

writing makes considerable difficulty in their identification; but $j^a d^a m^a v^a + i$ show diphthongs, since there are special characters $j^i d^i m^i v^i$ 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* (§98).

**eitiy* 'he goes', *aitiy*, Skt. *ēti*, Gk. *ἐτι*.

**ne-īd* 'not', OP *naiy*, Av. *nōt*, Skt. *néd*, cf.

Lt. *ne-* in *nescio* 'I don't know'.

**oiyos* 'one', OP asm. *aiyam*, Av. nsm. *aēvō*, Gk. (Hom.) *oīos* 'lone'.

**mōi* 'to me', OP *mai*y, Skt. *me*, Gk. *μοι*.

Also *vaināhy*, Skt. ind. *véṇati*; *hainā*, Skt. *sénā*; *aita*, *dhvaištam*, *gaibām*, *naibām*, *-taiy*, *-šaiy*, *tyaiy*.

For *ai* graphic for *a* before *y*, see §48: for *-aiy* graphic for final *-ai*, see §37; for *h^ai* = *hai* and not *hi*, §27.

§70. THE PIE SHORT DIPHTHONGS IN *u*, namely *eu* or *au*,¹ all became pAr. *au*, which remained in OP;² but became Av. *ao* or *əu*, and Skt. *o*; they remained essentially unchanged in Greek, and appeared in Latin as *ū* *ū* *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 *-neu-* in OP *kunautiy* 'he makes', Av. *kərənaoiti*, Skt. *कर्णोति*.

**leukes-*, OP *rauca* 'day', Av. *raočō*, Skt. *rocas-* 'light'.

**dhroughos*, OP *drauga* 'Lie', Av. *draoγō*, Skt. *drógha-s*.

OP *kaufa* 'mountain', Av. *kaofō*; *gaušā* 'two ears', Av. *gaoša*; *tau^amā* 'family', Av. *taoxman-*; *haw* 'this one', cf. Gk. *ὅς-τος*.

For *au* graphic for *a* before *v*, see §48; for *-auu* graphic for final *-au*, see §38; for *h^au* = *hau* and

not *hu*, §28. An apparent *au* is often for *a^hu*, as in *A^huramazdā*, Av. *Ahurō Mazdā*, Skt. *ásura-s*; nom. *Dārayava^auš*, but gen. *Dārayavahauš*.

§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 *ə* became pAr. *a* before *i* or *u* of the next syllable. An almost certain example is seen in the present stem *paya-* (*apayaiy* 'I protected'; *pai-payauwā* 'do thou protect thyself') as a variant of *pā-* (*pātūw* 'may he protect', etc.); since *pā-* seems to be the normal grade (on the testimony of Sanskrit also), then *paya-* must be for **pa-īe-*. Similarly, if the *xšnu-* of *ā-xšnautiy* 'he satisfies' (cf. further zero-grade in *xšnuta* 'satisfied') is an extension of root *xšnā-* 'learn' (from **ǵnō-*; see Lex. s.v. *xšnav-*), it must stand for **ǵnəu-*.

§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:

wāipašiyam 'his own', cf. *wai^apašiyahyā* with the short diphthong (see Lex. s.v.).

root **ei-* 'go', augmented in *āiš* 'he went', where *āi* is proved by the compound *aiy-āiš* 'he went past'.

root **eis-* 'hasten', augmented in causative *frāišayam* 'I sent forth', from **fra-āišayam*.

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

nom. *dahyāuš*, acc. *dahyāum* 'province', with lengthening of the diphthong of the stem in these case-forms.

But *āi* in gen. *Cišpāiš* and *Cicirāiš* is only graphic, cf. §179.IV; *anīyāwā*, *maškāwā* are for *-ā^hwā*, = Skt. *-āsu* + enclitic *-ā*; *Paišiyāwādāyā* is probably for *Paišiyā^hwādāyā*.

§73. THE PIE STOPS IN PROTO-ARYAN: The pIE stops underwent certain general changes in the passage into Proto-Aryan, as follows:

I. The pIE palatal stops became pAr. sibilants (*š* *śh* *ž* *žh*).

¹ For pIE *eu*, see §71. ² For possible pronunciation of OP *au* as *ō*, cf. §61.n1.

II. The pIE labiovelars lost their labialization, and with the pIE velars formed a new series of velars (*q qh g gh*).

III. The new series of velars split into two series, according to the nature of the following sounds: palatal (*č čh ġ ģh*), if standing before pIE *č ħ ģ*; 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 voiced stops and *z* became voiceless if they came to stand before voiceless stops or *s*, and voiceless stops and *s* became voiced if they came to stand before voiced stops or *z*.

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

Labial Stops	<i>p ph b bh</i>
Dental Stops	<i>t th d dh</i>
Palatal Sibilants	<i>ś śh ź źh</i>
Palatal Stops	<i>č čh ġ ģh</i>
Velar Stops	<i>k kh g gh</i>

§74. 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 č k*, if standing before a consonant, became voiceless spirants *f θ ś x*, unless an Aryan sibilant preceded.

II. The voiceless aspirates, if standing after a sibilant, lost their aspiration and became *p t č k* respectively; otherwise they became voiceless spirants *f θ ś x*.

III. The voiced aspirates lost their aspiration, and became identical with the voiced non-aspirates: *b d ġ 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 *č* is the only consonant before which the pAr. palatals 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 *-b*, Gmc. *b*, BS *b*.

I. OP *p*:

pIE **peri*, OP *pariy*, Av. *pairi*, Skt. *pāri*, Gk. *περι*.

pIE **pōlē* and **pōlē*, OP *pitā*, Skt. *pitā*, Gk. *πατήρ*, Lt. *pater*.

pIE **pūlo-*, OP *puša-*, Av. *puθra-*, Skt. *putrā-*, Osc. *puclo-*.

pIE **apo*, OP *apa-*, Skt. *āpa*, Gk. *ἀπό*.

pIE **nepōt-s*, OP *napā*, Skt. *nāpāt*, Lt. *nepōs*.

OP gen. *xšapa* 'by night', Av. *xšap-*, Skt. *kṣap-*.

II. OP *f* from pIE *p* before consonant:

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

pIE **prek-* in OP ptc. *u-fraštam* 'well punished', cf. Lt. *precor* 'I ask', and pIE **prē-skō*, OP *parsā-miy*, Skt. *prcchā-mi*, Lt. *poscō*.

There is no identifiable example of OP *f* from pIE *ph*; OP *kaufa-* 'mountain', Av. *kaofa-*, 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-big-na-*, second component of *Bagābigna-*, if this is a participle to the root in Skt. *bīja-* 'seed' (see Lex. s.v.).

pIE **ebherom* 'I bore', OP *abaram* 'I esteemed', Skt. *ābharam*, Gk. *ἐφερον*.

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

pAr. **abhi*,¹ OP *abiy*, Skt. *abhi*.

pIE **u-bhō* and *-bhōu* 'both', OP *ubā*, Skt. *ubhā ubhāu*, Gk. *ἀμφω*, Lt. *am-bō*.

¹ Conflux of pIE **mbhi* and pIE **obhi*, see Lex. s.v. *abiy*.

In some words OP *b*, though from pIE *bh*, corresponds to Skt. *b*, because Grassmann's Law (§73.IV) operated in Indic:

pIE **bhendh*- 'bind', in OP *ba'daka*- 'subject', cf. Skt. *bandhá*- 'bond', and the *b*- in Eng. *bind*, *bond*, from pIE *bh*-.

pIE **bherǵh*- 'be high', in *Bardiya*-, *baršan*-, *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-bhis* > **abbhiš* > OP *abiš* 'with the waters' (JAOS 62.269-70; §73.V, §130). For *p* in *sp* from pIE *kṛ*, §90; for *b* in *zb* from *ǵhṛ*, §91; for *f* from *sṣ* in *Vi'da-farnah*-, §118.IV.

V. OP *p b f* are in some instances not traceable to pIE forebears or are definitely borrowings from outside sources; such are *piru*- 'ivory', *sakabru*- 'carnelian', *naiba*- 'good' (only in Iranian), and many place and personal names, such as *Pirāva* 'Nile', *Putāya*- 'Libyan', *Bābiruš* 'Babylon', *Arabāya* 'Arabia', *Arbairā*- 'Arbela', *Ufrātu*- 'Euphrates', *Nadītabaira* 'Nidintu-Bel', *Nabukudracara* '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 pIE dentals in other languages are the following:

pIE *t*, Skt. *t*, Av. *t* and *θ*, Gk. *τ*, Lt. *t*, Gmc. *þ*, 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 **eti*, OP *atiy*, Skt. *āti* 'beyond', Gk. *ἐτι* 'yet', Lt. *et* 'and'.

pIE **ute*, OP *utā*, Skt. *utā*, Gk. Hom. *ἡ-ῦτε* 'like'.

pAr. **tanū*-, OP *tanū*- 'body', Av. *tanū*-, Skt. *tanū*-.

pAr. **tuvam*, OP *tuvam*, Skt. Ved. *tvám*, cf. Lt. *tū*.

pIE **potē*, OP *pitā*, §75.I; pIE **bhrātē*, OP *brātā*, §75.III.

pIE **qrto*-, OP *karta*-, Skt. *kṛtā*-.

II. OP *θ* from pIE *th*:

pIE **pṇthi*-, OP acc. *paθim* 'path', Skt. *paṭi*-.

pIE **rotho*-, OP *u-raθa*- 'having good chariots', Av. *raθa*- 'wagon', Skt. *rātha*-, cf. Lt. *rota* 'wheel' (with pIE *t*, not *th*).

pAr. **ṣathā*, OP *yabā*, Skt. *yāthā*; so also OP *ava-θā*.

OP *mauθ*-, *āviyābaušna*-, *gaiθā*-, *fraθara*-, *miθah*-, see Lex. s.vv.

OP *razbatu*, 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-σῥά-μ*, Lt. *stā-re*, OCS *sta-ti*).

III. OP *d* from pIE *d*:

pIE **deiyo*- 'deity', OP *daiva*- 'evil' god', Av. *daēva*-, Skt. *devā*-, Lt. *divos deus*.

pIE **ped*- 'foot', loc. in OP *ni-padiy*, Skt. *padī*, Lt. abl. *pede*, Gk. dat. *ποδί*; pIE **pedo-m*, OP *pati-padam* 'on its base', Skt. *padā*- 'step', Gk. *πέδον* 'ground'; pIE **pōdo*- 'foot', OP inst. dual *pādaibiyā*, Skt. *pāda*-, cf. Gt. *fōtu*-.

pIE **dō*- 'give', OP *dadātu* 'let him give', Skt. *dādātu*, cf. Gk. *διδότω*.

pIE **sed*- 'sit', OP *had-iš* 'seat, abode', Gk. *ἔδος* 'seat'; causative in OP *niy-ašādayam* 'I established' (on -š-, §117), Skt. *āsādayam*.

pIE insep. prefix **dus*- 'ill', OP *duš*-, Av. *duš*-, Skt. *duṣ*-, Gk. *δυσ*-.

pIE **duitiyo*- 'second', OP *duitiya-m*, Skt. *dvitīya*-.

OP *d* from pAr. *dh* from pIE *dh*:

pIE **dhē*- 'put', OP *adā* 'he created', Skt. *ādhat*.

pIE **dher*- 'hold', OP *dārayāmiy* 'I hold', Skt. *dhārāyāmi*.

pIE **dhyor*- 'door', in OP loc. *duwarayā*, Av. *dvar*-, Skt. *dhvar*-, cf. Gk. *θύρᾱ*.

OP *ba'daka* 'subject', to pIE **bhendh*-, §75.III.

OP *hadā* 'with', Skt. *sahā*, from pIE **sm-dhe*; same suffix in *avadā*, *idā*, *ada-kaiy*.

With Skt. *d* from pIE *dh* by Grassmann's Law (§73.IV):

pIE **dhrugh-ǵe*- in OP *aduruyiya* 'he lied', Skt. *drūhyati* 'he deceives', Gm. *trügen*; pIE **dhrugho*- in OP *drauga*- 'Lie', Skt. *dróha*- *drógha*- 'injury'.

pIE **dhiǵhā*, OP *didā* 'wall', cf. Skt. *dehī*-, Gk. *τεῖχος*.

pIE **dhugh-* in OP *ha-dugā-* 'inscription', see Lex. s.v.

Reduplicated forms of pIE **dhē-*, OP *adadā*, Skt. *ādadhāt*.

Reduplicated personal name, *Dādarši-* = Skt. adj. *dādṛṣi-* 'bold', to pIE **dher-* seen in OP *adaršnauš* 'he dared', Skt. *ādṛṣnot*.

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 θ 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.), *spāda-* 'army' (only in Iranian), inv. *raθbatw* of uncertain meaning; and personal and place names such as *Atamaita-* (Elamite), *Nadilabaira* (Semitic), *Ufratu-* 'Euphrates', *Katpatuka* 'Cappadocia', *Tigrā-* 'Tigris', *Putāya-* 'Libyan', *Dātawahya-*, *Daha-*, *Dubāla-*, *Mudrāya-*, *Aθurā*, etc.

§77. PIE *t* BEFORE CONSONANTS became the voiceless spirant *θ* in pIr.; but further changes also took place, cf. §78-§82.

§78. PĀR. *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 *ç*, and apparently was a sound intermediate between pure dental *s* and palatal *š*. Examples:

pIE **pul-*, OP *puça-* 'son', Av. *puθra-*, Skt. *putrá-*, Osc. *puclo-*.

pIE **potr-*os (not original, but a later remade form), OP *piça*, Av. *piθrō*, Gk. *πατρός*; gen. of OP *pītā* 'father'.

pĀr. **kšatram* 'kingdom', OP *xšaçam*, Av. *xšaθrəm*, Skt. *kṣatráṃ*; but Med. *θr* in *Xšaθrila*, the name assumed by the Median rebel Phraortes.

pIE **tritiyo-* 'third', OP *çitiyam*, Av. *θritiya-* (graphic for *θritiya-*), cf. Skt. *trītiya-*, Lt. *tertius*. Av. *ātar-* *āθr-* 'fire', seen in the OP month-name *Āçiyādiya-* and probably in the personal name *Āçina* (despite the fact that *Āçina* was an Elamite).

Av. *çīdra-* 'seed, lineage', OP *çiça-*.

OP *vaça-* 'bow', of uncertain etymology, in *vaça-bara-* 'bowbearer'.

Skt. *mitrá-* 'friend', borrowed into Iranian as epithet of a divinity, and eventually his name; in OP, written *Mitra-* *M'tra-* *M'θra-*, *miça-* in derivative *ha-miçiya-* 'united (in conspiracy)', *misa-* in personal name *Va'u-misa-* (= 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. *θr* was in OP a sibilant is shown by the orthography of borrowed words. Thus the *ç* of *Çiça* 'lazma-' is represented by *š* in Elam. *ši-iš-ša-an-tak-ma* (the *tr* of Akk. *ši-it-ra-an-tah-ma* is based on the Median form of the name, since he was a native of Sagartia in Media). Note also the following:

OP **Çiça-farnā*, Gk. *Τισσα-φάρνης*, Lycian *cizza-prīna*.

OP *Arta-xšaça*, Elam. *ir-tak-ša-a-š-ša*, Akk. *ar-tak-ša-as-su* (Vases b and c; *ar-tak-šat-su* in longer inscriptions), Aram. (Elephantine) *ʾrtxššš*, Lydian *artakšassa*.

OP *Vau-misa* for *-miça* (see above), Elam. *ma-u-mi-iš-ša*, Akk. *ú-mi-is-si*; while Akk. *mi-it-ri* corresponds to the non-OP *Mitra-* or *M'θra-*.

OP *Āçina*, Elam. *ha-iš-ši-na*, Akk. *a-ši-na*.

OP *Āçiyādiya-*, Elam. *ha-iš-ši-ça-ti-ia-iš*.

OP *Çūšā-*, from Elam. *šu-ša-an*, whence also Akk. *šu-ša-an*.

On *ç* from pIE *kl* in *niy-açārayam* 'I restored', see §94.

§79. PĀR. *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-ta-ra*, Akk. *ú-ma-ku-iš-tar*. The name of the northeastern province Bactria, Gk. *Báκτρα*, likewise shows a non-OP form in *Báκtriš*, Elam. *ba-ik-tur-ri-iš*, Akk. *ba-aḫ-tar*; but a pure OP **Bāxšiš* or **Bāxçiš* is attested by the alternative Elam. *ba-ak-ši-iš*. Finally, OP *uša-bāri-* 'camel-borne', by comparison with Av. *uštra-* '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 t_k became regularly (§77) pIr. θ_k , which survived in Avestan and in Median, but became ξ_k in OP:

OP $xšāyabīya$ 'king', from pAr. $*kšāyatīa-$; a word of the Median officialdom.

OP $hašiyam$ 'true', Skt. *satyām*.

OP $uwā-maršiyuš$ (see Lex.), Skt. *mṛtyú-* 'death'.

OP $uwā-pašiya-$ 'belonging to one's self', from pAr. $*paṭīa-$ (see Lex.).

OP $anušiya-$ 'follower', from $*anu-tjo-$.

The preposition *abiy* seems to be a sandhi doublet of *atiy*; see Lex. s.v.

For the retention of t in *tya-* and its forms, see Lex. s.v.

§81. PIE t_y became regularly (§77) pIr. θ_y , which remained in OP with the writing θ^w = θw :

PIE $*t_yē + \text{acc. } -m$, OP $\theta wām$, Av. θwqm , Skt. *tvām*.

pAr. $*gātu-$ $gāḃy-$ $gālav-$, Skt. *gātū-* $gātv-$ $gālav-$, Av. $gātu-$ $gāḃw-$ $gālav-$, OP (with generalized θ) acc. $gāḃum$, loc. $gāḃavā$.

pAr. $krātu-$ etc., Skt. *krātu-* etc., Av. $xrātu-$ $xraḃw-$ $xralav-$, OP (with generalized θ) acc. $xraḃum$.

§82. PIE tn became regularly (§77) pIr. θn , which remained in Avestan but became OP ξn ; thus the pAr. $*arabn-$ $aratan-$ gave Av. dual $arəḃnā$, but OP $arašn-$ and (with extension of the ξ) $arašan-$ 'cubit', in inst. pl. $arašaniš$ (see Lex. s.v. *arašan-*). For $vašnā$ and $baršnū$, see §96, §120.

§83. OTHER DEVELOPMENTS OF NON-FINAL DENTAL STOPS.

I. PIE $-d-n-$ became pIr. $-n-$ (shortening of $-nm-$, §130), as in PIE $*ueid-ne-$, OP *vaināmiy* 'I see', Av. 3d sg. *vaēnaiti*; cf. the same root with nasal infix (instead of nasal suffix) in Skt. *vindāti* 'he finds', and in OP *Vi'da'-farnah-* 'Intaphernes' (see Lex. s.v.; $-n-$ proved by Gk., Elam., Akk. transliterations).

II. In two words θ is found where d is expected: OP *θauwaniya* 'bowman', where Skt. has *dh* in *dhānvan-* 'bow';

OP *spāda-* 'army', in the name of the Mede *Tarmaspāda*, but with θ in its apparent derivative *spāḃmaida-* '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 DENTALS were weakened and did not appear in the writing of OP. After \tilde{a} they remained in the pronunciation sufficiently to prevent the writing of the vowel as long (§36.III): OP *abara* 'he bore', Skt. *ābharat*; OP 3d pl. *abara*, Skt. *ābharan*, for $*ebheront$. After \tilde{a} , it is likely that they disappeared entirely;¹ for *hyāparam* seems to be abl. $*hyād + aparam$, and the crasis indicates a previous loss of the $-d$.

Final $-d$ disappeared after i , as in the encl. OP $-ciy$, Skt. *cid*, PIE $q^w id$; OP *naiy* 'not', Av. *nōit*, from $*ne + id$. After u the final t seems to be retained as ξ in OP *akunauš* 'he made', *adaršnavš* 'he dared', Skt. *ākṛnot ādhṛṣnot*; but this ξ is better taken as an extension of the s of the aorist, after which $-t$ would be lost. The prefix *ud* 'up', which appears unchanged before a vowel in *ud-apatatā* 'he rose up (in rebellion)', suffers complete assimilation of the d in *uzma-* 'stake' (from $*ud-zma-$), and became *us-* in *us-tašanā-* 'staircase' in the dental cluster (§85).

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

§85. THE DENTAL CLUSTERS *tst(h)* AND *dzd(h)* (§58.D) properly lost the prior dental by dissimilation, 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.¹ Thus their usual developments are the following: PIE *tst*, Av. OP *st*, Skt. *tt*, Gk. $\sigma\tau$, Lt. *ss*. PIE *tsth*, Av. OP *st*, Skt. *th*, Gk. $\sigma\theta$, Lt. *ss*. PIE *dzd*, Av. OP *zd*, Skt. *dd*, Gk. ζ , Lt. (no certain examples).

PIE *dzd(h)*, Av. OP *zd*, Skt. *ddh*, Gk. $\sigma\theta$, Lt. *ss*.

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

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*, *Gnaeō*, Old Latin *suprād*, *sēd*, *Gnaivōd*.

§85.¹ Cf. Kent, Lg. 8.18-26; Emeneau, Lg. 9.232-6.

Iranian and Greek, to the more familiar *-tst-* (from *-t-t-* and *-d-t-*).

There are the following examples in OP:

pasti- 'foot-soldier', from **patsti-* from **ped-ti-*.

ustāšanā- 'staircase', from **utst-* from **ud-te-*.

arawastam 'activity', in form an abstract **arwat-* *tam* (becoming *-tst-*); but see Lex. s.v.

basta 'bound', ptc. to PIE root **bhendh-*; therefore **bhñdh-to-* > **badzdha-* (Skt. *baddhā-*), replaced by **batsta-* in Iranian.

gasta- 'evil', ptc. to PIE root in Av. *ganti-* 'stench', Skt. *gandhā-* 'odor', with similar replacement of *-dzdh-* by *-tst-*.

azdā adv. 'known', Skt. *addhā* 'thus, truly', from pAr. **adzda-*.

Aura-mazdā 'Ahuramazda', from **ma(n)dzhā-s*, see Lex. s.v.

§86. THE PIE PALATAL STOPS *k̂ k̂h ĝ ĝh* became sibilants in pAr., *ŝ šh ž žh*; the voiceless aspirate was very rare and may be omitted from the following discussion. pAr. *ŝ ž žh* appeared in Skt. as *ś* (often transcribed *ç*), *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 *k̂* BEFORE VOWELS, unless preceded by *s*, became OP *θ*, Med. *s*:

PIE **kens-* in OP *abāham* 'I said', Av. root *saḥ-*, Skt. *śas-*, Lt. pres. *cēnscō*.

PIE **nek-* 'destruction', in OP *vi-nāḡayatiy* 'he injures', Lt. *nocet*, Skt. *nāśáyati*.

PIE **mak-* in OP *maθišta* 'greatest', Av. *masišta-* 'longest', Gk. *μήκιστος*.

PIE **ak-* in OP *abaŋga-* 'stone', Av. *asəŋga-*; cf. *asan-* 'stone' with Med. *s*, in nom. *asā*, and possibly in *Asa-garta-* (see Lex. s.v.). Cf. also acc. *asmānam* 'sky', Av. *asman-* 'sky, stone', Skt. *ásman-* 'stone', Gk. *ἀκμων* 'anvil' (*sm* from *km* is probably OP as well as Med.; §95).

PIE **uik-*, OP *viθ-* 'house, royal house', Av. *vīš-* 'noble's residence', Skt. *viś-* 'dwelling place',

cf. Gk. *oikos* 'house'; OP inst. pl. *vīθbiš* keeps *θ* by influence of the stem. Deriv., OP adj. *viθa-* 'belonging to the royal house'.

OP *θikā* 'rubble, broken stone', see Lex. s.v.; probably from the same, with Med. *s*, the name of the Median fortress *Sikaya^hweaiš*.

Parθava 'Parthia' and *Pārsa* 'Persia', where the *θ* and the *s* seem to reverse the local values of *k̂*; both provinces were apparently named by rulers of non-local origin.

vasiy 'at will, greatly', with Med. *s* if loc. to a root-noun, **uek-i*, rather than *vasaiy*, loc. to **uek-sko-* (see Lex. s.v.).

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

Other examples of OP *θ* from PIE *k̂* are to be seen in *θakata-*, *θard-*, *θa^hd-*, *θuxra-*, *θūravāhara-*, and perhaps in *θāgarci-*, *θatagu-*, *θarmi-*; see Lex. s.vv.

§88. PIE *ĝ* AND *ĝh* before vowels and *r* (from PIE *r* and *l*) became OP *d*, Med. *z*:

PIE **ĝreios*, OP *draya* 'sea', Av. *zrayō*, Skt. *jráyas* 'expanse'.

PIE **ĝi-* in OP *atimam* 'I took by force', Av. *zināli* 'he harms', Skt. *jáyati* 'he overpowers'.

PIE **ĝāgetai*, OP *yadataiy* 'he worships', Av. *yazaitē*, Skt. *yájate*.

PIE **ĝnyto-*, OP *ardata-* 'silver', Av. *ərəzata-*, Lt. *argentum*, cf. Skt. *rajatām*.

PIE **ĝeus-* in OP *danštar-* 'friend', Av. *zaoš-* 'enjoy', Skt. *juṣ-*.

PIE **ueĝ-* in OP *vazraka-* 'great', in the royal title and as epithet of the Earth, cf. Av. *vazra-* 'club', Skt. *vájra-* 'Indra's thunderbolt'; with Med. *z*.

PIE **ĝono-*, OP *zana-* 'man' with Med. *z*, Av. *zana-*, Skt. *jána-*; 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-da-na*.

PIE **eĝhom*, OP *adam* 'I', Av. *azəm*, Skt. *ahám*.

PIE **ĝhosto-*, OP *dasta-* 'hand', Av. *zasta-*, Skt. *hāsta-*.

PIE **ĝhul-* in OP *daraniya-* 'gold', Av. *zaranya-*, Skt. *híraṇya-*, cf. Eng. *gold*.

PIE **dhiĝhā*, OP *dudā* 'wall, fortress', cf. Skt. *dehā-*, Gk. *τείχος*.

PIE enclitic particle **ĝhi*, OP *-diy*, Av. *zī*, Skt. *hi*.

¹ Except before *s*; see §92.

§87.¹ Perhaps lacking the nasal in the OP present-tense stem; see reff. in Lex. s.v. *θah-*.

pIE **ghūros*, OP *zūra* 'wrong', Av. *zūrō*, cf. Skt. *hvdras* 'deceit'; the OP has Med. *z*.

OP *Zra'ka* 'Drangiana', name of an eastern province, with non-OP *z* from *ǵ* or *ǵh*; cf. Gk. *Σαράγγαι*, and also *Δαργγιάνη*, with OP *d*.

Other examples of OP *d* from pIE *ǵ* are seen in *ardastāna-*, *Ardumaniš*, *avahar[da]*, *uradana-*, *dan-* in *adānā*, *vardana-*; from pIE *ǵh* in *gaud-*, *Bardiya*; from pIE *ǵ* or *ǵh* in *yaud-*. For materials on these words, see Lex. s.vv.

§89. PIE *ǵi* became pAr. *šī*, and then OP *θī* and finally *šī*, since *θ* before *i* became *š* in OP (§80); the only example is a dubious one, *paišiyā-* 'written text', from **peik-* or **poik-* + *iā-*, in nsf. *pai[š]iyā* DB 4.91, and perhaps as the first element of the place-name *Paišiyā'uwādā-* (see Lex. s.vv.).

§90. PIE *kū* became pAr. *šū*, and then Av. *sp*, Med. *sp*, OP *s*, Skt. *śv*:

pIE **ekyo-* 'horse', OP *asa-* in acc. *asam* and in *asabāra-*; OP *aspa-* (with Med. *sp*) in *waspa-*, *Aspakanah-*, *Vištāspa-*; Av. *aspa-*, Skt. *āsva-*, Lt. *equos*.

pIE **uikyo-*, OP *visa-* 'all', also in *visadahyu-*; OP *vispa-* (with Med. *sp*) in *vispazana-*; Av. *vispa-*, Skt. *viśva-*.

pIE **kūā-* in Av. *spā-* 'throw, set down', OP *sā-* 'erect, build', in *s-aor. pass. frāsaḥ[ya]* DSf 27 (etymology not certain!).

§91. PIE *ǵhy* became pAr. *žhy*, and then Med. and Av. *zb*,¹ Skt. *hv*, but OP *z*; the OP texts have one example of the Median value and one of the OP value:

pIE *ǵhy-* in OP *patiy-azbayam* 'I proclaimed', Av. root *zbā-*, Skt. pres. *hvāyati*.

OP *hēzānam* for acc. *hizānam* 'tongue', Av. *hizvā-*, Skt. *jihvā-*; see Lex. s.v. for details.

§92. PIE *ks* became pAr. *čš* and reverted in Indic (Skt.) to *ks*,¹ but became plr. *šš*, shortened to *š*:

pIE aor. **e-peik-s-m*, OP *niy-apaišam*; cf. other forms in Lex. s.v. *paith-*.

¹ For the phonetic value of *-b-* in *-zb-*, see discussion by Debrunner, IF 56.176-7.

§92.¹ If pIE *k* in *ks* had become the usual pAr. sibilant *š*, it is difficult to see how the *š* could have yielded the stop in Skt. *ks*. Some other development of *k* in pAr. before *s* must therefore be assumed.

§93. PIE *kt* (from *k* or *ǵ* + *t*) became pAr. *št*, and then plr. *št*, OP and Av. *št*, and Skt. *ṣt*; these clusters are seen in derivatives with a *t*-suffix:

pIE **piḱ-to-*, OP *ni-pišta-* 'engraved'; **peik-t-* in inf. *ni-paištanaiy*; for cognates, see Lex. s.v. *paith-*.

pIE **uik-* 'entered', OP *višta-* 'ready' in *Vištāspa-*, see Lex. s.v.

pIE **prek-to-*, OP **u-frašta-* 'well punished'; for cognates, see Lex. s.v. *fraθ-*.

pIE **rǵ-ta-tā-* (with haplogy) or fem. ptc. **rǵ-tā-*, OP *arštā-* 'rectitude'; from the root **rǵ-rǵ-* 'direct, hold upright', cf. *rāsta-* below.

Sometimes OP has *st* instead of *št*; this is probably analogical to the *-st-* of dental stems, such as *basta-* to pIE **bhendh-*, *gasta-* 'evil' to pIE **gendh-* (cf. §85), since pIE *k* and *ǵ(h)* gave OP *θ* and *d* in other forms of the paradigm.¹ The examples are:

**u-frasta-*, varying with **u-frašta-*, see above.

pIE **rǵǵ-to-*,² OP *rāsta-* 'straight, right', Av. *rāšta-* 'directed', Lt. *rēctus* 'directed, ruled, straight'.

pIE **nek-to-*, OP *ni-nasta-* 'damage'; for cognates, see Lex. s.v. *naθ-*.

§94. PIE *kl* became pAr. and pIr. *šr*, then OP *θr*, whence *ç*; the only example is *niy-ačārayam*

¹ This interpretation of the *st* from *kt* 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. Tedesco, Le Monde Oriental 15.203-4 (referred to by Bv., l.c.), 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 considered valid testimony to a preliminary stage of the development seen in the Turfan texts. ² 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. *clīnō* ‘I lean’; for details, see Lex. s.v. *çay-*.

§95. PIE *km* and *ghm* gave respectively in OP *sm* and *zm* (not *θm* and *dm*, so far as we can tell): PIE **akmōn-* in OP acc. *asmānam* ‘sky’, Skt. *āsmānam* ‘stone’, cf. OP *abaṅga-* ‘stone’ and (with Med. *s*) *asan-* ‘stone’, §87.

PIE **ghem-* in Lith. *žėmė* ‘earth’, Lt. *humus*, but **ghm-* in OP *u-zma-* ‘stake’ and in the province-name *Uvāra-zmī-*; see Lex. s.vv.

PIE **bhregh-* in OP *braz-man-īya-* ‘prayerful’; see Lex. s.v.

§96. PIE *kn gn ghn* became pAr. *śn zn 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 **gnōskēti*, OP 3d sg. subj. *xšnāsātiy* ‘he may know’, Lt. *gnōscet* ‘he will learn’, Skt. root *jñā-* ‘know’; the *ḡ* is clearly shown in the *z-* of Av. *zixšnāphəmnā*, reduplicated ptc. npf. of the desiderative (for reduplication, cf. Skt. perf. *jajñāu*, Gk. pres. *γῆγνώσκω*). See Lex. s.v. *xšnā-*.

PIE **ḡnu-to-*, OP *xšnuta* ‘satisfied’, Av. *xšnūtō*; medial *-xšn-* in the compound OP *ā-xšnauti* ‘he satisfies’. See Lex. s.vv. *xšnav-*, *uxšnav-*.

PIE **uek-* ‘wish’ + suffix *-no-*, OP *vašna-* ‘favor’;¹ see Lex. s.v.

PIE *ghn* in medial position is found in the *šn* of *barsnā* ‘by height’ and probably in *ašnaiy* ‘near’;¹ see Lex. s.vv.

§97. PIE *sḱ* became pAr. *śś*, then pIr. *śś*, *ss*, shortened to *s*, which is seen in Av. and OP; but pAr. *śś* developed in Indic to Skt. *(c)ch*.¹ This cluster is seen especially in the present-tense suffix of certain verbs:

PIE **prk-ske-*, in OP *parsāmiy* ‘I punish’, Av. *porasaiti* ‘he asks’, Skt. *prcchāti*, Lt. *poscil*.

PIE **tj-ske-ti*, OP *tarsatiy* ‘he fears’, Av. *tərasaiti*. PIE **ḡnōskēti*, OP *xšnāsātiy* ‘he may know’, Lt. *gnōscet* ‘he will learn’.

PIE **iṃ-ske-* in OP *āyasatā* ‘he took as his own’, Av. pres. *yasaiti*, Skt. *yācchati*.

PIE **r-sketi*, Skt. *rcchāti* ‘he moves’; but OP inf. *arasam* ‘I went off’ from **re-ske-*.

PIE **uek-skoi*, if *v^saiy^a* is to be normalized *vasaiy* rather than *vasiy*; see Lex. s.v. *vasiy*.

§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 *č čh ḡ gh*, before PIE *ē ī i*; velars *k kh g gh*, elsewhere. The sounds therefore reached the following stage in pAr. (in Skt. the aspirates were subject to the dissimilation known as Grassmann’s Law, §73.IV; and *gh* and *ḡh*, where not so changed, often became Skt. *h* rather than *gh* and *jh*):

PIE Velars and Labiovelars		pAr. Velars	pAr. Palatals
<i>q</i>	<i>q^h</i>	<i>k</i>	<i>č</i>
<i>gh</i>	<i>q^hh</i>	<i>kh</i>	<i>čh</i>
<i>g</i>	<i>g^h</i>	<i>g</i>	<i>ḡ</i>
<i>gh</i>	<i>g^hh</i>	<i>gh</i>	<i>ḡh</i>

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 *š*.

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 *č* are found without further change in OP, in the following:

PIE *q-*, in OP *kāra-* ‘people, army’, cf. Lith. *kāras* ‘war’, Gm. *Heer* ‘army’.

¹ A somewhat differing view by Nyberg, *Studia Indo-Iranica* W. Geiger 213-6, does not convince me.

§96.¹ On Avestan *-sn-* for expected *-šn-*, as in *vasna* ‘by the favor’, *asne* ‘near’, see Bthl. Gdr. IP 1.§33.1.

§97.¹ On the relation of Skt. *ch* with *c* on the one hand and with a sibilant on the other, see J. Wackernagel, *Altindische Grammatik* 1.153-8; A. Thumb, *Handbuch des Sanskrit* 1.113.

pIE **q^{us}-q^{id}*, OP *kaš-ci-y*, Skt. *ka-s*, Lt. *quo-*, and Skt. (particle) *cid*, Lt. *quid*.

pIE **ulq^o-* 'wolf' in Skt. *vṛka-s*, OP *Varkāna-* 'Hyrcania', Eng. *wolf*.

pIE **seq^ē*, OP *hacā* 'from', Skt. *sácā* 'with', to root in Lt. *sequor* 'I follow'.

pIE **leuq-* 'shine' in OP *rauca* 'day', Skt. *rócas-* 'light', Gk. *λεῦκος* 'white'.

pAr. root *kar-* 'make, do', OP pres. *kumautiy*, inf. pass. *akariya*, *zūra-kara-* 'evil-doer'; but **ker-* in pres. inf. *cartanaiy*, **kēr-* in *ucāram* 'well-done, successful', **ke-kr-* in perf. opt. *cazriyā*. OP *Maka*, a province, but ethnic *Maciya*, with palatalization because the suffix began with the palatal sound.

OP *Ākaufaciya* 'men of *Ākaufaka*', similarly.

pAr. *kāma-*, OP *kāma* 'desire', Skt. *kāma-*.

So also other instances of *k* and *c* in OP, though many of them are in words with very scanty etymological parallels, and others are obvious borrowings from other languages, such as *maškā-* 'inflated skin', *Katpatuka* 'Cappadocia', *Kūša-* '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 **leuqos*, with *c* from oblique cases, where pIE had **leuqes-* (cf. Gk. *γένος γένος*, Lt. *genus generis*).

§100. pAr. *kh* seems to appear in a few words, which have no far-reaching etymological connections:

raudā- 'cap', also in *tigraxauda-* 'wearing the pointed cap', cf. Av. *zaranya-xaōda-* 'wearing a golden helmet'.

mayūra- 'door-knob', Skt. *mayūkha-* 'peg'.

haxā- 'friend' in *Haxā-maniš* 'Achaemenes', Skt. nom. *sākhā*.

Also the place-name *Raxā*, personal names *Arxa* and *Sku^uxa*, and the doubtful words *Xarša-dašya* and *Hadaxaya*; see Lex. s.vv.

For OP *x* from *k* before consonants, see §102 and §103. Corresponding to Skt. *khānati* '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 *ǵ*, *gh* AND *ǧh*, 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 root **g^{em}-* 'come', Lt. *veniō*, in OP ptc. pl. *parā-gmatā* 'gone forth', *ha^m-gmatā* 'assembled', but with palatalization pres. opt. *ā-jamiyā* 'may it come', Skt. (without palatalization) *gamyāt*. pIE **g^{iyo}-* 'living', OP *jīva*, Skt. *jīvā-s*, Lt. *vīros*; pIE **g^{oi}-* in OP acc. *gaibām* 'cattle'.

pIE stem **g^{ou}-* 'cow' in personal names *Gau-barua*, *Gau-māta*; see Lex.

pAr. **ghauša-*, OP *gauša-* 'ear', Skt. *ghōša-* 'noise'.

pIE **dǵhos* 'long', OP adv. *dargam*, Skt. *dīrghā-s*, Gk. *δοῦρξός*.

pIE **bhago-*, OP *bagā* 'god', Skt. *bhāga-* 'dispenser', Gk. *-phagos* 'eater'; with palatalization, OP *bājim* 'tribute'.

pIE **dhrougho-*, OP *drauga* 'the Lie', and with palatal suffix *-cno-*, *draujana-* 'follower of the Lie'; *adurujiya* 'he lied', denominative verb to the stem seen in Av. (acc.) *Druj-im* 'Devil'.

pIE **g^{hormo}-* 'heat', Skt. *gharmā-s*, OP month-name *Garma-pala-*, cf. Lt. *formus* 'hot'.

pIE root **g^{hen}-* 'strike', OP *ja^{tiy}*, Skt. *hānti*; OP 3d sg. inf. *ajaⁿ*, Skt. *āhan*; pIE **g^{hny}-dhī* (inv.), OP *jadiy*, Skt. *jahṭ* (Skt. *j* by Grassmann's Law, §73.IV).

Other examples of *g* and *j* could be added, but these are adequate.

The pIE roots **g^{em}-* and **g^{hen}-* have in OP generalized the palatalized value of the velar consonant, except where it stands before a consonant.

On *-j-* in *nijāyam*, see §120.

§102. OP *xš* is of various sources, and should be discussed in association with *š* from similar clusters. The origins which call for discussion, and the correspondences, are the following:¹

pIE *q^h*, Av. OP *xš*, Skt. *kṣ*, Gk. *κτ*.

pIE *qs*, Av. OP *xš*, Skt. *kṣ*, Gk. *ξ*.

pIE *k^h*, Av. OP *š*, Skt. *kṣ*, Gk. *κτ*.

pIE *ks*, Av. OP *š*, Skt. *kṣ*, Gk. *ξ*.

pIE root **q^{bei}-*, OP *-acšayaⁱ* 'I ruled', Skt. *kṣāyati* 'he possesses', Gk. *κτάομαι* 'I acquire'; with derivatives, see Lex. s.v. *xšay-*.

pIE root **q^{ben}-*, OP *axšata-* 'unhurt', Skt. *kṣanōti* 'he injures', Gk. *κτείνω* 'I kill'.

pIE **aug-*, **ueg-* 'increase', Lt. *augeō* etc.; with

¹ For pIE *h*, cf. §58.Aa.

added *-s-*, **auks-* **ueks-*, in Gk. αῦξω, Gm. *wachsen*, Skt. *vakṣati*, OP *U-varṣ-tra-* 'Cyaxares'.

pAr. **baug-* 'free', in Av. *buṛjainti* 'they rescue' (with nasal infix); with added *-s-*, *-burša-* in *Baga-burša-* (see Lex.); **baug-s-na-*, becoming pIr. **bauxšna-*, and losing the *-x-* in later OP, in *Āθiyābaušna-* (see Lex.).

Origin uncertain (no sure cognates outside Aryan): OP *xšap-* 'night', Skt. *kṣap-*; OP *axšaina-*, Av. *axšaēna-* 'dark-colored', *xšaēta-* 'shining'.

pIE **teḱp-* 'cut', Av. *tataša* 'he has created', Skt. *tákṣati* 'they fashion'; in OP *us-lašanā-* 'staircase'.

pIE **teḱp-* and **teḱeqb-*, contaminated in OP *taxš-* 'be active', pres. *ha-taxšatāiy* (see Lex., s.v. *taxš-*).

pIE **qeḱ-s-*, probably in OP *caša-m* 'eye', cf. Av. *cašman-* 'eye', Skt. *calṣas-* 'eye' (see Lex. s.v. *caša-*).

pIE **peiḱ-s-* in OP (aor.) *niy-apaišam* 'I engraved', cf. Skt. *piśāti* 'he cuts, adorns'. For OP *xšn-* from pIE *ǵn-*, see §96.

§103. pAR. *k* AND *g* BEFORE CONSONANTS (other than *s*, §102) in OP: there are the following examples:

I. pAr. *kr* became pIr. *xr* (§74, I):

OP *xraθu-* 'wisdom', Av. *xratav-*, Skt. *krātu-* 'power'.

OP *θuxra-* (man's name), Av. *suxra-* 'red', Skt. *śukrá-* 'bright'.

OP perf. opt. *caxriyā*, Skt. *cakriyāt*, to root *kar-* 'make, do'.

II. pAr. *km* became pIr. *xm*, remaining in Av. and Median, but becoming *hm* in OP (the *h* omitted in writing):

OP *tazma-* 'brave', with Med. *-xm-* in the name of the Mede *Tazmaspāda-* and of the Sagar-tian *Ciçatazma-*; Av. *tazma-* 'brave'.

OP *tauxmā-* 'family', cf. with different suffix Av. *taoxman-* 'seed', Skt. *tókman-* 'green blade of barley'.

Perhaps in OP *amaxmatā* (see Lex. s.v. *amaxamatā*), where the relation to other forms from the root *kam-* (if this etymology be correct) prevented the further change of *xm* to *hm*.

III. Other examples of earlier *k* before consonants are found in the province-name *Bāxtri-*

'Bactria', the month-name *Vīyaxna-*, and the inv. *razθatuv*, of uncertain meaning and connections.

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

Paligrabanā, a town in Parthia, perhaps to OP *grab-* (pIE **ghrebh-*), which elsewhere appears in OP only as *garb-* (graphic for both *garb-* and *grb-*).

tigra- 'pointed', also in *tigrazanda-*; *Tigra-*, a fortress in Armenia; *Tigrā-* 'Tigris', borrowed from Semitic.

-gmata- 'gone', to root *gam-*, in *parāgmatā hagmatā Haymatāna-*.

Bagābignu- a man's name, see Lex. s.v.

Sugda- a Persian province, also *Suguda* with anaptyxis (§128).

But pIE *-gh-to-*, becoming *-gdho-*, pIr. *-gda-*, was in OP replaced by *-kt-* (analogical to *-gt-* becoming *-kt-*): *duruxtam* 'false', etc. to pres. stem *duruxtiya-*, cf. *drauga-* 'the Lie' (palatalization only in the present stem, where there is the suffix *-ǵo-*).

§104. pAR. *č̥* became *š̥* in Av. and OP (graphic *-šiy-* in OP, §25):

pIE **q̥iḱelo-*, OP *šiyāta-* 'happy', GAv. *šyāta-* 'joyous', Lt. *quiētus*.

pIE **q̥iḱēti-*, OP *šiyāti-* 'happiness', cf. Lt. *quiēs*, gen. *quiēt-is*.

pIE **q̥iḱey-*, OP *ašiyava* 'he set forth', Skt. *ác̣yavat*, Gk. (Hom.) aor. ἔσσειε 'he put into motion'.

§105. THE CLUSTER *-s-č-* appears in OP with reduction to *s* in *pasā* 'after', from pIE **po-sq̥ē-*: cf. Av. *pascā*, Skt. *paścā*. The evidence of Sasanian Pahlavi shows that this value alone is phonetic in OP (Bv. Gr. §114), and that the *-šč-* which is seen in some sandhi combinations, belongs rather to Median: OP *kašciy* 'anyone' from pIE **q̥os-q̥iḱid*; *manaš-č[ā]* DNb 32 from **menos-q̥e*. On *zūra-kara* 'evil-doer' from **zurah-kara-*, see §119.

The sandhi product of *-d c-* has a similar variation: OP *s* (not attested) and remade *c* (§130), Med. *šc*; there are the following examples:

pIE **ed-q̥iḱid*, OP *acyi* 'then', Av. *ač̣iḱi*.

pIE **iḱod-q̥iḱid*, OP *yacyi* 'when', Av. *yač̣iḱi*.

pIE **q̥iḱid-q̥iḱid*, OP *cišciy* 'anything', with Med.