writing makes considerable difficulty in their identification; but \( j^* d^* m^* v^* + i \) show diphthongs, since there are special characters \( j^* d^* m^* v^* \) which are used before the monophthongal \( i \). Further, \( kai \) and \( gai \) mark original \( oi \) or \( ai \); for \( cai \) and \( jai \) result if the original diphthong was \( ei \) (§88).

*êiti \( \text{‘he goes’}, \) aítìy, Stkt. èti, Gk. ètì.

*ne-ìd \( \text{‘not’}, \) OP nàiy, Av. nòd, Stkt. nèd, cf. Lt. ne- in nescio ‘I don’t know’.

*oiyos \( \text{‘one’}, \) OP asm. aìvám, Av. nsm. aévó, Gk. (Hom.) òos ‘lone’.

*moì ‘to me’, OP maìy, Stkt. me, Gk. mou.

Also raináhy, Stkt. ind. vénati; hainá, Stkt. séná; oita, dwaiśtam, gaidhám, naibam, -aiy, -śaiy, tyaiy.

For \( ai \) graphic for a before y, see §48; for \( -aiy \) graphic for final -ai, see §37; for \( kri = hai \) and not \( hi \), §27.

§70. The PIE Short Diphthongs in u, namely \( eu \) or \( au \), all became PAr. au, which remained in OP,\(^1\) but became Av. ao or \( āu \), and Stkt. \( o \); they remained essentially unchanged in Greek, and appeared in Latin as \( ū \) or \( au \) respectively. These diphthongs are less frequent of occurrence than the i-diphthongs, and the distinction of them from one another is more difficult because of the lack of obvious evidence. But in OP, a diphthong is definitely proved by the use of an a-inherent consonant before \( u \), if there is a corresponding u-inherent consonant \( (k \, g \, t \, d \, n \, m \, r) \); and as \( k \) and \( g \) would be palatalized before original \( e \) (§98), the \( au \) after \( k \) or \( g \) must be from pIE \( ou \) or \( au \).

suffix -nu- in OP kunautiy ‘he makes’, Av. kornauti, Stkt. kr̥n̥t̥i.

*leukos-, OP rawa ‘day’, Av. raocō, Stkt. rocass- ‘light’.

*dhróghos, OP drauga ‘Lie’, Av. draoṛō, Stkt. drógha-s.

OP kaufa ‘mountain’, Av. kaofō; gauṣā ‘two ears’, Av. gauṣā; tavmā ‘family’, Av. tavamān-; hauv ‘this one’, cf. Gk. ṣv-r̥s.

For au graphic for a before y, see §48; for -auv graphic for final -au, see §38; for \( k\text{-}u = hau \) and not \( ku \), §28. An apparent \( au \) is often for \( a\text{-}u \), as in Aحارmandā, Av. Akhrō Mazdā, Stkt. āsura-s; nom. Dārayavahus, but gen. Dārayavaahauu.

§71. The PIE Short Diphthongs \( ai \) and \( au \) always develop like pIE \( ai \) and \( au \), from which they can be distinguished only by etymological considerations; they originated only as zero-grades of long diphthongs. Similarly, pIE \( ae \) became PAr. \( a \) before \( i \) or \( y \) of the next syllable.

An almost certain example is seen in the present stem paya- (apayaiy ‘I protected’; pati-payawā ‘do thou protect thyself?’) as a variant of pa- (pāw ‘may he protect’, etc.); since pa- seems to be the normal grade (on the testimony of Sanskrit also), then paya- must be for *po-īe-.

Similarly, if the zānau- of a-zānautiy ‘he satisfies’ (cf. further zero-grade in zēnā ‘satisfied’) is an extension of root zānā- ‘learn’ (from *gnō-; see Lx. s.v. zānāv-), it must stand for *gnau-.

§72. The PIE Long Diphthongs appear in OP as \( āi \) and \( āu \), corresponding to the short diphthongs \( ai \) and \( au \); they are easily identified by their writings, except when they are initial, in which position they are ambiguous with the short diphthongs. There are the following occurrences:

wāi̯paśiyām ‘his own’, cf. waipaśiśiyāyā with the short diphthong (see Lx. s.v.).

root *ei- ‘go’, augmented in āīs ‘he went’, where āi is proved by the compound ati̯-āīs ‘he went past’.


Thaīparasiś, gen. sg. of month-name, with vṛddhi (§§125–6) in the first syllable; etymology uncertain.

nom. dāhyauś, acc. dāhyavum ‘province’, with lengthening of the diphthong of the stem in these case-forms.

But āi in gen. Ciśpaśiś and Ciçixratiś is only graphic, cf. §179.IV; aniyāwā, maśkāwā are for *d̥-wā, = Skt. -āsu + enclitic -a; Paśiśiyawādāyā is probably for Paśiśiyā-wādāyā.

§73. The PIE Stops in Proto-Aryan: The two PIE stops underwent certain general changes in the passage into Proto-Aryan, as follows:

I. The pIE palatal stems became pAr. sibilants (śh ñ źh).
II. The pIE labiovelars lost their labialization, and with the pIE velars formed a new series of velars (q gh g gh).

III. The new series of velars split into two series, according to the nature of the following sounds: palatal (ē ēh ēh ţ), if standing before pIE š t ̂ (j); velars (k kh g gh), if standing before other sounds.

IV. In pInd. (and also separately in Proto-Greek), the prior of two aspirated stops standing in the same word and separated by at least one vowel lost its aspiration; this formulation is known as Grassmann’s Law. Examples are to be found in §75.III, §76.III, §101. Though this change did not take place in pAr. nor in Iranian, it is cited here to facilitate the proper understanding of Sanskrit words and forms in which it has operated.

V. It is to be remembered that at virtually all times the old general process which worked in pIE continued to operate: that this formulation was z became voiceless if they came to stand before voiceless stops or s, and voiceless stops and s became voiceless if they came to stand before voiceless stops or z.

VI. From the pIE stops, therefore, pAr. had the following stock of sounds:

<table>
<thead>
<tr>
<th>Labial Stops</th>
<th>p ph b bh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Stops</td>
<td>t th d dh</td>
</tr>
<tr>
<td>Palatal Sibilants</td>
<td>ʃ ʃh ʃh ʃh</td>
</tr>
<tr>
<td>Palatal Stops</td>
<td>ć ěh ěh ěh</td>
</tr>
<tr>
<td>Velar Stops</td>
<td>k kh g gh</td>
</tr>
</tbody>
</table>

§76. The pIE Stops in Proto-Iranian: In the passage from pAr. to pIr., the products of the pIE stops underwent certain additional general changes:

I. The voiceless stops p t ē k, if standing before a consonant, became voiceless spirants f ŋ s x, unless an Aryan sibilant preceded.

II. The voiceless aspirates, if standing after a sibilant, lost their aspiration and became p t ē k respectively; otherwise they became voiceless spirants f ŋ s x.

III. The voiceless aspirates lost their aspiration, and became identical with the voiced non-aspirates: b d g g.

IV. Details, including the developments of the palatal sibilants and the additions to and exceptions from these general formulations, will appear in the following paragraphs; it is to be noted that ī is the only consonant before which the pAr. palatal can develop.

§75. The pIE Labial Stops in OP: By the formulations in §73 and §74, pIE p will appear as OP p usually, f before consonants; pIE ph will be OP f, but p after s; pIE b and bh will be OP b. The common representations of these sounds in other languages are:

pIE p, Skt. p, Av. p and f, Gk. π, Lt. p, Gmc. f, BS p.

pIE ph (a rare sound), Skt. ph, Av. f and p, Gk. φ, BS p.

pIE b, Skt. b, Av. b, Gk. β, Lt. b, Gmc. p, BS b.

pIE bh, Skt. bh, Av. b and w, Gk. φ, Lt. f- and -v, Gmc. b, BS b.

I. OP p:

pIE *peri, OP pari, Av. pairi, Skt. pāri, Gk. παι.

pIE *potē and *potēr, OP pilā, Skt. pilā, Gk. πάλα, Lt. pāler.

pIE *pullā, OP puṣa-, Av. puṣra-, Skt. putra-, Osc. puclio-.

pIE *apo, OP apa-, Skt. ápā, Gk. ἀξώ.

pIE *ṇpōt-s, OP napā, Skt. napāt, Lt. nepōs.

OP gen. शपा ‘by night’, Av. žṣap-, Skt. kṣap-.

II. OP f from pIE p before consonant:

pIE *pro, OP fra- as prefix, Skt. prā, Gk. πρό.


There is no identifiable example of OP f from pIE ph; OP kava- ‘mountain’, Av. kavo-, seems to have no cognates outside Iranian.

III. OP b is mostly from pIE bh; for pIE b was an extremely rare sound, and its only probable occurrence in OP is in ā-bīg-na-, second component of Bagābigna-, if this is a participle to the root in Skt. bija- ‘seed’ (see Lex. s.v.).


pIE *bhrātē and *bhrātēr, OP brātā, Skt. bhrātā, Lt. frater.

pAr. *abhī,1 OP abī, Skt. abhī.

pIE *u-bhō and -bhōu ‘both’, OP ubā, Skt. ubhā ubhāu, Gk. ὑβα, Lt. am-bō.

1 Conflux of pIE *u-bhī and pIE *obhī, see Lex. s.v. abī.
In some words OP b, though from pIE bh, corresponds to Skt. b, because Grassmann's Law (§73.1V) operated in Indic:
pIE *herrgh- ‘be high’, in Bardiya-, baršān-, brazmaniya-; see Lex. s.vv.

IV. Combinations of the labials with following consonants, other than r, chance to be rare in OP; there is however *ap-bhīs > *abhiś > OP abīś ‘with the waters’ (JAOS 62.269–70; §73.5, §130). For p in sp from pIE ḱh, §96; for b in zb from ḱhy, §91; for f from sy in Vi-da-farnah-, §118.4.

V. OP b p f are in some instances not traceable to pIE forebears or are definitely borrowed from outside sources; such are pīrū- ‘ivory’, sīr-kabru- ‘carnelian’, naihā- ‘good’ (only in Iranian), and many place and personal names, such as Pirāna ‘Nile’, Putīya- ‘Libyan’, Bābiruṣ ‘Babylon’, Arābdya ‘Arabia’, Arbāārī- ‘Arbalai’, Vṛtrā- ‘Uphrates’, Nādirabai ‘Nindintu-Bel’, Navukudraca ‘Nebuchadrezzar’.

§76. The PIE DENTAL STOPS in OP: By the formulations in §73 and §74, pIE t appears as OP t usually, but as θ before consonants; pIE th becomes OP θ, but t after s; pIE d and dh become OP d. But θ from pIE t before consonants underwent additional changes in some combinations, which will therefore be reserved for §§77–82. The usual correspondences of the pIEdentals in other languages are the following:
pIE t, Skt. t, Av. t and θ, Gk. τ, Lt. t, Gmc. Ḟ, BS t.
pIE th, Skt. th, Av. θ and t, Gk. θ, Lt. f- -d- -b-.
pIE d, Skt. d, Av. d and δ, Gk. δ, Lt. d, BS d.
pIE dh, Skt. dh, Av. d and δ, Gk. θ, Lt. f- -d- -b-, BS d.

I. OP t from pIE t:
pIE *ute, OP utē, Skt. utā, Gk. Hom. ὑ-τε ‘like’.
pAr. *tanū-, OP tanū- ‘body’, Av. tanū-, Skt. tanā-.
pIE *pōtē, OP pōtā, §75.I; pIE *bhrātē, OP bhrātā, §75.III.
pIE *gēto-, OP kartā-, Skt. kṛtā-.

II. OP θ from pIE th:
pAr. *yathā, OP yātā, Skt. yathā; so also OP ava-bā.
OP mauθ-, Āhiyābāuṣna-, gaiṭā-, āvāṣa-, mīthā-, see Lex. s.vv.
OP rāxātāu, an inv. of entirely unknown connections.
OP t from pAr. th after s, in OP stā- (see Lex.), Av. stā-, Skt. sthā-, from pAr. sthā- (evidence for the aspirate is lacking outside Indic; cf. Gk. Dor. τ-στα-, Lt. stā-re, oCS stā-tē).

III. OP d from pIE d:
pIE insep. prefix *duś- ‘ill’, OP duṣ-, Av. duṣ-, Skt. duṣ-, Gk. ὑπ-.
pIE *dyutī- ‘second’, OP āvṛtiya-, Skt. āvṛtiya-
OP d from pAr. dh from pIE dh:
pIE *dhē- ‘put’, OP adā ‘he created’, Skt. ādhat.
OP ba’daka ‘subject’, to pIE *bendh-, §75.III.
OP hadā ‘with’, Skt. sahā, from pIE *sm-dhe-; same suffix in avadā, īdā, ada-kaiy.
With Skt. d from pIE dh by Grassmann’s Law (§73.IV):
pIE *dgho- in OP ha-dugā- ‘inscription’, see Lex. s.v.
Reduplicated forms of pIE *dhē-, OP ada-dā, Skt. ādaḥśāt.
Reduplicated personal name, Dādarśi- = Skt. adj. daṛghṣī- ‘bold’, to pIE *dhers- seen in OP adāṁnas ‘he dared’, Skt. ādhyenot.
IV. On pIE t before a consonant, §77–§82; on other special developments of non-final dental stops, §83; on final dentals, §84; on dental + dental, §85; on OP θ and d from pIE palatal stops, §§87–8.
V. There are also numerous instances of OP t and d which are not traceable with certainty to IE origins, or are demonstrably borrowings from non-IE sources. Among these are taka- ‘shield, round hat’ in taka-bara-, tacara- ‘palace’, dipi- ‘inscription’ (see Lex. s.v.), spūda- ‘army’ (only in Iranian), inv. ražhāv of uncertain meaning; and personal and place names such as Atamaita- (Elamite), Nadilbāvara (Semitic), Ufratu- ‘Euphrates’, Katpatuka ‘Cappadocia’, Tigrā- ‘Tigris’, Putāya- ‘Libyan’, Dātwaḥya-, Daha-, Dubāla-, Mudriya-, Aṭurā, etc.
§77. pIE t before consonants became the voiceless spirant θ in pIr.; but further changes also took place, cf. §§78–§82.
§78. pAR. tr, from pIE tr and tl, became (except after a spirant, §79) pIr. θr, which persisted in Av. and in Med., but became a sibilant in OP; it is transcribed by θ, and apparently was a sound intermediate between pure dental s and palatal s. Examples:
pIE *pulo-, OP puça- ‘son’, Av. puθra-, Skt. puθrā, Osc. puθlo–.
pIE *potos (not original, but a later remade form), OP puθa, Av. puθrō, Gk. ἐπόσ; gen. of OP potā ‘father’.
pAr. *hstram ‘kingdom’, OP xiṣaθam, Av. xyaθram, Skt. ksatrām; but Med. tr in Xšaθra, the name assumed by the Median rebel Phraortes.
Av. ṁtār- Ṁṛ- ‘fire’, seen in the OP month-name Āçiṇḍyayī- and probably in the personal name Āçiṇa (despite the fact that Āçiṇa was an Elamite).
Av. cītra- ‘seed, lineage’, OP ciça-.
Skt. mitra- ‘friend’, borrowed into Iranian as epithet of a divinity, and eventually his name; in OP, written Mītra- M'rā- M’rā-, miça- in derivative ha-miça- ‘united (in conspiracy)’, miça- in personal name Va’u-miça- (= Skt. *vasu-mitra-; see below). The variant orthographies represent in part differences of dialect, and in part the variant pronunciations of a foreign word incompletely assimilated to the phonetic pattern of the dialects in which it was being used.
That the product of pIR. th was in OP a sibilant is shown by the orthography of borrowed words. Thus the ç of Ciça’taxma is represented by š in Elam. ši-iš-ša-an-tak-ma (the tr of Akk. ši-it-ša-an-tak-ma is based on the Median form of the name, since he was a native of Sagartia in Media). Note also the following:
OP *Ciça-farnā, Gk. Τυσα-φωρη, Lycian cibṣ-prīnā.
OP Vau-miça for -miça (see above), Elam. ma-um-ši-ša, Akk. ū-mi-ši-si; while Akk. mi-il-rī corresponds to the non-OP Mītra- or M’rā-.
OP Āciyadiya-, Elam. ha-iš-ši-ja-ja-iš.
OP Čašir, from Elam. šu-sa-an, whence also Akk. šu-ša-an.
On ç from pIE kl in niy-açāryam ‘I restored’, see §94.
§79. pAR. tr after spirants (including the sibilants) appears unchanged in Avestan. This seems to have been the development also in Median, as in the name of the Mede Uvaxštra- ‘Cyaxares’, Elam. ma-ak-iš-ša-ta-ra, Akk. ú-ma-ku-iš-tar. The name of the northeastern province Baetria, Gk. Bäcrépa, likewise shows a non-OP form in Bāṣtriš, Elam. ba-iš-ta-ri-iš, Akk. ba-ab-tar; but a pure OP *Bāksiš or *Bāčiš is attested by the alternative Elam. ba-ak-ši-iš. Finally, OP uša-bāri- ‘camel-born’, by comparison with Av. ušra- ‘camel’, shows that in OP, even after a spirant or a sibilant, tr became θr and then ç, and that after š the ç was assimilated to that preceding š.
§80. pIE *dī became regularly (§77) pIR. *dī, which survived in Avestan and in Median, but became *dī in OP:
OP xātā-‘king’, from pAR. *kšātā-; a word of the Median officialdom.
OP haššyam ‘true’, Skt. satyām.
OP wā-pašiyā (see Lex.), Skt. maṭhayā ‘death’. OP wā-pašiya ‘belonging to one’s self’; from pAR. *paṭi̯ā- (see Lex.).
OP anušiya ‘follower’, from *anu-ti̯ā-.
The preposition abhi seems to be a sandhi doublet of abhi; see Lex. s.v.
For the retention of t in tyā and its forms, see Lex. s.v.

§81. pIE *tyā became regularly (§77) pIR. *thu, which remained in OP with the writing thuvā = thuvā:
pIE *tyē + acc. -m, OP thuvām, Av. thuwm, Skt. tvām.
pAR. kruṭu- etc., Skt. kruta- etc., Av. xrutu- xrutu- xrutu-, OP (with generalized θ) acc. xrutām.

§82. pIE *tn became regularly (§77) pIR. *thu, which remained in Avestan but became OP šn; thus the pIR. *araθu- aratan- gave Av. dual arāθā, but OP arāθus- and (with extension of the š) araθan- ‘cubit’, in inst. pl. araθaniš (see Lex. s.v. araθan-). For raθnā and barθnā, see §96, §120.

§83. Other Developments of Non-Final Dental Stops.
1. pIE *tn became pIR. *n- (shortening of -nu-, §130), as in pIE *yeid-ne-, OP vaināmīy ‘I see’, Av. 3d sg. vaṇāna; cf. the same root with nasal infix (instead of nasal suffix) in Skt. vināḍī ‘he finds’, and in OP Vīḍā- ‘farman- ‘Intaphermes’ (see Lex. s.v.; -n- proved by Gk., Elam., Akk. transliterations).

II. In two words θ is found where d is expected:
OP dhāwanah ‘bowman’, where Skt. has dh in dhāwan- ‘bow’;
OP spāda- ‘army’, in the name of the Medes Taxmispāda, but with θ in its apparent derivative spādmaina- ‘camp, war’. No likely solution of this variation has as yet been suggested.

III. The province name Katpatuka shows an unassimilated -tp-, established by the Elam. and Akk. equivalents; the name is non-Iranian and has not been remodeled to the Iranian or Persian pattern of clusters.

§84. Final Denticles were weakened and did not appear in the writing of OP. After a they remained in the pronunciation sufficiently to prevent the writing of the vowel as long (§36.iii): OP abara ‘he bore’, Skt. abhara; OP 3d pl. abara, Skt. abharau, for *ēherant. After θ, it is likely that they disappeared entirely, for hyāparam seems to be abl. *hyēd + aparam, and the crisis indicates a previous loss of the -d.

Final -d disappeared after r, as in the encl. OP -ciy, Skt. cid, pIE *rid; OP naiy ‘not’, Av. nōḍ, from *ne + id. After u the final t seems to be retained as š in OP akunauš ‘he made’, adaršauš ‘he dared’, Skt. dhrṇot dhrṇnot; but this š is better taken as an extension of the s of the aorist, after which -t would be lost. The prefix ud ‘up’, which appears unchangeable before a vowel in ad-apatata ‘he rose up (in rebellion)’, suffers complete assimilation of the d in uzma- ‘stake’ (from *ud-zma-), and became us- in us-tašaušā ‘staircase’ in the dental cluster (§85).

For the sandhi combination of final d with initial c, see §105.

§85. The Dental Clusters lst(h) and dd(h) (§58.d) properly lost the prior dental by dissimulation, and in fact do have this development in Iranian and in Greek; but in Indic they in most instances lost the sibilant and in Italic the second dental, through analogies of various kinds. Thus their usual developments are the following:
pIE tšt, Av. OP st, Skt. st, Gk. sτ; Ls. ss.
pIE tsth, Av. OP st, Skt. sth, Gk. oθ, Ls. ss.
pIE ddž, Av. OP zd, Skt. dd, Gk. θ, Ls. (no certain examples).
pIE ddz, Av. OP zd, Skt. ddh, Gk. oθ, Ls. ss.

Further changes of analogue nature took place in a number of these combinations, especially that the participle to a root in dh, which has -ddh- from -dh-t-, often remade this in

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1. Cf. the similar difference in development in Latin, where -d was kept after short vowels, as in ad, sed, id; but was lost after long vowels, as in suprā, sē, Graeco, Old Latin suprād, sēd, Graeco.

2. Cf. Kent, Lg. 8.18-26; Emeneau, Lg. 9.232-6.
Iranian and Greek, to the more familiar *lst- (from *d-lt- and *d-lt-).

There are the following examples in OP:

posti- ‘foot-soldier’, from *posti- from *ped-ti-. 
asašanā- ‘staircase’, from *asṭ- from *ud-te-. 
arvastam ‘activity’, in form an abstract *avat- 
tam (becoming *lst-); but see Lex. s.v.
basta ‘bound’, ptc. to PIE root *bhendh-; there-
fore *bhendh-to > *badzhha- (Skt. badhha-), 
replaced by *bastā- in Iranian.
gasta- ‘evil’, ptc. to PIE root in Av. ganti- ‘stench’, 
Skt. gandha- ‘odor’, with similar replacement of 
*daih- by *lst-.

azā adv. ‘known’, Skt. addhā ‘thus, truly’, from 
pAr. *adzhha-.

Aurā-mazādā ‘Ahuramazda’, from *ma(n)adzhā-s, 
see Lex. s.v.

§86. The PIE PALATAL STOPS k ̣kh ̣gh ̣gh become 
sibilants in pAr., ś ̣ṣ ś ̣ṣ ̣h ̣zh; the voiceless aspirate 
was very rare and may be omitted from the following 
discussion. PAr. ̣ṣ ̣ṣ ̣h ̣zh appeared in 
Skt. as ś (often transcribed ṣ), j, h; in Av. as s, 
z, z, since voiced aspirates lost their aspiration in 
pIr. There was a double representation in OP: 
θ and d in pure OP, s and z in words borrowed 
from Median (other developments in some clusters, §89–97). In the centum branches of 
IE, these sounds developed precisely like the 
pure velars (§98).

§87. PIE ̣kh BEFORE VOWELS, unless preceded 
by s, became OP θ, Med. s:
pIE *ken-s- in OP aškāh-1 ‘I said’, Av. root 
śkh-, Skt. śg-, Lt. pres. cīnseō.
pIE *mek- ‘destruction’, in OP vi-nādhagatiy ‘he 
injures’, Lt. noet, Skt. nāśāyati.
pIE *mak- in OP māviśā ‘greatest’, Av. māskiśa-
longest’, Gk. μικάρος.
pIE *ak- in OP aška-ga- ‘stone’, Av. aswya-; cf. 
asan- ‘stone’ with Med. s, in nom. asā, and 
possibly in Asa-gartha- (see Lex. s.v.). Cf. also 
acc. asmānam ‘sky’, Av. asman- ‘sky, stone’, 
Skt. āsman- ‘stone’, Gk. ἀσμαν ‘anvil’ (sm from 
km is probably OP as well as Med.; §95).
pIE *gik-, OP vih- ‘house, royal house’, Av. viś-
noble’s residence’, Skt. viś- ‘dwelling place’,

cf. Gk. οἶκος ‘house’; OP inst. pl. vṛdiś keeps 
θ by influence of the stem. Deriv., OP adj. 
viṭa- ‘belonging to the royal house’.

OP bikā ‘rubble, broken stone’, see Lex. s.v.; 
probably from the same, with Med. s, the 
name of the Median fortress Sīkaya-watīš.

Parvāra ‘Parthia’ and Pārsa ‘Persia’, where the 
and the s seem to reverse the local values of 
k; both provinces were apparently named by 
rulers of non-local origin.

vasiś ‘at will, greatly’, with Med. s if loc. to a 
root-noun, *yek-i, rather than rasaiy, loc. to 
*yek-sho- (see Lex. s.v.).

kāsaka ‘semiprecious stone’, with Med. s if cor-
correctly referred to the same root as Skt. kaś-
shine’.

Other examples of OP θ from pIE ̣kh are to be 
seen in Kālata-, bard-, ṭawr-, ṭaurava-, ṭauravāhara-, 
and perhaps in Kāiyarcī-, ṭalata-, ṭarmi-; see 
Lex. s.vv.

§88. PIE ̣gh AND ̣gh BEFORE VOWELS and r (from 
pIE r and ḳ) became OP ḷ, Med. z:
pIE *gṛjōs, OP draya ‘sea’, Av. zrāyā, Skt. 
ṛjāgas ‘expanse’.
pIE *gik- in OP adinam ‘I took by force’, Av. 
zināit ‘he harms’, Skt. jyātiy ‘he overpowers’.
pIE *yek- in OP yulataiy ‘he worships’, Av. 
yazaike, Skt. yājate.
pIE *ṛglo-, OP ardala- ‘silver’, Av. orzala-, Lt. 
argalam, cf. Skt. rajasām.
pIE *gīs- in OP āvishar- ‘friend’, Av. uvis-
‘enjoy’, Skt. jyāt.
pIE *yuṣ- in OP vucakā- ‘great’, in the royal 
title and as epithet of the Earth, cf. Av. vucra-
‘club’, Skt. vṛjar- ‘Indra’s thunderbolt’; with 
Med. z.
pIE *yan-, OP zana- ‘man’ with Med. z, Av. 
zana-, Skt. jāna-; in OP vispa-zana-, paru-
zana-, and (restored month-name) Varka-
zana-; OP d is seen in *visa-dana- ‘vispazana-’, 
inferred from the Elamite ni-iš-ša-la-na.
pIE *ekhom, OP adham ‘I’, Av. azom, Skt. abham.
pIE *ghoslo-, OP dasta- ‘band’, Av. zasa-, Skt. 
haśta-.
pIE *ghul- in OP daramiya- ‘gold’, Av. zarangya-
Skt. hiranyya-, cf. Eng. gold.
deḥā, Gk. τεῖχος.
pIE enclitic particle *ghi, OP -diy, Av. z, Skt. hi.
hdīras- ‘deceit’; the OP has Med. z.
OP Zra‘ka ‘Drangiana’, name of an eastern 
province, with non-OP z from ġ or ġh; cf. Gk. 
Σαργαγας, and also Δραγαγας, with OP d.
Other examples of OP d from pIE ġ are seen in 
ardastana-, Arduaniš, awahar[da], urdana-, dan-
in adānā, vardana-; from pIE ġh in gaud-, Bar-
diya; from pIE ġ or ġh in gaud-. For materials 
on these words, see Lex. s.v.v.
§99. pIE ʰk̂ beside pAr. ši, and then OP ġi 
finally ʰi, since ʰ before ġ became š in OP 
(§80); the only example is a dubious one, paśîyā-
‘written text’, from *peik̂- or *peisk̂- + ġa-, in 
nsf. pari[š]yā DB 4.91, and perhaps as the first 
element of the place-name Paśīyāwašā (see 
Lex. s.v.v.).
§100. pIE ġy became pAr. šy, and then Av. sp. 
Med. sp, OP s, Skt. sū: 
pIE *ek̂yo- ‘horse’, OP asa- in acc. asam and in 
asabāra-; OP aspa- (with Med. sp) in waspa-, 
Aspakanah-, Vištāspa-; Av. aspa-, Skt. ásva-, 
Lt. equus.
pIE *yašīyā-; OP visa- ‘all’; also in visadhayu-; 
Vispa- (with Med. sp) in vispavan-; Av. 
vispa-, Skt. visva-.
pIE *ušā- in Av. šā- ‘throw, throw down’, OP sā-
‘recess, build’, in s-aor. pass. frasāh[ya] DSl 27 
etymology not certain!).
§101. pIE ʰgy became pAr. ʰgy, and then Med. 
and Av. zb; Skt. hr, but OP z; the OP texts 
have one example of the Median value and one 
of the OP value: 
pIE ʰgy- in OP pataiy-aβhayam ‘I proclaimed’, 
Av. root zbh-, Skt. pres. hravyati.
OP hizānam for acc. hisānam ‘tongue’, Av. 
hizān-, Skt. jīhā-, see Lex. s.v. for details.
§92. pIE ġs became pAr. ġs and reverted in 
Indic (Skt.) to ks, but became pfr. šs, shortened 
to š: 
pIE aor. *-peik̂-s-ṃ, OP niy-apaišam; cf. other 
forms in Lex. s.v. paib-.

§93. pIE ʰt (from ġ or ġ + t) became pAr. št, 
and then pfrn. št, OP and Av. št, and Skt. 
št; these clusters are seen in derivatives with a 
t-suffix: 
pIE *pikt-, OP ni-pištā- ‘engraved’; *peikt- in 
inf. ni-paśtanaiy; for cognates, see Lex. s.v. 
pait-. 
pIE *ušīk̂- ‘entered’, OP vištā- ‘ready’ in Višt-
āspa-, see Lex. s.v.
pIE *prekt-, OP u-frašta- ‘well punished’; for 
cognates, see Lex. s.v. fraṭ-. 
pIE *rgy-ta-tā- (with haplogy) or fem. ptc. *ṛgy-
tā- OP arṣtā- ‘rectitude’; from the root *ṛg-
ṛy- ‘direct, hold upright’, cf. rāṣṭa- below. 
Sometimes OP has st instead of ʰt; this is 
probably analogical to the -st- of dental stems, 
such as basta- to pIE *bhendha-, gasta- ‘evil’ to 
pIE *gentsḥ- (cf. §85), since pIE ū and ū(h) gave 
OP ū and d in other forms of the paradigm. The 
examples are: 
³u-frašta-, varying with u-frašta-, see above. 
pIE *ṛgy-ta-tā; OP rāṣṭa- ‘straight, right’, Av. 
rāṣṭa- ‘directed’, It. rectus ‘directed, ruled, 
straight’.
pIE *nekt-, OP vi-nasta- ‘damage’; for cognates, 
see Lex. s.v. naṭ-. 
§94. pIE ʰk̂ became pAr. and pfr. šr, then OP 
θr, whence ḍ; the only example is niy-açurayam

1 This interpretation of the st from ʰk̂ now seems to me preferable to that which I formerly maintained (as in 
Lg. 21.58, following a suggestion of Bv. Gr. §125), that št was Median and st was OP; for the borrowing by OP 
of the words and forms which contain št can hardly be motivated. Todesco, Lo Mondre Oriental 15.203-4 (re-
ferred to by Bv., i.e.), thinks st merely a later development 
from št (of any origin, including št from st, §115, 
§117), found in many Phl. words but not in all, and more 
extensively in SW Phl. (derived from OP, §4.II) than in 
NW Phl. (derived from Median, §4.I). His conclusion is 
based on the spellings in the Turfan Phl. (§4.IV); but the 
Turfan documents are of the 3d century A.D., about 
700 years after the time of Darius and Xerxes, in whose 
inscriptions the -st- forms of OP are found. With such 
a gap in time the variation seen in OP can hardly be con-
sidered valid testimony to a preliminary stage of the 
development seen in the Turfan texts. The length of 
the vowel, which is not in point here, is probably due 
to analogical extension from the s-aorist active, where 
the long ablaut-grade was a regular formation in pIE, 
but may not have extended to the participle until pIE 
had split into the separate branches.
I restored”, in which the root is that seen in Lt. chínó ‘I lean’; for details, see Lex. s.v. čay-

§95. pIE *km and *gmn gave respectively in OP *sm and *zm (not *dm and *dm, so far as we can tell): pIE *ǎkmɔn̥- in OP ace. asmánam ‘sky’, Skt. ásmānam ‘stone’, cf. OP abha-‘stone’ and (with Med. s) asan- ‘stone’, §87. pIE *gmn̥- in Lith. žemė ‘earth’, Lt. humus, but *gm̥- in OP u-zma- ‘stake’ and in the province-name Uvāra-zmāi; see Lex. s.v. v.

pIE *bkrg-i- in OP braz-man-iya ‘prayerful’; see Lex. s.v.

§96. pIE *kn̥ jn̥ gmn̥ became pAr. šn jn žhn, then all became pIr. šn since sibilants became voiceless before n in Iranian (§120); initial šn took a prothetic x. This xšn remained unchanged initial in Av. and OP, and was sometimes analogically extended to medial positions.

pIE *gm̥k̥ti-, OP 3d sg. subj. xšmn̥tīy ‘he may know’, Lt. gnōset ‘he will learn’, Skt. root jnā- ‘know’; the ġ is clearly shown in the z- of Av. xizšmn̥hmn̥, reduplicated ptc. npf. of the desiderative (for reduplication, cf. Skt. perf. jajñáu, Gk. pres. γεγόνωκα). See Lex. s.v. xšmn̥-


pIE *gmn̥ in medial position is found in the šn of baršn̥ ‘by height’ and probably in ašnavi ‘near’; see Lex. s.v.

§97. pIE *sk became pAr. šs, then pIr. šś, ss, shortened to s, which is seen in Av. and OP; but pAr. šs developed in Indic to Skt. (c)ch. This cluster is seen especially in the present-tense suffix of certain verbs:


pIE *ṣk-ti, OP tarsə̄tiy ‘he fears’, Av. tvrsaiti.

pIE *gmn̥k̥ti, OP xšmn̥tīy ‘he may know’, Lt. gnōset ‘he will learn’.

pIE *ṣk- in OP aṣkasā ‘he took as his own’, Av. pres. yasaiti, Skt. yāchāti.

pIE *ṣk-eti, Skt. rocháti ‘he moves’; but OP imp. arasam ‘I went off’ from *ro-sk-.

pIE *yek-sko, if r̥ṣ̥j̥ is to be normalized vasyi rather than vasiy; see Lex. s.v. vasyi.

§98. The pIE Velars and Labiovelars in pAr. fell together into one set of velar stops (§73.II), which then split into two series by the Aryan Law of Palatalization (§73.III): palatals c č g gh, before pIE č t i; velars k kh g gh, elsewhere. The sounds therefore reached the following stage in pAr. (in Skt. the aspires were subject to the dissimilation known as Grassmann’s Law, §73.1V; and gh and gh, where not so changed, often became Skt. h rather than gh and jh):

<table>
<thead>
<tr>
<th>pIE Velars and</th>
<th>Labiovelars</th>
<th>pAr. Velars</th>
<th>pAr. Palatahs</th>
</tr>
</thead>
<tbody>
<tr>
<td>q g k č gh gʰ kh č</td>
<td>gh gʰ k gh gh</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The voiceless aspirates are so rare that in the main they may be disregarded from now on. In pIr., the voiced aspirates lost their aspiration; the voiceless non-aspirate k before consonants became the voiceless spirant x, and the voiceless non-aspirate č before i (the only consonant before which it could originate) became ĺ.

Examples of these developments will be given in the following sections; but while words containing these sounds are of frequent occurrence in OP, it is often impossible to distinguish between original velars and original labiovelars, because we have no cognate in a non-Aryan language where alone they are distinguished. Not infrequently also the words occur only in Iranian, where we cannot distinguish between original voiced non-aspirates and original voiced aspirates.

§99. pAr. k and ĺ are found without further change in OP, in the following:

pIE *gʰo-s-_MIC, OP kaś-ci, Skt. ka-s, Lt. qu-, and Skt. (particle) cid, Lt. cīd.
pIE *seqi, OP haco ‘from’, Skt. sācā ‘with’, to root in Lt. sequor ‘I follow’.
pA r. root kar- ‘make, do’, OP pres. kumdiyā, inf. pass. akariya, zāra-kara- ‘evil-doer’; but *kern- in pres. inf. cartanaia, *kēr- in uśram ‘well-done, successful’, *ke-kr- in perf. opt. caxriya. OP Maka, a province, but ethnic Maciya, with palatalization because the suffix began with the palatal sound.
PAr. kāma-, OP kāma ‘desire’, Skt. kāma-.
So also other instances of k and e in OP, though many of them are in words with very scanty etymological parallels, and others are obvious borrowings from other languages, such as maskā- ‘inflated skin’, Kāpatuca ‘Cappadocia’, Kāša ‘Ethiopia’.
   Where PAr. k stood before varying vowels, there may be variation in the products (as in the forms from root kar-), or one value may be generalized: OP rauca from nom.-acc. pIE *lewko, with e from oblique cases, where PIE had *lewkos (cf. Gk. γίος γίεας, Lt. genus generis).

§100. PAr. kh seems to appear in a few words, which have no far-reaching etymological connections: xawāla- ‘cap’, also in tiγraziuδa- ‘wearing the pointed cap’, cf. Av. zarana-zaša- ‘wearing a golden helmet’.
maya- ‘door-knob’, Skt. mayukha- ‘peg’.
   Also the place-name Ṯaṣa, personal names Arza and Śkuṣa, and the doubtful words Xaṣadašya and Haddaṣya; see Lex. s.vv.
   For OP x from k before consonants, see §102 and §103. Corresponding to Skt. khānatī ‘he digs’ we have OP akaniya ‘it was dug’, Av. kan- ‘dig’, and Av. xā ‘well’, with unexplained variation between aspirate and non-aspirate.

§101. PAr. g and gh, gh and g, appearing in OP as g and j; there is the same difficulty in determining precisely the pIE origin, as has been met in the preceding sections.
pIE *gʰρi- ‘living’, OP jīca, Skt. jīda-s, Lt. viros; pIE *gʰoī- in OP aćc. gāthā ‘cattle’.
pIE stem *gʰou- ‘cow’ in personal names Gau- barwa, Gau-māta; see Lex.
pIE *dlγhos ‘long’, OP adv. daryam, Skt. dirghā-s, Gk. δολχός.
pIE *dhrugg-, OP drauγa ‘the Lie’, and with palatal suffix -e-, dravjana- ‘follower of the Lie’; adurajya ‘he lied’, denominative verb to the stem seen in Av. (acc.) Drv-īm ‘Devil’.
pIE root *gʰem- ‘strike’, OP jaćtiy, Skt. hanti; OP 3d sg. inf. aja-, Skt. ḍhan; pIE *gʰydhik (inv.), OP jaḍhi, Skt. jahit (Skt. j by Grassmann’s Law, §73.IV).
   Other examples of g and j could be added, but these are adequate.

   The pIE roots *gʰem- and *gʰem- have in OP generalized the palatalized value of the velar consonant, except where it stands before a consonant.

On j- in nijāgam, see §120.

§102. OP xš is of various sources, and should be discussed in association with s from similar clusters. The origins which call for discussion, and the correspondences, are the following:
pIE g, Av. OP xš, Skt. kṣ, Gk. xē.
pIE ḍ̄, Av. OP xš, Skt. kṣ, Gk. k.
pIE ḍ̄, Av. OP xš, Skt. kṣ, Gk. kṛ.
pIE kṣ, Av. OP xš, Skt. kṣ, Gk. kṛ.
pIE root *ṇhi-‘I ruled’, Skt. kṣapti ‘he possesses’, Gk. κράπτω ‘I acquire’, with derivatives, see Lex. s.v. ItemClickListener.
pIE *aug-, *aug- ‘increase’, Lt. angēo etc.; with
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added -s, *aukš- *yeks-, in Gk. aeıkse, Gr. wachsen, Skt. raksati, OP U-vaxš-tra- ‘Cy-
nares’.

pA. *baug- ‘free’, in Av. buväñjinti ‘they rescue’ (with nasal infix); with added -s, *bauška- in
Bau-bauška- (see Lex.); *baug-s-na, becoming pIr. *baušk-, and losing the -x- in later OP, in
Avīyabaušna- (see Lex.).

Origin uncertain (no sure cognates outside Aryan): OP xšap- ‘night’, Skt. kṣap-; OP
axšāna-, Av. axšāena- ‘dark-colored’, xšaēta-

shining’.

pIE *tekp- ‘cut’, Av. tataśa ‘he has created’, Skt. tāksati ‘they fashion’; in OP ne-tašanā-

‘staircase’.

pIE *tekp- and *tyaqp-, contaminated in OP tαš- ‘be active’, pres. ha-taŋkataiy (see Lex.,
s.v. tāz-s-).

pIE *tek-s-, probably in OP caša-m ‘eye’, cf. Av. cašman- ‘eye’, Skt. cašyās- ‘eye’ (see Lex. s.v. caša-).

pIE *peik-s- in OP (aor. nιy-apaiśam ‘I en-
graved’, cf. Skt. pṛjñā ‘he cuts, adorns’. For OP xśin- from pIE ġn-, see §96.

§103. pAr. k and g before consonants (other than s, §102) in OP: there are the following examples:

I. pAr. ṛk became pIr. ūr (§74, 1):

OP xṛau- ‘wisdom’, Av. xravat- Skt. krātu-

‘power’.

OP tuxra- (man’s name), Av. sukrā- ‘red’, Skt.

suṣkra- ‘bright’.

OP perf. opt. aṅrīyā, Skt. aṅrīyā, to root kar-

‘make, do’.

II. pAr. ḫm became pIr. ḫm, remaining in Av.

and Median, but becoming ḫm in OP (the ḫ

omitted in writing):

OP tuxma- ‘brave’, with Med. -xm- in the name of the Mod. Taxmaspēda- and of the Sagar-
tian Cītataxma-; Av. taxma- ‘brave’.

OP tuṃma- ‘family’, cf. with different suffix Av.

taxma- ‘seed’, Skt. tūkman- ‘green blade of

barley’.

Perhaps in OP āmaţma (see Lex. s.v. amam-

atā), where the relation to other forms from the root kām- (if this etymology be correct)

prevented the further change of zm to ḫm.

III. Other examples of earlier k before con-

sonants are found in the province-name Bāxtri-

‘Bactria’, the month-name Viyaxna-, and the

inv. raxbātw, of uncertain meaning and con-

nections.

IV. Earlier g before consonants, other than s and t, seems to remain unchanged in the extant

examples:

Pahlavaband, a town in Parthia, perhaps to OP
grab- (pIE *grhabh-), which elsewhere appears in

OP only as garb- (graphic for both garb-

and grb-).

tirga- ‘pointed’, also in tirgavadu-; Tirga-, a

fortress in Armenia; Tigrā- ‘Tigris’, borrowed from Semitic.

-gmata- ‘gone’, to root gam-, in paragmatā hagmata-

Hagmatāna-.

Baghibagia- a man’s name, see Lex. s.v.

Suqda- a Persian province, also Suquda with

anaptyxis (§128).

But pIE -gh-to-, becoming -gdho-, pIr. -gda-, was in OP replaced by -kt- (analogical to -gt-

becoming -kt-): durvtam ‘false’, etc. to pres.

stem durviyá-, cf. drauqa- ‘the Lie’ (palataliza-

tion only in the present stem, where there is the

suffix -io-).

§104. pAr. ġi became ṣi in Av. and OP (graphic

-šy- in OP, §25):
pIE *qṣēlo-, OP ṣyāta- ‘happy’, GAv. ṣyāta-

‘joyous’, Lt. quīētus.
pIE *qṣēlo-, OP ṣyāti- ‘happiness’, cf. Lt. quēs,

gen. quēt-is.
pIE *qiś-, OP aṣyāva ‘he set forth’, Skt. ācyavat,

Gk. (Hom.) aor. ṣvēn ‘he put into motion’.

§105. The Cluster -s- č- appears in OP with

reduction to s in pasā ‘after’, from pIE *po-sqč-:

cf. Av. pasē, Skt. pasē. The evidence of Sasa-
nian Pahlavi shows that this value alone is pho-

netic in OP (Bv. Gr. §114), and that the -č-

which is seen in some sandhi combinations, be-

longs rather to Median: OP kaščiy ‘anyone’ from

pIE *kośqčid; manas-čāj DNb 32 from *menos-

qč. On zāra-kara ‘evil-doer’ from *zurā-kara-, see

§119.

The sandhi product of -d- č- has a similar varia-

tion: OP s (not attested) and remade č (§130),

Med. č; there are the following examples:
pIE *ed-qčid, OP ačiy ‘then’, Av. ačči.
pIE *iōd-qčid, OP yāciy ‘when’, Av. yačči.