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and Reinterpretation in  
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# THE HIERATIC SCRIBAL TRADITION IN PREEXILIC JUDAH

David Calabro

It is fairly well-known that scribes in the Iron Age kingdom of Judah employed at least a limited set of Egyptian hieratic signs.<sup>1</sup> The use of hieratic numerals was widespread in Judah before the Persian period, as it was in the northern kingdom of Israel prior to the Assyrian conquest; indeed, hieratic signs were apparently the only method used for representing numbers aside from writing them out as Hebrew words.<sup>2</sup> Other hieratic signs, such as the sign for the *hk3t* grain measure, also enjoyed frequent use. The occurrence of these signs, mostly as isolated symbols on otherwise Hebrew ostraca, raises some questions about the relationship between Judahite and Egyptian scribal traditions. Was the use of these signs part of a more extensive system of hieratic scribal knowledge in Judah? If so, what was the source of this tradition? Is it to be linked to those of contemporary Saite Egypt, or does it have an earlier origin within Judah? The three inscriptions I discuss here (Arad 25, Arad 34, and Tell Qudeirat 6) point to the development within Judah of a unified, extensive hieratic tradition. Further, from a paleographic standpoint, this tradition appears to have been independent of those attested in Egypt during that time.

## Arad 25

Arad 25 was recovered from a trench cut down the western slope of the mound on which the Israelite fortress at Arad sits (Figure 1). This ostrakon was assigned to Stratum VI, contemporary with the Israelite fortress, based on its script

and its collocation with other ostraca.<sup>3</sup> It was published and analyzed by Yeivin in 1969, and a subsequent study by Rainey corrected some of Yeivin's readings. In his 1981 publication of the Arad corpus, Aharoni essentially followed Rainey's analysis of this ostrakon.<sup>4</sup> What we have in Arad 25 is a short list of commodities with the places from which they came.

### Transliteration of Arad 25:

[...]	<i>hk3t</i> 1 <i>šm</i> <sup>c</sup>
[m]‘nym. t̄tnm.	<i>hk3t</i> 3 <i>šm</i> <sup>c</sup> 5
m‘lynm.	<i>hk3t</i> 6
mm‘n.	<i>hk3t</i> 1

### Translation of Arad 25:

[...]	10 <i>heqats</i> of Upper Egyptian barley
from Lower ‘Anim	30 <i>heqats</i> of Upper Egyptian barley
from Upper (‘Anim)	60 <i>heqats</i>
from Ma‘on	10 <i>heqats</i>

The dot at the beginning of the hieratic portion of each line is probably the *hk3t* sign (that is, the small circle abbreviation of the grain bin with grain pouring out, );

<sup>1</sup> This paper, which was presented at the February 2006 conference whose proceedings are published in this volume, is a shortened version of my Chicago MA thesis, “The Hieratic Scribal Tradition in Late Monarchic Judah,” which was completed in 2005. Recently, an article and a book by Stefan Wimmer dealing with the same topic have been published: “Egyptian Hieratic Writing in the Levant in the First Millennium B.C.,” *Abgadiyat* 1 (2006): 23-28; *Palästinisches Hieratisch: Die Zahl- und Sonderzeichen in der althebräischen Schrift* (Ägypten und Altes Testament 75; Wiesbaden: Harrassowitz Verlag, 2008). I have included some references to these two studies in this revised version of my article. However, as some aspects of my article still represent a fresh contribution to this topic, I have thought it best to leave my readings of the three ostraca, my discussions of the readings, and my conclusions unchanged. Therefore, aside from material given in the footnotes and in the chart at the end, this article may be viewed as an independent assessment of the hieratic epigraphic material from Judah, parallel and in some cases complementary to that of Wimmer. In the present article, “Möller” = Georg Möller, *Hieratische Paläographie*, 3 vols. (Leipzig: J. C. Hinrichs'sche Buchhandlung, 1912).

<sup>2</sup> There was a Phoenician system for representing numerals, but it never came into use in Judah, with the one exception of the Tell Qasileh ostrakon; see Y. Aharoni, “The Use of Hieratic Numerals in Hebrew Ostraca and the Shekel Weights,” *BASOR* 184: 19 (December 1966).

<sup>3</sup> Y. Aharoni, *Arad Inscriptions*, 50 (Jerusalem: The Israel Exploration Society, 1981). The findspot, Locus 374 (square C/D 12), can be found in the map at the beginning of that volume; the other inscriptions found at this locus are Arad 29, 58, 73, and 83.

<sup>4</sup> S. Yeivin, “An Ostrakon from Tel Arad Exhibiting a Combination of Two Scripts,” *JEA* 55: 98-102 (August 1969); A. F. Rainey, “A Hebrew ‘Receipt’ from Arad,” *BASOR* 202: 23-29 (1971); Aharoni, *Arad Inscriptions*, 50-51.

<sup>5</sup> Following Aharoni, who apparently sees traces of the upper left part of the sign that have almost worn away. Wimmer, *Palästinisches Hieratisch*, 36-37, interprets the signs at the ends of lines 1 and 2 as *hk3t* (, Möller II 697, note 1) and *h3r* (, Möller 471) respectively. This, however, is problematic, given that a unit of measurement (the dot, which Wimmer interprets here as expressing the fourfold *hk3t* or oipe) is already expressed at the beginning of each entry in this column. On one hand, if the last sign in both lines is interpreted as an additional amount, the second line would give the smaller amount before the larger, which would seem strange. On the other hand, if the two signs are interpreted as qualifiers, which is how Wimmer takes them (thus “1 Hekat, auf ein Vierfach-Hekat-Maß bezogen” and “3 Hekat, auf ein Char-Maß bezogen”), the use of one or both signs would seem redundant (that is, both would be redundant if the meaning of the dot is standard, and the sign in line 2 would be redundant in any case, since the *h3r* is simply a multiple of the *hk3t*).

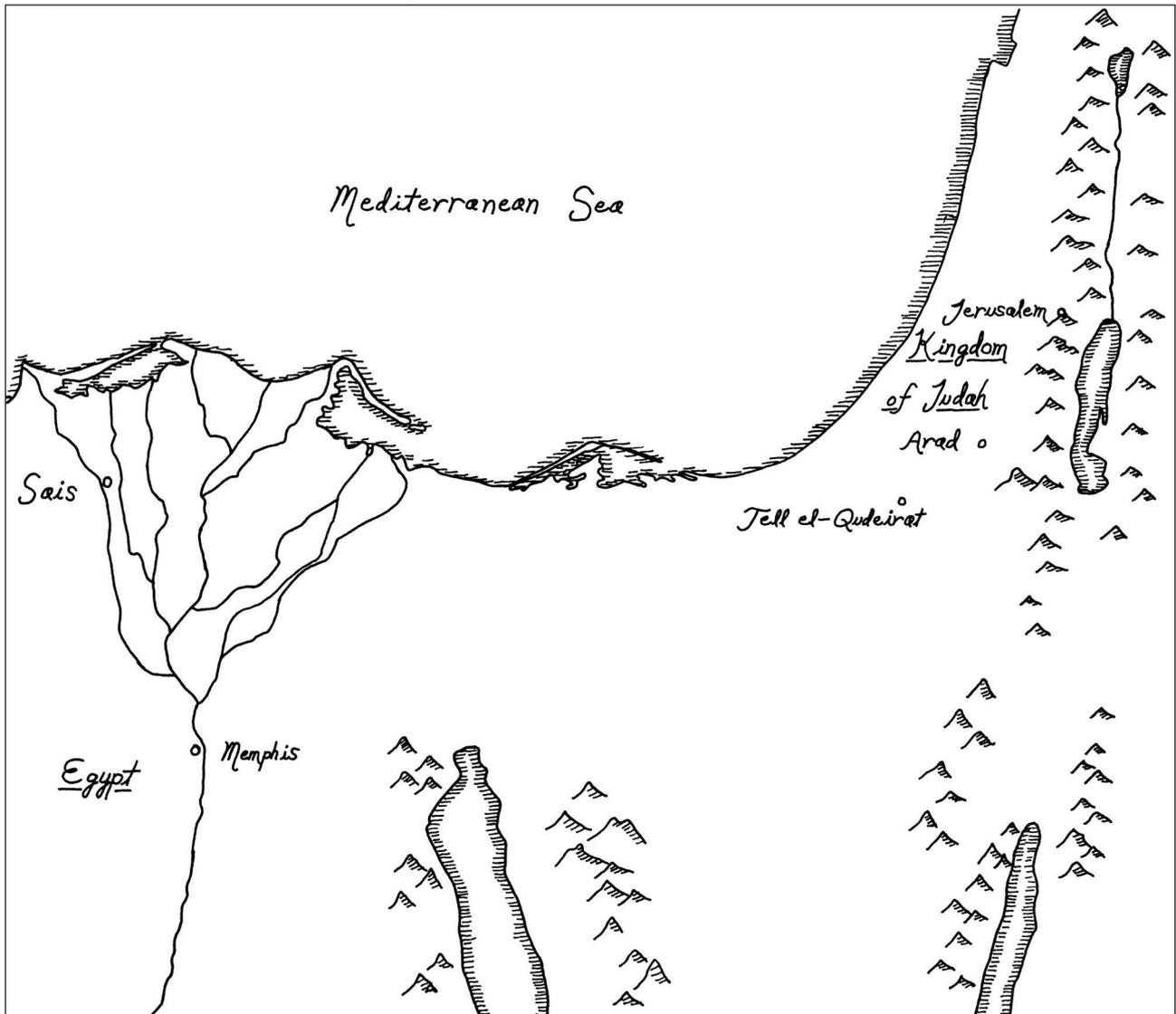


Fig. 1. Map showing sites of hieratic ostraca from Judah.

see Möller II-III 695).<sup>6</sup> The last sign in the first line, which also occurs in a less well-preserved form in the next line, is extremely enigmatic. Since this sign follows the *hk3t* grain measure and a numeral, we expect a type of grain here. In fact, wherever this sign occurs here and in Arad 34, it occurs together with a grain measure. Yeivin's suggestion that this is the flowering sedge  crossed by the arm  (standing for *sm*<sup>c</sup> "Upper Egyptian barley," Möller 292) is adopted by Aharoni, and this seems like the most plausible reading for this sign. However, the problem is that all of the forms given in Möller are quite different from the form of this sign in Arad 25 (and also Arad 34, see below). Specifically, the horizontal element here is much higher than in the Möller examples, where it crosses at or close to the base. Also, the left portion of this horizontal element in the Arad ostraca has an additional stroke or tick that is absent from the Möller examples, and the forms in Möller

have a diagonal stroke that is missing in the Arad forms.<sup>7</sup> In fact, the form that we have here in the Arad ostraca seems more similar to the hieroglyphic form of the *sm*<sup>c</sup> sign than to the hieratic developments. This sign on this ostrakon and on Arad 34 presents perhaps the strongest paleographic argument for the distinctiveness of the Judahite script from Late Period Egyptian hieratic.

Note that both occurrences of this *sm*<sup>c</sup> sign are after the unit of measurement and the number, contrary to common Egyptian practice (which would follow the "list form": commodity, then unit of measurement and number<sup>8</sup>) but in accordance with expected Hebrew word order as well as the probable word order in spoken Egyptian. However,

<sup>6</sup> See also Sir A. Gardiner, *Egyptian Grammar*, 198 (Oxford: Griffith Institute, 1999).

<sup>7</sup> The newer paleographic study by U. Verhoeven, *Untersuchungen zur späthieratischen Buchschrift* (Orientalia Lovaniensia Analecta 99; Leuven: Uitgeverij Peeters, 2001) sheds little new light on this problem, as the forms she presents (see, for example, this *sm*<sup>c</sup> sign on pp. 40-41) are essentially the same as those in Möller.

<sup>8</sup> J. P. Allen, *Middle Egyptian: An Introduction to the Language and Culture of the Hieroglyphs*, 100 (Cambridge University Press, 2000).

the use of hieratic signs here extends beyond simply inserting them as symbols to substitute for Hebrew words; this text employs the Egyptian convention of signifying tens in the grain measures by writing the numbers as vertical strokes after the *hk3t* sign, each stroke standing for a ten.<sup>9</sup> As Aharoni noted, it is clear that this convention was, in fact, followed here, rather than the vertical lines representing units, as it is difficult to imagine a shipment of grain consisting of only one *heqat* (ca. 4.8 liters).<sup>10</sup> Hebrew has no analogous convention; thus, if this text employed Hebrew word order completely, the numbers would have to have been written as tens before the grain measure.

#### Arad 34

Arad 34 comes from a casemate room in the southern wall of the fortress at Arad, where it was found in context with two Hebrew inscriptions (namely Arad 31 and 32) and three inscribed seals of the fortress commander, Eliashib son of Eshyahu. Aharoni assigned these finds to Stratum VII of the fortress.<sup>11</sup> The ostracon Arad 34 was originally analyzed by Yeivin in 1966, and was later published and reanalyzed by Aharoni in 1981.<sup>12</sup>

This ostracon appears to be a list of commodities, like Arad 25. Arad 34, however, is different in that it does not include places of origin for the commodities and is written completely in hieratic. It is, in fact, the only exclusively hieratic ostracon from Iron Age Judah discovered to date. For this reason, Aharoni speculated that this ostracon was a scratch list of booty composed by the Egyptian scribe when the fortress was destroyed, presumably by Necho.<sup>13</sup> However, with this interpretation, this ostracon becomes the only piece of evidence that it was Egyptians who destroyed this level of the fortress. The Bible does not mention Arad in Necho's campaign.<sup>14</sup> Also, Aharoni's theory assumes that a Judahite cannot write good hieratic Egyptian.<sup>15</sup> Paleographically, this ostracon is clearly more closely related to the mixed Hebrew-hieratic ostraca than to contemporary Egyptian inscriptions. My reading of this text departs from Aharoni's in a few respects, notably the distribution of lines in the left column and a few of the sign forms.

#### Transliteration of Arad 34:

<b>Col. 2</b>	<b>Col. 1</b>
10 2 {11}	[...] {21} <sup>16</sup>
<i>hk3t</i> 1 <i>šm<sup>c</sup></i> ½ ¼	{1} {2}
<i>hk3t</i> 1 {9}	<i>hk3t</i> 3 wine pot <sup>17</sup>
<i>hk3t</i> 1	<i>hk3t</i> 10 {9}
[ <i>hk3t</i> ] 1 {9}	5 <i>hk3t</i> 5 [...]
15 <i>hk3t</i> 2	<i>hk3t</i> 6 [...]
wine pot	wine pot <sup>18</sup>
<i>šm<sup>c</sup></i> {4}	<i>šm<sup>c</sup></i> ½
<i>šm<sup>c</sup></i> pot	<i>hk3t</i> [...]
[...]	

#### Translation of Arad 34:

<b>Col. 1</b>	<b>Col. 2</b>
[...]	10 2 [...]
[...]	10 <i>heqats</i> (of grain); Upper Egyptian barley: 75 <i>heqats</i>
30 <i>heqats</i> (of grain); wine: (one) pot	10 <i>heqats</i> of X (grain)
100 <i>heqats</i> of X (grain)	10 <i>heqats</i> (of grain)
5 50 <i>heqats</i> of [...]	10 [ <i>heqats</i> ] of X (grain)
60 <i>heqats</i> of [...]	15 20 <i>heqats</i> (of grain)
wine: (one) pot	wine: (one) pot
Upper Egyptian barley: 50 <i>heqats</i>	Upper Egyptian barley: X amount
[...] <i>heqats</i>	Upper Egyptian barley: (one) pot
	[...]

<sup>9</sup> See Gardiner, *Grammar*, 198; Aharoni, *Arad Inscriptions*, 50. Wimmer, *Palästinisches Hieratisch*, 37, 260, excludes this from consideration, since, as he points out, this system was not used in Egypt after the early New Kingdom. This may, however, simply prove the point that the use of the system in Judah is a holdover from earlier times (see below under Conclusions).

<sup>10</sup> Wimmer, *Palästinisches Hieratisch*, 36-37, interprets the dot as the fourfold *heqat* (see above, note 5), which would yield amounts slightly more reasonable than single *heqats*.

<sup>11</sup> See Aharoni, *Arad Inscriptions*, 62, where "No. 30" is a mistake for "No. 31."

<sup>12</sup> S. Yeivin, "A Hieratic Ostracon from Tel Arad," *IEJ* 16: 153-159 (1966); Aharoni, *Arad Inscriptions*, 62-64.

<sup>13</sup> Aharoni, *Arad Inscriptions*, 64.

<sup>14</sup> See 2 Kings 23:29-35; Jeremiah 46; 2 Chronicles 35:20-36:4.

<sup>15</sup> Wimmer, *Palästinisches Hieratisch*, 42, 45, citing Lemaire, suggests that this is a school exercise. This is necessitated by the incredibly large quantities listed in the ostracon according to Wimmer's reading. However, the script on this ostracon seems well controlled, and one does not find any awkwardness or evidence of mistakes, which would suggest that the scribe is experienced and not a student producing a scribal exercise.

<sup>16</sup> The numbers in pointed brackets represent less-understood signs as listed in the Appendix at the end of this paper. These bracketed numbers correspond to the numbers in that chart. For the *hk3t*, *hk3t*-fraction, pot, *šm<sup>c</sup>*, wine, kor, "royal shekel," zuz, and hieratic uniliteral signs (Nos. 3, 5-6, 7, 8, 10, 18, 19, 20 and 15-16 in the chart), however, I give the proposed translated value rather than the number in the chart.

<sup>17</sup> Following Aharoni, I have chosen to represent these ideographic signs by English words, since it is not known whether they would have been read aloud as Hebrew words or Egyptian words. However, for signs whose values are distinctively Egyptian (that is, they have no definite Hebrew equivalent), such as *hk3t* and *šm<sup>c</sup>*, I have presented the Egyptian words in the transliteration. Wimmer, *Palästinisches Hieratisch*, 45, 264, reads the third sign as *h3r* (†, Möller 471), though without discussing other possible readings (see below). He also reads the fourth sign differently, as a numeral 50 (Wimmer, *Palästinisches Hieratisch*, 45, 223), again without discussing possible alternatives. Wimmer's readings are possible, though it may be questioned whether they improve substantially upon the other readings that have been proposed with regard to paleography and context.

<sup>18</sup> Here and in lines 16 and 18, Wimmer, *Palästinisches Hieratisch*, 45, 225, reads the second sign as the numeral 70.

There are several interesting features in line 3. Here the *ḥk3t* sign appears exactly as in Arad 25. Again, it is likely that the following numeral represents three tens rather than three units, for the same reasons as in Arad 25. Following Yeivin and Groll, the third sign in this line is the grape arbor  $\text{𐤁}$  (Möller 267) for *irp*, “wine.”<sup>19</sup> This sign is attested in Möller only in Volume I (to the beginning of the 18th Dynasty), and there the sign is dissimilar from what we have here. Nevertheless, no other explanation for this sign seems likely. In terms of paleography, the cross *im* ( $\text{𐤁}$ , Möller 564), the double sedge *nm* ( $\text{𐤁𐤁}$ , Möller 288), and the *ḥ3r* sign ( $\text{𐤁}$ , Möller 471) all have the horizontal line running continuously, whereas this sign has two horizontal strokes, one to the outside of each vertical stroke. Moreover, in this context we expect some kind of commodity.<sup>20</sup> The fourth sign is the jar with handles  $\text{𐤁}$  (Möller 506), standing for a “pot” as a unit of capacity. The form of this sign is closer to those in Möller Volume I (to the 18th Dynasty) than to those in Volume III (including the Late Period), which again points to an independent Judahite development of hieratic script. Amazingly, neither Yeivin nor Aharoni recognized the wine and pot signs in this line as they did in lines 7 and 16. This could be due to the fact that this line already presents a measure of grain; however, line 11 appears to give two items in one line, and that is probably the case here in line 3.

The form of the numeral 6 in line 6 is most similar to that of the Middle Kingdom, particularly in the Tale of Sinuhe (see Möller 619 in Volume I). In both of these cases, the numeral is formed without lifting the brush, whereas the later examples in Möller all have separate diagonal strokes on top.

The *šm<sup>c</sup>* sign in lines 8, 11, 17, and 18 differs from the form in Arad 25, showing that the two ostraca are in different hands. Specifically, what appears in Arad 34 as a long horizontal stroke is broken into two strokes in the one completely legible Arad 25 example, with the portion to the right of the vertical slightly higher than the portion to the left. Also, the far left part of the sign in Arad 25 has a diagonal tick, where the examples in Arad 34 have a separate, short horizontal stroke. Nevertheless, the form of the sign in both ostraca is distinctive and differs from the form of the sign in Egyptian Late Period papyri. While the

<sup>19</sup> See Yeivin, “Hieratic Ostrakon,” 155; Aharoni, *Arad Inscriptions*, 64, paragraph continuing from page 63, and note 10. Again, Verhoeven (op. cit., 158-159) is helpful in confirming the analysis based on Möller.

<sup>20</sup> It is interesting to compare the distribution of the proposed hieratic *wine* sign, which occurs only here in Arad 34 and in Tell Qudeirat 6 (Column 1, line 19; see below), with the distribution of the Hebrew word *ywn*, “wine.” The latter occurs 11 times in 9 inscriptions at Arad, but never at Beer Sheba or Tell Qudeirat. The word *ywn* also occurs 24 times at Samaria (in the form *yn*, according to standard orthographic practice in the Northern Kingdom) and twice at Lachish. The absence of the hieratic *wine* sign (if that is the correct reading) in the Samaria ostraca implies that the use of this sign was restricted to the kingdom of Judah. While the data from the other sites seem to point to its use being further restricted to the Negev, they are not conclusive, since sites other than Arad and Samaria have not yielded archives of comparable size. For the data, see Davies, *Ancient Hebrew Inscriptions: Corpus and Concordance*, 373-374, 518 (Cambridge University Press, 1991); S. Gogel, *A Grammar of Epigraphic Hebrew*, 335 (Atlanta: Scholars Press, 1998).

sign {9} in lines 4, 12, and 14 is obscure, it is interesting to note that it looks just like the horizontal element of the *šm<sup>c</sup>* sign. The second sign in line 8 is part of the Horus eye that stands for half of a *ḥeqat* (Möller 708).<sup>21</sup>

In line 11, *ḥk3t* 1 is a complete entry (presumably the type of grain is understood), but after it we have the *šm<sup>c</sup>* sign for Upper Egyptian barley and two parts of the Horus eye standing for  $\frac{1}{2}$  and  $\frac{1}{4}$  (therefore  $\frac{3}{4}$ ) *ḥeqat* of grain (see Möller 708-709). These last two signs appear in combination also in Tell Qudeirat 6, Column I, line 10 (discussed below). This manner of writing a fraction as the sum of fractions with numerators of 1 follows Egyptian convention.

### Tell Qudeirat 6

The ostrakon Tell Qudeirat 6, the largest discovered to date in Judah, is dated based on the stratum of its find-spot to the 7th century BC. It was pieced together from fragments found in a room abutting the southern casemate wall of the Judahite fortress at Tell Qudeirat.<sup>22</sup> It was published in 1981 by Cohen and then carefully analyzed by Lemaire and Vernus in 1983.<sup>23</sup> My own reading basically follows that of Lemaire and Vernus, except for a couple of new readings in Column 1.

This ostrakon contains a number of features that consistently point to its being a scribal exercise. The contents of the first column and of the verso in general are haphazard. In the other columns on the recto, numbers are listed in sequence in a seemingly systematic fashion, but the thousands are repeated in columns 3 and 5-6. Additional evidence for this ostrakon being a scribal exercise comes from the other five ostraca uncovered at Tell el-Qudeirat. Ostrakon 2, for example, contains a pair of words written two times each; and Ostrakon 3 bears an ascending list of hieratic hundred numerals from 100 to 800, with the Hebrew word *grh* (a unit of measurement) written beside each number.<sup>24</sup> The

<sup>21</sup> Also Gardiner, *Grammar*, 197. Besides the two attestations here in Arad 34 (or perhaps three, if the second sign in line 17 is included), this sign occurs twice in Arad 33 (a list of allocations of grain) and in Arad 31, Arad 41 (2x), Tell Qudeirat 6, and Samaria 301. This is therefore the only non-numerical hieratic sign clearly attested in the northern kingdom of Israel. The identification of this sign as  $\frac{1}{2}$  *ḥeqat* has already been recognized in Arad 34 and Tell Qudeirat 6, but not in the other ostraca, where it has been variously identified as the *ephah* and the *seah* (both units of measurement) by different scholars. Its context in Arad 33 demonstrates that it should stand for both a number and a unit of measurement (line 1 reads *ḥtm* X, “wheat X,” where X is the sign in question); this and the form of the sign argue for the interpretation as  $\frac{1}{2}$  *ḥeqat*. See Aharoni, *Arad Inscriptions*, 58-59.

<sup>22</sup> R. Cohen, “Notes and News: Kadesh-Barnea, 1979,” *IEJ* 30: 235-236 (1980).

<sup>23</sup> R. Cohen, “Excavations at Kadesh-Barnea, 1976-1978,” *Biblical Archaeologist* 44/2: 93-107 (1981) (analysis and commentary in the Addendum, 105-107); R. Cohen, “Did I Excavate Kadesh-Barnea?” *Biblical Archaeology Review* 7/3: 20-33 (1981) (photo on 26, analysis on 27, provenance and commentary on 28-30); A. Lemaire and P. Vernus, “L’ostrakon paléo-hébreu no. 6 de Tell Qudeirat (Qadesh-Barnéa),” in *Fontes atque Pontes: Eine Festgabe für Hellmut Brunner*, Ägypten und Altes Testament, Band 5, edited by M. Görg, 303-326 (Wiesbaden: Otto Harrassowitz, 1983).

<sup>24</sup> A. Lemaire and P. Vernus, “Les ostraca paléo-hébreux de Qadesh-Barnéa,” *Orientalia* 49: 341-345 (1980).

## Transliteration of Tell Qudeirat 6:

Recto:

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
	,	<i>kor</i> 2	800	1	[ <i>r. shekel</i> 50]	5000
	b	<i>kor</i> 3	900	2	[ <i>r. shekel</i> 60]	6000
	<i>zuz</i>	<i>kor</i> 4	1000	3	<i>r. shekel</i> 70	7000
	1 ¼	<i>kor</i> 5	2000	4	<i>r. shekel</i> 80	8000
5	[?]	<i>kor</i> [6]	3000	5	<i>r. shekel</i> 90	9000
	[?]	<i>kor</i> [7]	4000	6	<i>r. shekel</i> 100	10 'lpm
	[?]	<i>kor</i> [8]	5000	8	<i>r. shekel</i> 200	
	3	<i>kor</i> 9	6000	10	<i>r. shekel</i> 300	
	<i>zuz</i>	<i>kor</i> 10	7000	12	<i>r. shekel</i> 400	
10	½ ¼	<i>kor</i> 20	[8000]	16	<i>r. shekel</i> 500	
	4	<i>kor</i> 30	[9000]	18	<i>r. shekel</i> 600	
	,	<i>kor</i> 40	10 'lpm	20	<i>r. shekel</i> 700	
	f	<i>kor</i> 50		[ <i>r. shekel</i> 1]	<i>r. shekel</i> 800	
	[?]	[ <i>kor</i> 60]		<i>r. shekel</i> 2	<i>r. shekel</i> 900	
15	<i>kor</i>	[ <i>kor</i> ] 70		<i>r. shekel</i> 3	1000	
	[?]	[ <i>kor</i> ] 80		<i>r. shekel</i> 5	2000	
	{12}	<i>kor</i> 90		<i>r. shekel</i> 5+	3000	
	{11}	<i>kor</i> 100		<i>r. shekel</i> 6	4000	
	wine	200		<i>r. shekel</i> 7		
20	<i>kor</i> 1	300		<i>r. shekel</i> 10		
		400		<i>r. shekel</i> 20		
		500		<i>r. shekel</i> 30		
		600		<i>r. shekel</i> 40		
		700				

Verso:

	Col. 1	Col. 2	Col. 3
	?	'bgd	?
	3000		?
			?
5	?		?
	?		?
	?		?
	1000		5000 4000
	2	400	6000
		300	b
10		200	<i>hk3t</i>
		100	<i>zuz</i>

co-occurrence of all these texts suggested to Lemaire and Vernus the presence of a scribal school at Tell el-Qudeirat.<sup>25</sup> However, against this we must bear in mind not only the unlikelihood of having a scribal school at a small fortress in the middle of the wilderness, but also the fact that a student might keep his practice texts and carry them with him for later use, either as a memory aid or to facilitate further practice.

The recto of this text is divided into six columns. It contains sequential lists of numbers, some of which span more than

one column. According to the sequences of the numbers, it seems that the columns should be read from left to right, contrary to Egyptian hieratic convention (which was followed in Arad 34) but in keeping with the nature of this text as a scribal exercise. The use of Hebrew script on this ostrakon is also interesting. In the third and sixth columns, where the numeral 10,000 belongs, the hieratic numeral 10 is followed by the Hebrew word 'lpm, meaning "thousands," therefore 10,000; and on the verso, the first four letters of an abecedarly appear in Column 2.

Column 1 of the recto contains what appears to be a mix of letters, measures, numbers, and unidentifiable signs. It has been suggested that the first sign in this column is an Egyptian number or fraction (see #17 in Appendix A below).<sup>26</sup> The second sign in this column could be the *b*-sign standing for the Hebrew *bath* liquid measure, as in several ostraca from Arad.<sup>27</sup> However, I would suggest that these first two signs should be read as alphabetic signs. The first sign is a hieratic Aleph (Möller 192c in Volumes I and II), and the second is a Hebrew *b*. Both signs have a downward ductus suitable to writing in a column rather than a horizontal line (in contrast, the letter *b* in the abecedarly

<sup>25</sup> Op. cit., 345.

<sup>26</sup> Wimmer, *Palästinisches Hieratisch*, 106, reads this sign as *tp* (𐤏, Möller 440). Wimmer also reads the sign in lines 3 and 9 (which also occurs in Col. 3 of the verso, line 11) with some uncertainty as the fraction 1/8 (Möller 674).

<sup>27</sup> See G. I. Davies, *Ancient Hebrew Inscriptions*, 512-513.

on the verso curves to the left). The mixture of hieratic and Hebrew in these letters accords with the general mixture of the two scripts on this ostrakon. The signs in lines 12 and 13 were unidentified by Lemaire and Vernus, but I propose reading them as the Egyptian alphabetic signs  $\epsilon$  (the arm, Möller 99) and  $f$  (the horned viper, Möller 263). These identifications work perfectly well from a formal perspective. If it is correct, this new reading is especially interesting, because in the Hebrew alphabet, the letters  $\nu$  and  $b$  are ordered together in that sequence, as are  $\epsilon$  and  $p$  (realized as [f] after vowels and corresponding in borrowed words and proper names to Egyptian /f<sup>28</sup>). This would then provide the first example of hieratic uniliteral signs in late monarchic Judah, thus strengthening the assertion that the hieratic signs in use there were part of a basically complete system.<sup>29</sup>

There still remain several mysteries in Column 1. Line 10 contains the same sequence of Horus-eye fractions as Arad 34, line 11. The repetition of the same sequence here is unlikely to be pure coincidence, but I can offer no satisfactory explanation. Lines 17-19 contain a common element that looks like a T rotated 90 degrees counterclockwise, but it is not clear whether this element is in each case a separate sign or half of a larger sign. A rotated T also occurs in Arad 34, line 10 (astride a thin break), where it is definitely a separate sign. However, here in line 19, this element in combination with its mirror image resembles the sign identified as *irp* “wine” in Arad 34 (see above). The sign in lines 15 and 20, which resembles a Greek epsilon, is of uncertain meaning. It occurs twice in Arad 31 and once again (perhaps) in an ostrakon from Wadi Murabba‘at,<sup>30</sup> in which cases context seems to demand an interpretation as a unit of measurement; the fact that this sign occurs here next to numerals in the first 18 lines of Column 2 supports the identification of the sign as a unit of measurement. Various specific identifications have been suggested by different scholars. I have adopted the Hebrew dry measure *kor*, following Lemaire and Vernus. At any rate, this sign does not seem to match anything known from hieratic epigraphy.

The looped line symbol that occurs 22 times in columns 4 and 5 before the numerals occurs also on inscribed weights. Scott<sup>31</sup> identified this symbol as the “royal shekel” based on the weight of the weight-stones on which it is inscribed, which is slightly greater than that of the shekel (the adjective “royal” is based on a weight-stone bearing the inscription *lmlk* “(belonging) to the king” and having approximately the same weight as the looped-line weight-stones). Albright noted that the form of this sign exactly

resembles that of the Egyptian *ss* sign,<sup>32</sup> but the connection between this fact and the use of the sign in Judah, if such a connection exists, is unclear. It may have something to do with this weight being used as a measure for grain, since the *ss* sign can be used as a phonogram for *ss(r)* “grain” in Egyptian.

The symbols for hundreds and thousands in recto columns 2, 3, 5, and 6 and the three columns on the verso match fairly well with the examples from the New Kingdom in Möller Volume II (see AA c-d, pp. 57-58). However, complete paleographic analysis is handicapped by the fact that examples of numbers from the 26th Dynasty are scarce and do not appear in Möller’s *Paläographie*.

The convergence of Hebrew script, large hieratic numerals, and (as I propose) hieratic alphabetic signs in the scribal exercise found on Tell Qudeirat 6 points to an extensive hieratic component in the scribal education of Judahites, at least in the place where the ostrakon was composed. This place may have been at Tell el-Qudeirat, although this is not certain.

## Conclusions

All three of the ostraca discussed in this paper seem to belong to a single tradition of hieratic writing. Arad 34 can be linked to the same hieratic tradition as Arad 25 and Tell Qudeirat 6 because of the distinctive forms of what have been identified as the *sm $\epsilon$*  and *irp* signs. Further, Tell Qudeirat 6 is linked to the general use of isolated hieratic signs on Hebrew ostraca and stone weights through the occurrence of the looped-line shekel symbol on inscribed weights and on Tell Qudeirat 6.

Paleographically, this tradition appears to have been separate from the script traditions of contemporary Saite Egypt.<sup>33</sup> Some of the signs on the ostraca from Judah, particularly the *sm $\epsilon$*  sign and the *wine* sign (if these identifications are correct), do not resemble any known forms from Egyptian papyri.<sup>34</sup> In the case of the *sm $\epsilon$*  sign, the form of the sign more closely resembles the hieroglyphic form. At any rate, while the fact remains that these signs are not Hebrew letters and show no likelihood of being

<sup>28</sup> Ibid., comment by editor in footnote #14. See Gardiner, *Grammar*, 522, #V6.

<sup>29</sup> A few script types were in use in Egypt during the Saite 26th Dynasty (the period corresponding to the late monarchy in Judah). The predominant script in Upper Egypt at the beginning of the 26th Dynasty was “abnormal hieratic,” a form of hieratic that diverged greatly from the earlier Ramesside period hieratic. At the same time, in Lower Egypt demotic was the predominant and apparently officially sponsored script. During the 26th Dynasty, the use of demotic spread southward and eventually replaced abnormal hieratic, becoming the dominant script all over Egypt. However, the earlier hieratic script tradition continued in use alongside demotic and abnormal hieratic, especially in priestly circles, as evidenced by the thriving hieratic tradition that produced religious texts in the later Ptolemaic period. One would expect that the quotidian texts discussed here would have been written in demotic or abnormal hieratic were they to be associated with contemporary Egyptian scribal institutions, but the number of 26th Dynasty texts of this genre in any script tradition is small enough that one cannot develop a conclusive argument based on genre.

<sup>30</sup> G. Möller, *Hieratische Paläographie*, #267 and #292 in Volumes I, II, and III (Osnabruck, 1936).

<sup>28</sup> That is, for Egyptian words borrowed into Hebrew. Cf. *mp* for *mn-nfr* “Memphis” in Hosea 9:6; also Hebrew *qwp* “ape” corresponding to Egyptian *gwf*.

<sup>29</sup> Another possible example of a hieratic uniliteral sign in Judah is what looks like a hieratic *m-owl* in Arad 85 (see Aharoni, *Arad Inscriptions*, 102), but this ostrakon is too short to support any reading based on context, and its function is uncertain.

<sup>30</sup> Davies, op. cit., 513-514; Lemaire and Vernus, “No. 6,” 313-314.

<sup>31</sup> R. B. Y. Scott, “The Shekel Sign on Stone Weights,” *BASOR* 153: 32-33 (1959).

linked to any neighboring scripts besides those of Egypt, they do not match precisely with known forms of hieratic signs from any period. Additionally, besides the symbols on Arad 25, 34, and Tell Qudeirat 6, at least ten symbols found on Hebrew ostraca have never been successfully identified with known signs (see Appendix A below).

The Judahite hieratic tradition, developing independently from the contemporary scribal traditions in Egypt, must have diverged from them at an earlier period. Orly Goldwasser, in a 1991 article, has presented a hypothesis that the use of hieratic numerals in monarchic Judah originated with Egyptian scribes who remained in Palestine after the collapse of the Egyptian empire at the end of the New Kingdom, and other scholars have followed in the same vein.<sup>35</sup> However, strong economic and cultural contacts between Egypt and the southern Levant far predate the formation of the Egyptian empire in this area in the New Kingdom, as does the use of alphabetic script.<sup>36</sup> It is therefore not inconceivable that the tradition of hieratic writing in the southern Levant has its ultimate roots in a period even before the New Kingdom, perhaps being used on documents now lost to us. This does not, however, exclude the possibility of New Kingdom (and later) influence on this tradition.

On the question of the extent of the hieratic system used in this tradition, Arad 25, 34, and the ostraca from Tell el-Qudeirat indicate that the hieratic tradition in Judah

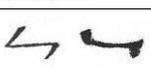
lasted in a fuller form than only the isolated use of numbers and units of measurement. In particular, it included hieratic alphabetic signs, logographic signs for commodities like wine and barley, and Egyptian conventions of sign sequence. This means that the system overlapped in some ways with alphabetic script and could, at least potentially, have been put to use for purposes other than simple accounting; whether this potential was actually exploited is, of course, unknown in view of the lack of surviving documents.

All three of the ostraca discussed here come from the Negev region in the southern part of Judah. Despite this region's geographical proximity to Egypt, however, it is unlikely that hieratic learning in Palestine emanated from this region. Both Arad and Tell el-Qudeirat were the sites of Judahite fortresses with close links to the royal capital at Jerusalem, and it is at Jerusalem that the scribal institutions necessary for the transmission of hieratic learning presumably existed. Unfortunately, Jerusalem has not yielded an archive comparable in size and nature to that of Arad. In view of the unity in script forms mentioned above, the wide distribution of hieratic numerals and other isolated hieratic signs in Judah indicates a widespread presence of scribes educated in this Judahite variety of Egyptian script.

<sup>35</sup> See O. Goldwasser, "An Egyptian Scribe from Lachish and the Hieratic Tradition of the Hebrew Kingdoms," *Tel Aviv* 18: 248-253 (1991). Gee has pointed out that the forms of certain numbers in the Arad ostraca strikingly match the forms of those numbers attested in the time of Thutmose III; he cites Arad 112, analyzed by Rainey in Aharoni, *Arad Inscriptions*, 125 (where the text is shown upside-down). J. Gee, "The Export of the Egyptian Scribe," unpublished paper presented at a meeting of the Society of Biblical Literature, November 2006. Wimmer, "Egyptian Hieratic Writing in the Levant," 26-27, has suggested that, in addition to heritage from the New Kingdom occupation of the Levant, "strong contemporary affinities towards Egypt remain a very probable factor," thus "we might do better to think in both tracks."

<sup>36</sup> As one obvious example of cultural contact earlier than the New Kingdom, one could cite the Middle Kingdom tale of Sinuhe, in which a Levantine chief invites Sinuhe to stay, promising him that he will hear the language of Egypt. The tale also refers to written messages being exchanged between Sinuhe and the Pharaoh's court. There is no reason to doubt that these elements of the tale's setting reflect the actual state of affairs during this period. Cf. D. Redford, *Egypt, Canaan, and Israel in Ancient Times*, 71-97 (Princeton: Princeton University Press, 1992). The use of alphabetic script seems to have emerged during the Middle Kingdom and to owe its origins in large part to Egyptian influence. For some recent works on this topic, cf. O. Goldwasser, "Canaanites Reading Hieroglyphs. Part I – Horus is Hathor? Part II – The Invention of the Alphabet in Sinai," *Ägypten und Levante* 16: 121-160 (2006); idem, "How the Alphabet was Born from Hieroglyphs," *Biblical Archaeology Review* 36/2: 40-53 (March-April 2010). The latter has generated an interesting series of discussions, posted online, between A. Rainey and Goldwasser; see <http://www.bib-arch.org/scholars-study/alphabet.asp> (accessed 1 March 2011). Cf. also S. Sanders, *The Invention of Hebrew* (Urbana and Chicago: University of Illinois Press, 2009), especially pp. 39-41.

**Appendix A. Non-Hebrew Signs Attested in Preexilic Israelite Inscriptions, Excluding Hieratic Numerals.**

	<i>Sign (Selected Forms)</i>	<i>Attestations</i>	<i>Proposed Identifications</i>
1		Arad 34:2	9 (Möller #622) <sup>37</sup> , <i>kn</i> (ligature of <i>k</i> + <i>n</i> ) <sup>38</sup>
2		Arad 34:2	¼ (Möller #670) <sup>39</sup> , <i>h3r</i> (Möller #471) <sup>40</sup>
3		Arad 25:1, 2, 3, 4; 33:2; 34:3, 4, 5, 6, 11, 12, 13, 14, 15; 60:2; 76; 112; Beersheba 2	<i>hk3t</i> (Möller #695), <i>oipe</i> <sup>41</sup> , <i>homer</i> <sup>42</sup>
4		Arad 34:17	½ <i>hk3t</i> (Möller #708) <sup>43</sup>
5		Arad 31:9; 33:1, 6; 34:8, 11; 41:1, 8; Tell Qudeirat 6:1/10; Samaria 301:3	½ <i>hk3t</i> (Möller #708) <sup>44</sup>
6		Arad 34:11; Tell Qudeirat 6:1/10	¼ <i>hk3t</i> (Möller #709) <sup>45</sup>
7		Arad 34:3, 7, 16, 18	pot (Möller #506) <sup>46</sup> , 70 <sup>47</sup>
8		Arad 25:1-2; 34:8, 11, 17-18	<i>šm<sup>c</sup></i> (Möller #292) <sup>48</sup> , <i>hk3t</i> <sup>49</sup>
9		Arad 34:4, 12, 14	<i>kn</i> (ligature of <i>k</i> + <i>n</i> ) “animal fat” <sup>50</sup> , wheat <sup>51</sup> , ephah <sup>52</sup>
10		Arad 34:3, 7, 16; Tell Qudeirat 6:1/19	<i>irp</i> “wine” (Möller #267) <sup>53</sup> , <i>h3r</i> (Möller #471) <sup>54</sup>
11		Arad 34:10; Tell Qudeirat 6:1/18	? (Presumably a composite sign)
12		Tell Qudeirat 6:1/17	<i>homer</i> + ? <sup>55</sup>
13		Arad 1:7; 8:2; 18:6; 22:3	<i>homer</i> <sup>56</sup> , <i>kor</i> <sup>57</sup>
14		Arad 46:1-2; Lachish 22:6	<i>homer</i> <sup>58</sup>
15		Tell Qudeirat 6:1/12	<i>ṛ</i> (Möller #99)
16		Tell Qudeirat 6:1/13	<i>f</i> (Möller #263), ephah <sup>59</sup>
17		Tell Qudeirat 6:1/1	50 (Möller #627) <sup>60</sup> , ½ (demotic fraction) <sup>61</sup> , 3 (Möller #192c), <i>tp</i> (Möller #440) <sup>62</sup>
18		Arad 31:2, 10; Tell Qudeirat 6:1/15, 20, 2/1-18; Wadi Murabba‘at 2:1-4	ephah, <i>kor</i> <sup>63</sup>
19		Tell Qudeirat 6:4/14-5/14; 9; inscribed weights; Mešad Hashavyahu 7:2	“royal shekel” <sup>64</sup>
20		Tell Qudeirat 6:1/3, 9; inscribed weights	<i>zuz</i> <sup>65</sup> , 1/8 <sup>66</sup>
21		Arad 18:5; 31:2, 4, 6, 7, 8; 33:3; 34:1; 42; 83:3	<i>lethech</i> <sup>67</sup> , ephah <sup>68</sup>
22		Arad 30:4; 33:1, 6; 41:1, 7; Lachish 22:7	<i>seah</i> <sup>69</sup> , ephah (b) <sup>70</sup>
23		Arad 46:3; Tell Qudeirat 6:1/16 (?)	?
24		Beersheba 1:2	wine <sup>71</sup>

- <sup>37</sup> Y. Aharoni, *Arad Inscriptions*, 64, note 3 (Jerusalem: The Israel Exploration Society, 1981). This identification is probably to be rejected, although it could be 9 plus another sign.
- <sup>38</sup> S. Yeivin, "A Hieratic Ostrakon from Tel Arad," *IEJ* 16: 154-155 (1966). This identification, which was mostly based on a perceived similarity with other signs in Arad 34, is almost certainly incorrect.
- <sup>39</sup> Yeivin, "Hieratic Ostrakon," 155. The similarity to the examples in Möller is very weak.
- <sup>40</sup> Wimmer, *Palästinisches Hieratisch*, 264.
- <sup>41</sup> N. Sacher Fox, *In the Service of the King: Officialdom in Ancient Israel and Judah*, 259 (Cincinnati: Hebrew Union College Press, 2000); see also S. P. Vleeming, *Papyrus Reinhardt: An Egyptian Land List from the Tenth Century B.C.*, 69 (Berlin: Akademie Verlag, 1993).
- <sup>42</sup> Wimmer, *Palästinisches Hieratisch*, 254-255.
- <sup>43</sup> Yeivin, "Hieratic Ostrakon," 155-156; Aharoni, *Arad Inscriptions*, 63. The connection is weak, since the examples in Möller (as also in this same ostrakon, lines 8 and 11) are angular, whereas the sign here is curved.
- <sup>44</sup> Yeivin, "Hieratic Ostrakon," 155-156.
- <sup>45</sup> Note that signs 5 and 6 on this chart occur side-by-side both in Arad 34:11 and in Tell Qudeirat 6:1/10.
- <sup>46</sup> Yeivin, "Hieratic Ostrakon," 155-156.
- <sup>47</sup> Wimmer, *Palästinisches Hieratisch*, 225. Note that Wimmer distinguishes the sign in Arad 34, line 3, from that in lines 7, 16, and 18, reading the former as the numeral 50; see Wimmer, *Palästinisches Hieratisch*, 223.
- <sup>48</sup> Yeivin, "Hieratic Ostrakon," 154; A. F. Rainey, "A Hebrew 'Receipt' from Arad," *BASOR* 202: 26 (1971); Aharoni, *Arad Inscriptions*, 50.
- <sup>49</sup> Wimmer, *Palästinisches Hieratisch*, 263.
- <sup>50</sup> Cf. sign 1 above. This identification is implausible on both paleographic and contextual grounds.
- <sup>51</sup> Aharoni, *Arad Inscriptions*, 64. The argument for this identification is based solely on context.
- <sup>52</sup> Wimmer, *Palästinisches Hieratisch*, 257-258.
- <sup>53</sup> Yeivin, "Hieratic Ostrakon," 155; Aharoni, *Arad Inscriptions*, 64 and note 10. However, the occurrence of the rotated T that forms the right portion of this sign in Tell Qudeirat 6:1/17-18 (see signs 11-12 on this chart), the occurrence of a similar-looking rotated T in Arad 18 (see sign 54 on this chart), the occurrence in Arad 46 of an opposite rotated T resembling the left portion of this sign 10 (see sign 14 on this chart), and the fact that the forms of this sign in the Judahite ostraca differ radically from the attested forms of Möller #267 argue that this is a composite sign.
- <sup>54</sup> Wimmer, *Palästinisches Hieratisch*, 264.
- <sup>55</sup> Op. cit., 312 (mistakenly under discussion of line 16). Cf. signs 10, 11 and 13 on this chart.
- <sup>56</sup> Aharoni, *Arad Inscriptions*, 13-14.
- <sup>57</sup> Wimmer, *Palästinisches Hieratisch*, 256.
- <sup>58</sup> But this is based on a supposed correlation with sign 13 on this chart, which is the mirror image. Aharoni, *Arad Inscriptions*, 78.
- <sup>59</sup> Wimmer, *Palästinisches Hieratisch*, 257.
- <sup>60</sup> Lemaire and Vernus, "L'ostrecon paléo-hebréu no. 6," 307. This identification is rendered uncertain by the fact that the hieratic numeral 50 in the same text, 2/13 (where the identification is secured by context), has a very different shape.
- <sup>61</sup> Op. cit., 307.
- <sup>62</sup> Wimmer, *Palästinisches Hieratisch*, 106.
- <sup>63</sup> Op. cit., 313-314. The form of this sign in Arad 31:2 (= b) is different enough that it could be a different sign.
- <sup>64</sup> This term makes reference to the Israelite system of weights and measures as elucidated by R. B. Y. Scott, "The Shekel Sign on Stone Weights," *BASOR* 153: 32-33 (1959). The identification is based on the weight of the stone weights on which the symbol is inscribed. Albright (in Scott's *BASOR* article) noted similarity to Egyptian *šs*; also for *ʿrf* "to tie; sack"; but Scott maintained it is an iconic representation. See also Wimmer, *Palästinisches Hieratisch*, 247-250.
- <sup>65</sup> Based on similarity to Hebrew *z*, and on the weight of an inscribed weight. Lemaire and Vernus, op. cit., 308-309.
- <sup>66</sup> Wimmer, *Palästinisches Hieratisch*, 267.
- <sup>67</sup> Aharoni, *Arad Inscriptions*, 36, 58.
- <sup>68</sup> Wimmer, *Palästinisches Hieratisch*, 257-258.
- <sup>69</sup> Aharoni, *Arad Inscriptions*, 55. The forms of this sign in Arad 30:4 (= b) and Lachish 22:7 (= c) are significantly different from the forms attested in Arad 33 and 41, having a longer horizontal base, and could be (a) different sign(s). One might identify the sign in Arad 34, which has a dot or stroke to the left that may or may not be part of the sign, with sign 9 on this chart.
- <sup>70</sup> Wimmer, *Palästinisches Hieratisch*, 257-258.
- <sup>71</sup> Y. Aharoni, *Beer-Sheba I: Excavations at Tel Beer-Sheba, 1969-1971 Seasons*, 71 (Tel Aviv University, 1973). The argument for this identification is based on context alone and is very weak, given the short and fragmentary nature of the ostrakon.