§14. Early Steps in the Decipherment. OP inscriptions and writing are mentioned in a number of ancient authors, from Herodotus onward, and are remarked upon and described by certain modern travelers early in the seventeenth century, who published parts of inscriptions from Persepolis in the accounts of their travels. The first inscription to be published in complete form was DPc, given by Chardin in 1711. Better copies of several were given in 1778 by Carsten Niebuhr, who recognized that the inscriptions were composed in three systems of writing, and that the writing ran from left to right: the direction of the writing was shown by two copies of XPe with somewhat differing line-divisions. O. G. Tychsen in 1798 discovered that the three systems of writing represented three different languages, and that a recurring diagonal wedge in the simplest of the three types was a word-divider; but he wrongly assigned the inscriptions to the Parthian period. Friedrich Münter in 1802 independently identified the word-divider, and thought that a frequently recurring series of characters must be the word for 'king'; he assigned the inscriptions to the Achaemenian period.[1]

§15. G. F. Grotefend of Frankfurt in 1802 applied himself to the problem of the decipherment, and by a comparison of DPa and XPe (in Niebuhr's copies) he made the first real progress. He assumed that the inscriptions were inscriptions of the Achaemenian kings, that they consisted essentially of the names and titles of the kings, and that those in the simplest type of writing were in Persian, closely resembling the language of the Avesta. He was helped by Silvestre de Sacy's recent decipherment of the royal titles in Pahlavi, '. . ., great king, king of kings, king of Iran and non-Iran, son of . . ., great king,' etc., which guided him as to what to expect. To facilitate the exposition, we set the two inscriptions in parallel columns:

DPa	XPe
Dārayavauš :	*Xšayāršā :*
xšāyaθiya : vazraka :	*xšāyaθiya : vazraka :*
xšāyaθiyānām :	*xšāyaθiyānām :*
xšāyaθiya : dahyūnām :	
Vištāspahyā :	*Dārayavahauš :*
	xšāyaθiyahyā :
puça : Haxāmanišiya :	*puça : Haxāmanišiya :*
hya : imam : tacaram :	
akunauš	

Grotefend recognized correctly that the names of two different kings were followed by titles, 'great king, king of kings', and then a third similar title in the one which was lacking in the other; that then followed the name of the king's father, who was the same person in one inscription as the king in the other, and that in the other the father did not bear the title king. He decided upon Darius, whose father Hystaspes had not been king, rather than upon Cyrus, since Cyrus and his father Cambyses had names beginning with the same letter[1] whereas the corresponding two names in the inscriptions began with different characters; he thought the name of Artaxerxes to be too long. Thus he saw in the three names Hystaspes, Darius, Xerxes, in the transliteration of which he used the later Iranian pronunciations:

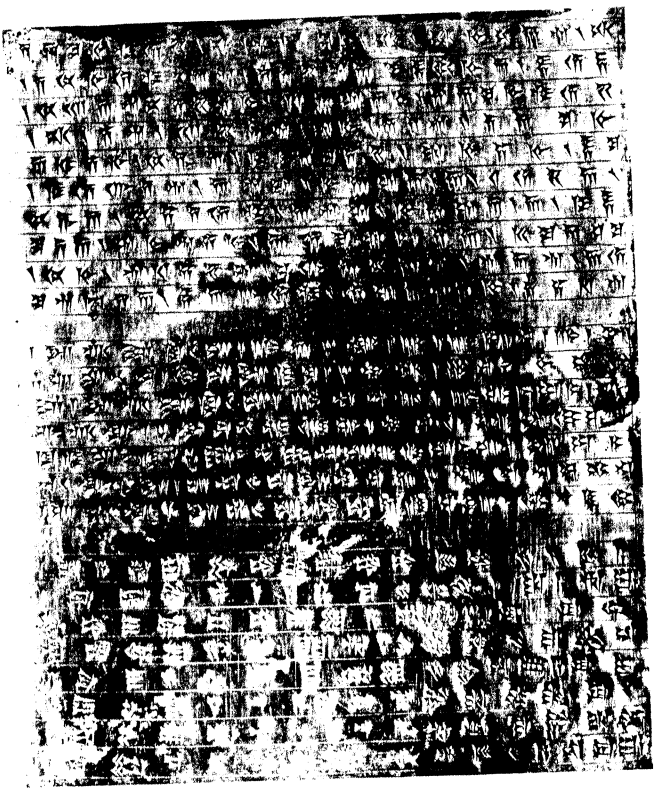
Grotefend							Correct						
g	*o*	*sch*	*t*	*a*	*s*	*p*	*vi*	*i*	*ša*	*ta*	*a*	*sa*	*pa*
d	*a*	*r*	*h*	*e*	*u*	*sch*	*da*	*a*	*ra*	*ya*	*va*	*u*	*ša*
kh	*sch*	*h*	*a*	*r*	*sch*	*a*	*xa*	*ša*	*ya*	*a*	*ra*	*ša*	*a*

Thus he had identified, for all but the inherent *a*, the characters *a*, *u*, *x* (his *kh*), *t*, *d*, *p*, *r*, *s*, *š* (his *sch*), and elsewhere he identified *f*. But his reliance on the later pronunciations misled him sorely, and of the 22 different signs in DPa and XPe he got only 10 correctly, and even for two of these he admitted two values each (*a* and *e*, *p* and *b*). Apart from the three names, 'king' and 'great' were the only words which he identified correctly; later (1815) he identified the name 'Cyrus' in CMa. But the remainder of his read-

[1] A detailed account of these matters and of the further steps of the decipherment is given by Weissbach, Gdr. IP 2.64-72; by E. L. Johnson, Gr. 1-16; by R. W. Rogers, History of Assyria and Babylonia, vol. 1, chapters 1-2.

[1] As it happens, Cyrus and Cambyses do not begin with the same letter in OP, but with k^u and k^a respectively; but Grotefend could have dismissed the Cyrus line on the ground that Cyrus's father and Cyrus's son were both named Cambyses, but the first and the third of the dynasty in these inscriptions bore different names.

PLATE II



THE GOLD TABLET OF HAMADAN

The Limits of the Empire of Darius the Great

showing the three systems of writing of the three versions

Old Persian (top), Elamite (middle), Akkadian (bottom)

Reproduced by courtesy of the Oriental Institute of the University of Chicago

ings, even in these inscriptions, is sorry stuff, and he could never realize in later years that the foundations which he had laid had been built upon and improved.

§16. The Completion of the Decipherment. After a gap of twenty-one years other scholars took up the task, but progress was mainly in identifying individual characters and single words. The notable steps in the decipherment were the following: Lassen in 1836 supplied the vowel *a* after many consonants; that is, he realized that these consonants had an inherent *a*. Lassen in 1839 noted that some characters were used only before *i* and others only before *u*; Rawlinson in 1846, Hincks in 1846, and Oppert in 1847 independently realized that these consonants had inherent *i* and inherent *u*. Oppert at the same time discovered that diphthongs were indicated by *i* or *u* after a consonant with inherent *a*, and that *n* and *m* were omitted before consonants.

§17. Summary of the Decipherment. The detail of the decipherment can best be portrayed in tabular form. For simplicity in composition, I use *c* and *j* rather than *č* and *ǰ*, and as a better representation of the sound I use *ç* rather than *θ*.

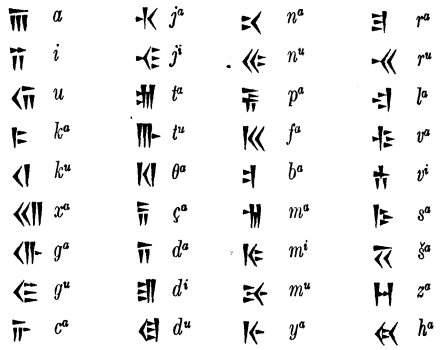
The scholars who participated in the decipherment are indicated by the following abbreviations; the dates of their publications are also given:

B	Beer 1838	L	Lassen 1836 '39 '45
Bf	Burnouf 1836	M	Münter 1802
Br	Brandenstein 1932	Op	Oppert 1847 '51 '74
E	Evetts 1890	Rk	Rask 1823
G	Grotefend 1802	Rl	Rawlinson 1846
H	Hincks 1846	Sc	Scheil 1929
Hl	Holtzmann 1845	SM	Saint-Martin '23 '32
Hz	Herzfeld 1931	Ty	Tychsen 1798
J	Jacquet 1838	W	Windischmann 1845

Number	Present Orthog.	Progress of Decipherment
1	*a*	*a* G 02
2	*i*	*y* SM 23, *i* SM 32
3	*u*	*u* G 02
4	k^a	*k* Bf-L 36
5	k^u	*k* G 15, k^u L 39, *ku* Rl-H 46
6	x^a	*kh* G 02
7	g^a	*g* L 36
8	g^u	*gh* Bf 36, *g'* L 36, *gu* Rl-H 46
9	j^a	*z* J 38, *ǰ* Hl 45
10	j^i	*g'* L 36, *ji* Rl 46
11	t^a	*t* G 02
12	t^u	t^i L 36, t^u L 39, *tu* W 45, Rl 46
13	θ^a	*ζ* L 36, *th* J 38, *θ* L 39
14	$ç^a$	*t'* L 36, *thr* L 45, *tŕ* Rl 46
15	d^a	*d* G 02
16	d^i	d^i Hl 45, *di* Rl-H 46
17	d^u	d^i L 36, *du* Rl-H 46
18	n^a	*n* Rk 23
19	n^u	*nu* Rl 46
20	p^a	*p* G 02
21	f^a	*f* G 02
22	b^a	*b* Bf-L 36
23	m^a	*m* Rk 23
24	m^i	*'m* L 36, m^i L 39, *mi* Rl-H 46
25	m^u	*mu* Rl 46
26	y^a	*y* B-J 38
27	r^a	*r* G 02
28	r^u	*sr* G 15, r^u J 38, *ru* Rl 46
29	l^a	*l* Op 51
30	v^a	*w* L 36, *va* Rl-H 46
31	v^i	*v* SM 23, *vi* Rl-H 46
32	s^a	*s* G 02
33	$š^a$	*sch* G 02
34	z^a	*z* Bf-L 36
35	h^a	*h* B-J 38
		Ideograms and Ligature
36	*XŠ*	'König' M-G 02
37	*DH*	'Land' L 45
38	*BU*	'Erde' L 45
39	*AM*	'Ahuramazda' Op 74, E 90
40	*BG*	*baga* 'god' Sc 1929
41	*AMha*	*Auramazdā* Sc 1929, *Auramazdāha* Br 1932 (cf. Hz 1931)
		Word-divider
42	:	Ty 1798

§18. The Old-Persian Syllabary. The inscriptions composed in the Old Persian language are inscribed on various hard materials in a syllabary, each character having the value of a vowel or of a consonant plus a vowel. To the 36 characters of this nature must be added 5 ideograms (§42), one ligature of ideogram and case ending (§42), the word-divider (§44), and numerical symbols (§43).

SYLLABARY



IDEOGRAMS

WORD DIVIDERS

the cuneiform syllabary of Akkadian, but its simplicity as compared with its parent syllabary shows that it has been specially drawn up for its present purpose. There is no conclusive evidence how the Akkadian characters were utilized and how the new characters received OP values; though several scholars have advanced theories.[1]

It is uncertain also when this Old Persian system of writing was invented. The extant inscriptions are largely those of Darius I and of Xerxes, and it is tempting to ascribe the invention to the orders of Darius when he wished to record the events of his accession, on the Rock of Behistan; but there are three inscriptions of Cyrus, as well as one each purporting to be of Ariaramnes and of Arsames. These last two may have been set up as labels to small monuments or other objects of a later period;[2] the orthography points to approximately the time of Artaxerxes II.[3] Of the inscriptions of Cyrus, one is very fragmentary, and the other two are brief labels; yet as they were inscribed in the palace which belonged to Cyrus,[4] at Pasargadae (Murghab), they show that the OP cuneiform syllabary existed and was in use in Cyrus's time.[5]

§19. THE SYLLABIC CHARACTERS OF OP number 36, including the following:

3 vowel-signs: *a i u*

22 consonant-signs with inherent *a*:
k^a x^a g^a c^a j^a t^a θ^a ç^a d^a n^a p^a f^a b^a m^a y^a r^a l^a v^a s^a š^a z^a h^a

4 consonant-signs with inherent *i*:
j^i d^i m^i v^i

7 consonant-signs with inherent *u*:
k^u g^u t^u d^u n^u m^u r^u

A close transcription of the cuneiform, when desirable, will be given by keeping the inherent vowels as raised letters; but for most purposes a normalized transcription (§45) will be satisfactory.

§20. THE ALPHABETIC ORDER OF NORMALIZED OLD PERSIAN, as employed in this volume, is the following: *ă ĭ ŭ k x g c j t θ ç d n p f b m y r l v s š z h*. The transcription here used differs in

[1] For a critique of these theories, see Wb. KIA lv–lx.
[2] Ariaramnes was great-uncle of Cyrus and great-grandfather of Darius I; Arsames was son of Ariaramnes and grandfather of Darius. Note that the two inscriptions are both on gold tablets and found at or near Ecbatana (Hamadan) in Media; though the two kings are spoken of in them only as 'king in *Pārsa* = Persis', which was quite distinct from Media. They may have been set up in the time of Artaxerxes II as part of an anti-Cyrus propaganda, since Cyrus the Great had dethroned Arsames, and Cyrus the Younger came very near defeating and killing Artaxerxes II at Cunaxa (cf. JAOS 66.206–12). The gold tablet A²Hc may have been a third in the same series; all three are in Old Persian only.
[3] Cf. especially Schaeder, SbPAW 1931.636–42.
[4] They are hardly to be ascribed to Cyrus the Younger, despite Wb. ZDMG 48.653–65 (cf. also KIA lxvii–lxix) on CMa, which alone was known to him; for the opposing view, cf. Hz. Klio 8.1 ff.
[5] Though perhaps not much used by him. The other three known inscriptions of Cyrus the Great are in Akkadian; but Strabo 15.3.7–8 (page 730), on the authority of Onesicritus, states that the tomb of Cyrus at Pasargadae bore at least two inscriptions, one being bilingual, Greek and Persian. We need attach no importance to the identification of the languages by Onesicritus, but the account indicates that Cyrus had inscriptions engraved in more than one language; in which case it is unlikely that his own vernacular was omitted. Cf. JAOS 66.206–12; but also Hinz, ZDMG 96.343–9.

some points from that used by certain other scholars in recent years, as follows:

ā also *á* (KT, Scheil).

ī ū *i u* without mark of length (KT, Wb., Scheil, Mt., Bv.).

x *kh* (KT), *ḵ* (Wb.), *ḥ* (Kg., Brd.), *ẖ* (Hinz).

c or č *ǩ* (Wb.).

j or ǰ *ǧ* (Wb., Scheil), *ž* (Hz., Hinz).

θ or þ th (KT), *ŧ* (Wb., Hinz), *ţ* (Scheil).

ç *tr* (KT), *θ̊* (Tm., Hz.), *r̊* (Wb.), *s͡s* (Bv.),[1] *ṡ* (Kg., Brd., Hinz).

f *p* (Wb.).

y v *j w* (Kg., Brd.).

Some scholars also regularly indicate omitted *h* and *n* by raised letters or by letters in parenthesis, or the omitted *n* by a tilde over the preceding vowel. A few other variations are found, but it is hardly worth while to list them.

§21. The Representation of *a* in OP Writing. The character *a* at the beginning of a word represents either *ă* or *ā*, and decision must be made on etymological and morphological grounds. Elsewhere in the word the character *a* is used only after an *a*-inherent character, the value being *ā*; thus $n^{a}am^{a}a$ = *nāmā*. When the *a*-constant is immediately followed by another consonant, or is final, the *a* of the consonant either represents *ă* or has no value at all; thus $d^{a}r^{a}š^{a}m^{a}$ = *daršam*. For *a* or *ā* in diphthongs, see §24: for final *ă* written *ā*, see §36.

§22. The Representation of *i* and *u* in OP Writing. OP *i* is normally represented by the character *i* initially, and medially by the character *i* preceded by an *i*-consonant, or, if there is no special *i*-consonant character for the consonant sound, by the *a*-consonant; thus im^{a} = *ima*, $j^{i}iv^{a}$ = *jīva*, $p^{a}it^{a}a$ = *pitā*.

OP *u* is similarly represented; $ut^{a}a$ = *utā*, $k^{u}ur^{u}uš^{a}$ = *Kūruš*, $p^{a}uç^{a}$ = *puça*.

Thus the difference of short and long in *i* and *u* is not represented in the script, except in the way indicated later (§23), of rare occurrence; and where there is no special *i*-consonant character or *u*-consonant character, there was no means of indicating the difference between *ĭ* and the diphthong *ai*, and between *ŭ* and *au* (§24).

[1] Bv. Gr. §105 uses this transcription to indicate a strong sibilant; not a long sibilant, since Iranian shortened all long consonants (§130).

The *i* is occasionally omitted after an *i*-inherent consonant, and the *u* after a *u*-inherent consonant; there are the following examples, in the normalization of which we indicate the omission by printing the inherent vowel as a raised character:

v^{i}θbiš DB 1.65 and other forms of the same word; so always in DB, but *viθ-* in other inscriptions.

V^{i}štās-pa -pam -pahyā, always in DB, in some DS inscriptions, and in those of Artaxerxes II and III; but *Vištāspa* etc. elsewhere.

Arm^{i}niyaiy four times in DB; also *-min-*.

j^{i}va-diy A^{2}Sd 3; but *jīva*, *jīvahyā*, *ajīvatam*, *jīvā* twice each, in inscriptions of Darius and Xerxes.

M^{i}θra, *M^{i}tra*, and also *Mit[ra]*, in late inscriptions.

[Uvāra]zm^{i}ya A?P 8; *Vahyav^{i}šdāpaya* Sd.

Nabuk^{u}dracara DB 1.78f, 84, 93; but more often *Nabukudracara*.

Kud^{u}ruš DB 2.65.

Sug^{u}da DPe 16; but *Suguda* DB 1.16, DNa 23, *Sugudā* DSf 38, and *Sugda* XPh 21, *Sugdam* DPh 6, DH 5. With $s^{a}ug^{a}d^{a}$ alongside $s^{a}ug^{u}ud^{a}$, cf. $f^{a}r^{a}h^{a}r^{a}v^{a}m^{a}$ = *fra-haravam* DB 1.17, alongside the usual $h^{a}r^{u}uv^{a}$ = *haruwa* (DB 1.40, etc.).

The *i* is omitted after an *a*-inherent consonant, three times in inscriptions of Darius, and four times in those of Artaxerxes II; we may indicate this by a raised *a*:

Bāb^{a}rauv DBi 11; elsewhere *Bābirauv*.

barāt^{a}y DB 5.22f; but *baratiy* DNa 42.

Haxāmaniš^{a}ya DSa 2f, A^{2}Sd 2 (copies a and c); *Haxamāṇ^{a}šiya* A^{2}Sa 3; for the common *Haxāmanišiya*.

ab^{a}yapara A^{2}Sa 4, for **abiyaparam*.

apan^{a}yākama A^{2}Sa 3, and presumably *[n^{a}yā]kama* A^{2}Sa 4.

§23. Written Indication of Length of *i* and *u* was at most sporadic, and is not absolutely certain even where it seems to be meant. Since final *i* and *u* were written *-iy^{a}* and *-uv^{a}*, whether long or short (§§37–8), it is only in other positions that indication of length can be sought.

I. Apparently *-iya-* in the interior of words contracted to *-ī-*; there are the following examples:

niyašādayam DNa 36, and *nīšādayam* XPh 34f.

niyaštāya DSn 1, XPh 50, XV 21, and *nīštāya* XPh 52f.

abiyajāvayam XPg 9, and *abījāvayam* XPf 40.
nīyasaya DNb 5, 46, 49, probably for **niyayasaya.*
[a]tīya[si]ya DB 4.91, perhaps for **atiyayasiya.*
marīka- DNb 50, 55, 59°, cf. Phl. *mērak*, Skt. *maryaka-*; see Lex. s.v.

Perhaps in the verbs the longer writings should be normalized *nīyjāvayam*, etc., with *-iyᵃ-* = *-īy-* graphic for *-ī-*; but this cannot be definitely proved, for the uncontracted forms of these verbs may have survived alongside the contracted forms, by the analogy of the uncompounded forms **ajāvayam*, etc., where contraction was impossible.

II. For *uwᵃ* = *ū*, there is better evidence; cf. the following:
ūvnarā DNb 45, 51, *ūvnaraibiš* DNb 48, cf. Skt. *sūnára-*.
uwᵃjᵃ uwᵃjⁱiyᵃ = *Ūvja Ūvjiya* many times, alongside *ujᵃ ujᵃiyᵃ* = *Ūja Ūjaiy*; cf. later *Huž.*
dahyūvnām DPh 2, DH 1f, alongside many occurrences of *dahyūnām.*
parūvnām DNa 6, 7, DSe 6, 7, A²Pa 6, 7, alongside many occurrences of *parūnām.*
The last word gives the clue to the origin of this usage: asn. *paruw* for **parŭ* was the source of the orthography in the wrongly divided *paruw : zanānām* (§44; five occurrences), as well as in the undivided *paruwzanānām* (XPb 15f, XPd 11), alongside the correct *paruzanānām* (DE 15f, XE 15f), with *ŭ*; thence this script passed into the gen. pl. *parūnām*, where the *ū* was long, giving *parūvnām*; whence also the gen. pl. *dahyūnām* became *dahyūvnām.* But initially, in *Ūvja* and *ūvnarā*, the usage must rest on an over-pronunciation in the process of analysis for reduction to writing (§46).

§24. The Diphthongs were indicated initially by the *a*-character + the *i-* or *u*-character; medially and final, by the *a*-consonant + the *i-* or *u*-character (for final diphthongs, see §§37–8): *aivᵃmᵃ* = *aivam*, *aurᵃa* = *Aurā*; *dᵃivᵃa* = *daivā*, *tᵃumᵃa* = *taumā*; *nᵃiyᵃ* = *naiy*, *hᵃuvᵃ* = *hauw.*

Long diphthongs could not be indicated initially, as distinct from short diphthongs, but were indicated in non-initial position by the writing of the *a*-character to show length: *aišᵃ* = *āiš*, but *fᵃrᵃaišᵃyᵃmᵃ* = *frāišayam*, *dᵃhᵃyᵃaušᵃ* = *dahyāuš.*

Ambiguities of interpretation are present where there are no special characters for the *i*-inherent or *u*-inherent consonants:
cᵃišᵃpᵃišᵃ = nom. *Cišpiš* and gen. *Cišpaiš*, whence for distinction also a writing *cᵃišᵃpᵃaišᵃ* = *Cišpāiš* is found for the gen.
-tᵃiyᵃ = act. *-tiy*, mid. *-taiy*, personal ending of the third singular.
pᵃuçᵃ = *puça*, but would represent also *pauça* if such a word had to be written.

§25. Postconsonantal *y* was written as *-iy-*; thus *anᵃiyᵃ* = *aniya*, Skt. *anyás*; *dᵘvušᵃiyᵃarᵃmᵃ* = *dušiyāram* 'famine', from **duš-* + *i̯ār-* 'year'. But *hy* was not written *hiy*, since *i* was not normally represented after *h* (§27, where a few variant writings are listed).

An important regular exception is the relative pronoun and article *tya-*, always written *tᵃyᵃ-* = *tya-*, and never *tᵃiyᵃ-* = *tiya-*. The reason for this is that the nom. sg. masc. and fem. were *hya* and *hyā* (Skt. *syás syá*), in which an *i* could not be written (§27); and the other forms, using the stem *tya-*, followed their model in this point: thus nom. masc. *hya*, fem. *hyā*, nt. *tya*; acc. *tyam tyām tya*; etc.

§26. Postconsonantal *v* was written *-uw-*: thus *hᵃrᵘuwᵃ* = *haruwa*, Skt. *sárvas*; *θᵃuwᵃamᵃ* = *θuwām*, Skt. *tvām.* In *fᵃrᵃhᵃrᵃvᵃmᵃ* = *fraharavam* (for *fra-haruwam*) there is an exceptional orthography. But as *h* was not written before *u*, the *huw* from *hv* was written merely *uw* (§28).

§27. The Combination *hᵃi* was peculiar, since it could normally be used only for the value *hai*, not for *hi*. In representing *hi*, whether the *i* was an etymological vowel or only a part of *hiy* for *hy* (§25) or for final *-hi* (§37), the *i* was normally omitted in writing: *anᵃhᵃtᵃ* = *Anahᵃta*, Av. *Anāhitā-*; *dᵃhᵃyᵃaušᵃ* = *dahyāuš*, Skt. *dásyu-*; *hᵃyᵃ* = *hya*, Skt. *syás*; *pᵃrᵃibᵃrᵃahᵃyᵃ* = *pari-barāhy*, Skt. *bhárāsi*; *hᵃzᵃanᵃmᵃ* = *hᵃzānam* DB 2.74, Av. *hizvā-*. Before an enclitic, the *-y* of *-hy* for *-hi* disappeared: *paribarāhᵃ-diš* DB 4.74, cf. *paribarāhy* 78; *vikanāhᵃ-diš* DB 4.77, cf. *vikanāhy* 73. Rarely, the *hᵃ* is omitted and the *i* is kept: *aišᵃ-tᵃtᵃa* = *aʰištatā* DB 1.85, cf. Av. pres. *hištaite.* Both types of writing are exemplified in *maniyāhay* DPe 20, *maniyāiy* XPh 47, for *maniyāhaiy.*

By exception, *hᵃi* is written in the value *hi* normally in the place name *hᵃidᵘušᵃ* = *Hiⁿduš*

and its forms, and in its ethnic $h^{a}id^{u}uy^{a}$ = *Hi^{n}-duya*; and once in $an^{a}h^{a}it^{a}$ = *Anahita* A^{2}Sd 3f. Occasionally there are writings with $h^{a}iy^{a}$ for *-hiy-* in words which are normally written $h^{a}y^{a}$: such are:

$a\theta^{a}h^{a}iy^{a}$ = *aθahiya* XPh 18; elsewhere *aθahya*.

$d^{a}r^{a}y^{a}h^{a}iy^{a}a$ = *drayahiyā* XPh 23; elsewhere *drayahyā*.

$ah^{a}iy^{a}ay^{a}a$ = *ahiyāyā* XPb 17, XPd 12, XE 17, and in some copies of XPj; elsewhere *ahyāyā*.

$X\check{S}y^{a}h^{a}iy^{a}a$ = *XŠyahiyā* apparently in some copies of XPj; elsewhere *XŠyahyā*.

§28. The Combination $h^{a}u$ also was peculiar, since it could be used only in the value *hau*, as in $h^{a}uv^{a}$ = *hauv*. In indicating *hu*, the h^{a} was always omitted, and only the *u* written: $ub^{a}r^{a}t^{a}m^{a}$ = *^{h}ubartam*; $p^{a}t^{a}ip^{a}y^{a}uv^{a}a$ = *patiyapaya^{h}uvā*, cf. Skt. *-yasva*; $an^{a}iy^{a}auv^{a}a$ = *aniyā^{h}uvā*, cf. Skt. *anyā́su* + *ā*; $d^{a}ar^{a}y^{a}v^{a}u\check{s}^{a}$ = nom. *Dārayava^{h}uš*, $d^{a}ar^{a}y^{a}v^{a}h^{a}u\check{s}^{a}$ = gen. *Dārayavahauš*.

§29. The Persistence of Vowel *r̥* into OP[1] makes difficulties in the normalization. The normalized form of some words containing r^{a} is certain: thus $g^{a}r^{a}m^{a}$- in the month-name *Garma-pada-* might theoretically be *grama-* or *garama-* or *gṛma-*, but is actually *garma-*, a form assured by etymological cognates. The name $ar^{a}\check{s}^{a}am^{a}$ is *r̥šāma*, though the characters might equally well stand for *Aršāma*; and those who would normalize with *r* as a vowel, write *'ršāma*, using the sign for the glottal stop to represent the character which elsewhere has the vowel value *a*. But in $\theta^{a}r^{a}m^{a}i\check{s}^{a}$ we have no clue to the vowel of the first syllable; it may be *θarmiš* or *θaramiš* or *θṛmiš* (though hardly *θramiš*, since *θr* became *ç*). To avoid the necessity of making decisions in cases where there is no evidence, the normalization here employed is *ar* alike for phonetic *ar* and for phonetic *r̥*, and for those instances where we do not have proof of the value, which may also be *ara* or *ra*.

The problem confronts us wherever we find three successive consonants of which the first has inherent *a* and the second is r^{a}; wherever we find initial *a* + r^{a} + a consonant; and wherever we find at the end of a word the r^{a} preceded by an *a*-inherent consonant. The evidence which may determine the phonetic value consists of the following kinds:

I. The evidence of etymological comparison: since OP *r̥* comes only from older *r̥*, it is testified to by correspondence with *r̥* or its products in other languages; notably (1) with Skt. *r̥*, (2) with Av. *ərə* (Av. *arə* normally represents earlier *ar* from pIE *er or ar, el ol al*).

II. The evidence of later Iranian: the development of the sounds into Pahlavi and into Modern Persian and its dialects may show the distinction between older *ar* and *r̥*. Thus *r̥* appears as NPers. *ir* after dental and guttural sounds, and as *ur* after labials, but *ar* regularly keeps the *a*-quality, and does not become *ir* or *ur*.

III. The evidence of borrowed words: OP words appear in Elamite with *ir* or *ur* for *r̥*, and with *ar* for *ar*; but there are occasional inconsistencies. There are also some borrowed words in Armenian, and a few in Arabic (from Pahlavi), which have differences reflecting the distinction in OP between *r̥* and *ar*.

IV. But sometimes the various items of evidence contradict one another, and then a decision must be made as to which line of evidence is stronger.[2]

§30. Old Persian *r̥* seems to be established in the following words; in many instances, fuller listing of evidential forms will be found in the Lexicon:

artācā = *r̥tācā*, Elam. *ir-ta-ha-ci*; so also in *artāvā*, *Artaxšaçā*, *Artavardiya*, by the Elamite transcriptions.

Aršāma = *r̥šāma*, Elam. *ir-ša-ma* and *ir-ša-um-ma*; so also in *Aršaka*, *Aršādā*.

aršṭām = *r̥štām* by etymology, see Lex. s.v.

aršṭiš = *r̥štiš*, Skt. *r̥ṣṭí-*, Av. *aršti-* (*r̥* > Av. *ar* before *št*), NP *hišt* (*h-* is a later accretion); so also *aršṭibara*.

avahar[da] = *avahr̥da*, Skt. *ava-sr̥jat*.

uwāmaršiyuš = *-mr̥šiyuš*, Av. *mərəθyu-*, Skt. *mr̥tyú-*.

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[1] On this subject, MB Gr. §93; on the development of *r̥* into Avestan, see Reichelt, Aw. Elmb. §109.2.

[2] Greek *ερ* is not conclusive evidence for *r̥*, despite *κέρσα* = *karša-* and *Σμέρδις* = *Bardiya*, both with *r̥* (§30); cf. *Ἰνταφέρνης* = *Vi^{n}dafarnā*, with *-ar-*, and *Ἀρσάμης* = *Aršāma* and *Ἀρταξέρξης* = *Artaxšaçā*, both with *r̥* by the Elam. testimony, despite Gr. *αρ-*. Several Greek transliterations of place-names have *αρ* for Persian *ar*: *Παρθία* = *Parθava*, *Σαγαρτία* = *Asagarta*, etc.

karta- = *kṛta-*, Skt. *kṛtá-*, Av. *kərəta-*; NPers. *kärd* has *-är-* by analogy to other forms of the verb *kar-*.

karnuvakā = *kṛnuvakā*, cf. Av. present stem *kərənv-*.

karša- = *kṛša-*, Elam. *kur-ša-um*.

agarbāyam, *āgarbīta* = *-gṛb-*, Skt. *agṛbhāyat*, Av. *gəurvayaṭ*.

θāigarcaiš = *-gṛc-*, Elam. *sa-a-kur-ri-ṣi-iš*.

Dādaršiš = *-dṛš-*, Skt. *dádhṛṣi-*, Elam. *da-tur-ši-iš* (once *da-tar-ši-iš*).

adaršnauš = *-dṛš-*, Skt. *ádhṛṣṇot*.

parsāmiy = *pṛsāmiy*, Skt. *pṛcchā́mi*, Av. 3d sg. imf. *pərəsaṭ*; and other forms of the same verb.

Bardiya = *Bṛd-*, Elam. *bir-ti-i̯a*.

Parga = *Pṛga*, NPers. *Purg*, Arab. *Furj*; despite Elam. *par-rak-qa*.

marta- and *-barta-*, ptcc. to roots *mar-* and *bar-*, = *mṛta-* and *-bṛta-*, Skt. *mṛtá-* and *bhṛtá-*, Av. *mərəta-* and *bərəta-*.

vi-mardatiy, Skt. *mṛdáti*.

varnavalām and other forms, = *vṛn-*, Skt. *vṛṇo-*, Av. *vərənav-*.

Varkāna = *Vṛkāna*, Elam. *Mi-ir-qa-nu-i̯a-ip* 'Hyrcanians', Phl. MPers. *Gurgān*, Gk. Ὑρκᾶνιᾶ.

vardanam = *vṛj-*, GAv. *vərəzāna*, LAv. *varəzāna-*, Skt. *vṛjána-*; see Lex. s.v.

ardata- 'silver', Av. *ərəzata-*; Yezdi *ālī* 'silver', from earlier *ard-*, is not necessarily evidence for OP, since Yezdi is a Kurdish dialect; Skt. *rajatá-* also has a different initial.

partara- 'battle', Av. *pəšana-*, Skt. *pṛtana-*.

§31. Old Persian *ar* seems to be established in the following:

By the Elam. writings: *Arxa* (or *Araxa*), *Arbairā-*, *Armina*, *Asagarta*, *Parθava*, *Fravartiš* (also Phl. *fravartīkān*), *Marguš*, *Marduniya*, *-vard-* in *Artavardiya*, *Vidafarnā* (also Av. *x"arənō*), *Vidarna*, *Sparda*, *haumavargā*: many of these confirmed also by Greek forms, etc.

By the Avestan and Skt. cognates: *atar*, Skt. *antar*; *garma-* in *Garmapadahya*, Skt. *gharmá-*; *θard-*, Av. *sarəd-*; *darga-*, Av. *darəga-*, Skt. *dīrghá-*; *baršnā*, Av. instr. *barəšna*; *martiya*, Skt. *mártya-*.

ardastāna- 'window-frame', Elam. *har-da-iš-da-na*.

tarsatiy with Iran. *tars-* because of NPers. *tärsäδ*, despite Av. *tərəsaiti*, from *tṛs-*, both with IE suffix *-sḱe-*; but Skt. *trásati* from **treseti*.

cartanaiy: the *c* shows that a front vowel formerly stood immediately after it; therefore *car-* from **cer-* from **ker-*.

Karkā, Gk. Κᾶρες, Κᾶρικοί; Elam. *kur-qa-ap* seems to have no evidential value.

[va]rtaiyaiy, if identical with Skt. *vartaye*; see Lex. s.v. *vart-* for reff.

§32. Old Persian *ara* seems to be established in the following:

By cognates in Skt. and Avestan: *apataram*, *aparam*, *para*, *hamarana-*, *partaram*, and the verbal nouns *-kara-* and *-bara-* as second elements of compounds.

By Elamite and other transcriptions: *Arakadriš* (or *Ark-* ?), *Arabāya*, the final of *Nabukudracara*.

arasam impf. of pres. stem *rasa-* (*-sa-* from **-sḱe-*), NPers. *rāsäm*; despite Skt. *ṛccháti* from **ṛ-sḱeti*.

arašaniš, Skt. *aratnís*; see also Lexicon.

daraniya-, Av. *zaranya-*, Skt. *hiraṇya-*.

§33. Old Persian *ra* after consonants seems to be established in the following:

After *f θ x*, since *p t k* in Iranian became the corresponding voiceless spirants before another consonant (*θr* became OP *ç* but remained in Median, §78): *fra-* as prefix, Skt. *pra*, and all words beginning with *fra-*; *Miθra*; *xraθum*.

By transliterations: *Patigrabanā*; *-dra-* in *Nabukudracara*; *Zraka*, Gk. Δραγγιάνη.

fraštam in *u-fraštam u-frastam*, ptc. to root seen in Lt. *precor*, keeping strong-grade vowel.

brazmaniya, Elam. *pir-ra-iš-man-ni-i̯a*.

vazraka, a disputed word; see reff. in Lexicon.

§34. Old Persian graphic *ar* of uncertain value. OP graphic *ar* cannot be evaluated with certainty in the following:

Ablaut grades uncertain: *Ardumaniš*, for which the Elam. transcription is lacking; *duvarθim*; *[da]rtanam*, in which the restoration and formation are both uncertain.

Adequate cognates lacking: *arjanam*, *θarmiš*.

§35. Old Persian *ar* before *y* and *v*. In this position OP *ṛ* cannot be demonstrated with certainty. In all instances, graphic *ar* is followed by

iy or *uw*, precisely as though the *r* were a consonant. In some words there is testimony to the value *ar*.

I. The sequence *-ariy-* is found in *Ariya* (and compounds), where Elam. has *har-ri-ia*, proving phonetic *ar* and not *r*: and in the middle *amariyatā* to root *mar-* 'die', the passive *abariya* to root *bar-* 'bear', and the passives *akariya akariyatā kariyaiš* to root *kar-* 'do, make'. The corresponding Skt. forms, in the 3d sg. impf., are *amriyate, abhriyate; akriyate*; but the OP forms from root *kar-* cannot have this vocalism, since the product would be **axriya-*. In this verb then there was in these forms a vowel between the *k* and the *r*: either a full vowel or the reduced vowel (shwa secundum or ə), which assumed the full value of a short vowel in Indo-Iranian. It is likely that the other two verbs had the same formation. Thus there is no sure support for the sequence *ṛi* in OP.

II. For OP *-aruw-* we find the following examples:

haruwa-, once written *fra-haravam*; Skt. *sárva-* shows that this has a full vowel, as does also Gk. ὅλος.

paruwam (and derivatives), corresponding to Skt. *pūrva-*, which had *ṝ*; this became *ar* in Avestan, so that here there is Iran. *arv*.

aruwāyā and *aruwastam* probably have *arv-*, since the Elam. transcribes *aruwastam* with *har-va-as-tam*.

Gaubaruwa = *barv-*, on the evidence of Elam. *kam-bar-ma*, or *-baruw-* on the added evidence of Akk. *gu-ba-ru-'*, Gk. Γωβρύης.

§36. Old Persian final *ă*.

I. OP final *ă* was written with the sign of length; that is, with addition of the separate character for *a*: $ut^{a}a$ = *utā*, Skt. *utá*; $-c^{a}a$ = *-cā*, Skt. *ca*; $m^{a}r^{a}t^{a}iy^{a}h^{a}y^{a}a$ = *martiyahyā*, Skt. *-asya*.

II. But graphic final *ā* represents regularly also any absolutely final *ā* or any *ā* followed by an unwritten minimal final consonant (§40): $p^{a}it^{a}a$ = *pitā*, Skt. *pitā́*; *napā* = *napā́t*, Skt. *nápāt*; abl. *Pārsā* = *Pārsāᵈ*, Skt. abl. *-ād*; npf. *tyā* = *tyāʰ*, Skt. *tā́s*.

III. Any graphic final *ă* represents the *ă* with an unwritten minimal final consonant: $ab^{a}r^{a}$ = *abara* for *abaraᵗ*, Skt. *ábharat*, or *abaraⁿ*, Skt. *ábharan*; $h^{a}y^{a}$ = *hya* for *hyaʰ*, Skt. *syás*; $t^{a}y^{a}$ = *tya* for *tyaᵈ*, Skt. *tyád*; $p^{a}i\check{c}^{a}$ = *piça* for *piçaʰ*, Gk. πατρός.

IV. Occasionally a graphic final *ă* represents final *ă* without a following consonant, especially if there is close syntactic connection with the next word; this is almost confined to the genitive ending *-ahyā* = Skt. *-asya*:

a. Regularly in the *-ahyā* genitive of the month name, before *māhyă*: *Viyaxnahyă māhyā* DB 1.37; other examples 1.42, 96; 2.26, 36, 41, 56, 61, 69, 98; 3.7f, 18, 39, 46, 63, 68; and restored in 1.89, 3.88.

b. Sometimes in other genitives standing before the nouns on which they depend: *Uvaxštrahyă taumāyā* DB 4.19, 4.22, e.7, g.9f (but *-hyā* DB 2.15f, 2.81); *Nabunaitahyă puça* DB 3.81, 4.14, 4.30, d.5f, i.7f (but *-hyā* DB 1.79); *Halditahyă puça* DB 3.79; or with which they agree: *Aurahyă Mazdāha* XPc 10 (cf. §44); *haruwahyāyă būmiyā* DSb 8f (but probably *-yāyā* DSf 16, 18).

c. Four times before an initial vowel, all in one short passage (DB 3.38–51): *Vahyazdātahyă aja* DB 3.38f, 3.46; *āhată agarbāya* DB 3.49, *āhată Uvādaicaya* DB 3.51 (*āhatā* often); in none of which the syntactic connection is close.

§37. Old Persian final *i* was always written with added y^{a} (§46): $am^{i}iy^{a}$ = *amiy*, Skt. *ásmi*; $as^{a}t^{a}iy^{a}$ = *astiy*, Skt. *ásti*; this includes the diphthong *-ai*: $v^{a}in^{a}t^{a}iy^{a}$ = *vainataiy*.

But final *-hi*, which would be expected to give $-h^{a}iy^{a}$ = *-hiy*, must be written $-h^{a}y^{a}$ = *-hy*, since $h^{a}i$ is almost never written for *hi* (§27): $am^{a}h^{a}y^{a}$ = *amahy*, for **as-masi*; $v^{a}in^{a}ah^{a}y^{a}$ = *vaināhy*.

§38. Old Persian final *u* was always written with added v^{a} (§46): $p^{a}r^{u}uw^{a}$ = *paruw*, Skt. *purú*; $an^{u}uw^{a}$ = *anuw*, Skt. *ánu*; $b^{a}r^{a}t^{u}uw^{a}$ = *baratuw*, Skt. *bháratu*; $h^{a}uw^{a}$ = *hauw*.

§39. Old Persian Nasals before consonants were omitted in the writing, except before *y* and *v*; such omitted sounds may be represented by raised letters in the normalized transcription, when desirable: $h^{a}t^{a}iy^{a}$ = *haⁿtiy*, Skt. *sánti*; $k^{a}b^{a}ujiy^{a}$ = *Kᵃᵐbūjiya* 'Cambyses', see Elam., Akk., Gk. transcriptions in Lexicon; $b^{a}d^{a}k^{a}$ = *baⁿdaka*, Phl. *bandak*; $k^{a}p^{a}d^{a}$ = *Kᵃᵐpaⁿda*, Elam. *qa-um-pan-taš*.