 10th to 8th century was 39% in Israel and 40% in Judah, in the 7th to early 6th century it dropped to 16% in Judah, 17% in Ammon, and 26% in Philistia (Golub 2020: 26–27, Table 1).[7]

One of the study's aims was to find the extent of similarity/difference between the arrowhead onomasticon and Phoenician names. Theophoric elements have already been found to differ between different Levantine groups, since they reflect the different religious environment of their societies (Albertz 2012: 339–348; Golub 2014: 639–640). The present study reveals that both onomastica present a similar distribution of theophoric elements: Baal as the most common element, at almost the same prevalence, and a variety of similar infrequent theophoric elements (see Table 2). Nevertheless, the two elements *mlk* and *ʼšmn* are common in the Phoenician onomasticon but infrequent (*mlk*) or absent (*ʼšmn*) in the arrowhead onomasticon. Another similarity between the two onomastica is the common root *ʽbd* and its similar prevalence in both onomastica (see Table 3). Other roots are infrequent in both onomastica, excluding *ytn*, which is a common root only in Iron Age II Phoenician names.

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7 Analysis of the geographical distribution of the 10th to 8th century names reveals that in Israel around 50% of the names are from Samaria and the rest are distributed among 14 different sites. In Judah, 26% of the names are from Jerusalem, 21% from Arad, 11% from Lachish, and the rest are distributed among 19 different sites (Golub in press). Analysis of the chronological distribution of the 10th to 8th century names shows that most of them (79% of the names from Israel and 98% from Judah) are from the 8th century.

## 5. Conclusions

These similarities between the two onomastica suggest that the arrowhead onomasticon is a typical Phoenician collection of names that probably represents a mixed group of Phoenicians. This conclusion goes hand in hand with the Phoenician script and the very few names on the arrowheads containing non-Semitic elements (Hess 2007: 114–115). In addition, assuming that the corpus of Iron Age II Phoenician inscriptions contains no more than a few forgeries and that most of it is authentic, we can assume that the group of arrowheads as a whole is authentic, that is, most but not necessarily all of the arrowheads are authentic. As mentioned above, the analysis presented in this study adds another tool to the primary methodology of assessing the authenticity of the arrowheads by thorough examination of each one individually. The differences found between the two onomastica (the prevalence of the root *ytn,* and of the theophoric elements *mlk* and *ʾšmn*) may be attributed to changing onomastic trends over time, from the Iron Age I to the Iron Age II.

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# Appendix A:
# Table of Phoenician inscribed bronze arrowheads

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| 1 | ḥṣ ʾbʾ bn ʿky | Late 11th century | Guigues and Ronzevalle 1926: 323–358; Cross 2003: 200, #1; Deutsch and Heltzer 1999: 13, I | Deutsch and Heltzer read *ʾdʾ* instead of *ʾbʾ*. |
| 2 | ḥṣ ʿbdlbʾt | Early 11th century | Milik and Cross 1954: 5–15; Cross 1980: 4–6; Cross 2003: 200, #2, #3, #4, #10; Deutsch and Heltzer 1999: 13–14, II, III, IV, X. | Four arrowheads, three purchased in the Jerusalem antiquities market and one in Amman. |
| 3 | ḥṣ zkrb[ʿl] bn bn ʿn[t] | Late 11th century | Milik 1956: 3–6; Cross 2003: 200, #5; Deutsch and Heltzer 1999: 13, V | |
| 4 | ḥṣ grb ʿl ṣdny | Mid-11th century | Milik 1961: 103–108; Cross 2003: 201, #6; Deutsch and Heltzer 1999: 14, VI | |
| 5 | ḥṣ ʿzrb ʿl bn ʾdnb ʿl | Ca. 1000–950 | Milik 1961: 103–108; Cross 2003: 201, #7; Deutsch and Heltzer 1999: 14, VII | |
| 6 | ḥṣ rpʾ bn yḥš | Mid-11th century | Martin 1962: 175–197; Cross 2003: 201, #8; Deutsch and Heltzer 1999: 14, VIII | Palimpsest[8] |
| 7 | ḥṣ ytʾ bn zmʾ | Mid-11th century | *Sauvegarde de Tyr* 1980: 31; Cross 2003: 201, #9; Deutsch and Heltzer 1999: 14, IX | |
| 8 | ʿbdlbʾt bn ʿnt | Mid-11th century | Cross 1980: 6–7; Cross 2003: 201, #11; Deutsch and Heltzer 1999: 14, XI | |

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8  Since I analyzed the names, Lehmann has offered a new reading of this arrowhead based on new, high-resolution close-up photographs. The *scriptio superior* is ḥṣ wlʿ bn yḥš and the *scriptio inferior* is ḥṣ zkr bn yḥrbʿl (Lehmann 2021: 65*–72*).

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| **9** | *ḥṣ zkrbʿl mlk ʾmr* | Late 11th century | Starcky 1982: 179–186; Deutsch and Heltzer 1994: 12, #1; Cross 2003: 201, #12 and #26; Deutsch and Heltzer 1999: 14, XII, 16, XXIX | Two arrowheads, one purchased in London and the other of unknown origin. |
| **10** | *ḥṣ ʿbdny ʾš ʿzbʿl* | Mid-11th century | Bordreuil 1982: 187–192; Cross 2003: 201, #13; Deutsch and Heltzer 1999: 15, XIII | |
| **11** | *ḥṣ ʾdʿ bn bʿlʾ* | Late 11th century | Mitchell 1985: 136–153; Cross 2003: 201, #14; Deutsch and Heltzer 1999: 15, XIV; Mitchell 2020: 45 | |
| **12** | *ḥṣ mhrn bn yṭl* | Mid-11th century | Wolfe and Sternberg 1989: 9; Lemaire 1989: 53–56; Cross 2003: 201, #15; Deutsch and Heltzer 1999: 15, XVIII | |
| **13** | *ḥṣ pdy bn qry* | Ca. 1000–950 | Sader 1990: 315–317; Cross 2003: 201, #16; Deutsch and Heltzer 1999: 15, XV | |
| **14** | *ḥṣ ywḥnn ʾš ʿzbʿl* | Mid-11th century | Sternberg 1990: 69, 431; Cross 2003: 201, #17; Deutsch and Heltzer 1999: 15, XVI | Lemaire asserts that this is the same arrowhead as *ḥṣ pqḥy ʾš zrʿy* (see below, arrowhead #28) and that the reading is *ḥṣ pqḥy ʾš ʿzbʿl* (2012a: 294, n. 25; 2012b: 6, n. 39). |
| **15** | *ḥṣ ʾdnšʿ rb [ ]* | Late 11th century | De Tarragon 1991: 244–251; Cross 2003: 201, #18; Deutsch and Heltzer 1999: 15, XVII | Cross reads two names, *ʾdn* and *šʿ*, instead of the single name *ʾdnšʿ*. |
| **16** | *ḥṣ šlm bn [ ?]* | Mid-11th century | Bordreuil 1992: 205–213, XIX; Cross 2003: 201, #19; Deutsch and Heltzer 1999: 15, XX | |

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| 17 | *ḥṣ bn ' 'š špṭ* | Mid-11th century | Bordreuil 1992: 205–213, XX; Cross 2003: 201, #20; Deutsch and Heltzer 1999: 16, XXI | |
| 18 | *ḥṣ 'zm[lk?] bn mlky* | Ca. 1000–950 | Bordreuil 1992: 205–213, XXI; Cross 2003: 201, #21; Deutsch and Heltzer 1999: 16, XXII | Deutsch and Heltzer read *'zm* instead of *'zm[lk?]*. |
| 19 | *ḥṣ bny 'rb 'lp* | Mid-11th century | Cross 1993: 533–542; Cross 2003: 201, #22, 207–212; Deutsch and Heltzer 1999: 16, XXIV | |
| 20 | *ḥṣ yš '* | Mid-11th century | Cross 1993: 533–542; Cross 2003: 201, #23, 207–212; Deutsch and Heltzer 1999: 16, XXV | |
| 21 | *ḥṣ šmd ' bn yšb ' 'š špṭ ḥṣr* | Mid-11th century | Cross 1992: 21*–26*; Cross 2003: 201, #24, 203–206; Deutsch and Heltzer 1999: 16, XXVI | |
| 22 | *ḥṣ swr 'š 'bdy* | Mid-11th century | Cross 1996: 9*–17*; Cross 2003: 195–202, #25; Deutsch and Heltzer 1999: 17, XXXIV | |
| 23 | *ḥṣ 'lb 'l 'š ydb 'l* | Late 11th century | Deutsch and Heltzer 1994: 13–14; Cross 2003: 201, #27; Deutsch and Heltzer 1999: 16, XXX | |
| 24 | *ḥṣ bn 'nt bn mrṣ* | Mid-11th century | Deutsch and Heltzer 1994: 15–16; Cross 2003: 201, #28; Deutsch and Heltzer 1999: 17, XXXI | |
| 25 | *ḥṣ kty mšl 'bdn* | Late 11th century | Deutsch and Heltzer 1994: 16–18; Cross 1995: 188–189; Cross 2003: 202, #29; Deutsch and Heltzer 1999: 17, XXXII | Deutsch and Heltzer read *kty mšq 'bdy*. |

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| 26 | *ḥṣ zm' bn 'lṣ'l* | Mid-11th century | Deutsch and Heltzer 1994: 18–19; Cross 2003: 202, #30; Deutsch and Heltzer 1999: 17, XXXIII | |
| 27 | *ḥṣ ymn 'š 'bdy* | Second half of 11th century | Bordreuil 1982: 187–192; Cross 2003: 202, a; Deutsch and Heltzer 1999: 16, XXVII | |
| 28 | *ḥṣ pqḥy 'š zr'y* | Mid-11th century | Sternberg 1990: 69, 431; Bordreuil 1992: 205–213, XVIII; Deutsch and Heltzer 1999: 15, XIX | Lemaire asserts that this is the same arrowhead as *ḥṣ ywḥnn 'š 'zb'l* (see above, arrowhead #14) and that the reading is *ḥṣ pqḥy 'š 'zb'l* (2012a: 294, n. 25; 2012b: 6, n. 39). |
| 29 | *ḥṣ tdb'l bn rm* | Mid-10th century | Deutsch and Heltzer 1995: 11–12, #40; Deutsch and Heltzer 1999: 17, XXXV | |
| 30 | *ḥṣ wry* | Beginning of 10th century | Deutsch and Heltzer 1995: 13–14, #41; Deutsch and Heltzer 1999: 17, XXXVI | |
| 31 | *ḥṣ šmrm bn mrdgn* | Second half of 11th century | Deutsch and Heltzer 1995: 14–15, #42; Deutsch and Heltzer 1999: 17, XXXVII | |
| 32 | *ḥṣ 'bd'lm bn 'ky* | Mid-11th century | Deutsch and Heltzer 1995: 16–17, #43; Deutsch and Heltzer 1999: 17, XXXVIII | |
| 33 | *ḥṣ mlkyrm bn 'bdy* | Second half of 11th century | Deutsch and Heltzer 1995: 17–18, #44; Deutsch and Heltzer 1999: 17, XXXIX | |
| 34 | *ḥṣ mhrn bn 'bdy* | Mid-11th century | Deutsch and Heltzer 1995: 18–19, #45; Deutsch and Heltzer 1999: 18, XL | |

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| 35 | *ḥṣ š' bn 'bdy* | End of 11th century | Deutsch and Heltzer 1995: 20, #46; Deutsch and Heltzer 1999: 18, XLI | |
| 36 | *ḥṣ 'ḥ' bn 'ny* | Mid-11th century | Deutsch and Heltzer 1995: 21–22, #47; Deutsch and Heltzer 1999: 18, XLII | |
| 37 | *ḥṣ 'ḥ' bn 'štrt* | Mid-11th century | Deutsch and Heltzer 1995:22–23, #48; Deutsch and Heltzer 1999: 18, XLIII | |
| 38 | *ḥṣ 'lmlk rb mkrm* | Mid-11th century | Deutsch and Heltzer 1997: 9–11, #80; Deutsch and Heltzer 1999: 18, XLIV | |
| 39 | *ḥṣ 'bdy bn mlkrm* | First half of 10th century | Deutsch and Heltzer 1997: 11–12, #81; Deutsch and Heltzer 1999: 18, XLV | |
| 40 | *ḥṣ 'l'm bn 'bdy* | First half of 10th century | Deutsch and Heltzer 1997: 13–14, #82; Deutsch and Heltzer 1999: 18, XLVI | |
| 41 | *ḥṣ 'zr bn nkr* | 11th century | Deutsch and Heltzer 1997: 14–15, #83; Deutsch and Heltzer 1999: 18, XLVII | |
| 42 | *ḥṣ zkr bn ..š..* | First half of 10th century | Deutsch and Heltzer 1997: 16–17, #84; Deutsch and Heltzer 1999: 18, XLVIII | |
| 43 | *ḥṣ ytrṣdq 'š 'm'* | Mid-11th century | McCarter 1999: 123*, #1; Deutsch and Heltzer 1999: 18, XLIX | |
| 44 | *ḥṣ nkb'l 'ḥ šmb'l* | Mid-11th century | McCarter 1999: 125*, #2; Deutsch and Heltzer 1999: 19, L | McCarter suggests two readings: *ykb'l* or *nkb'l*. |
| 45 | *ḥṣ 'lb'[l]* | 11th century | Deutsch and Heltzer 1999: 9–10, 19, LI | |

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| 46 | *ḥṣ ʾky bn ʾny* | Second half of 11th century | Sader 2000: 271–279 | Names of three owners appear next to one another on this arrowhead: *ʾky bn ʾny, ymn ʾš ʿbdy* and *ʿdʾ bn glʔdʔ.* The latter two owners also appear on arrowheads #27 and #58. |
| 47 | *ḥṣ ʾnl ʾš y..b ʿl* | 11th century | Deutsch and Lemaire 2003: 9–10 | |
| 48 | *ḥṣ syy* | 11th century | Deutsch and Lemaire 2003: 10 | |
| 49 | *ḥṣ ʾṣmr ʿbd ʾbqm* | Early (and perhaps mid) 11th century | Lemaire 2005: 43–46 | |
| 50 | *ḥṣ ʿdy bn kny* | Mid/late 11th century | Elayi 2005: 37–38 | |
| 51 | *ḥṣ [b/ḥ]nʾ bn ʾšy ʾš šqʿ* | Mid/late 11th century | Elayi 2005: 39–41 | |
| 52 | *ḥṣ g/l/pb ʿh(?)[ ]bn dnʿ[* | Mid-11th century | Elayi 2005: 41–42 | |
| 53 | *t(?)r/d..[ ] zkrb[ʿl]* | Mid/late 11th century | Elayi 2005: 42–43 | |
| 54 | *ḥṣ b<n?>ʾnt bn ydn* | ca. 11th century | Lemaire 2012b: 7–8 | |
| 55 | *ḥṣ trkršyn b[n] ʾ/.d/rl/kt* | ca. 11th century | Lemaire 2012b: 8–9 | Lemaire proposes *ʾdlt* for the patronym. |
| 56 | *ḥṣ špṭ bn bʿlʾ* | ca. 11th century | Lemaire 2012b: 9–11 | |
| 57 | *ḥṣ bšʾ bn wlʾ* | 11th century | Lemaire 2013: 182–184 | |
| 58 | *ḥṣ ʿdʾ bn gl[dʔ] ʾš špṭ* | | Abousamra 2014: 49–51 | |
| 59 | *ḥṣ ʾmrb ʿl rb ṣbʾ bb* | | Abousamra 2014: 51–53 | |

| Reference number | Inscription | Date | Bibliography | Comments |
|---|---|---|---|---|
| **60** | ḥṣ bʿlml[k?] bn mlk[rm?] | | Abousamra 2014: 53–54 | |
| **61** | ḥṣ ʾbrm bn ʾbl | | Abousamra 2014: 54–55 | |
| **62** | ḥṣ ʿ ? bn p/g ? | | Abousamra 2014: 55–56 | |
| **63** | ḥṣ yšbʿl ʾš ʿbdy ḥṣr | Mid-11th century | Mitchell 2020: 44–52 | |

# Appendix B:

# Index of names on Phoenician inscribed bronze arrowheads

| Personal name | Arrowhead | Personal name | Arrowhead |
|:---:|:---:|:---:|:---:|
| *'b'* | 1 | *b'l'* | 11 |
| *'bl* | 61 | *b'l'* | 56 |
| *'bqm* | 49 | *b'lml[k?]* | 60 |
| *'brm* | 61 | *bš'* | 57 |
| *'dlt* | 55 | *gl[d?]* | 58 |
| *'dnb'l* | 5 | *grb'l* | 4 |
| *'dnš'* | 15 | *dn'[* | 52 |
| *'d'* | 11 | *wl'* | 57 |
| *'ḥ'* | 36 | *wry* | 30 |
| *'ḥ'* | 37 | *zkr* | 42 |
| *'ky* | 32 | *zkrb['l]* | 53 |
| *'ky* | 46 | *zkrb['l]* | 3 |
| *'lb'l* | 23 | *zkrb'l* | 9 |
| *'lb'[l]* | 45 | *zm'* | 7 |
| *'lmlk* | 38 | *zm'* | 26 |
| *'l'm* | 40 | *zr'y* | 28 |
| *'lṣ'l* | 26 | *y..b'l* | 47 |
| *'m'* | 43 | *ydb'l* | 23 |
| *'mrb'l* | 59 | *ydn* | 54 |
| *'ny* | 36 | *ywḥnn* | 14 |
| *'ny* | 46 | *yḥš* | 6 |
| *'nl* | 47 | *yṭl* | 12 |
| *'ṣmr* | 49 | *ymn* | 27 |
| *'šy* | 51 | *yš'* | 20 |
| *[b/ḥ]n'* | 51 | *yšb'* | 21 |
| *bn'* | 17 | *yšb'l* | 63 |
| *bny'* | 19 | *yt'* | 7 |
| *bn'n[t]* | 3 | *ytrṣdq* | 43 |
| *bn'nt* | 8 | *kny* | 50 |
| *bn'nt* | 24 | *mhrn* | 12 |
| *b<n?>'nt* | 54 | *mhrn* | 34 |

| Personal name | Arrowhead | Personal name | Arrowhead |
|---|---|---|---|
| *mlk[rm?]* | 60 | *ʿzbʿl* | 10 |
| *mlky* | 18 | *ʿzbʿl* | 14 |
| *mlkyrm* | 33 | *ʿzm[lk?]* | 18 |
| *mlkrm* | 39 | *ʿzr* | 41 |
| *mrdgn* | 31 | *ʿzrbʿl* | 5 |
| *mrṣ* | 24 | *ʿky* | 1 |
| *nkbʿl* | 44 | *ʿštrt* | 37 |
| *nkr* | 41 | *pdy* | 13 |
| *swr* | 22 | *pqḥy* | 28 |
| *syy* | 48 | *qry* | 13 |
| *ʿbdʿlm* | 32 | *rm* | 29 |
| *ʿbdy* | 22 | *rpʾ* | 6 |
| *ʿbdy* | 27 | *šʾ* | 35 |
| *ʿbdy* | 33 | *šlm* | 16 |
| *ʿbdy* | 34 | *šmbʿl* | 44 |
| *ʿbdy* | 35 | *šmdʿ* | 21 |
| *ʿbdy* | 39 | *šmrm* | 31 |
| *ʿbdy* | 40 | *špṭ* | 17 |
| *ʿbdy* | 63 | *špṭ* | 21 |
| *ʿbdlbʾt* | 2 | *špṭ* | 56 |
| *ʿbdlbʾt* | 8 | *špṭ* | 58 |
| *ʿbdny* | 10 | *šqʿ* | 51 |
| *ʿdʾ* | 58 | *tdbʿl* | 29 |
| *ʿdy* | 50 | *trkršyn* | 55 |