# I.2. Paleography

### Paleography of coins

Paleography, the study of the shapes of letters (= script), is, synchronically, the description of the script used in a specific corpus (specific corpora) and comparison with other corpora from the same period; diachronically it is the description of how the script changes (develops) throughout one or more corpora. Both aspects can be correlated with other aspects of the corpora; in the case of coins, with mints, periods, typology, etc.

Writing the paleography of coins entails problems of various order:

1. no analytical paleography of any Middle Persian corpus exists;<sup>1</sup>

2. the large amount of data is difficult to analyze and correlate;

3. the difficulties (described elswhere in this book) involved in dating the coins precisely and/or relatively and in locating mints apply equally to the script.

Nevertheless, it is possible to detect certain development patterns and correlations between letter shapes on individual coins or groups of coins. Thus, on the coinage of Ardashir I, we may detect a tendency among the scribes to try to imitate the standard early Sasanian ductus of the rock inscriptions, in which all the letters are clearly characterized and carefully executed, but by and by to settle for simpler forms. Under Shapur, legends in the standard inscriptional ductus are rare (e.g., no. 86).

After Shapur I there is a tendency to a gradual deterioration in the care with which the letters are carved.<sup>2</sup>

# Distinguishing features of the script

Letters are organized about two cross axes: a horizontal line, which may be referred to as the base line, and a vertical line, the ascendant. The base line is determined-as in the Latin alphabet-by the position of the lowest part of letters such as *alef*  $\mathbf{J}$  and  $\mathbf{\check{s}}$  **\mathbf{L}**. What distinguishes the writing on coins and seals from writing on rock, however, is the fact that the base line is not straight, but a circle, and the ascendant lies along the diameter of this circle.

In the present description, technical terms for the individual parts of the letters will be used only occasionally; instead I adopt a more intuitive terminology and talk, for instance, about "uprights" or "legs" instead of "ascenders" = the rising stroke in the roman letters t, l, etc., as opposed to the "descenders" in p, q, etc. The more or less horizontal lines , e.g., in  $\square$ ,  $\square$ ,  $\mathbf{L}$ , will be referred to as "top" or "bottom lines" or "arms," and "feet," etc.

For examples of relative size in standard 3rd-century Middle Persian inscriptions, compare the follwing examples (base line indicated): دِير (klty), دِير (YKTLWN), دِير (yzd<sup>2</sup>n), دِير (wlhl<sup>2</sup>n).

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<sup>&</sup>lt;sup>1</sup> H. Hübschmann's "Iranische studien" (*Zeitschrift für vergleichende Sprachforschung* 24, 1879, p. 323–415) contains tables of Parthian and Pahlavi, including seals and coins. F. D. J. Paruck's *Sāsānian Coins* (Bombay 1924) contains tables of coins by ruler. Our principal source of comparison is the corpus of Sasanian inscriptions from the 3rd century, all of which is available in published photographs.

<sup>&</sup>lt;sup>2</sup> I have had photos of less than half of the coins published here, but only scans of the rest. Scans are sometimes difficult to work from, because, when the resolution is not very high, the pixelization permits only a small degree of enlargement. Only in a few important cases have I had high-resolution scans to work from (Ardashir nos. A54-A60, 236-245: the "crown-prince emissions," and some problematic legends of coins on Shapur pl. 37) A few of the details of the letter shapes registered here may, in fact, be due to the lighting of the photographs and the lack of details in the scans, for instance, what appear to be disjointed letters (e.g.,  $\mathcal{D}$  for  $\mathcal{D} = s$ ,  $\mathcal{D}$  for  $\mathcal{D} = p$ ). I have used Altsy's Fontographer to draw letters. It has therefore been impossible to include every single detail or variant.

### Constraints on the script

Several constraints are imposed on the script by the medium of coins, among which the following are the most important ones.

## Available space

The script on small coins may differ from that on large coins, and the script on the reverse-where there is always (in principle) sufficient space-from that on the obverse, where there is often insufficient space. "Over-sized" letters are found on some of the large emissions, notably those over ca. 12 gm.

Each part of the legend has to be accomodated in the allotted space, which makes for both horizontal and vertical squeezing; for instance, we may have the following distribution of a legend:

a. *mzdysn bgy šhpwhry*: behind (left of) the bust, between the crown<sup>3</sup> and the shoulder;

b. *MRKAn MRKA* ( $^{2}yr^{2}n$ ): below the bust, between the bust and the edge of the coin, where there is frequently little room and on many coins no legend is (now) visible;<sup>4</sup>

c. ('yr'n) MNW ctry MN yzd'n: in front (right) of bust, where one frequently runs out of space.

Of these, the most critical positions are: the beginning of the legend to the left above the crown (see on *mzdysn*, p. 66–67); the middle of the legend when below the bust; and the end of the legend to the right above the crown.

In addition, especially Shapur's ribbons and hair bun often leave little room along the left edge. See, for instance, how the entire left part of the inscription is squeezed between the edge and the ribbons and hair bun on Shapur no. 103.

On the reverse there is usually sufficient space, but note, for instance, how the letters -tr on the reverse of Ardashir no. A2 are "laid down" to fit into the narrow space:  $\sim \sim \sim$  (instead of **lt**).

Note also how rthštr is abbreviated to hštr on the reverse of some of Ardashir's coins (e.g., nos. 49: **(KU**(, 58: **UFUSU**) in order to fit in above the ribbons of the fire altar.

#### Writing in circle

This feature renders it difficult to determine the exact relationship between the horizontal and vertical directions of the letters, as the engravers did not necessarily adjust the direction of the letters continuously along the curved base line, but rather tended to write a letter parallel with the preceding, until they had to turn a letter significantly to keep up with the curved base line.

The letters normally point away from center. Exceptions include: 1. on the earliest emissions of Ardashir I, where the letters of the two parts of both the obverse and reverse legends point in the same direction: 1st part outward, 2nd part inward; 2. the two parts of the inscriptions on the reverse sometimes also point in the same direction.

#### Mirroring and rotation

Two additional features that play an important role in coin paleography are horizontal or vertical "mirroring" or "flipping" and "rotation." These are probably due to the fact that the engraver wrote the letters mirrored. Mirroring may affect single letters and whole words.

<sup>&</sup>lt;sup>3</sup> The term "crown" is used very loosely here about the king's headdress.

<sup>&</sup>lt;sup>4</sup> In photos, the invisibility of this part of the legend may sometimes, at least, be due to the lighting.

Examples of mirroring and rotation of single letters:  $\mathfrak{D}$  *m*-mirrored:  $\mathfrak{A}$ ; rotated (90° CW):  $\mathfrak{J}$ ;  $\mathfrak{D}$  *m*-mirrored and/or rotated:  $\mathfrak{G} \mathfrak{D} \mathfrak{Q} \mathfrak{S}$ ;  $\mathfrak{N}$  *h*-rotated:  $\mathfrak{S} \mathfrak{P} \mathfrak{L}$ ; mirrored  $\mathfrak{A} \mathfrak{V} \mathfrak{L}$ ?

The entire reverse inscription is mirrored on Ardashir nos. 143, A20; only *rthštr* on no. A28; and on Shapur nos. A9, 134; only *NWRA ZY* on no. A10; and *šhpwhry* on no. 38 rev.

# Poorly engraved and worn letters

Letters are sometimes poorly engraved or rubbed off by wear.

Occasionally a poorly executed legend or part of a legend may be due to a damaged or otherwise unclear original, note, e.g., the defective *mzdysn* on Ard. no. 213:  $\tau$  121 $\infty$ .

#### GENERAL REMARKS ON THE SHAPE OF THE LETTERS

The shapes of the letters vary from clearly designed letters to mere strokes and scratches.

Consistency seems never to have been a goal (although there appears to be a tendency toward greater consistency with time); rather, variation is the rule. Thus, the script is rarely consistent throughout a legend, and the ductuses on the obverse and reverse are often different.

Letters are frequently "reduced" to elementary shapes. Thus, in extreme cases, most of the letters, including h, t, and c (but not *alef* and m), can be reduced to mere vertical strokes, straight or bent ( $\mathbf{l} \cdot \mathbf{etc.}$ ). Several letters, notably, *alef*, h,  $\check{s}$ , s, can take the shape of a simple up- or down-turned "bowl" ( $\mathbf{v} \cap$ ).

The constituents of a letter may be so detached that it is no longer possible to identify them from the shape, only from the context, for instance  $s \mathbf{p}$  may be reduced to  $\mathbf{D}$  in the sequence  $ys \mathbf{D}$  in *mzdysn*, making it indistinguishable from *sy* in *mzdsyn* (for *mzdysn*). The right part of  $\mathbf{p} t$  may become detached:  $\mathbf{p}, \mathbf{p}, \mathbf{e}$ .

### THE LEGENDS

The legends can be, to varying degree, well or poorly engraved. They range from very carefully engraved in a style close to the ductuses of the imperial inscriptions and the careful ductus seen on numerous Sasanian seals, via carefully engraved in less "artistic" but "clean" ductus, to less carefully, sometimes quite carelessly engraved. The types sometimes come in clusters (e.g., the carefully engraved in inscriptional ductus Ard. nos. 51, A40, 218, etc.; Shap. nos. A9, 83, etc.).

Occasionally, technically poor engraving appears to go together with poor command of the script (e.g., Ard. no. 220).

Since the letters are frequently in reduced form or damaged, *they can often be identified only by their position on the coin*. It is therefore important to know where the legends are placed to be able to identify them. In many instances, legends can be identified only because we know what we are looking for and where. It is significant that, in cases where the legend is not known, such as on the Ardashir I coins featuring the crown prince (see *II.A.1.1.e. Typologie* and p. 55–56 below), although many of the letters are clear, we cannot read the legend!

### Placement of the legends

After the earliest emissions of Ardashir I, we may distinguish four sections and subsections of the legends:

- 1. from the beginning of the legend behind the king's spherical crown decoration to the beginning of the hair bun; this section can be further subdivided into two subsections by the ribbons of the diadem;
- 2. behind the hair bun to the right shoulder;
- 3. below the bust;
- 4. from the left shoulder back to the crown.

On the coins of Ardashir I, who does not have a bun and hanging, rather than flying, ribbons, the ribbons come just before the shoulder.

#### Distortions and nonsense legends

Most words in the legends are occasionally or frequently distorted in some way or other. Not infrequently, we also find legends that seem to be pure fantasy. Some of these may be fake, others may just be incompetent engraving. For examples and details, see below.

Note: in the following charts, the legends are to be read from right to left. The legends given are also only samples; the variants are as numerous as the coins themselves.

- X = illegible letter
- O = no letter
- P: outlined letters are occasionally used to indicate uncertain reading

Note also that it has been impossible to create exact fonts for each and every letter variant, so often I have had to be content with indicating the *general type* of letter, rather than all its detailed features.

# Ardashir I

# Legend 1<sup>5</sup>

### A I/1,2: nos. 1–7, A1

Obverse:

bgy <sup>3</sup>rthštr MLKA bay ardaxšahr šāh "the divine<sup>6</sup> (= His Majesty) King Ardashir (Ardashir the king)"<sup>7</sup>

Reverse:

BRE bgy p<sup>5</sup>pky MLKA *pus bay pābag šāh* "son of the divine King Pabag"

<sup>&</sup>lt;sup>5</sup> On the meaning of the legends, see also the Alram's (*II.A.1. Typologie*) and Gyselen's (*II.B.1. Types monétaires*) discussions.

<sup>&</sup>lt;sup>6</sup> It is impossible to determine exactly what was understood by this title at the time. It is likely that it was still thought to refer to the divine status of the king (cf. the Greek rendering as *theos* in Ardashir's and Shapur's inscriptions), later expressed explicitly by the term *kē čihr az yazdān* (see note 10), but it is also clear that the terms *ašmāh bay* and *ōy bay* (plural direct case; the oblique case forms are *ašmāh bayān* and *awēšān bayān*) in other 3rd-century inscriptions correspond more or less to our terms "Your/His Majesty," as is clear from the Paikuli inscription.

<sup>&</sup>lt;sup>7</sup> I do not see that it is possible to decide the correct parsing of *ardaxšahr šāh*: "King Ardashir" or "Ardashir, the king." Similarly, *ardaxšahr (šāhān) šāh ērān* is either "King of Kings Ardashir, (king) of Iranians" or "Ardashir, king of kings of (the) Iranians."

Both the obverse and reverse legends are read by looking from the right edge of the coin through the center and without turning the coin. They are to be read starting with the part closest to the reader (the arrows point toward the center of the coin):

Obverse:	left ↓	MLKA
	right 1	bgy <sup>°</sup> rthšt[r]
Reverse:	left ↓	MLKA
	right 1	BRE bgy p <sup>3</sup> pky

Examples:

Nos.	Bust	Ribbon	Crown
	rtšhtr'ygb		
1	X\#\(\\		
3	XXXXXXXXX		

Bust	Ribbon		
AKLM			
<b>n</b> { v			
≪ו≀ת			

Nos.	Bust		Crown
	ykp	`p ygb	ERB
1	۵۱	ア・ター	トス
3	μαXΧ	لا م	トス

Beard	Crown	
AKLM		
עניר		
T	all.	

# Legend 2

# B IIa/2: no. A2

Obverse:

mzdysn bgy 'rthštr MRKA 'ry'n mazdēsn bay ardaxšahr šāh ērān "the divine Mazdayasnian<sup>8</sup> King Ardashir, (king) of (the) Iranians"

Reverse:

NWRA ZY <sup>°</sup>rthštr *ādur ī ardaxšahr* "Ardashir's fire"

Note the spelling ryn, which is found only on these early coins.

The obverse has a circling legend, while the legend on the reverse is placed like legend 1, that is, it can be read without turning the coin. This direction of the inscription on the obverse becomes standard from now on.

<sup>&</sup>lt;sup>8</sup> Avestan mazdaiiasna means literally "he who sacrifices to (Ahura) Mazdā." It is doubtful that this literal meaning was still understood in Sasanian times. If the pronunciation was mazdayasn or mazdāsn (the latter is suggested by the Greek transcription mazdasnou in Ardashir's inscription at Naqsh-e Rajab and mazdaasnēs in Shapur's inscription on the Ka'be-ye Zardosht at Naqsh-e Rostam), the word may have been associated with Avestan mazdā (rather than with Middle Persian ohrmazd), but if the pronunciation was already mazdēsn, that is much less likely.

The letters on both the obverse and reverse are comfortably spaced, except at the end of ryn (obv.) and of rthštr (rev.).

Obverse:	left ↓	mzdysn bgy
	right ↓	<sup>°</sup> rthštr MRKA <sup>°</sup> ry <sup>°</sup> n
Reverse:	left ↓	NWRA ZY
	right ↑	<sup>°</sup> rthštr

Example:

	top of crow ← beard	bust	ribbons	crown
Obv.	n'yr' AKRM rtšhtr'		y g b	n s y d z m
A2	יייזא מאז מאנה הגנויו		עי	(n)]]b

Reverse:

A2	٣٤٦٢٣ ٢٢	<u>ןןןעבור</u>
	rtšhtr <sup>°</sup>	YZARWN

# Legend 3

B IIa/3a: nos. 8-14, A3-4

Obverse:

mzdysn bgy 'rthštr MRKAn MRKA 'ry'n mazdēsn bay ardaxšahr šāhān šāh ērān "the divine Mazdayasnian King of Kings Ardashir, (king) of (the) Iranians"

Reverse = Legend 2.

Obverse:	left	mzdysn bgy <sup>&gt;</sup> rthštr
	right	MRKAn MRKA <sup>3</sup> ry <sup>3</sup> n
Reverse:	left	NWRA ZY
	right	<sup>o</sup> rthštr

Examples:

Obverse

	crown	beard
	$n^{\circ}yr^{\circ}$ AKRM	n A K R M
9	X מנ}הזגזאנזת X מנ	
10	רחז(ק)	

Reverse:

	r t š h t r <sup>&gt;</sup>	YZARWN
9	<u>ז ליג}</u> גוֹח	ر الارد
10	<b>ונת}ו</b> זי	ען דו א

bust ribbons	crown	
rtšhtr' ygb	n s y d z m	
Xtasstal	עגנוחו ה	
n)318 مر ۲۱۱ مر ۲۱۱		

## B IIb-d/3a: nos. 15–22, A5–8

The only difference from the preceding is the spelling of  $yr^{2}n$  for  $ry^{2}n$ . Several coins have  $rr^{2}n$  (e.g., nos. A5, A8), which may be for either.

Obverse: right MRKAn MRKA 'yr'n

The inscription on the obverse left begins close to crown-sometimes leaving little space for the first *m* of mzdysn-and continues below the bust.<sup>9</sup>

The inscription on the obverse right begins at corner of the beard and continues freely until the final *n* of  ${}^{2}yr^{2}n$ , which is squeezed into the space above the crown. On the small coin A6, it is probably abbreviated to  ${}^{2}yr$ .

On no. 15 obv. we have 'rrhštr.

Examples:

Obverse

	crown beard
	$n^{2}ry^{2} AKRM nAKRM$
A5	י חוותח{ועו <i>חווס</i>

bust ribbons		crown
rtšhtr <sup>,</sup>	y g b	n s y d z m
1 C Ll	(11)	מזוחו פ

Reverse:

A5	<u>ן רשרגו</u> יו	
	rtšhtr	

YZARWN
רעערע א

# C IIe-g/3a: nos. 23–51, A9–12 C IIh-i/3a: nos. 52–122, A13

The arrangement of the legends is usually as on the preceding. Note that no. A10 has a clear  $ry^{2}[n]$ .

Examples:

Obverse

	crown beard
	n <sup>°</sup> ry <sup>°</sup> AKRM nAKRM
28	ע <b>ןורו</b> ועואוורטנד X
A10	O n)រnnររង្វnវរង

bust ribbons	crown
rtšhtr <sup>°</sup> ygb	n s y d z m
د د ۲۲ ۲۲ ۲۱	פונוחו נ
ردد ۲۲۱ X C	מוצרתו

Reverse:

	r t š h t r `
28	1575F/n
51	1 Luht1 II

YZARWN
XX⊔lll
ا ۱۲ <b>۳۲</b> ۲ د

<sup>&</sup>lt;sup>9</sup> Note that on no. 13, the engraver apparently started carving a large zd, but then realized he would run out of space, and continued with much smaller letters.

On a few coins, <sup>5</sup>*rthštr* continues below the bust, filling most of (e.g., nos. 32, 33) or all of (e.g., nos. 31, 34) the space or is divided on either side of it (e.g., no. 30). Occasionally, *mzdysn* occupies the entire space to the left (e.g., no. 34).

Note that on some large coins (nos. 19, 31, 32, 52, etc.), *MRKAn MRKA* occupies the entire space on the right side;  ${}^{2}yr{}^{2}n$  may have been written above the crown, but few traces are seen (no. 31: *MRKA*  ${}^{2}$ -; no. 32: *MRKA*  ${}^{2}y$ -).

No. 29 seems to have MRKAn MRKAn <sup>3</sup>r<sup>3</sup>n.

On the reverse, rth is sometimes abbreviated to rt (nos. 41, etc.), h (e.g., nos. 49, 56, 58) in order to fit in above the ribbons of the fire altar.

Examples:

	crown	bust	crown
	-ry <sup>o</sup> AKRM nAKRM	rtšhtr <sup>,</sup> ygb	n s y d z m
34		ххххх	סונותו
	-' AKRM nAKRM	rtšht	r <sup>°</sup> ygb nsydzm
31		1 CHUT	מואמו תי ה X

### Legend 4

- C IIIa/3a-c: nos. 123–172, A14–29
- C IV/3a: nos. 173–184, A30
- C V/3a,c: nos. 185–202, A31-35
- B IIIb/3b,a,c,e: nos. 203–230, A36–46
- B VI/3b,a,d: nos. 231–232, A47–48
- B VII/3b,a,c: nos. 233–234, A49-A53
- ? VIII/3a: see below
- C IIIa/3a: nos. 246–258, A61
- D IIIa/3a: no. 259

# Obverse:

mzdysn bgy 'rthštr MRKAn MRKA 'yr'n MNW ctry MN yzd'n mazdēsn bay ardaxšahr šāhān šāh ērān kē čihr az yazdān "the divine Mazdayasnian King of Kings Ardashir, (king) of (the) Iranians, whose seed is from the gods"<sup>10</sup>

Reverse = Legend 2.

Obverse:	left	mzdysn bgy <sup>&gt;</sup> rthštr
	below	MRKAn MRKA 'yr'n
	right	MNW ctry MN yzd <sup>2</sup> n
Reverse:	left	NWRA ZY
	right	<sup>o</sup> rthštr

<sup>&</sup>lt;sup>10</sup> The expression *kē čihr az* is likely to correspond to Old Persian *-ciça* in *ariyaciça* "of Aryan seed," that is, "descended from an Aryan."

*bgy rthštr* is occasionally squeezed between the edge and the ribbons and hair, as on no. A52 (where the lettering is overall smallish).

On no. 234, where the ribbon touches the rim, mzdy fills the space to the right of the ribbon, while the *s* appears to be squeezed in between the ribbon and the rim; the final -yn is barely visible.

Exceptionally, the reverse has *NWRA ZY* to the right and *rthštr* to the left (nos. A34, 191). The small coin no. 141 has the abbrevated legend *rthštr* (left) *MRKAn MRKA* (right), but nos.

142, A23, A24, etc. have the entire legend (possibly with a few letters omitted on no. 142).

Nos. 174–184 appear to have  $bgy \, {}^{\circ}rth$  (left) *MRKAn MRKA* (right), but are not very legible, and the reading  $\, {}^{\circ}rth$  is open to alternatives:  $\, {}^{\circ}th\check{s}(?)$  no. 177,  $\, {}^{\circ}rt\check{s}(?)$  no. 181.

On nos. 192–193 obv., <sup>2</sup>*rthštr* ends in the center below the bust, and the legend is abbreviated at the end: *MRKA* <sup>2</sup>*yn*(?) *MNW ct* (no. 192), *MRK*<sup>2</sup>*n*(?) *MNc*(?).

Examples:

A14

	crown left shoulder	below bust	ribbons	crown
	n'dzy NM yrtc WNM n'		tr	ygb nsydzm
A14			บเบ	allun 1

	n'dzy NM yrtc WNM n	below bust	rtšht	r'ygb nsydzm
189	ןמאא אנוונריו		11405	ענגען דרחX

	<sup>°</sup> ry <sup>°</sup> AKRM nAKRM
189	עזוחשנורריזי

Poorly executed or abbreviated legends:

No. 124: mdys bgy <sup>3</sup>tštr (?) MRKAA (?) MRKAn <sup>3</sup>yr<sup>3</sup> MNW (etc.)

No. 133: MNW ctry Mryr<sup>o</sup>nd<sup>o</sup>n (?)

No. A17: MRKAn MRKAr<sup>3</sup>r MN<sup>3</sup>ry MN yzd<sup>3</sup>n [*italics* = uncertain]

No. A22: MNW *r*cry MN ywwdz'nn

No. 158: -NW in MNW carved as ct- (approx. **r t**)?

No. A32: MRKAnMRA<sup>3</sup>yr<sup>3</sup>n

No. 212: try/cry for ctry

No. A42: MRKAn MRKA 'n MNWw ctry MNy (end)

No. 217: MRKA 'yn MNW

No. 223: MRKA'rn MN ctr MN yzd' (end; in addition, some letter sequences are mirrored: -zdy:  $\{ \{ 1, -A^2 : \ u \ u, \ ct : \ J \} \}$ 

No. A45: poorly spelled legend: mzdyn<sup>s</sup> (with added superscript -s): "l]lo, 'rthtš:  $\Box C$ ) $t \iota \cup$ , 'nr'MNWcty: ) $\Box J$ ] $\Box \cup t \sqcup$  (with  $c \exists = t$  rotated 180° and  $t = \Box$ ; MNW is literally MWN with -N ] = [ rotated 180°; on the rev. the first  $t \mathbf{F}$  is an upside-down  $\mathbf{t}$ )

No. 233 rev. NWRA ZY: NW- and Z- aligned along the rim, with -W- written to the left (actually to the upper right) of N-

No. 234: <sup>°</sup>rthštrMRKA<sup>°</sup>nMNW... (MNW is written like mzd-)

No. 248: MNWctry looks like MNWMNW, with a clear M for c

No. A43 obv. has the following scrambled legend:

ישזנאנוטונאנאראראראנאנאראנעני (?) אואt is: מולח ניין, that is:

mzdys bgg/<sup>°</sup> rtšht<sup>°</sup>nMRKA<sup>°</sup>yr<sup>°</sup>nMNWt<sup>°</sup>rwMNyd<sup>°</sup>.

Here  $MRKA^2yr^2n$  is written like  $MRRA^2Rr^2n$  (but with  $-n \ \mathbf{\xi} = d$ ), which is usual, and  $t^2rw$  could be read as ctry, with  $c = t \ (\mathbf{\xi})$ , which is common, and assuming that the t is on its back (**U** for **u** for **c**); the remaining mistakes, however, sugges the whole legend is from a scrambled original. The reverse has  ${}^2th {}^{s}tr$ .

Abbreviations:

The following are examples of abbreviations of *mzdysn* and *'rthštr* (obv.): mzysn/mdysn/mzdsn: no. A42, 217; mzdys: no. A43; mzd: no. A44 'rtštr: no. 139; 'rthšr: no. 220; 'rštr: no. 150 obv.; 'rhštr: no. 210.

Haplography of similar sequences:

No. A29: ctryzd<sup>n</sup> for ctr(yMN)yzd<sup>n</sup> (the engraver thought the final -*y* of *ctry* was the initial *y*- of *yzd<sup>n</sup>*)

No. A31: MRK<sup>3</sup>yr<sup>3</sup>n for MRK(A)<sup>3</sup>yr<sup>3</sup>n.

Note also no. 131 in large script: mzsn  $bg^{3}rth$ štr (with h a vertical line).

# Legend 5

# ? VIII/3a: nos. 235-242, A54-60

It has not been possible to decipher the second part of this legend, although several of the letters are clearly legible. Even the first part of the legend may be doubted. Note especially the letter  $\Box$  following *MRKA*(?) on nos. A57–58, which corresponds to 5 vertical strokes on no. A54.

Obverse: left <sup>?</sup>rthštr MRKA X ?? right ?? Reverse: left NWRA ZY right <sup>?</sup>rthštr

	hair ribbons		crown	hat
	A ] K R M n A K R M	Artšhtr <sup>°</sup>		
A54	}אןנעוטה	ヒリビントリ		ΧιφιμΧΧΧμζΥΊμ
245				אראצלאנש X1XXXXXXX
	A ] K R M n A	KRM rtš	htr <sup>°</sup>	
A55	ערמונים ערמונים	valott	XX)))	XXXUXXXX
A57	, <del>بر</del> د	(1) as		
				$(\square III \alpha II \sim X I \alpha X)$
A58	ן א כ	רחי מו		μιιαιιανοιιαχ

The most remarkable feature of these legends is the occurrence of Parthian-type letters on A54. Thus, the letter h on no. A54 (ca. 9 o'cl.) corresponds to p on A55, A57, A58.

The letters **Y**) on A54 could be Parthian kr, br, etc., and **Y** on A54 could be the final -r of  $^{2}rtšhtr$ .

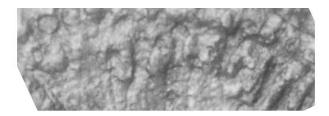
Even more puzzling is the fact that the sequence of letters on A54 (and 245?) to the right of the crown: **ufyju** is remarkably similar to a sequence<sup>11</sup> occurring on the coins of Indo-Parthian king of Sistan, "Farnsāsān" (*II.A.6.4. Münzstätten und Funde;* **pl. 39, E18–20**):



From a coin of Farnsāsān's



Ardashir A54



Ardashir 245

On the reverse, the name is mostly distorted to  $r^2 tht \check{s}r$  (where the **C** could also be interpreted as a raised **U**  $\check{s}$ , and the **U** as a reclining **C** t).

	r	t	š	h	t	r	)
A55	~	J	ч	~	C	1	Ц
A56	2	2	C	ſ	C	IJ	1
A57	ι	L	C	~	Ч	X	ι
A58	~	U	C	L	Ľ	U	1

<sup>&</sup>lt;sup>11</sup> I am not entirely convinced by the reading of this sequence as MLKY(N ...).

# Shapur I

# Legends

The basic legend is like Ardashir legend 4:

Obverse:

mzdysn bgy šhpwhry MRKAn MRKA 'yr'n MNW ctry MN yzd'n mazdēsn bay šābuhr<sup>12</sup> šāhān šāh ērān kē čihr az yazdān "the divine Mazdayasnian King of Kings Shapur, (king) of Iranians, whose seed is from the gods"

Reverse:

NWRA ZY šhpwhry *ādur ī šābuhr* "Shapur's fire"

Additional text is found on no. A51, which, on the reverse, has *mlwy* above the figure to the right. According to Gyselen<sup>13</sup>, this text may not have been part of the original engraving. The legends are typically placed approximately as follows with numerous small variations:

The legen		pround praces approximater	y us follows while humblous si
Obverse:	left below right	mzdysn bgy šhpw hry MRKAn MRKA <sup>°</sup> y r°n MNW ctry MN yzd <sup>°</sup> n	mzdysn bgy šhpwh ry MRKAn MRKA 'yr 'n MNW ctry MN yzd'n
	left below right	mzdysn bgy šhpwhry MRKAn MRKA <sup>°</sup> yr'n MNW ctry MN yzd'n	
Reverse:	left right	NWRA ZY šhpwhry	

# Obverse:

	beak ← left shoulder	bust	ribbons	hood
	n'dzy NM yrtc WNM n'r		wphš	ygb nsydzm
A1	רחזגוגעזג גגער <b>ו</b> צו		Xa~L	מגנטו הנ

	y' AKRM nAKRM yrh
A1	)חחזגטות XXXXX

Reverse:

	y r h w p h š	YZARWN
A1	יראמי~יא	<b>אוד</b> וור
A2	~17190L	ענחונו

Note: *ctry* is apparently written *crry*.

<sup>&</sup>lt;sup>12</sup> The Manichean transcription of the name is  $\check{s}bwhr = \check{s}abuhr$ . The form  $\check{s}ap\bar{u}r$  may go back to an original Middle Persian pronunciation  $\check{s}ah(i)puhr$ , with preservation of the surd *p* as in Pahl. *pahikār*- "struggle," where the *k* is preserved after *pah(i)*-.

<sup>&</sup>lt;sup>13</sup> See p. 360.

	beak	←	left shoulder	bust	hair bun	ribbons	crown
	n ' d z y	NМ у	rtc WNMn <sup>°</sup>		h w p	hš ygb	n s y d z m
A2	LU}	ຸດງເ	sr filoin		rid	لادىر	<b>LN0}\$</b>

	ry <sup>°</sup> AKRM nAKRM yr
A2	זנמזוחןמוזחהו

	crown	left shoulder	bust	hair bun	ribb's	crown
13	$n^{\circ}dzy NM$	yrtc WNMn		y r h w p h š	ygb	n s y d z m
	LU}\$>	รอบเรียงเอง		Οιγιρνμ	ردر	011[10]

	011011101110
13	<sup>°</sup> ry <sup>°</sup> AKRMnAKRM

Large coins:

12	n'dzy NM yrtc WNM	bust	y r h w p h š	ygb	n s y d z m
	נטוזאינטונציום		<b>ゝぃ</b> ~1 ぬ】	ر د	1 21810

12	-	n°ry° AKRMnAKRM
		עווירועווחחנוחו

On no. 83, the engraver mistakenly began m- in the crown and had to repeat it in the usual place.

On the reverse, *NWRA ZY* and *šhpwhry* are only occasionally split: no. 28: *NWR*- and *-hry* above the corners of the altar; *-A ZY* left, *šhpw*- right edge.

### Special features of the Shapur legends

Mirroring and substitution:

Nos. 39, 42 obv. inverted *zdysn bgy šhpwhry* for *MNW* ... *MN yzd* Nos. 74–75 obv. *MN ctry yzd<sup>2</sup>n yzd<sup>2</sup>n* ?? No. 105 (cf. A41) obv. right edge: *-RKA <sup>2</sup>yr<sup>2</sup>n* (3 o'cl.; then uncertain readings) No. 106 obv. right edge: *-An MRKA <sup>2</sup>yr<sup>2</sup>n* (2 o'cl.; then uncertain readings) No. 42 rev. (right edge) inverted *šhpwhry* for *NWRA ZY*.

Noteworthy inversions of adjacent letters:  $ct\bar{y}r$  for  $ctr\bar{y}$  79 (with  $-\bar{y} = \text{final } -y$ ); *MN ctwry*: 160, 162 (161 garbled ditto?).

Haplography of similar sequences:

 $bgy \check{s} \rightarrow \check{s} - A13$ 

On no. 17, *mzdysn bgy* is reduced to *mzy*<sup>2</sup>: סנ כע

No. 119 obv.: the *p* of *šhp*- reinterpreted as  $m > \tilde{s}hMRKAn MRKA MRKA$  (could also be read as  $\tilde{s}hMRKAnpwry MRKA$ !).

**Omissions**: No. 61: MRKA < yr > nNos. 74-75 obv. MN ctry. Dittography: No. 130: 'yr'n n MNW (this legend appears to have been struck over another, or it has been corrected) No. A19: MRKAn MRKAn MRKA. Wrong legends are occasionally found: No. 72: ... bgv M šh- ... No. A51 obv. beginning: MRKAn MRKA bgy šhpwhry Nos. 160-162: MN followed by various corrupt forms of ctry No. 165: garbled MNW ctry. False legends: Nos. 121, 184. By far the most variation is seen in the writing of *mzdysn* and *šhpwhry*. Variations of *mzdysn*: mzdyns, e.g., nos. 155, 166 mzdys, e.g., nos. 40, 64, 72, 90, A30, 98, A34, A41, 134, 154, 172, 180 mzdsyn: no. A3 mzdsn, e.g., nos. A2, A18, A52, 185 mzysn, e.g., nos. 15(?), A13, 27, 62 mzyn(?): nos. 48, 51, A12 mydysn: no. 3. Variants of *šhpwhry* include (the list is not complete): Obv. Rev. šhypwhry: no. 79 *šhphwry*: nos. 250, 171, 155, etc. *šhphwry*: nos. 84, etc. šhphry: no. 123 *šhpwrhy*(?): nos. 173, 243–4 šhpwry: no. 61 šhpwhryh: no. 17 *špwhry*: nos. A2, A21, 83, etc. *šhphry*: nos. 60, 153 šhwrhy: no. 90 šhyyhpwr: no. 98. šhvvvhwrv: no. 123 šh: no. 119 špwhry: no. 81 šphwrh: no. 140 badly distorted: no. 101 On the varying forms of the h's in the sequence h-h, see below. It should be noted that not all of these variants are necessarily (though probably) scribal

errors. Some spellings may in fact represent alternative, acceptable, spellings. Thus, spellings without the first -*h*-: *špwhry*, may reflect the pronunciation *šābuhr* represented by the Manichean spelling *š'bwhr*. The apparently "inverted" spelling -*phw*- for -*pwh*- can conceivably be compared to the common Pahlavi spelling -(<sup>2</sup>)*hw*- for -*ox*- as in *plhw'* = *farrox*.

# Analysis of the letter shapes

The following survey contains details of letter shapes and their distribution. It should be noted that there appears to be little correlation with mints, stages, and types. Significantly diverging forms limited to specific groups are those on Ardashir's early emissions, the much more frequent use of  $\aleph$  (etc.) *h* under Shapur, and some of the more unusual forms of *c* (see below).

Alef

This letter is relatively frequent, being found in *rthštr*, *p*<sup>2</sup>*pky*, *MRKAn MRKA* (*MLKAn MLKA*), <sup>2</sup>*yr*<sup>2</sup>*n* (<sup>2</sup>*ry*<sup>2</sup>*n*), *yzd*<sup>2</sup>*n*, *NWRA*.

The basic shape of the *alef*  $({}^{2})$  is that of two ascenders placed on a base line. The base line may or may not extend (perceptibly) to the left beyond the left ascender ( $\mathbf{L}$ ); it may be mirrored ( $\mathbf{L}$ ); and the lower right corner may be sharp-angled ( $\mathbf{L}$ ) or rounded ( $\mathbf{L}$ ).

#### Ardashir I

Reduced variants include the bowl forms ( $\mathbf{U} \mathbf{U} \mathbf{U}$ ) and two separate strokes:  $\mathbf{U}$ . The form  $\mathbf{U}$  appears in *MRKAn MRKA* (<sup>2</sup>yr<sup>2</sup>n) nos. 31, 37, 55, 152, 247, 253; in <sup>3</sup>*rthštr* (obv.) nos. 149, 152; in *yzd*<sup>2</sup>n nos. 154; in *NWRA* nos. 44, 49; in <sup>3</sup>*rthštr* (rev.) nos. 40, 44, 49, 55, 150, 154, 186, 207, 253; the form  $\mathbf{U}$  appears in <sup>3</sup>*rthštr* (obv.) nos. 31, 41; and the flat form  $\mathbf{U}$  appears in <sup>3</sup>*rthštr* (obv.) nos. 252, 253; *NWRA* no. 148

Shapur I The normal  $\boldsymbol{u}$ ,  $\boldsymbol{u}$  are common in *MRKAn MRKA*,  $yzd^{2}n$ , and *NWRA*.

#### В

This letter is found in BRE (see below) and bgy.

The b in bgy is not much different from the inscriptional b, except that the bottom line is commonly shorter, due to the space confinements.

The lower right angle varies between sharp and rounded: Ard. no. 1: الدا , الدا ; Shap. الدا , ا

#### BR

This combination is found in the word *BRE* on the early Ardashir AI/1 legends, in which the *B* is reduced to a simple line, and the *R* crosses it:  $\Rightarrow = BRE$ .

### G

The letter g is only found in bgy and is typically curved  $\bullet$ , angled  $\dashv$ , or straight  $\iota$ . It is usually cradled inside the b (see on B above).

It occasionally has the sharper angle حم. >: بده (Ard. no. 146), ک (Shap. no. 42).

#### D

This letter is found in *mzdysn* and *yzd*<sup>n</sup>. It is usually of the inscriptional type (3), but the lower foot does not usually protrude very far left (3). In many cases the foot looks "stumped" (3). One common variant has sharper angles 3. Reduced variants are common.

See also on *mzdysn*, below.

Ardashir I

We have the standard form 3, as well as reduced variants (1, etc.). The form with sharper angles (3) is found in *mzdysn* on nos. 37, 41, 46, 152, 154; in *yzd*<sup>2</sup>n on nos. 154, 231, and reversed on no. 224 (5).

Shapur I

Normally **3**, occasionally reduced (**2** etc.).

Ε

This letter  $(\checkmark)$  is found only in the word *BRE* in the early Ardashir A I legends.

# *W*, *R*

This is the most common letter in the coin inscriptions, being found in '*rthštr*, *šhpwhry*, *MRKAn MRKA*, '*yr*'n ('*ry*'n), *MNW*, *ctry*, *NWRA*.

The most common form is the simple wavy form (1), with a more or less rounded lower left corner. The form with a sharp lower left corner (2), similar to standard inscriptional (2), is less common. The letter is often reduced to a barely wavy line or a stroke with a head (1).

Mirrored forms (almost identical with z) are common (**f**).

In NWRA, WR are usually as large as or larger than the N.

Ardashir I

The cornered form 2 is seen in the final r in 'rthštr on the obverse of nos. 12, 15.

Among reduced forms, ) and ) are not infrequent. Simple strokes I are used on no. 158.

Reduced forms are seen in the final r in <sup>2</sup>rthštr on the obv.:  $\land$  nos. 247, 252, 253;  $\neg$  no. 207;  $\cdot$  nos. 31, 210;  $\checkmark$  no. 55.<sup>14</sup>

The standard wavy form ( $\mathbf{l}$ ) is common in NWRA. Exceptionally, the form is stylized to  $\mathbf{J}$  (no. 148).

Note the tilted or horizontal r's in rth in or the reverse on no. 126 (horizontal), 138 (tilted), etc.

Shapur I

Normally 1, occasionally 1 (*NWRA* no. 248).

Ζ

This letter is found in *mzdysn* (see also below), *yzd<sup>2</sup>n*, and *ZY* (see below).

The standard shape of z in *mzdysn*, *yzd*<sup>2</sup>*n* is the common  $\boldsymbol{s}$ , mirrored  $\boldsymbol{l}$ , but the letter is often reduced to a wavy line (often similar to *d*) or a stroke, with or without a "head," and is often indistinguishable from  $w(\boldsymbol{l}) \boldsymbol{a}$ ). The form  $\boldsymbol{s}$  is found on Shap. no. 42 obv., and similar forms are frequent in *ZY* (see below after *Y*).

# Η

*h* is found in rth*štr* and *šhpwhry* (obv. and rev.).

The standard shape of h is a central bulge with handles that are more or less curved  $(\mathbf{A}, \mathbf{A})$ , of which one can be missing  $(\mathbf{A})$ .

It is usually tilted left or right with respect to the base line.

#### Ardashir I

The standard forms all have a central bulge, which varies from almost flat  $(\mathbf{A})$  to a deep bowl  $(\mathbf{A})$ . It is frequently turned up-side-down, often at a slight angle  $(\mathbf{A}, \mathbf{A}, \mathbf{A}, \mathbf{etc.})$ .

On the obverse, h is horizontal when below the bust or ribbons, otherwise vertical, rotated, and mirrored forms are also found.

<sup>&</sup>lt;sup>14</sup> The letters are, in principle, variants of the final  $-\bar{y}$ , so perhaps we should read  $rth\check{s}t\bar{y}$  with missing -r? Only no. 153 has the complete  $rth\check{s}tr\bar{y}$ .

The curve of the handles can be more or less pronounced  $(\land \land \land \land \diamond )$ . Sometimes some or all of the smooth curves are replaced by sharp angles  $(\backsim no. 223 \text{ rev.}, \checkmark no. 152 \text{ rev.})$ . It is found turned upside down  $(\backsim \frown)$ ; standing on end, facing either way  $(\langle \rangle \rangle \rangle \langle \rangle \rangle$ ; and at various angles with the base line  $(\land \land \rangle \rangle$ . The form  $\backsim$ , flattened for reasons of space, is seen on no. 4.

Reduced forms include forms where one or both "handles" are missing ( $\sim \sim \wedge \wedge \wedge \wedge$ ):  $\sim obv.$  no. 24; h rev. nos. 213, 217;  $\sim \sim rev.$  nos. 144, 247, 252, 253; n rev. nos. 139, a(no. 222 rev.); and the generic bowl shape ( $\cup$ ): obv. nos. 135, 142(?), 192, 231, 233, rev. no. A9. The very reduced form  $\langle$  is found on no. 1. The standing forms of  $\sim$  and  $\sim : \langle, |$  and  $\langle, |$ s = w, etc.; note, e.g., no. 218 rev., where the r and h of tuttit rethts r are identical.

Reduced forms with sharp corners include ▶ ▲ no. A2, ♥ (A30 obv.), ♥ (A31 obv.).

We occasionally find h written like *alef*, which may be due to a misunderstanding of the bowl shape(?) or a simplification of the  $\neg$  shape, giving  $h\check{s}$  as  $\neg \neg (no. 211)$ ,  $\neg \neg (no. 212)$ ,  $\Box \neg (nos. A42, A44, 220, 221, 222, A47, 231)$ .

The *h* is sometimes so much reduced in size that it becomes indistinguishable from other reduced letters, e.g.,  $\langle y, w, z \rangle$ . Note Ardashir no. 15: where <sup>2</sup>*rthštr* is written <sup>2</sup>*rrrštr*-(2tull).

Shapur I

The two principal forms are found:  $\checkmark$  and  $\checkmark$  and their variants. The tips of  $\checkmark$  can be more  $(\backsim \circlearrowright)$  or less  $(\backsim)$  curved. Both forms can be rotated and flattened. The inverted forms  $\backsim$  (e.g., obv. nos. 82, 123–125, 163, A47, etc.; rev. 27, A26),  $\backsim$  (e.g., obv. nos. 39, 123, A41) are rare. The curves can be straightened and pointed  $(\backsim, \checkmark;$  inverted  $\backsim)$ . The downstroke of  $\backsim$  can be lengthened:  $\backsim, \backsim$ . The oblique and vertical forms  $\varGamma, \varGamma$  are occasionally reduced to  $\varUpsilon, \varUpsilon, \varsigma, \backsim$ .

The two h's in *shpwhry* (and variants) are most often of the same type, but two different types are also found, e.g.: obv. nos. 10, 13, 132  $\land \diamond \diamond$ , 80  $\land \diamond \circ$ , A47  $\land \circ \checkmark$ , A62  $\land \diamond \diamond \checkmark$ , 163  $\land \circ \circ$ , rev. nos. A3  $\land \diamond \diamond \sim$ , 61  $\rbrace \circ \circ \diamond$ , 64  $\checkmark \circ \circ \diamond$ , 123  $\sim \circ \diamond \circ$ .

Vertical variants are occasionally found on the rev. no. 29  $\varsigma \circ \varsigma$ .

Y

The initial and medial y is typically a mere vertical stroke, sometimes with a slight bend and occasionally with two bends (approximately = z): (()) ) etc.

Final -y is found in *šhpwhry*, *bgy*, *ctry*. On ZY see next.

This is usually a short, more or less curved, stroke, but occasionally we also find the typical epigraphic types  $\uparrow$ ,  $\uparrow$  (Ard. A26 in *ctry*).

Unusual forms and combinations include:  $\Box = -gy$  (Ard. no. A43) and  $\Pi = -rw$  (or two other identical forms), found not infrequently in *ctry* (Ard. no. 221; Shap. nos. 40, A18). See also on *mzdysn*, below.

Ardashir I

ZY

The final -y in ZY is either like the initial and medial y (see below), or, more frequently, is characterized by a more pronounced bend. The bend may simply open left () no. 144) or be still more pronounced, approaching the standard inscriptional forms (n):  $\neg$  nos. 14, 27;  $\neg$  nos. 135, 138, 150, 186;  $\land$  nos. 12, 149;  $\land$  no. 191;  $\land$  no. 218.

Another variant has a lengthened left foot  $(\mathbf{J})$ , e.g., nos. 31, 37, 44, 188, 250, 252; the upside-down form  $(\mathbf{J})$  is also found (no. 211).

Shapur I

The common forms of Z- are  $\boldsymbol{\varsigma}$  and  $\boldsymbol{\sim}$  with variants:

**s** nos. ca. 1–120, occasionally later; common variants include the reclining form  $\checkmark$  and similar caused by the lack of space;  $\land$  ( $\sim$ ,  $\land$ , etc.): nos. ca. 123–185 (no. 152  $\backsim$ ).

# K

There are two standard forms of the k, with or without a base line (3 3 1). Without the base line, the k is similar to the d. It can be mirrored ( $\xi = d$ , e.g., Ard. no. 12 *MRKAn*).

It is often reduced to the form of  $\langle w \rangle$  (**)**.

#### L

An *l* distinct from w/r is found on the earliest emissions of Ardashir, where it is a slender vertical line with a slight bend at the bottom (Jl).

The form  $\frac{1}{2}$  is found in *mlwy* on Shapur I no. A51.

# М

This letter is found in mzdysn, MRKA, MRKAn MNW, MN.

There are two main forms of the *m*: with simply crossed arms to the left ( $\mathfrak{D}$ ) or with a sharp bend in the lower left corner and crossed arms in the upper left corner, without or with a pronounced dimple on the left side ( $\mathfrak{D}$ ,  $\mathfrak{d}$ ). The second type is the one most closely related to the inscriptional form ( $\mathfrak{B}$ ). The forms are not necessarily consistent throughout individual legends.

Ardashir I

Both types are found in one and the same legend. Both can be rotated and mirrored in any direction ( $\boldsymbol{\Sigma}, \boldsymbol{\alpha}, \boldsymbol{\delta}, \boldsymbol{\alpha}, \boldsymbol{\delta}, \boldsymbol{\sigma}, \boldsymbol{\delta}, \boldsymbol{\sigma}, \boldsymbol{\delta}, \boldsymbol{\delta},$ 

The angle between the arms varies from quite sharp to  $180^{\circ}$ , a mere stroke, usually to the left ( $(\mathbf{b}, \mathbf{\Sigma}, \mathbf{D}, \mathbf{b})$ ). Note the inscriptional type  $\mathbf{x}$  on no. 250 and elsewhere.

Rotated and un-rotated forms are found in one and the same legend, e.g.:

no. 10:  $\clubsuit$  in mazdysn and  $\bowtie$  in *MRKA* (but with  $\circlearrowright$  in *MRKAn*); it should be noted that from the viewer's point of view, without turning the coin, the  $\bowtie$  and  $\clubsuit$  are identical

no. 12: to in mzdysn, po and to in MRKAn MRKA

no. 14:  $\alpha$  in *mzdysn*,  $\mathbf{v}$  and  $\mathbf{v}$  in *MRKAn MRKA* (similarly A5)

no. 51: J in mzdysn, J and D in MRKAn MRKA

no. A41: p in MRKAn, **Q** in MRKA.

Shapur I

Only the crossed-end types are found,  $\triangleright$  etc. The shape varies between round and elongated:  $\triangleright$ ,  $\triangleright$ , and the size from very small to large:  $\circ$ ,  $\circ$  etc. The type with flat left line  $\triangleright$ ,  $\rho$  is occasionally found (nos. A26, 94, etc.), as is the type with flat top line  $\forall$  (nos. 29, A15, etc.).

The crossing ends can be oriented in all directions, though left or right are the most common. Straight up  $\mathfrak{F}$  or straight down  $\mathfrak{P}$  are less common than the other variants. Their length varies from large flourishes  $\mathfrak{D}$ ,  $\mathfrak{F}$  to almost nothing  $\mathfrak{O}$ ,  $\mathfrak{O}$ , or nothing  $\mathfrak{O}$   $\mathfrak{O}$ .

The *m*'s in *MRKAn MRKA* are usually like the others, but are often squeezed. All types are found, including  $\mathbf{\delta}$  in *MRKAn* (no. A11).

#### N

The *n* is typically a vertical stroke with a right-angle bend at the bottom  $\mathbf{I}$ , sometimes with an additional curve at the top  $\mathbf{I}$ . The letter can be mirrored and rotated, e.g.,  $[\mathbf{0}$ - in -sn no. 24.

The principal variant is the much shortened form found in *NWRA* (considerably shorter than the *-WR-*):  $\bot$ , which can also be mirrored:  $\lrcorner$ . This variant sometimes has a curved bend rather than a sharp angle ((), which can be turned into a bowl ( $\lor$ ).

See also on *mzdysn*, below.

#### Ardashir I

Other variants comprise forms with bent upper part, looking more or less like  $\langle w \rangle$  (1). It can be reduced to a stroke (1).

The form **§** is seen in no. A2.

The small variant is occasionally found in MRKAn (e.g., no. 152) and <sup>2</sup>yr<sup>2</sup>n (nos. 9, 10).

*NWRA* has the standard form l from no. A2 on, with the reduced forms being quite common:  $\checkmark$ , etc., e.g., nos. 40, 44, 49, 56.

Upside-down forms are also found, e.g., r (no. 224).

Shapur I

S

The *s* fundamentally consists of a left upright and a right part bent in a curve or at an angle. The original form was probably close to  $\mathbf{n}$ , which was changed in two principal ways: roof *over* the left upright ( $\mathbf{n}$ ) or the left upright extended up past the roof ( $\mathbf{n}$ ).

See also on *mzdysn*, below.

### Ardashir I

Variants of types 1 (ח) and 2 (ח, ה, ה; ה no. 27).

The second type has a variant with a much extended (and bent) left leg ( $\mathbf{n}$ , nos. 233, 252) and one with a curved right part ( $\mathbf{n}$ ,  $\mathbf{n}$ ). The form  $\mathbf{n}$  and variants, seen in the present sequence from no. A8 ( $\mathbf{n}$ ) onward, is one of the standard inscriptional forms.

Reduced forms: bowl ( $\cap$  nos. 140, 247), which can be inverted ( $\cup$  nos. 40, 44, 46, 217) and flattened ( $\cup$  no. 256). Note also an upside-down  $\cap$  on nos. 15 ( $\sqcup$ ) and A53 ( $\sqcup$ ).

### Shapur I

s in *mzdysn* ranges from the standard forms of s to reduced forms, which may combine with the following -n into forms indistinguishable from t (see below).

The forms with relatively straight lines ( $\mathbf{n}$ ,  $\mathbf{n}$ ,  $\mathbf{n}$ ,  $\mathbf{n}$ ,  $\mathbf{n}$ ) are most common; forms with distinctly curved lines are rare ( $\mathbf{n}$  no. A25,  $\mathbf{n}$  no. 85), as are the bowl-shaped forms ( $\mathbf{n}$ : e.g., nos. A1, 1, A18). The form  $\mathbf{n}$  is seen on nos. A9, 247.

#### Р

This letter is found in  $p^2pky$  on A I/1 rev. and in *šhpwhry*, obverse and reverse.

### Ardashir I

The *p* in *p*<sup>2</sup>*pky* has the forms  $\boldsymbol{\Sigma}$ , etc., indistinguishable from *m*.

## Shapur I

There are two principal forms of the *p* in *šhpwhry*:

1. without clear crossing ends:  $\mathbf{o}$ ,  $\mathbf{o}$ ,  $\mathbf{v}$ , which may be reduced to a circle  $\mathbf{o}$ 

2. with crossing ends, in which case the form of p is mostly indistinguishable from that of m: usually  $\mathfrak{D}, \mathfrak{D}, \mathfrak{A}$  (e.g., no. 58 rev.).

The forms  $\mathbf{Q}$ ,  $\mathbf{Q}$  (inscriptional  $\mathbf{q}$ ) are usually not used for *m*.

The letter is sometimes simplified to two strokes **)) || ))** etc.

# *c* is found in *ctry*.

The basic form is  $\mathbf{t}$ , which can be reduced ( $\mathbf{t} \mathbf{t} \mathbf{t}$ ) and further become indistinguishable from t (note  $\mathbf{t}$  Ard. no. A49).

The sequence ct in ctry ranges from well-executed individual c and t, via two more or less identical letters, to two relatively undifferentiated strokes.

# Ardashir I

We find basic and reduced forms. Note the variant form of  $\mathbf{r}$  on nos. A18, A20, 252 ( $\mathbf{r}$ ), which presages the form  $\mathbf{r}$  on Shap. nos. 244, A53–59 (below). No. 150  $\mathbf{r}$  (?) = *t* may be an error.

Reduced forms include  $\land$  in  $C \land$  nos. 138, 139,  $\Upsilon$  (no. 148),  $\backsim$  (no. A44),  $\lor$  (no. A50),  $\lor$  in  $C \lor$  [!] no. 224.

There are two special forms, which may be rotated forms of the basic form:  $\mathbf{\alpha}$  (nos. 137, 211, 231), reduced  $\mathbf{\gamma}$  (no. A47) and  $\mathbf{\dot{\gamma}}$  (no. 232), and  $\mathbf{\dot{u}}$  (nos. 129).

### Shapur I

Common forms include **Y**, **b**, **t**, etc.; reduced **t t**. *t*-like forms are also common: **b t**. Examples: **b** no. 134; **b** nos. A1–2, 40; **b** nos. 161, 163; **b** nos. 146, 155; **b** A26, A28; **t** nos. A28, A29; **b** nos. 132, A25; **b** nos. 138, 139; **t** nos. 125, A21.

The **C** type further develops into two remarkable symmetrical forms with or without curvature: **C** nos. 127, 134, 156, 167, 178; **C** nos. 244, A53–59. (This shape is quite similar to the shape of the *c* in, e.g., Ard. no. 252 *ctry*.)

# Š

*š* is found in *rthštr* and *shpwhry* (obv. and rev.).

There are three basic forms of the *š*, of which two are identical with *alef*.

1. with base line extending to one side only ( $\boldsymbol{\mu}, \boldsymbol{\mu}$ , etc.  $\boldsymbol{\mu}, \boldsymbol{\mu}$ , etc.)

2. with base line extending to both sides (44)

3. with no extending base line ( $\Box$ ,  $\Box$ , etc.;  $\lor$ ).

#### Ardashir I

Basic forms and variants of the  $\check{s}$ , either more or less like a ( $\Box$  etc.) or with the base line extending to the right ( $\Box \Box$ ) or both to the left and the right of the two uprights ( $\Box \Box$ ), upside-down  $\blacksquare$  no. 3 rev.); the reduced form  $\bigcup$  is seen on the obverse of nos. 149, 211, 231, and on the reverse of nos. 31, 55, 148, 186; and the form  $\boxdot$  on no. 148.

Shapur I

All three principal forms are common, but especially the form identical with an *alef* ( $\boldsymbol{\bot}$ ,  $\boldsymbol{\bot}$ , etc.) or an inverted *alef* ( $\boldsymbol{\Box}$ ,  $\boldsymbol{\Box}$ , etc.); forms with the bottom line extended to both sides are also found ( $\boldsymbol{\bot}$ ,  $\boldsymbol{\Box}$ , etc.).

Τ

The principal constituents of t are a left leg and a foot and an arm to the right ( $\mathbf{P} \mathbf{L}$ ). The foot and the (straight) arm can be moved and slightly rotated, e.g.,  $\mathbf{K}$ . The left leg can be slightly bent ( $\mathbf{L} \mathbf{L}$ ).

The right bulge is sometimes (at least apparently) disconnected from the left leg, e.g.,  $\mathbf{v}$ , notably in *ctry* on Ard. no. 252 and Shap. A54-A59, where the disconnected variant in some cases may have been misinterpreted as  $\mathbf{lt}$  *wn*.

The bottom line is usually straight, short or long, but sometimes it is at an angle ( $\mathbf{t}$   $\mathbf{t}$ ) or curved ( $\mathbf{t}$   $\mathbf{t}$  Ard. no. A49).

In the reduced forms, the arm and the foot (or arms) are shortened (**t c**).

Ardashir I

The foot can be raised ( $\mathbf{k}$ ), and the arm can be tilted upward ( $\mathbf{k}$   $\mathbf{k}$ ). We also find forms with the arm pointing up and the leg pointing down ( $\mathbf{k}$ ). Finally the arm can be moved up to the top of the left leg ( $\mathbf{c}$ ). The  $\mathbf{c}$  type is more common under Ardashir than Shapur.

The variant with a rounded arm is also found ( $\mathbf{C} \mathbf{C} \mathbf{N} \mathbf{L} \mathbf{N}$ ). On no. A2 the arm is quite short, while the top is lengthened  $\mathbf{k}$  and, on the reverse, bent down to the left  $\mathbf{2}$  to be accomodated next to the top of the altar. The forms  $\mathbf{N} \mathbf{L} \mathbf{N}$  are found on the obverse of nos. 250, 252.

Rounded bottom lines are occasionally found, e.g., **b** no. 13, **b** no. A8.

The reduced forms are common, including some very reduced forms found on early emissions: A I/1  $\wr$  **C**, with a small dot in the position of its right arm; and  $\wr$ , without a dot; A5 obv. **C**. The very reduced form is found occasionally later (1 nos. 15, 29, 188), probably for space reasons.

Note on no. A2 the regular forms  $\mathbf{t}$  (obv.), distorted into  $\mathbf{t}$  and laid down  $\mathbf{z}$  (obv.; followed by  $\mathbf{z} = -r$ )

The two t's in *rthštr* are frequently of different types, e.g., nos. A5 obv., 16 obv. have a narrow **t** t type first t, but a wide  $\Box$ ,  $\Box$  type second t. No. A9 obv. has two  $\Box$  and the rev.  $\Box$  and  $\Box$ .

Occasionally, the  $\mathbf{L}$ ,  $\mathbf{L}$  are reversed:  $\mathbf{J}$  (no. A10),  $\mathbf{J}$  (nos. 124, 147 in *ctry*),  $\mathbf{J}$  (2nd *t* in <sup>2</sup>*rthštr*, no. A25 rev.). It may also be turned on its "back":  $\mathbf{L}$  (no. 124, 2nd *t* in <sup>2</sup>*rthštr*; this legend is not well carved).

Very reduced forms include: C on no. 148 in <sup>2</sup>*rthštr* (obv., rev.) and *ctry*; **1**, **J** in <sup>2</sup>*rthštr* on no. 147 (obv).

Note also the unusually large second  $t \vdash in rthštr$  (obv.) on no. 13.

The group št is most often of the form **L1** with variants, but, occasionally, the š is stood up and the t laid down, making it indistinguishable from **L1** =  $t\tilde{s}$  of which it can then also be regarded as an inversion (no. 218 rev.).

#### Shapur I

The same forms are found: **COTOK**, reduced **II**, as well as *c*-like forms: **CC** (nos. 110, etc.).

#### mzdysn

The group zdy or its equivalent contains three letters ranging from three distinct, well-executed letters, to three (or four) more or less identical long strokes, with "undulation," for instance, **}** (Shap. nos. 83, 84), etc.; **fff**, and sim. (Shap. nos. 119, 120, 126, 143–4, etc., A41–43).

Quite frequently, the *zd* consists of two identical strokes, different from the following *-y-*, e.g., **)}** (Ard. nos. A2, 26). On Shap. no. 43 the sequence is exceptionally abbreviated (or scrambled?): lor o.

Note the unusual length of zd (and the first t of rthštr) going far below the base line on Ard. no. 13.

The final *-sn* ranges from well-executed individual *s* (see below) and *n*, via a combination that is indistinguishable from *t*, to an undifferentiated stroke. *t*-like combinations include  $\mathbf{P}$  (Shap. nos. 83, 84, 140, 177, 180, etc.);  $\mathbf{n}$  (Shap. no. 154);  $\mathbf{n}$  (Shap. no. 178); inverted and upside down:  $\mathbf{\nu}$  (Shap. nos. 17, A53),  $\mathbf{\nu}$  (Shap. no. A49).

Sometimes, the entire group *zdys* consists of a series of identical strokes, e.g., ()))) (Ard. no. 29), but on the whole, under Ardashir, the group is well differentiated.

Other examples:

(Ard. no. 9, etc.), [1>350 and sim. (Shap. nos. 10-11, 29, 37, 79-81, 86, etc.)

[""] לאפן: היא 20 (Shap. no. 42), למ) - (no. 85)
[""] מונו 20 (Shap. no. 80, etc.)
[""] - zddsyn?? (Shap. no. 167; cf. 170 ["]]] -)
["] ["] (Shap. no. 173)
["] ["] (Shap. no. 61)
["] ["] (Shap. no. 98, 123, 177, 180).

Transliteration	Ardashir	Shapur
a/A	<b>הר ה ה ה</b>	ית
	חתת	
	<b>U</b> uv	
b/B	ريد	
BR	+	
g/G	ולנר	
d/D	3317	3321
-/E	て	
w/W	12510-	11
z/Z	152741	Stirs N(in ZY)
h/H	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~
	~~~~	52200
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
	4420	
y/Y	1112772	IFICUUN
<u> </u> $\bar{y}(final)$	7100000	
k/K	31361	=
1/L	]]	L L
m/M	αδαάρ	<u>کەم</u> מ
	b C D C S S	ÐĎ
n/N	1)	=
s/S	ארעט	עתח
	מח	חתר
		v
p/P	90	0000
		ממ
c/C	ピアチレ	79997
	t C	2C
	えま	00
	U	۲C <b>۲</b>
š/Š	11-11-	
	L L L L L L L L L L L L L L L L L L L	U
t/T	2521	DURDER
	CONTORN	L K
	EFFFKEC(	
		6 6 7

Table 1. Select letter shapes.

# I.2. Paleography

Cat.	Туре			]	Lege	nd ol	overs	e	Legend reverse								
		r	t	š	h	t	r	a	ygb		у	k	р	)	р	ygb	ERB
1	A I/1	X	ş	ш	<	ž	5	ч	Ľ		ſ	5	α	Ц	Ø	L,	K
																	+
3	A I/1	X	X	J	3	ľ	1	ע	لعا		Х	X	α	ע	α	لارا	K
																	+
4	A I/1	Χ	ľ	ч	2	۲	2	Ц	E		Х	X	ያ	L	ያ	Ŀ	

# Examples of characteristic letter shapes

Cat.	Туре	Legend obversetšhtaygbs(n)n							Ι	Legend	d rev	erse				
		t	š	h	t	a	ygb	s(n)	m	t	š	h	t	a	Y	Ζ

A2	B IIa/2	٢	Ц	٦	۲	L	الدە	ກ	ά	×	-	7	۲	ىد	ſ	s
8	B IIa/3a	t	L	3	r	L	ענ	П	a	Ŀ	ມ	3	1	L	r	1
9	B IIa/3a	X	L	\$	Ł	L	2	Ы	8	τ	F	₹	Ł	L	~	2
10	B IIa/3a	t	Ц	~	t	L	Lu	П	8	Ŀ	Ľ	7	t	Ц	n	S
12	B IIa/3a	t	L	~	C	J	رد	П	8	t	Ľ	<b>۲</b>	۲	L	~	S
A5	B IIb/3a	C	Ц	3	ľ	L	ردد	Ч	α	t	Ц	۶	t	u	~	~
15	B IIc/3a	t	Ц	٤	2	L	ردا	Ц	8	۲	L	Š	C	Ц	n	s
28	C IIe/3a	r	L	٦	t	U	ردد	מ	ע	Ł	ມ	5	t	u	X	X
31	C IIe/3a	C	U	V	t	ш	Ľ	ກ	α	X	(	~	C	L	J	(

Cat.	Туре			L	Leger	nd ob	verse				L	.ege	end	r e v	ers	e
		M	tc	Μ	t	š	h	t	s(n)	m	t	š	h	t	Y	Ζ
	1															<b></b> 1
A14	C IIIa/3a	Ø	tt	α	t	ш	V	p	n	α	t	L	٢	۲	J	2
A15	C IIIa/3a	σ	۳۲		r	Ц	۲	r	n	Ø	Ł	ע	~	Ł	X	Χ
A16	C IIIa/3a	Ø	77	Ø	r	-	~	r	n	¢	t	L	>	t	<b>^</b>	ι
144	C IIIa/3a	α	۲۲	Ø	t	1	~	Ł	n	α	C	U	2	C	2	l
146	C IIIa/3a	১	r۲	১	p	1	~	p	Ъ	Ø	C	X	X	X		l
148	C IIIa/3a	Q	נץ	δ	¢	3	~	C	ກ	ά	C	v	5	C	X	X
203	B IIIb/3b	a	Շե	α	t	L	S	Ł	J	α	C	L	~	t	X	S
207	B IIIb/3a	Ø	۲Ľ	δ	C	L	3	Ł	ע	σ	C	C	۲	t	X	X
211	B IIIb/3b	ά	tr	۵	t	V	Ц	t	מ	ά	Ľ	ч	S	t	r	l
213	B IIIb/3b	Q	۲۲	α	۲	C	3	۲	ע	α	Ľ	L	5	Ł	)	l
218	B IIIb/3b	b	۲V	Þ	r	ш	5	r	מ	Þ	υ	t	l	t	X	X
A45	B IIIb/3b	α	чJ	Ø	Ц	C	>	t	מ	ά	Ľ	U	~	٢	r	Z
247	C IIIa/3a	α	77	α	۲	ע	Ś	t	0	α	t	ע	N	Ł	٦	S
250	C IIIa/3a	σ	77	ע	p	Ц	۲	ກ	n	Ð	t	ע	λ	t	ر	2
252	C IIIa/3a	১	<b>7</b> 3	ъ	r	ىد	X	ກ	n	Ð	C	ц	L.	t	٦	s

Ardashir

# Shapur

Cat.	Туре	Style			]	Leger	nd o	bvers	e			Leg	geno	d re	vers	e
			M	t c	Μ	h	p	h	š	s(n)	m	h	p	h	š	YZ
A1	Ia/1a	А	ά	ır	α	X	α	~	Ц	n	Ø	<b>ہ</b>	α	~	L	~
A2	Ia/1b	А	8	rV	ά	۲	α	r	ч	n	Q	2	Ø	0	Ľ	٥ſ
A3	Ia/1b	А	ά	۳۲	ά	۲	α	~	لا	U	Ø	~	Q	2	Ľ	XX
1	IIa1/1a	A	X	NN	α	~	q	2	J	^	Q	~	α	~	L	7
A9	IIa2/1(b)	В	Ø	79	α	~	X	X	X	r	x	~	Q	N	ىد	U S
A10	IIa2/1(b)	В	Ø	tt	x	~	α	~	L	n	0	X	α	~	U	บ
11	IIc/1a	Aa	ά	でビ	Χ	~	α	~	L	Π	ð	X	X	Χ	X	٦٢
13	IIc/1a	Aa	ά	۳۲	Ø	~	X	~	X	n	Ø	~	\$	~	L	ىرد
29	IIc/1a	Af	Ð	27	Ð	~	α	Χ	Ц	n	ю	5	q	5		اد
37	IIc/1a	A ind.	Ð	20	σ	~	σ	0	L	U	Ð	~	Ø	~	ш	ى
40	IIc/1a	A ind.	ø	rV	ю	~	0	~	U	ກ	α	<b>^</b>	α	~	ч	<b>)</b> 5
63	IIc/1a	Ea	X	ככ	X	بر	0	$\sim$	U	2	σ	X	X	S	L	د ا
74	IIc/1a	Ef										r	α	۲	L	ی ا
79	IIc/1a	F	α	CC	X	~	¢	\$	L	n	α	X	q	~	L	X
81	IIc/1a	F	8	79	X	~	Ø	0	#	))	୪					
83	IIc/1a	G	o	t۲	8	~	Q	~	X	X	Ø	5	Q	0	L	<b>)</b> 5
84	IIc/1a	Н	0	۲۲	0	X	Q	~	L	r	α	X	X	X	X	X
86	IIc/1a	Ia	α	נע	σ	~	0	~	L	n	Ð	ح ا	σ	~	-	<b>)</b> 5
A26	IIc/1a	Ja	0	56	0	~	Ø	2	L	п	x	S	α	~	X	X
94	IIc/1a	Jb	Ð	۲٦	Ð	~	Ø	~	Ľ	n	₽	X	X	Χ	X	J
A29	IIc/1a	K	8	זמ	8	~	Q	۲	υ	5	Ð	~	Q	~	<b>#</b>	2(
A30	IIc/1a	К	Ð	てて	Ð	2	))	~	Ц	r	o	~	σ	~	-	Ŋ
102	IIc/1a	L	α	でて	Ð	~	))	~	ш	?	Ð	?	?	?	?	رر
116	IIc/1a	Oc	6	た	Ø	と	0	S	ע	X	X	S	Q	S	L	2(
126	IIc/1a	Pb	Ø	b۲	Ð	~	α	~	L	X	0	~	٩	2	X	<b>Ъ</b> Г
143	IIc/1a	Pd1	ά	۲3	X	~	N	~	ע	n	α	~	α	~	ц	<b>~</b>
144	IIc/1a	Pd1	ð	rt	Ø	~	"	~	J	n	σ	~	α	~	Ľ	<b>.</b>
152	IIc/1b	Pd1	α	tr	α	n	))	~	ע	0	α	X	X	X	X	NL
153	IIc/1b	Pe	ά	זר	σ	~	"	~	L	מ	α	~	0	2	υ	<b>N</b> L
155	IIc/1b	Pe	α	Ct	σ	~	Q	~	Ц	מ	α	X	α	N	u	۷۲
156	IIc/1b	Pe	X	こて	σ	2	D	2	ມ	n	ىد	2	α	~	ч	XN
163	IIc/1b	Pg	α	۲N	σ	2	0	S	L	n	q	2	α	2	X	<b>~</b>
170	IIc/1b	Qb	8	27	ð	2	α	2	ч	2	σ	2	X	X	Ľ	XN
A49	IIc/1b	Qd	σ	4r	σ	~	0	~	L	Ч	q	~	0	X	X	<b>~</b>
177	IIc/1b	Qe	ð	27	X	~	X	~	υ	r	ю	~	Q	~	X	۲۲
178	IIc/1b	Qe	σ	۲D	Ð	S	ø	2	υ	r	ø	6	φ	2	X	x~
185	IIc/1b	ind.	α	DC	α	2	11	~	Ľ	ກ	Ø	$\sim$	q	X	X	~
A53	IIc/1c	Та	X	と	α	Х	α	~	ш	ىد	α	r	α	2	L	X