

Kratylos

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Prof. Dr. Olav Hackstein, Ludwig-Maximilians-Universität München, Lehrstuhl für Historische und
Indogermanische Sprachwissenschaft, Geschwister-Scholl-Platz 1, D-80539 München
E-Mail: olav.hackstein@lrz.uni-muenchen.de, <http://www.indogermanistik.uni-muenchen.de>

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Avestan Research 1991–2014

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1. Research surveys

This survey is a continuation of the review of the years 1972–1990 by Kellens 1991, which in turn followed on Kellens 1971 [1973] and 1973 [1974] for the years 1963–1971 and Duchesne-Guillemain for the years 1900–1962. Some of the publications covered by the present review are also dealt with by Peters 1994, Tremblay

2005, 2008 and (especially for Old Persian, Middle and New Iranian languages) 2009, Rossi 2008 [2010], 111–116 and Mayrhofer 2010–2011. References to individual points of Av. grammar are provided by Hoffmann & Forssman 2004, 247–282. Cantera 2002 lists publications on the Zoroastrian religion and Stausberg 2008, 570–574 studies of Avestan texts as part of a larger review of the state and prospects for Zoroastrian scholarship.

2. The name “Avesta”

The term Avesta is based on a form which in the Zoroastrian Middle Persian texts appears in Pahlavi script as ʾp̄(y)stʾk and in Avestan script (Pāzand) as *avastāk*. The various explanations that have been proposed agree in positing a nominal derivative with the suffix *-aka-* from a verbal compound, but discussion as to the identities of the underlying root and preverb is ongoing. The verbal roots commonly adduced are *stu* ‘to praise’ and *stā* ‘to take position’. The former is employed in Bartholomae’s explanation, according to which the term derives from Av. **upa-stāyaka-* and means ‘praise’.¹ Kellens 1998, 515f. finds support for this analysis in Avestan phraseology in so far as the verbal compound *upa-stu* in Y 10 governs the noun *haoma-*, and the latter in turn occurs often at the beginning both of the Yasna and of the other inner rituals based on it. According to him, *abestāg* < **upa-stāyaka-* characterizes the Avesta as the book which begins with the praise of Haoma (“livre qui commence par l’éloge-catégoriel de Haoma”).

Sundermann 2001, by contrast, argues that the name “Avesta” represents MP *abistāg* (< OIr. **api-štāka-* ‘admonition’) and means ‘the Injunction (of Ohrmazd)’. Elaborating on a proposal by Henning 1946, 725, according to which MP *abistāg* means ‘the Injunction (of Zoroaster)’ and belongs with Sogd. (ə)pštāwan (pštʷnh in Sogd. script, ʾpštʷn in Manichaean script, < OIr. **apištāwan-*, cf. OP *ništāwan-* ‘order’), he notes that Christian Sogdian pštʷn [*paštāwan*] translates Syriac dytq’ = Grk. διαθήκη ‘testament’ in the name for the Christian New Testament. He suggests that *abistāg* came to be used for the Zoroastrian sacred texts at the time they were committed to writing. In choosing this word for the written Avesta, the Zoroastrians of the Sasanian period were emulating Jews and Christians, who perceived of their own scriptures as divine revelations of the will of God.

3. The Avestan alphabet

Since Hoffmann and Narten’s 1989 detailed study of the letters of the Avestan alphabet and their phonetic properties, there is general agreement among scholars that the script was designed to represent the Avestan language as it was pronounced at the

¹ Bartholomae 1906, 108. For further references on the debate, see Hintze 2009, 1 with fn.2.

time the texts were written down, even if it was little, if at all, understood. Each of the at least 53 letters represents a sound that was identified as acoustically distinct when the Avestan script was devised. The alphabet is thus the result of a deliberate attempt to provide a written counterpart to the recitation of the Avesta but with no orthographic rules and no historical spelling.² Twelve of the letters and the Pahlavi ligature 𐬨 for the Avestan sound x^v are directly taken from the Pahlavi script as it appears in extant Zoroastrian manuscripts.³ Moreover, three letters (γ , j , d) derive from a more archaic variety which is attested both on a bronze processional cross from Herat, probably dating from 730 or 740 CE, and in a Middle Persian translation of the psalms from Turfan. The manuscript of the Pahlavi psalter must have been written after 552 CE because it includes the ecclesiastical canons of Mar Abā (patriarch 540–552).⁴ On the basis of the to date unpublished results of C14 analysis conducted in 2008 by Prof. P.M. Grootes at the Leibniz-Labor für Altersbestimmung und Isotopenforschung, University of Kiel at the request of Dieter Weber, the latter concludes that the paper of the Pahlavi psalter dates from the first half of the tenth century. Its script and contents, however, are likely to be much older and could go back to at least the sixth century CE. The Avestan alphabet follows the model of the Greek one for writing vowels and for the shape of some of its letters, in particular for ϑ , y , v .⁵ Influence of the Manichaean script has also been considered.⁶

The time by which the Pahlavi script had reached the form in which it appears in the Zoroastrian manuscripts constitutes the *terminus post quem* for the invention of the Avestan alphabet. The fourth century CE date which Hoffmann favoured was based on that of a Pahlavi inscription on a sacrophagus lid from Constantinople, but de Blois 1990 has adduced compelling and widely accepted arguments that the lid in fact belongs to the Islamic period, perhaps to the 9th or 10th century CE. Among the earliest witnesses for the Pahlavi cursive are the ca. 1,000 papyri, parchments and linen fragments from Elephantine, dating from the decade of the Sasanian occupation of Egypt (619–629 CE).⁷ While most are written solely in Pahlavi cursive, a few (in

2 Hoffmann 1971, 67 (= 1975, 319).

3 Hoffmann & Narten 1989, 25 observe that the Avestan phonetic value x^v for the Pahlavi ligature 𐬨 indicates that then Avestan alphabet is based on the Pahlavi rather than the Psalter script because in the latter [xw] is written differently. Durkin-Meisterernst 2006, 5 fn.3 concludes that a variety of local scripts were in use in the Sasanian empire.

4 Dickens 2013, 363 with references; Durkin-Meisterernst 2006. For a survey of the Middle Persian texts in Pahlavi script from Central Asia, see Durkin-Meisterernst 2014, 22-23.

5 Hoffmann & Narten 1989, 29; Panaino 1997 and 2012, 80.

6 Cantera 2004, 158 fn.166.

7 The Pahlavi papyri are surveyed by Weber 2013.

particular P.144, written on linen, and P.156R, written on leather) also attest the Pahlavi book script, which likewise exhibits cursive features.⁸ Moreover, the latter script occurs in the four fragmentary lines of the parchment P. Pehl. 346 (Vienna), published by Weber 2009, 312f. Its Zoroastrian content clearly emerges from the expression MN dlwnd 'hlmn' [*az druwand ahreman*] 'from deceitful Ahreman'. Although the fragment was found in Egypt, Weber 2013, 231 suggests that it is part of a literary work imported from Iran. The cursive form of the Pahlavi script had made its way into glyptic and sphragistic monuments by the reign of Husraw I Anōšīrwān (531–579 CE), and Cereti 2008, 187–191 argues that it must have been current for some time before being considered acceptable on seals, coins and inscriptions.⁹ According to Huyse 2008 the reign of Husraw I is the most plausible period for the invention of the Avesta script not only on palaeographic but also on historical grounds, because in the wake of Mazdak's revolt members of the religious elite would probably have felt the need for a written scriptural canon to reaffirm and consolidate their authority. On the other hand, Rezania 2012 argues that the Mazdakite movement was significant for the canonization of the Zand rather than for the writing down of the Avesta. Presently, and in agreement with earlier writers like Spiegel,¹⁰ Nyberg,¹¹ Henning and Bailey,¹² most scholars do favour the sixth century, in particular the reign of Husraw I, for the period during which the Avesta script was devised.¹³ Cantera 1999a, 175–177 argues for the existence of a written version of the Pahlavi translation of Avestan texts, including the Vidēvdād, by the sixth century CE. It is conceivable that such a Pahlavi version of the Avesta was already available in written form by the time the Avestan script was created.¹⁴

Presumably the Avestan script was invented only once in one particular place at one particular time. Assuming that this happened during the reign of Husraw I in the province of Pārs, the centre of priestly and royal power in Sasanian Iran, at least one Avestan recitation would then have been committed to writing. While scholars generally agree that the Avestan script is the product of a deliberate invention, they continue to debate as to which sort of text was written down when the script was devised.

8 See Weber 2003, 30f., 42–46 and Plates XIX and XXVI. I am grateful to Professor Weber for drawing my attention to these two documents.

9 The evidence for the Pahlavi cursive script is surveyed by Panaino 2012, 79f., with references.

10 Spiegel 1882, 587.

11 Nyberg 1938, 415.

12 References in Cereti 2008, 176.

13 See Kellens 2012, 52 with fn. 13 for references.

14 Cantera 2004, 134, 163, 229.

Hoffmann and Narten implicitly assumed that it was the 21 Nasks of the Avesta as described in book 8 of the Dēnkard,¹⁵ while Kellens (followed by Cereti 2008, 177) proposed that it was the various rituals, including those surviving in the extant manuscripts, which were committed to writing.¹⁶ More recent hypotheses are that both the Dēnkard Avesta and the liturgical Avesta were written down when the alphabet was conceived,¹⁷ or that the Dēnkard Avesta or parts of it rather than the individual rituals were committed to writing then.¹⁸

Regardless of the, possibly unanswerable, question as to which particular Avestan texts initially appeared in the newly invented script, it was at that time that the first codex written in Avestan was produced. From then onwards the Avestan alphabet was available for further written representations of the Avesta recitations in addition to those in the Pahlavi script and language. Presumably the Avestan script then spread from its birthplace to other areas where Zoroastrianism was practised and so enabled the liturgies and possibly also the largely lost Avestan texts described in the Dēnkard to be written down, although it may not have done so much beyond the areas where the Pahlavi script was also used. Since the Avestan script represents a phonetic reality with no orthography (or continues a pre-existing orthographic tradition?), it is likely that spelling variations of individual words were present from the beginning, depending on how a word was pronounced in a particular context. No doubt they increased in the course of time as the alphabet was disseminated into more distant regions where Avestan pronunciation could well have been different from that of the province of Pārs. It is conceivable that Avestan manuscripts dealing with a variety of rituals and learned literature existed alongside the oral tradition in different areas where Zoroastrianism was practised. However, from the beginning of its written fixation onwards, the literary Avesta is that of the province of Pārs, and this is the only tradition that has survived to the present day.

The existence of religious and historical writings among the Zoroastrians of Choresmia before the Arab conquest is mentioned by Al-Biruni.¹⁹ In connection with their survey of the evidence for Zoroastrian books among the Sogdians, De Vaissière & Riboud 2003 discuss a number of Chinese reports, copied in 885 CE but relating events from before 640 CE, according to which texts recorded on silk and numerous paintings were kept in the fire temples of the religion *xian* (= Mazdayasnian) in Dunhuang and Hami. They interpret the former as pointing towards the existence among

15 Hoffmann & Narten 1989, 17 fn.12.

16 Kellens 1998, 479.

17 Tremblay 2008, 6 postulates three archetypes, Panaino 2012, 86–87 two.

18 Cantera 2012, XIV.

19 Zeki Velidi 1936, *28*.

the Sogdians of written Zoroastrian sacred texts from before the Muslim conquest and the fragments of a Sogdian mural painting from Panjikent, dating from the 740s CE and discovered in 1999, as providing further evidence for a written Avesta. The painting shows the public parading of a golden half-statue emerging out of a large, adorned codex.²⁰ Grenet interprets the figure, which holds a mace in his right hand, as representing the deity Sraoša and suggests that its emergence from a book illustrates his Avestan epithet *tanu.mā.9ra-* ‘whose body is the sacred formula’, as Sraoša is closely associated with the sacred texts, especially the five Gathas, which he recites (Y 57.8).²¹ That the Sogdian script was indeed employed to write texts in Avestan language is shown by a unique Zoroastrian fragment from ca. the 9th century CE, kept in the British Library and published by Sims-Williams 1976, 46–48, of 10 lines that begin with the *ašəm vohū* prayer.²² Its language is probably an archaic form of Avestan unaffected by the south-west Iranian tradition that survives in all the extant manuscripts of the Avesta. Regarding a survey of the scholarly discussion of the Sogdian *ašəm vohū*, Cantera 2004, 137–139 draws attention to the legendary tradition of a written Avesta among the Sogdians found in the Pahlavi text *Šahrestānīhā ī Ērān* 4,²³ according to which in Samarkand 1,200 fragards of the Religion (*dēn*) were written on golden tablets at the order of Vištāsp and deposited in the treasury of the fire temple.

4. The Avesta described in the Dēnkard and the Avesta of the extant manuscripts

The relationship between the Avesta of 21 Nasks described in the Dēnkard and the Avesta of the extant manuscripts is subject to ongoing investigation. As there is obviously only partial agreement between the two, it has been widely assumed that the extant Avesta is the remnant of those 21 Nasks, three quarters of which were lost following the Turkish and Mongol invasions of Iran in the 11th and 13th centuries. Elaborating on the view first put forward by Spiegel in 1881, according to which the extant Avesta comprises rituals selected from the Dēnkard Avesta for liturgical purposes,²⁴ Kellens 1996 and 1998 suggests that, rather than the extant Avesta being the random “wreck” (“naufage”) of the Dēnkard Avesta, the two distinct text corpora

20 For a reproduction of drawings of the painting, see Shenkar 2013, 217.

21 Grenet 2006 [2010], 96 and *apud* de la Vaissière & Riboud 2003, 134–135.

22 Gershevitch *apud* Sims-Williams 1976, 75–92. For references on the Mazdayasnian, rather than Manichaean, provenance of the fragment, see de la Vaissière & Riboud 2003, 129 fn. 6.

23 The passage is quoted and translated by Cantera 2004, 115. The most recent edition of this text is Daryae 2002.

24 For references, see Kellens 2012, 53 with fn.15.

developed independently from each other over a long period of time. He argues that the extant Avesta in fact incorporates complete and ancient rituals that may date back to at least the Achaemenid period, but probably even earlier. According to him, the sources testify to the existence of *two* collections of Avestan texts at the end of the ninth century CE, one being the ritual Avesta, with roots reaching back to Old Iranian times, and the other that of 21 Nasks as described in the Dēnkard. In Kellens's view the Dēnkard Avesta only existed in oral form and was never written down. It disappeared from the memories of the priests in the wake of the Turkish and Mongol invasions.²⁵

While Kellens's conclusions on the antiquity of the rituals incorporated in the extant Avesta have been widely accepted, the question of the relationship between the Dēnkard and ritual Avestas still remains open. Most of the extant Avestan texts are recognizable in the Dēnkard summaries, though arranged differently. The extant literature also incorporates two complete Nasks from the Dēnkard, the Stōt and Vidēvdād Nasks, and quotes passages from those which are otherwise lacking. In particular, citations in Avestan and Pahlavi from the largely lost Sagādom survive in the Farhang ī Ōim.²⁶ In addition to including the latter, the extant Avesta also incorporates other didactic literature not meant to be recited during rituals. Kreyenbroek 2008, 81 notes that such non-liturgical texts include the Ērbedestān and Nērangestān, the latter described in the Dēnkard as belonging to the Huspārām Nask. Cantera 2004, 27 concludes that the extant Avesta contains two types of texts: the ritual Avesta and fragments of the Dēnkard Avesta.

It has long been recognized that the Dēnkard summaries of the contents of the 21 Nasks of the Avesta are based on the Pahlavi, rather than Avesta version. Cantera presents the evidence which supports this view and concludes that in the ninth century most of the 21 Nasks which the Dēnkard describes comprised both the Avestan version and its Pahlavi translation and commentary. The ritual Avesta, by contrast, consisted only of the Avestan text. According to Cantera, the extant Pahlavi version of the ritual texts ultimately derives from the Dēnkard Avesta.²⁷

5. The rituals and manuscripts of the extant Avesta

Kellens 1998, 479 and Panaino²⁸ conclude independently from each other that the extant Avesta incorporates two liturgical collections: a longer one, which includes the

25 Kellens 1998, 479, 487f.; 2006a, 25f.; 2012, 53.

26 Cantera 2004, 17 discusses some of these quotations.

27 Cantera 2004, 16, 134.

28 For publications by Panaino on this point, see the references provided by Kellens 2012, 53 with fn.15 and Panaino 2012, 86 with fn. 71.

Yasna, Visperad and Videvdad and a shorter which comprises the Khorde Avesta and Yašts. The former represent so-called “inner” rituals to be performed inside the fire temple only by priests, the latter “outer” ceremonies to be carried out in any clean place by both priests and laypeople.

The extant Avestan manuscripts²⁹ of the inner rituals are of two types, *sāde* or ‘pure’, and exegetical. The *sāde* manuscripts provide both the Avestan recitation text and the instructions for the accompanying ritual actions. They represent the transcriptions of a variety of different high rituals. Being intended for the practical use of priests, *sāde* manuscripts of discontinued liturgies ceased to be copied and so fell into disuse. Such ceremonies include the long lost Bagān Yasn, in which the Yašts were inserted into the Yasna cum Visperad on the model exemplified by the Vištāsp Yašt Sāde.³⁰ Cantera 2012, 465 with fn. 28 suggests that the *sāde* manuscripts reproduce the Avestan text and ritual instructions for the training of priests while the exegetical ones were designed for the academic study of the sacred texts.

In the exegetical manuscripts the Avestan text is divided up into small cola of a few words each and alternates with the Pahlavi translation and commentary (*zand*). In principle they do not entail ritual instructions, although they are present in a third group of manuscripts represented by the Pahlavi Yasna manuscript Pt4 which provides the Avestan text together with the Pahlavi version. In the *Prolegomena* to his Avesta edition, Geldner had assumed that the *sāde* manuscripts originated from the exegetical ones by omission of the Pahlavi version.³¹ By contrast, Kellens 1998, 476f. and Cantera 2004, 28 argue that the *sāde* mss. represent a genuine ritual tradition. That in fact the Pahlavi Yasna mss. descend from an ancestor in which the Avestan text was taken from one manuscript and combined with the Pahlavi version taken from another one, is explicitly recounted in the elaborate Pahlavi preface to the ms. family of the Iranian Pahlavi Yasna Pt4, studied by Cantera & de Vaan 2005. The history of the Pahlavi Vīdēvdād, however, could be different as, in contrast to the Yasna, this text formed a self-contained, complete *nask* of the Dēnkard Avesta and could thus represent an old *abestag ud zand*.

Avestan palaeography, the significance of which is emphasized by Piras 2005, 171–174 and Cantera 2013c, 347, has so far attracted relatively little attention, but has

29 For a recent survey of the Avestan manuscripts, see Cantera 2013a and 2013c.

30 Kreyenbroek 2008, 254–256; Cantera 2009; König 2012; Kellens 2012a, 475.

31 This assumption generally underlies Geldner’s approach to the *sāde* manuscripts, which are later in date than the oldest Pahlavi Yasna and Pahlavi Vīdēvdād mss. For instance, Geldner 1889–1896 I xxx regards the Yasna *sāde* mss. L17 and B3 as “excerpted” from the Pahlavi Yasna ms. K5. Geldner 1889–1896 I xxxiii f. summarizes his view of the relationship between the *sāde* and exegetical mss.

been studied by Hintze 1989 and 1991 with regard to the spelling conventions of Yašt manuscripts. Boroumand 2005 and 2008 discusses the palaeography both of individual scribes and of illuminations and decorations. According to Cantera 2013c, 347 some letters changed their phonetic value in the course of the tradition and new letters were created. Since most of the illuminations, including, for instance, images of cypress trees, are found in manuscripts of the Vidēvdād, Cantera 2013c, 347 suggests that they originate from the Vidēvdād Nask of the Dēnkard Avesta and from there found their way into the liturgical manuscripts. With regard to the use of red ink in Av. manuscripts, where it highlights titles and sections of texts, abbreviations, repetitions and recitation instructions, Panaino 2003, 42–43 concludes that, rather than having an ornamental function, the distinctive colour serves to aid the priests when navigating through the pages during ritual performances and may have been employed since the first written version of such texts.

The oral character of the Avestan texts is emphasized and exemplified by Skjærvø 1994 and addressed by him on numerous other occasions (summary in Skjærvø 2012, 42–43). With regard to the Avesta and Rigveda, Hintze 2000 discusses the stages of oral composition in performance, and of oral and written transmission. Skjærvø 2012 analyses processes of learning and performing texts in the Zoroastrian oral tradition. With recourse to terminology coined in oral poetry studies, he refers to fixed formulae in Avestan texts as ‘building blocks’ and proposes an approach which analyses “how the short and long building-blocks were assembled and how new text was added as mortar, as it were, to hold them together” (2012, 25).

6. Editions of Avestan texts

To the present day Avestan Studies largely rely on two monumental works, both published more than a hundred years ago: Karl Friedrich Geldner’s edition of the Avesta of 1889–1896 and Christian Bartholomae’s *Altiranisches Wörterbuch* of 1904. During the twentieth century no need was felt to replace Geldner’s Avesta edition because his work was considered to be authoritative and definitive. Consequently, later editions of individual parts of the Avesta are based on the text as found in his edition and usually reproduce the variant manuscript readings as recorded by him in the textual apparatus. Examples of such editions include Gershevitch 1959 and Kreyenbroek 1985. However, other editors including Narten 1986, Panaino 1990, Hintze 1994 and 2007 and Goldman [forthcoming] went beyond Geldner by re-examining some of his manuscripts and including new ones that were unavailable to him.

The (re-)discovery in 1989 by Hintze (JamaspAsa 1991: VII) of the important Yašt codex F1 and some other manuscripts together with a study of the spelling peculiarities of it and other manuscripts (Hintze 1989, 1991) revealed that Geldner’s edi-

tion did not consistently mark spelling variations in a particular manuscript. Moreover, Gippert pointed out mistakes in Geldner's variant readings (2000, 144) and noted that a particular shortcoming of his edition of the Yasna consisted in his only recording manuscript readings of its own liturgy, though for an understanding of its text it is also important to take into account the liturgical traditions of the Visperad, Vidēvdād and Vištāsp Yašt Sāde (2002, 174ff.). Cantera 2012b emphasizes that the 1889–1896 edition projects a distorted picture of the Avesta because Geldner focuses on its exegetical tradition (cf. above with fn.31) while largely ignoring that which is recited in a number of different rituals and preserved in the *sāde* manuscripts. Andrés-Toledo 2012 critically assesses the editorial method employed by Geldner. The shortcomings of Geldner's edition may be summarized as follows:

1. Although Iranian mss. are in fact the most important text witnesses, Geldner had access to only a few of them. Hence they are significantly underrepresented.
2. Geldner edited the Avestan text as found in the bilingual Avestan–Pahlavi manuscripts, which happen to be the oldest, but largely ignored those of the ritual *sāde* tradition.
3. When taking text-critical decisions, Geldner usually gives preference to the mss. oldest in age and overlooks readings in better, but later mss.
4. In Geldner's editorial work, the stage of *Recensio*, in which the text-critical value and genealogy of the manuscripts are examined, followed, rather than preceded the work on his edition. As a result, his choice of manuscripts was based not on text-critical considerations but on chance and so he used text-critically relevant and irrelevant manuscripts indiscriminately.
5. The readings of some crucial witnesses, such as the Iranian Pahlavi Yasna Pt4, are given inconsistently while other important ones, in particular the Pahlavi Yasna codex Mf4, are not included. Thanks to Alberto Cantera's work (see below), many more, especially Iranian manuscripts are now available and need to be considered.
6. The text-critical apparatus lists variant readings in no particular order rather than according to manuscript classes.
7. The readings of many manuscripts held in European libraries are based not on Geldner's own collations but on those of his predecessors and often perpetuate their mistakes.
8. Geldner's edition is incomplete. Important texts, such as the Hādoxt Nask, the Vištāsp Yašt and Fragments Westergaard and Darmesteter are not included.

During recent decades a variety of electronic resources have been developed that greatly facilitate the study of the Avesta. Particularly noteworthy in providing online versions of large bodies of texts are projects such as Jost Gippert's TITUS (Thesaurus Indogermanischer Text- und Sprachmaterialien) website, <http://titus.uni-frankfurt.de/indexe.htm>, which offers a wide range of textual materials. Sonja Gippert-

Fritz's transliteration of the Avesta, although based on Geldner, also offers texts not included in his edition. Moreover, Michiel de Vaan has supplemented her text of the Yasna with variant readings from some manuscripts which Geldner did not use, most notably the Iranian Pahlavi Yasna Mf4. The website thus provides not only the romanized text but also a database of variant readings of several manuscripts. Furthermore, Alberto Cantera initiated a digitization project of Avestan manuscripts in the course of which he located a considerable number of hitherto unknown ones in both India and, especially, Iran, although to date not a single Pahlavi Yasna manuscript has been found in Iran itself. Since 2007 Cantera has made digital images freely available on the website of the Avestan Digital Archive (<http://www.avesta-archive.com/>). The collection consists of a constantly expanding number of manuscripts, to date chiefly of the Long Liturgy. The volume *The Transmission of the Avesta*, edited by Cantera 2012, comprises several surveys of such manuscripts, in particular of the Yasna and Yasna ī Rapithwin by Hintze and of the Vidēvdād by Andrés-Toledo & Cantera. In the same volume, Ursula Sims-Williams discusses Zoroastrian manuscripts in the British Library, London and Kotwal & Sheffield those in the First Dastoor Meherjirana Library in Navsari, India. Mazdapour presents twelve newly found manuscripts from Iran, while a Vidēvdād Sāde manuscript from the Astan-Qods Library in Mashhad, Iran is both described and published in facsimile by Jahanpour 2012 and 2010 respectively.

While the Older Avesta was the chief subject of text editions in the twentieth century, and was studied again by Hintze 2007 and West 2010, the focus of editorial work during the survey period has shifted to the Younger Avesta. Kellens 2006, 2007, 2010, 2011 and (with C. Redard) 2013 include a French translation of the Yasna and Visperad accompanied by an interpretation of the structure of the rituals. Kotwal and Kreyenbroek 1992–2009 provide an edition of the Hērbedestān and Nērangestān with translation and notes, and Raffaelli 2014 of the Sīh-rōzag. Cantera's 2002, 198–202 survey of editions of Avestan texts for publications between 1975 and 2002 is complemented by that of Bichlmeier 2011, 25–26 for more recent editions. Hintze 2012a, 422–424 discusses ongoing editorial projects.

Hoffmann's definitions of the phonetic value and properties of the individual characters of the Avestan script are widely accepted.³² However, the postulated one-to-one match between the letters and the sounds they represented at the time of the invention and first use of the Avestan alphabet contrasts markedly with the bewildering variety of phonetic realities displayed by the extant manuscripts, in which a word's spelling may vary both within the same and across different manuscripts. Cantera 2012, 466–

32 Cantera 2012, 463–465 provides a summary of the chief editorial principles derived from this conclusion.

468 discusses the question of how to edit Avestan forms in view of, on the one hand, the proposal that each letter of the script has only one phonetic value and, on the other, of the fact that in the extant manuscripts one and the same word is often spelt in different ways. The editor has to decide at the outset whether the edited text represents that found in one particular manuscript or whether a normalized text is arrived at on the basis of multiple manuscript readings. While the former approach produces an edition of a text that is actually attested but lacks consistency in the spelling of individual words, the latter generates a more uniform version, but one that, being removed from the reality of the actual manuscripts, is to some extent hypothetical.

This dilemma results from the property of the Avestan alphabet being a phonetic rather than a phonemic script. While the grammatical system of the texts' language dates from Old Iranian times and the script that encodes their pronunciation from the late Sasanian period, the extant manuscripts reflect the texts' pronunciation that was subject to local variation and change over time. Moreover, the script itself was to some extent open to variation and could be adapted to the recitation. Whichever of the two approaches outlined above an editor chooses, either is a compromise and both can be justified although they have differing objectives. The former results in a faithful reflection of a particular recitation of a particular liturgy. Aiming at documenting the variety of Avesta liturgy at different places and different times, this approach serves the study of, for instance, both local variations of recitation and of priestly schools in the historical setting of the Zoroastrian tradition as witnessed by the manuscripts. By contrast, the approach of constituting a text is based on the postulate of a one-to-one relationship between a sign of the Avestan alphabet and the particular sound of the Avestan pronunciation which a particular letter is thought to have represented at the time the script was invented. While also starting from the multiple realities of the spellings reflected in the extant manuscripts, assuming an initial one-to-one relationship between sign and sound, this approach introduces a certain degree of orthography into the scholarly edition in so far as a particular word form is spelt consistently throughout regardless of the manuscript readings, which are provided in a text-critical apparatus.

7. Pahlavi translation of the Avesta

Cantera 2004 discusses the history of research on translation, dating and transmission of the Pahlavi version of the Avesta, together with the translation technique employed by its translators. Based on the edition by Dhabhar 1949, Malandra & Ichaporia 2010 provide a transcription and glossary of the Pahlavi version of the Gāthās and Yasna Haptañhāiti, the Avestan text with its Pahlavi rendering and an English translation of both versions of Y 28. Recent editions of Pahlavi versions include Josephson 1997 on Hōm Yašt, Macuch 2009 on Hērbedestān chapter 5, Moazami 2014 on the

Vidēwdād and several as yet unpublished PhD dissertations, notably Miguel-Ángel Andrés-Toledo on Vd 10–12, Céline Redard on Vd 19 and Arash Zeini on the Yasna Haptaṅhāiti. These works are characterized by an approach that takes the Pahlavi version as a text in its own right, rather than as a mere aid to interpreting the Avesta.

8. Dictionaries

The only dictionary that covers the entire Avesta remains Bartholomae's *Altiranisches Wörterbuch*, published in 1904. Attempts have been made to replace it, but so far none has come to fruition. Bernfried Schlerath's Avestan dictionary project listed secondary literature and textual parallels, but ground to a halt after the publication of two volumes of *Vorarbeiten* (Schlerath 1968). The *Lexikon der indogermanischen Verben*, in its second edition by Kümmel & Rix 2001, includes the Avestan material and is constantly being updated in an online resource, see <http://www.martin.kuettel.de/liv2add.html>. Cheung 2007 locates Avestan verbs in their Indo-European and Iranian contexts, with cognates from a wide range of Middle and New Iranian languages, and so does Morgenstierne's 2003 *New Etymological Vocabulary of Pashto*. Doctor 2004 provides a direct and reverse index of Geldner's 1889–1896 Avestan text together with lexicostatistical data in the form of lists not only of the distribution, frequency and combination of individual letters, but also of minimal pairs. Hintze 1994 includes a dictionary of the Zamyād Yašt and 2007 of the Yasna Haptaṅhāiti. Kellens 2005 discusses problems and prospects of Avestan lexicography.

9. Grammatical descriptions of Avestan

The most comprehensive recent survey of Avestan phonology and morphology is that of Hoffmann & Forssman 1996, second enlarged edition 2004, who discuss Avestan grammar in comparison with Vedic. Beekes 1997 surveys historical phonology of Iranian, Testen 1997 Avestan and Old Persian phonology in a historical perspective and Skjærvø 2007 Avestan and Old Persian morphology. Gotō 2013 examines the Indo-Iranian and Indo-European background to Old Indo-Aryan morphology in comparison with Old Iranian and Kobayashi 2004 the phonological development of Old Indo-Aryan consonants from Proto-Indo-Iranian. In addition, several concise grammatical descriptions of the language have appeared since 1990. Sims-Williams 1998, with a new version currently in preparation, surveys Avestan grammar both in the context of the Iranian languages as a whole and in its historical development from Indo-European. Historical overviews are offered by Hale 2004 of its grammar in comparison with Vedic Sanskrit and in an Indo-European perspective, Mayrhofer 1997 of Indo-Iranian, Tucker 2009 of Avestan and Indo-Iranian and, in the same volume, Skjærvø 2009a of Iranian languages. Skjærvø's 2009 description of Old

Iranian includes a substantial section on Avestan syntax, and Schmitt 2013 a survey of research. West 2011 discusses Old Avestan syntax and stylistics. An English translation of Martínez & de Vaan's *Introduction to Avestan*, which originally appeared in Spanish in 2001, was published in 2014. A *Urindoiranische Grammatik* by M.J. Kümmel is in preparation.

10. Metrics and Poetics

While there is no question but that the Gathas are metrical texts, the poetic nature of the Yasna Haptañhāiti is subject to debate, and this is discussed by Hintze 2007, 2–5. Elaborating on Narten's 1986, 18ff. division of the Yasna Haptañhāiti into smaller syntactic constituents, Watkins 2005, 232–240 challenges its designation as “prose” and argues that, although in contrast to the Gathas, its verse lines are not isosyllabic, it is not ordinary prose either. Rather, it is characterized by rhythmic speech and belongs to the genre of Indo-European ritual poetry. Hintze 2007, 21 concludes that the Older Avesta thus preserves two types of poetry of Indo-European ancestry: the syllable-counting stichic kind represented by the Gathas and the rhythmic strophic type by the YH.

Following the studies of Lazard 1984 and 1990, it is now widely accepted that the metre of the Yašts is dominated neither by an expiratory accent nor by the length of a syllable but by the octosyllabic verse line, although the many exceptions and the question of how to count syllables in Young Avestan remain unsolved problems (research surveys in Panaino 1989 [1992], 180–183, Hintze 1994, 52–54 and Kellens 2006b, 257–260). Huyse 2003, 48f. fn. 59 suggests that the YAv. metre combined syllable counting and accentual versification according to which each line consisted of eight syllables, three of which were accented. Pirart 2004, 149–248 addresses the problem of Young Avestan syllabification and, by way of a metrical analysis of the Hōm Stōm, identifies 31 rules (pp. 157–230), the validity of which is discussed and generally endorsed by Kellens 2006b. Schwartz 2006, 475–483, 495–497 argues that Y 9–10 is based on an OAv. octosyllabic prototype and that the older Yašts developed from octosyllabic cores overlaid by strata of non-syllable counting accretions. Riminucci-Heine [forthcoming] suggests that in addition to the standard octosyllabic verse line the metre of the Yašts allows for a variety of syllables per verse line and a flexible caesura.

The poetic structure and style of the Gathas have been studied by Schwartz in a series of articles, including those published in 1991, 1998, 2007, and 2006, where on pp. 497–498 he provides an analytical bibliography on Gathic poetics, focusing particularly on his own writings. He not only identifies parallelism and concentric ring-composition as its main structuring principles together with other poetic devices such as phonic encryptions, but also proposes proto-poems as the source from which the

Gathas arose. Schwartz 2006, 283–284 and 2007, 3–7 argues for the dependence of some passages of the YH on the Gathas. Moreover, he proposes that the linguistic parallels between the Hōm Stōm (Y 9–10) and certain Gathas are best explained on the assumption that both texts draw independently on a pre-Gathic Old Iranian composition in praise of *Hauma. Tremblay 2007, 685–688 highlights features shared between the Yasna ritual, on the one hand, and the Vedic Agniṣṭoma and *paśubandhu* rituals, on the other, and argues for their Indo-Iranian origin. Narten 1986, 21–23 discusses poetic figures in the YH and Hintze 2007, 6–20 compositional features that indicate a concentric structure within it. While variation and asymmetrical construction characterize the Gathas, Hintze 1995 argues that the preferred literary style of the Yašts is paratactical, with a parallel construction of verses, stanzas and narrative units, accompanying the use of poetic figures, ritornello and ring-composition. She 1994, 12–15 detects the latter as a structuring device in the Zamyād Yašt.

Hintze 2002, 33f. discusses Young Avestan passages that indicate that at the time of their composition the Old Avesta was arranged in the same sequence as it is now in the extant Yasna. Kellens 1995, 28 fn.20 and 2012, 57 notes that this observation applies not only to the Old Avesta, but also to the Young Avestan texts arranged around the Old Avestan middle section of the Yasna, in particular the *dahmā āfriti* (Y 60), *ātaš niyāyišn* (Y 63) and *āb zōhr* (Y 63–68). These texts are listed in reverse order in H 2.13. Avestan texts are referred to in various Avestan passages and are listed in the order in which they appear in the Yasna, thus indicating that in Old Iranian times the internal structure of the Yasna was the same as that in the extant Avesta. Kellens 1996, esp. 94–95, argues that the invocations of the Zoroastrian pantheon in the first eight chapters of the Yasna contain allusions to other texts. Those mentioned include the Older Avesta, parts (*hāiti*) of the Yasna, such as the *āstuiiē*, *dahmā vaṅ^vhī āfriti*, *ātaš niyāyišn*, and *āb zōhr*, together with the Visperad, Yašts and *dādīg* literature. Kellens concludes that the liturgical use of law texts constitutes an ancient part of Mazdayasnian ritual. Cantera 2009, 2013 and 2013b investigates the incorporation of texts into the Staota Yesniia in the Visperad and Vidēvdād rituals.

Skjærvø 2013 discusses quotations of the Gathas in the Younger Avesta, of which West 2008, 124 provides a provisional list. Hintze 2013 argues that the first eight chapters of the Yasna have a concentric structure that follows the model of the Yasna Haptaṅhāiti. Moreover, many ritual sections of the Younger Avestan Yasna are based on the pattern of the Older Avesta. Younger Avestan text composers were both able and at liberty to adapt Older Avestan passages to new, Middle and Young Avestan contexts (on Middle Avestan see below section 12). Tucker 2013 stresses the level of linguistic understanding shown by Younger Avestan text composers when citing and paraphrasing the Gathas, and interprets their observable practice of limiting Gathic

citations to either a verse-line or a whole verse, as evidence that these were memorized and explained in isolation from their wider context.

11. Periodisation of Avestan

There is general agreement that the Avesta constitutes a collection of heterogeneous texts whose language exhibits both diatopic and diachronic features. Since Martin Haug's discovery that the Gathas are linguistically distinct from the rest of the Avesta, scholars have characterized their language as *Gathic* Avestan. Narten 1986, 28–35 argues that linguistically the Yasna Haptaṅhāiti is as archaic as the Gathas, which it complements. While she attributes the minute linguistic difference to its poetic style which is different from that of the Gathas, Kellens & Pirart 1988–1991 vol.I, 36–39 consider them to indicate that the YH belongs to a different milieu and propose the term “vieil-avestique haptahâtique” for its language. Narten introduces the more general term Old Avestan, already used by H.S. Nyberg, to cover the language of the Gathas, the YH and the holy prayers (Y 27.13 and 54.1), leaving “Gathic” in a more specialized sense for the language of the Gathas only.³³ The expression Old Avestan has since become customary and has been incorporated in the titles of works by Kellens and Pirart, *Les textes vieil-avestiques* (1988–1991) and Humbach, *The Gāthās of Zarathushtra and the other Old Avestan texts* (1991). By contrast, Gershevitch 1995, 3, who regards the language of the Gathas and the Yašts as contemporary “sisters” descending “from one single prehistoric Avestan mother” (“proto-Avestan”), resorts to Bartholomae's “Gathic Avestan” for the language of the Gathas and the YH and proposes “Standard Avestan” for the rest of the Avesta.

Significant phonological and morphological differences between the language systems of Old and Young Avestan require the assumption of considerable diachronic (temporal) and diatopic (regional) dimensions of the texts. Nevertheless, their relationship is subject to an ongoing debate. Panaino 2007, 24–30 interprets their linguistic differences solely in diatopic terms, and argues that Old and Young Avestan are contemporary dialects and are descended from one common, Proto-Avestan ancestor. By contrast, Skjærvø 2003–4, 26–35, who surveys Old Avestan features in comparison with Young Avestan and linguistic similarities between Young Avestan and Old Persian, considers Old Avestan to represent a late form of Proto-Iranian and the ancestor of both Young Avestan and Old Persian. De Vaan 2003, 5–10, 611–614 and

33 Nyberg 1938, 5 suggested the term Old Avestan for the language of both the Gathas and the YH. Narten 1969, 236f. with fn.19 (= 1995, 150f.) and 1986, 7, 9 and *passim* uses it consistently. On the texts to be considered as Old Avestan, see Kellens 1989, 36, Hoffmann & Forssman 2004, 32f. (who include the *ašəm vohū*-prayer, Y 27.14) and Tremblay 2006, 247 fn.60.

passim also regards Young Avestan as the direct descendant of Old Avestan and the latter's vowel system as being very close to Proto-Iranian. He attributes all linguistic differences between Proto-Iranian and Young Avestan to the chronologically more recent stage represented by Young Avestan (2003, 612). That Old Avestan is chronologically older than Young Avestan is also assumed in yet another model, according to which the two derive from dialectally slightly different varieties of Proto-Avestan. This view is supported with reference to Young Avestan linguistic features that are considered unlikely to have arisen via a linear descent of Young from Old Avestan. These include instances in which Young Avestan agrees with Vedic against Old Avestan.³⁴ The notion that a considerable time elapsed between the Old and Young Avestan periods is supported by doctrinal developments (Kellens 1987; Stausberg 2002, 117–156).

12. Middle Avestan

Tremblay 2006 and 2007, 683–685 argues for a middle stage between Old and Young Avestan. According to him, the so-called “Pseudo-Old Avestan” passages in the Yasna,³⁵ previously widely regarded as merely superficially imitating OAv., are in fact dialectally different from OAv., though barely less archaic. Tremblay 2006, 267, 274–279 distinguishes six categories of these texts and suggests that it is they that represent the direct ancestor of Young Avestan. Although he uses the term “pseudo-gathique” in his 2006 publication, he proposes to call this language stage “archaic Young Avestan” or “Middle Avestan” (p.267, 276).³⁶ With regard to the ‘Formula of the Cattle Breeder’ (*fšūšō maṇrō* Y 58), the *fraorāiti hāiti* (Y 11.17–13.3), which together with Y 56.1 he identifies as the most archaic stratum of Middle Avestan, he lists 42 linguistic features (pp. 260–265), of which nos. 1–24 are absent from OAv. and nos. 25–41 from YAv. Kellens 2007, 104–110 critically reviews these traits but discards some (e.g. nos. 13 and 30). However, he endorses Tremblay's contention that the language, although closely similar to OAv., is not just an imitation of it (“pseudo-OAv.”). Rather, it is the idiom of original compositions which are more archaic than Young Avestan and for which the term Middle Avestan is appropriate: “Bref, à langue intermédiaire, littérature intermédiaire” (p.119). While most of the numerous OAv. quotations are integrated into their context, these texts attest only two clear innovations shared with YAv. (Tremblay's nos. 9 and 24), one of which is the ending *-at* for the

34 Kellens 1989, 35–37; Tremblay 2006, 240–243 and 2008, 14–16. The view that the dialectal basis of Old Avestan is different from that of Young Avestan is also adopted by Klingenschmitt 1990, 17 (= 2005, 294–295).

35 The passages are listed by Tremblay 2006, 247.

36 He had already used the term “avestique moyen” in 1996, 100f. fn. 3 and 5.

abl.sg. of athematic stems. By contrast, Skjærvø 2009, 45 cautions against positing an intermediate language stage on the grounds that it is difficult both to identify genuine Old and Young Avestan linguistic features and to distinguish them from any that were introduced in the course of the oral and written transmission of the texts.

In addition to presenting traits some of which agree with OAv. and others with YAv., the texts surveyed by Tremblay also include three forms that agree with neither, although they are not singled out as such by Tremblay. These are *hē* (no.16, p.262, 242), *ašaiḥācā* (no.29, p.264) and *ašāuuairiīāscā* (see below), and all occur in Y 58.4. The form *hē* (< IIr. **sa-s*), the nom.sg.m. of the ‘second person’ dem.pron., occurs three times in Y 58.4 and once in a YAv. context (Y 27.6 *hēca*). Being both the regular OAv. outcome of IIr. **sa-s* and direct ancestor of YAv. *hō*, it would be no different from other features agreeing with OAv. were it not for the fact that in the Gathas and YH the nom.sg.m. of the ‘second person’ dem.pron. is not *hē* but *huuō*. Morphologically the latter is the ‘third person’, or far-deictic pronoun **hay* (< IIr. **sa-y*), but functions as the dem.pron. of both the ‘second’ and ‘third’ persons.³⁷ Its original far-deictic use is clear in two YH passages (Y 36.2 and 40.2 = 41.5) and (probably) also in a Gathic one (Y 44.12 *huuō nōiṭ aiiēm* ‘that one, not this one’). There is no OAv. attestation of the nom.sg.f. of this pronoun, and one might suspect that *huuō* was indifferent with regard to any gender distinction just like its functional equivalents OP *hauv*, YAv. *hāu* and Ved. *asáu* (< IIr. **sā-y*, originally nom.sg.f.), all of which are used for both m. and f. The ‘second person’ function of OAv. *huuō* has been explained as resulting from a deliberate act carried out by learned priests of the YAv. period in the course of an orthoepic redaction. According to this view these redactors reinterpreted *huuō* as the OAv. equivalent of YAv. *hō*, rather than of YAv. *hāu*, and so substituted it for OAv. *hē*, which presumably escaped substitution in Y 58.4.³⁸

An alternative scenario is that in the dialect of the Gathas and the YH, the far-deictic dem. pronoun *huuō* had already extended its function to that of the ‘second person’ demonstrative and ousted *hē*, a process paralleled in Old Persian.³⁹ Such an extension did not take place in the ancestor dialect of YAv., which preserved the opposition between the ‘third person’ dem. *hāu* ‘that one’ and the ‘second person’ dem.pron. ‘this one’. The latter survives in its OAv., or rather Middle Avestan form, *hē*.

37 On the treatment of **ay* in word-final position see below, section 19.

38 Humbach 1959, I 21–23; Narten 1986, 145–147; Kellens & Pirart 1988–1991, II 204; cf. the summary by Hintze 2007, 122f.

39 Debrunner & Wackernagel 1929–1939, §252a, p.533.

There is, however, also the possibility that *hē* resulted from its mechanical substitution for YAv. *hō* on the model of other monosyllabic words where OAv. *-ē* contrasts with YAv. *-ō*, e.g. the nom.sg.m. of the OAv. relative pronoun *yē*, YAv. *yō*, and the OAv. gen./dat. of the enclitic personal pronouns *nē*, *vē*, YAv. *nō*, *vō*. The acc. *nē* in Y 58.5, where *nā* also occurs but is confined to Gathic quotations, has been thought to have been mechanically substituted for YAv. *nō*, which in contrast to OAv. *nē* does have acc. function.⁴⁰ Alternatively, rather than assuming retrospective archaization, the acc. *nē* in Y 58.5 could be interpreted as evidence for an intermediate stage at which the gen./dat. form of the 1pl. enclitic personal pronoun had ousted the acc. *nā* but retained its older form.

The second form in Y 58.4 that does not occur in either OAv. or YAv. is *ašajhācā*.⁴¹ Since it can be neither the direct descendant of OAv. *ašaxiiācā* (Y 40.2) nor the ancestor of YAv. *ašaheca*, Hoffmann considers it to be a dialect form.⁴² By contrast, and by appealing to *kahiiācī* Y 12.4, Tremblay 2006, 264 suggests that *ašajhācā* was substituted for an original **ašahiiācā* in the recitation during YAv. times, while in 2007, 684 he describes the form as “divergence dialectale”.

The third unique form in Y 58.4 is *ašāuuairiiāscā*, transmitted by the Iranian Pahlavi Yasna manuscript Pt4 and others, in the expression *ašaonascā ašāuuairiiāscā stōiš* ‘of the existence of the truthful male and truthful female (persons)’. It is the gen.sg. of the stem *ašāuuairī-*, which corresponds exactly to Ved. *ṛtāvarī-* (Bartholomae 1904, 257), as compared to the more recent OAv. and YAv. form *ašaonī-*. Other manuscripts, however, transmit the phrase as *ašaonascā ašā vairiiāscā stōiš* ‘of the truthful male through truth and of the desirable existence’. Pirart 1992, 235 with fn. 39 and Tremblay 2006, 257; 2007, 689f. prefer the latter reading on the grounds that it partly agrees with Gathic Y 43.13 *vairiiā stōiš* ‘of desirable existence’.⁴³

13. Accent

While Avestan manuscripts provide no indication of the position of their accents, various hypotheses have been put forward and some are summarized by de Blois 2004, 44 with fn.2. Of these, Bartholomae’s view that the Avestan accent was of the same type as the Vedic one has found the widest acceptance and been further supported with reference to comparable developments in modern Iranian languages, in particular Pashto and Ossetic (Morgenstierne 1983, Thordarson 1990; Cheung 2010).

40 Humbach 1959, I 23 fn.24. In Y 58.2 *nē* probably also functions as an acc.

41 Bartholomae 1904, 232, 238 n.8 rightly preferred the reading *ašajhācā* of Pt4 and Mf4 to *ašajhācā* edited by Geldner 1889–1896 I 206 with the mss. Mf2 K5 J2 etc.

42 Hoffmann 1975a, 390 fn.5 (= 1976, 649 fn.5); Hoffmann & Narten 1989, 55 fn.68.

43 For further discussion and references see Hintze 2014, 235 with fn. 51.

Moreover, indirect evidence of the accent's position can be traced through a small number of Avestan phonetic features, which are surveyed by Beekes 1988, 55–69, Hoffmann & Forssman 2004, 112–113 and Huyse 2003, 50. Some of them are discussed in greater detail below in sections 24–26.

14. Sandhi and Padapāṭha

In Avestan manuscripts words are usually separated from each other by means of a dot followed by a blank space. Dots without blank spaces also appear frequently between the different terms of a compound and before suffixes and after prefixes. In compounds and, more rarely, before suffixes, usually, but not always, the compositional vowel *-ō* (< **-ah*) replaces *-a-* in the compound form of some nominal stems and of adverbs. De Vaan 2003, 433–435 surveys interpretations that have been put forward to explain the compositional vowel in various categories of compound, both where *-ō* (< **-ah*) is also the ending of the nom.sg., as in *a-* and *ah-*stems, and where it replaces *-a* in adverbs and in the compound form of other stems, in particular in *-ā* and *n-*stems. De Vaan 2003, 236 interprets the introduction of the compositional vowel as resulting from deliberate scholarly activity which he describes as “redactional compound split” (RCS). Since the process is not confined to the redactional analysis of compounds but also applies to suffixes, case endings and preverbs, Cantera 2004a and 2006a, 236–237 prefers the Sanskrit term *padapāṭha* ‘word-reading’, which refers to a special word by separate word version of the text, and compares the Avestan dot between words with the *daṇḍa* and those within words and compounds to the *avagraha* in the *padapāṭha* of Vedic texts. While comparing Vedic and Avestan sources, he argues for a shared Indo-Iranian heritage regarding the linguistic analysis of the sacred texts in the two traditions. Moreover, Cantera 2004, 329–336 suggests that the written Avesta represents some sort of *padapāṭha* recension of the spoken one and, since there is no consistency in the use of the compositional vowel, must result from a mixture of *saṃhitāpāṭha* and *padapāṭha* versions. He also argues for a connection between *padapāṭha* forms in the manuscripts, where dots separate words and suffixes, on the one hand, and the Pahlavi translation, on the other, in so far as the latter is a rendering of the *padapāṭha* text.

15. Phonology

Kümmel 2014 provides a comparative study of the phonological systems Old and Early Middle Iranian and of Old and Middle Indo-Aryan from a typological point of view. He examines syllable- and word-related features and processes in the two branches, in particular segmental quantity, accent and stress, consonant clusters, vowel epenthesis and syncope, sandhi and re-syllabification, lenition and fortition of consonants and, finally, vowel assimilation. He concludes that while Old Indo-Aryan

is typologically a syllable language with well-developed sandhi across word boundaries, Old and Middle Iranian allow many more consonant clusters and generally show more word-related features.

One of the fundamental problems of Avestan phonology, briefly outlined by Kellens 1998, 489, is the question of the extent to which the manuscript spellings represent the Avestan phonological system. A typical difficulty is the uncertainty whether a feature found in the written text has phonemic as well as phonetic status. In addition it is often unclear as to which chronological stage in the course of the long oral and written transmission of Avestan texts it belongs, and possibly also to which dialect.

16. Vowels

The most comprehensive contribution to Avestan vocalism during the survey period is Michiel de Vaan's 2003 monograph. His linguistic description of the Av. vowels combines the inductive method, which takes its starting point from the Avestan graphemes, with the deductive approach based on the reconstructed Indo-Iranian phonemes, though Cantera 2006, 235 points out some (rare) omissions that result from a lack of consistency in the application of his method. De Vaan's work also combines the comparative linguistic approach with the philological method that takes the manuscript readings into account. As a result, he presents not only a complete history of Avestan vocalism (summarized on pp. 615–629), but also numerous new interpretations and detailed discussions of individual words and text passages, which can be found through the indices provided.

Based on the electronic version of the Avesta made available by TITUS, de Vaan investigates the phonetic and phonemic nature of the OAv. and YAv. vowels at different stages of their transmission. Adopting Kellens's 1998, 513 chronological scheme of seven phases in the history of Avestan from its Proto-Indo-Iranian origins to the time of its being committed to writing (2003, 11–15, 615), he allocates each vocalic phenomenon of the language to one of the phases, thus proposing a relative chronology of vocalic changes. In his reconstruction of the vocalic system of each of these phases, Old Avestan is very close to Proto-Iranian, the most salient change being the development in Old Avestan of the long vowels \bar{a} , \bar{i} and \bar{u} chiefly effected by the loss of a postvocalic laryngeal in a closed syllable (p. 616). While the Avestan script has 15 letters for vowels, the origins of which are tabled on pp. 624–629, de Vaan reconstructs a phonemic inventory of six vowels (a , \bar{a} , i , \bar{i} , u , \bar{u}) for Old Avestan, seven (a , \bar{a} , e , i , \bar{i} , u , \bar{u}) for Early YAv. (ca. 700 BCE) and eleven (a , \bar{a} , \tilde{a} (= q), \tilde{a} , i , \bar{i} , e , \bar{e} , u , \bar{u} , o) for Late YAv. (ca. 300 BCE). The long period from the canonization of YAv. to the invention of the Avestan script and the subsequent time of written transmission alongside the continuing oral tradition, brought further changes to the sacred texts composed in a language that by then had long ceased to be under-

stood. De Vaan establishes the relative chronology of the diachronic vowel developments, while distinguishing between regular sound changes and analogical processes. Several substantial and extensive reviews survey, discuss and assess the numerous contributions of de Vaan's work to Avestan vocalism,⁴⁴ of which only selected aspects are addressed in the present survey.

17. YAv. shortening of prevocalic *(-)āi-, *(-)āu- in the pretonic position

Shortening of prevocalic *(-)āi-, *(-)āu- in the pretonic position in Young Avestan has parallels in eastern Middle Iranian languages, among the clearest examples being YAv. *asaiia-* 'without shade', Sogd. sy^hk(h) (< *sāiā-kā- 'shade', Ved. *chāyā-*) and YAv. *nauuāza-* 'sailor', Sogd. nw^z (< *nāu-āza-, Ved. *nāvājā-*). While Hoffmann & Forssman 2004, 58 regard the shortening as a dialectal feature, De Vaan 2003, 118–127, who surveys the Av. material, emphasizes that it has a sporadic rather than regular character. Pairs such as, for instance Av. *vaiiu-* 'wind' (Ved. *vāyú-*) vs. Av. *tāiiu-* 'thief' (Ved. *tāyú-*), make it difficult to detect any rule underlying the shortening. Some of the forms with (-)āii- are regarded as OAv. and justified on the assumption that the shortening applies only to YAv.⁴⁵ De Vaan's explanation of many other instances of shortening in YAv. by an appeal to analogical levelling rather than to a phonetic rule illustrates his preference for ad-hoc explanations to account for the inconsistencies of Avestan vocalism. This approach, which is much employed in his book, is critically evaluated by Tucker 2004, 821–822. However, de Vaan also identifies the conditions necessary for the shortening to take place. In particular, he suggests that the quality of the vowel of the following syllable influenced whether or not *ā* is affected, since it is preserved in front of *e*, *ō* and *ā* (e.g. *āiiese*, *humāiiehe*, *humāiiō.tara*, *humāiiā*), but shortened before a short *a* (e.g. *aiiasata*, *humaiiaca*, pp.119–120). He also detects clues for a relative chronology by identifying processes that must have preceded the shortening. These include the introduction of preverb repetition in Old Avestan in the course of the orthoepic redaction (Y 31.8 *aiiamaitē* < *ā-īām-a-tai, with repeated and shortened, metrically irrelevant preverb) and redactional compound split, such as, for instance, in *humāiiō.tara*, where -āii- is preserved before compositional *ō*. By contrast, in the acc.pl. *raēš* of *raiii-* 'wealth', the shortening precedes the introduction of the analogical acc.pl. ending -īš, which replaces -ah of the form with shortened diphthong, Av. **raiiāh* (< *rāiāh, Ved. *rāyās*, p. 122).

44 Tucker 2004; Yakubovitch 2004; Tremblay 2005a; Cantera 2006; Janda 2006; Kümmel 2007a.

45 Klingenschmitt 1990, 10 (= 2005, 286) fn.2.

18. Iir. *aj

Bartholomae 1895–1901, p.172 §297 with n.1 had formulated a general rule, which in principle is still valid,⁴⁶ of the triple outcome of the Iir. diphthong *aj in Av. In YAv. it appears as aē in syllables which are open, e.g. *daēman-* ‘eye’, but as ōi when they are closed, e.g. *dōiθra-* ‘eye’, and as -ē in word-final position. The distribution in OAv. is similar, but ōi also occurs both sometimes in open syllables and always when the diphthong is at the end of a word, including monosyllabic ones. In Narten’s 1986a, 270–271 (= 1995, 326) refined reconstruction of this scenario, *aj developed in OAv. to *aj, which in the course of post-OAv. liturgical recitation came to be pronounced as ōi in all positions. The development *aj > ōi also happened in YAv., but only in closed syllables, while the diphthong *aj was brightened and restored to ai (aē) in open ones and in word-final position, where, with the exception of *maidiiōi* and *yōi*, it was subsequently monophthongized to -ē. While Narten suggests that the YAv. distribution subsequently influenced the Gathic text, de Vaan 2003, 341–342 proposes that at the time of the introduction of YAv. ai into many, though not all, OAv. open syllables, the diphthong was still *aj in OAv. Finding a direct reflex of the OAv. diphthong *aj < *aj postulated by Narten in the dat.sg. ending -āe (< *-aje < *-ajaj < *-aj-aj) of *i*-stems and in the acc.sg. ending -ōium (< *-ajum < *-ajam, pp. 338–340), he argues that in the former case the regular loss of the glide before -e (cf. *paiθe* < *paθiaj, dat.sg. of *paiti-* ‘lord’) prevented the YAv. brightening of *aj to ai (aē) in the open syllable. Moreover, de Vaan suggests that the development of *aj > ōi happened via āj, for which the OAv. form *vātōiāmahi* (Y 35.7) would provide a unique attestation.

Fortson 1996, who also surveys the YAv. data for the treatment of Iir. *aj, integrates the numerous exceptions into Bartholomae’s explanatory framework by arguing that in closed syllables aē is also the regular outcome before a voiceless sibilant (*s* or *š*) followed by a single consonant. He formulates a rule of Avestan syllabification whereby voiceless sibilants formed onsets with a following single consonant word-internally, thus leaving the preceding syllable open (pp. 46–48). According to him exceptions to this rule, such as the 2 sg. perfect *vōista* with -ōi- before a voiceless sibilant plus a single consonant, are caused by the effects of the prehistoric laryngeal in the ending of the 2sg.perf., where the bisegmental status of the sequence Iir. *-tH- (< IE *-th₂-) would still have been present at the time when the split treatment of *-ai- took place.

46 Narten 1986a, 270 (= 1995, 326); Beekes 1988, 35–40; Fortson 1996; de Vaan 2003, 340–341.

19. IIr. *au

In the manuscripts the Avestan equivalent of the IIr. diphthong *au appears in a variety of spellings, in particular *ao*, *aō*, *aōi*, *āu* and *āu*. Narten 1969 had proposed a chronology of the various spellings with regard to the ending *-auš of the gen.sg. of the *u*-stems and concluded that the form ends in *-āuš* in OAv. and *-aoš* in YAv. She also suggested that the variant reading *-āuš* reflects the vulgate pronunciation which might have entered the written tradition around 1000 CE, while the readings *-aoiš*, *-aōiš*, *-ōiš* for *-aoš* belong to an even later stage of the transmission and might at least partly result from a deliberate learned change of the text. In contrast to the gen.sg., where the diphthong of the ending is always phonemically short, whatever the spelling, in the acc.sg. of *u*-stems both long and short diphthongs occur. Any spelling alternations therefore have here morphophonemic implications as *-āu-* could represent a lengthened grade form as compared to the full grade *-au-. Geldner usually chose to edit forms with *-āu-* in agreement with the readings of the Avestan-Pahlavi manuscripts, which he considered to be the most authoritative witnesses (see above section 5 with fn.31 and section 6).

The problem of the sequence *āum* in the Vidēvdād is discussed by de Vaan 2000, who confirms Narten's contention that from around 1000 CE onwards the difference in the pronunciation between *ao* and *āu* had disappeared in the vulgate recitation. According to de Vaan the substitution of *ao* with *āu* might have been influenced by the very frequent vocative *ašāum* in particular in rare forms such as *pərəsāum*, *gāum* and *garəməum*. As a result, the ending *-auam of the acc.sg. of *u*-stems often came to be spelt *-āum*, but the better spelling with the short diphthong *-aō-* is usually to be found in the readings of the Iranian Vidēvdād Sāde. De Vaan also argues that the spelling *-aō-* is equivalent to *-ao-* and graphically contrasts with the long diphthong *-āu-*. Noting that the digraph <aō> is the preferred spelling of the diphthong *au* in the Iranian Vidēvdād Sāde mss., in the Hādōxt Nask of the ms. K20 and at line breaks in the Avestan-Pahlavi Yasna mss. J2 and K5 of Mihrābān Kaihusraw, de Vaan 2003a, 46 suggests that the use of the sign <ō> for the second part of the diphthong could be a graphic phenomenon that originated at line breaks.

Hoffmann & Forssman 1996 (= 2004), 69 explain the sound change of word-final *-au > -uuō via the intermediate stages *-auu and *-ōu, followed in the latter case by the metathesis of *-ōu > *-uō > -uuō. By contrast, Beekes 1998, followed by de Vaan 2003, 364f., rejects the idea of any such transposition and suggests that *-au was monophthongized to *-ō, which subsequently developed into a diphthong [uo] in YAv.

20. Brugmann's Law

Brugmann's Law, according to which Pre-Ir. apophonic **o* in an open syllable is continued as Pre-Ir. **ō* > Ir. **ā*, is now widely accepted, although the many exceptions continue to be debated. Volkart 1994 discusses the contributions made both by Hirt and Lubotsky on the evidence of Vedic nouns and by Jamison on that of the Vedic *-áya*-formations. Tucker 2012, 229–300 provides a succinct recent summary of the law together with the debate generated by it. The deverbative thematic stems with short *a* where Brugmann's Law requires a long *ā*, and vice versa with a long *ā* where short *a* would be expected, have attracted particular interest. Discussing the Vedic and Old Iranian evidence and also listing those Av. deverbative *a*-stems with no equivalent in the RV (p. 218), Hajnal 1994 argues that analogical processes and metrical requirements resulted in a considerable number of forms with *-a-* instead of anticipated *-ā-*. He suggests that verbal nouns from **CaRH* roots, where a short stem vowel is regular under Brugmann's Law, would have exerted an analogical influence on forms from *aniṭ* roots. This eventually led to the new opposition of a short stem vowel in barytone action nouns, but a long one in oxytone agent nouns (pp. 202f. and 208–210). He concludes that in principle the law operates as originally formulated by Brugmann and without Kleinhans's modification, which restricted it to IE apophonic **o* before a liquid or nasal phoneme.

Tucker 2012, 246 objects to Hajnal's explanation on the grounds that one would expect the analogy to have operated in the opposite direction because of the greater frequency in Old Iranian of compounds from *aniṭ* roots, in particular in **-kará-* and **-bhará-*, than from *seṭ* roots. She leaves the question open as to why short *-a-* vocalism had become regular both in the simple barytone **bhóro*-type action nouns and in the compounded **-bhoró*-type agent nouns during the ancestral Indo-Iranian period. Reconstructing the formal and functional categories that must have existed in Indo-Iranian and surveying the Vedic and Avestan evidence for thematic verbal nouns and adjectives in their respective synchronic settings, Tucker identifies the type of forms that were productive at a prehistoric or historic stage and distinguishes them from others that may represent archaisms. In particular, she argues that the action nouns derived from compound verbs, while not preserving the barytone accentuation of the PIE simple **bhóro*-type, do to some extent provide valid evidence for Brugmann's Law in so far as they preserve the contrast in vocalism between roots which ended in a laryngeal and those which had no final laryngeal. Examples include the minimal pair, first cited by Kuryłowicz, Ved. *āhavá-* 'challenge' from the *seṭ* root *havⁱ/hū* 'to call, invoke' vs. *āhāvá-* 'bucket' from the *aniṭ* root *hav-/hu* 'to pour'. Moreover, with regard to verbal nouns of the PIE oxytone **bhoró*-type agent nouns, she identifies the effects of Brugmann's Law when they are uncompounded as opposed to forming the second terms of compounds. Verbal nouns of this class, such as Ved. *bhārá-* 'load,

burden’, *bhāgá-* ‘share, fortune’, OAv. *bāga-* ‘share’, characterized by a long root vowel *-ā-* and an accented suffix, often show passive/intransitive and concrete meaning (p.239f., 257–259).

21. Anaptyxis

Anaptyxis means the insertion of a metrically and etymologically irrelevant vowel into a consonant cluster. In Avestan this is usually *ə*, but occasionally it can also be *ā*, *a*, *ō* or *i* (Hoffmann & Forssman 2004, §18, p.51). Hoffmann & Narten 1989, 88 fn. 7 date the rise of the anaptyctic *ə* after *ər* (< **r*) to post-Old Avestan times on the grounds that YAv. *arš* presupposes **ərš* without the inserted vowel. The latter in OAv. *ərəš* is a later phenomenon. De Vaan 2003, 526–544 surveys the various types and contexts of anaptyxis in Avestan.

22. Epenthesis

Epenthesis means the appearance of an unetymological and metrically irrelevant *i* or *u* before certain consonants which are followed by a palatal vowel or by *u*, *ū* respectively. While *u*-epenthesis only occurs before *r*, *i*-epenthesis is associated with several consonants. De Vaan 2003, 547–562 identifies the phonetic environments in which epenthesis occurs (critically summarized by Kümmel 2007a, 277) and argues that *i*- and *u*-epenthesis belong to post-Avestan times. He explains the absence of *i*-epenthesis in front of *-ticā*, *-nticā*, *-dicā* and *-picā* (e.g. OAv. *mainimadicā*, YAv. *visatica*, *apica*) as being due to depalatalization resulting from the dissimilation between two palatal consonants (pp. 557–560). He interprets epenthesis as a written representation of the palatalized or labialized articulation of consonants. Kümmel 2007a, 278, however, objects that in that case one would have expected that a separate letter for allophones as common as [tʰ] and [rʰ] would have been devised at the time when the Avestan script was invented, as indeed was the case for other palatalized or palatal consonants, in particular *š*, *č*, *ń* and *ǰ*. Preferring to interpret *i*-epenthesis rather as a reflex of lost palatalization, Kümmel suggests that the process of depalatalization was still ongoing during transmission, as borne out by the occurrence of spelling variations involving palatalized allophones for which the Avestan script has special letters, such as *ainiia-* for *āniia-* and *aiṅh* for *aṅh*.

Fischer 1998 discusses instances of *u*-epenthesis, including the one caused by a YAv. *-ū-* < *-β-* < *-b-*, in particular both *gšuruuāiia-* ‘to grasp’ from (unattested) YAv. **gərβāiia-* (OAv. **gərbāiia-*, Ved. *grbhāyā-*) and *nuruiiō* Yt 10.55, dat. pl. of *nar-* ‘man’, < **nəuruūiō*, Ved. *nṛbhyaḥ* (p.85, although both in the latter instance and in the parallel passages Yt 10.74 and Yt 8.11 the manuscripts have a particularly wide range of variant readings).

23. Resonants

Kümmel 2005 argues for an IIr. sound law according to which a vocalic nasal developed to **aN* in the position before *r*. The sequence **-nr-* > *-anr-* underwent anaptyxis to **-andr-* in Proto-IIr. This resulted in seeming root variants extended by *-d*. The argument **-nr-* > *-anr-* → *-andr-* is supported with two examples from Vedic (*tandra-* from *tan* ‘to stretch’, *mandra-* from *man* ‘to think’) and one from Avestan (*x^vandra-* ‘pleasant’, following the analysis proposed by Cantera 2000, 43–45).

De Vaan 2003, 504–524 surveys the Av. reflexes of IIr. **r*, which usually develops to Av. *ər*, followed by anaptyctic *ə*. However, frequent spelling alternations in the manuscripts, especially between *ərə* and *arə*, obscure the vowel grade and phonological structure of the IIr. ancestor form, particularly when its etymology is debated.

24. IIr. **ár/ǰ* before a voiceless stop

Since Bartholomae it is generally assumed that in the accented sequences PrIr. **(-)ár-* and **(-)ǰr-* (< **(-)ǰ-*), the *-r-* was devoiced if it was followed by a voiceless stop. In the extant manuscripts its voiceless nature is marked <*hr*> before *k* or *p*. Typical examples are *vəhrka-* ‘wolf’, Ved. *vṛka-* < IIr. **uǰka-* and *kəhrp-* ‘form’ < **kǰp-*. When *-r-* occurs before a voiceless dental, the manuscripts write <*aš*> and <*əš*> instead of the expected **(-)ahrt-*, **(-)əhrt-*.⁴⁷ With regard to the development of IIr. accented **ár/ǰ* followed by a voiceless stop, both de Vaan 2003, 601 and Cantera 2003, 258f. concur with the conclusion reached by Beekes 1988, 56–69, that the devoicing of *-r-* under the accent happened in Early YAv., while in OAv. it remained voiced. This view dispenses with the assumption of an accent shift and explains as regular such OAv. forms with voiced *-r-* as *pərətu-* ‘bridge’ vs. YAv. *pəšū-*, OAv. *marəta-* m. ‘human being’, Ved. *márta-*, and OAv. *marəka-* m. ‘destruction’ vs. YAv. *mahrka-*, Ved. *márka-*. Forms with voiceless *-r-* under the accent in OAv. texts are considered to be YAv. forms that intruded as allophonic variants into the recitation of the Older Avesta. The coexistence in OAv. of forms with YAv. voiceless *-r-* alongside those with voiced *-r-* under the accent is interpreted by De Vaan 2003, 601 as indicating that the devoicing of *-r-* in post-OAv. times had already been accomplished by the time the OAv. texts were canonized in the Early YAv. period.

Cantera 2003, 258–259 discusses the relative chronology of the treatment of IIr. **ár/ǰ* before a voiceless dental stop. His contention that in OAv. the *-r-* was not yet devoiced and the cluster retained as **(-)art-*, **(-)ərt-* is based on certain Middle Persian and Sogdian forms, which he interprets as OAv. loanwords, such as MP *’wrtwhšt* /*urtwahišt*/ for Av. *aša- vahišta-* and Sogdian /*urtāi*/ and /*urtam*/ in the Sogdian *ašəm vohū* prayer. The de-voicing of *-r-* and the development of initial and internal

47 See Hoffmann 1986, 165, 173 (= 1992, 839, 847) with references.

*(-)árta-, *(-)árta- > *(-)áhra-, *(-)áhra- would have happened in post-Old Avestan times and is reflected in a second stratum of Av. loanwords with -hr- in Middle Persian, such as *amahraspandān* and *frawahr*. By the time the Av. alphabet was created in the Sasanian period, the voiceless *r* in the cluster *h_l < h_r* was articulated as a spirant fricative and represented by means of the single letter š, as outlined by Hoffmann 1986, 173, 179 (= 1992, 847, 853). By contrast, Pirart 2001 considers that the distribution in Avestan of -rət- and -š- has graphic reasons and is unconnected with the position of the accent.

25. Laryngeals

Mayrhofer 2005, 6 aims to provide a complete survey of the reflexes of laryngeals in Indo-Iranian. Quoting Benveniste's dictum "Le témoignage védique vaut par sa richesse, le témoignage avestique par sa fidélité" (p.118 fn.80), the bulk of the book focuses on Indo-Aryan. The Old Iranian evidence is discussed in connection with that language and in a short dedicated section (pp. 117–123) chiefly concerned with the dual outcome of prehistoric laryngeals in a position between consonants. In some words the laryngeal completely disappears, but in others it is vocalized as -i-, as it is also in Indo-Aryan.

The Iranian outcome of laryngeals between consonants is also discussed by Tremblay 2003, 123f. and, with special reference to the word for 'daughter', IE **d^hugh₂tér-*, by Werba 2005. Whereas in both Ved. *duhitár-* and OAv. *dugədar-* the laryngeal has left traces by aspirating the preceding stop before disappearing, in Ved. it manifests a further reflex in the form of a vocalic -i- that developed between the two stops and then palatalized the first. In the case of the OAv. form (YAv. -γδ-), the voiced nature of the cluster -gəd- (with anaptyctic -ə-) requires the assumption that the two stops were in direct contact so that Bartholomae's law was able to operate at this point.

Lipp 2009 II 351–464, who provides a detailed treatment of the topic, points out that the vocalization of the laryngeal as *i* must have happened early on in Proto-Indo-Iranian at a time when the RUKI rule was still operative since **i* < **H* affects a following sibilant (pp. 2f., 353, 355). Elaborating on the accent-based explanation of Wackernagel 1905, 98, he adopts the view that an interconsonantal laryngeal is vocalized in Ilr. when it is followed by a single consonant and the next syllable bears the accent, as illustrated by Av. *hita-*, Ved. *sitá-* 'bound' < **sh₂-tó-* as opposed to Av. *vīšta-* < **ui-sh₂-to-* 'let loose' in the personal name *vīštāspa-* (pp. 356f.). De Vaan 2011, 12, however, objects that the argument remains unconvincing as long as the (counter-)evidence is not fully discussed. Werba 2005, 723 regards zero grade stem forms such as PrIE **d^huktr-* as regular in line with G. Schmidt 1973, according to whom a laryngeal surrounded by three consonants had already dropped out in Proto-

IE.⁴⁸ The rule which Schmidt posited for Indo-Iranian is extended to Indo-European by Hackstein 2002. Drawing on evidence from a range of IE languages, he defines the precise phonological contexts for the rule -CH.CC- > -C.CC- according to which a laryngeal dropped out in Proto-IE in a post- or pretonic word-internal closed syllable if it was the second of four consecutive consonants and adjacent to a syllable boundary on its right. Hackstein's phonological rule has had a stimulating influence on various other studies of laryngeals in IE languages, including Balles 2006, esp. pp. 39 and 245 fn.87 on Vedic, Mondon 2008 [2010], esp. 172–174 on Armenian, Garnier 2010 on Latin and Zair 2012, esp. 160–168 on Celtic.

With regard to OAv. *dugədar-*, YAv. *duγdar-* 'daughter', Lipp 2009 II, 361f. also derives the lack of vocalization from the weak case forms with zero grade suffix. Along the same lines Lipp explains the much-discussed dual outcome of the laryngeal in the paradigm of *pitar-* 'father'. He suggests that the OAv. dat. sg. *fəδrōi* < **ph₂-tr-éj* is regular because the laryngeal is followed by the two consonants of the zero grade suffix, while the dat.sg. form *piθre* is analogous to forms with an accented full grade suffix before which the laryngeal was vocalized. The evidence for the vocalic reflex of a laryngeal in word-final syllables is surveyed by Mayrhofer 2005, 121f.

26. IIr. vocalic **ɾ* before a laryngeal

Lubotsky 1997a argues that in an accented position the outcome of PIE **CṚH* before the glides **ɨV* and **uV* entailed *ar* in Av. and *īr*, *ūr* in Vedic, but *ər* in Av. and *ir*, *ur* in Ved. when the resonant was unaccented. Examples include Av. *pauruuā-*, Ved. *pūrva-* 'being before or in front, fore, first, prior' < **p₁h₃-uō-*, and Av. *uruuārā-* 'plant', Ved. *urvārā-* 'corn-field, harvest' (< **h₂h₃-uér-eh₂*).

The accent and, in addition, its phonetic context are taken into consideration in Cantera's 2001 explanation of apparent exceptions to the rule that the Av. reflex of IIr. **ɾ* plus laryngeal before any consonant is *-arC-* (e.g. *darəya-* 'long', Ved. *dīrghá-*; Av. *varəná-* 'wool', Ved. *ūrṇā-*). He argues that PrIE (*C*)*ṚHC-* becomes PrIr. (*C*)*ərC-*, but that the latter develops differently according to its phonetic context and the position of the accent. Under the latter, the vowel in PrIr. (*C*)*ərC-* (< IE (*C*)*ṚHC-*) opens up to Av. (*C*)*árC-* regardless of the phonetic context. But if the resonant is unaccented, the phonetic context does have a bearing on the outcome. While unaccented PrIr. (*C*)*ərC-* is usually also opened up to Av. (*C*)*arC-* like accented PrIr. (*C*)*ərC-*, Cantera suggests that when it occurs after a labial (*p*, *b*, *m*, *u*) or before *u* in the following syllable, Av. *ər* is retained, thus coinciding with the outcome of IIr. **ɾ* when

48 With regard to IE **d^hugh₂tér-*, Stüber 2007–2008, 8, reviewing Mayrhofer 2005, draws attention to forms such as Gothic *dauhtar*, which attests the loss of the laryngeal outside Indo-Iranian.

the latter is not followed by a laryngeal (Cantera’s eight “exceptions”, Av. *pərəna-* ‘full’, *ərəðβa-* ‘upright’, *vərəzi*^o ‘strong’, *kamərəda-* ‘head’, *uruuarā-* ‘plant’, *zruuan-* ‘time’, *uruuāpa-/uruiiāpa-* ‘of wide waters’ and *uruuānē* ‘to choose’). Tremblay 2005, 9 considers that Av. *varəmi-*, Ved. *ūrmī-* ‘wave’ and some other forms militate against Cantera’s rule, while the objections raised by De Vaan 2003, 506f. with fn. 648 are critically discussed by Kümmel 2007a, 276–277, who concludes that Cantera’s rule still remains a possibility.

27. Palatals

Lipp 2009 provides a detailed discussion of the treatment of the PrIE palatals in Indo-Iranian. He examines the relationship between primary and secondary palatals, the problem of incomplete ‘satemisation’ in the *satem* languages, the reconstruction of the consonant clusters involving IE **-tk̑-* and the question of IE *thorn*, and clusters of palatals and dental stops and nasals. Adopting the theory that IE had two phonemic series of tectal stops (velar and labiovelar), rather than the three which are widely assumed,⁴⁹ he reconstructs two processes of palatalization that affected the velar tectals. In the first, which occurred within the dialect continuum of PrIE that later became the *satem* languages, velars (but not labiovelars, vol. 1, p.93) situated either immediately before a front vowel or with a semivowel or resonant intervening between the velar and the front vowel produced allophonic variants **k̑*, **g̑*, **g̑h* which subsequently developed into phonemes through paradigmatic levelling. This process resulted in the three phonemic series of tectals commonly posited for PrIE. Forms in *satem* languages such as Ved. *kraviṣ-* ‘raw meat’ (Grk. κρέας) that have a velar (plus semivowel or resonant) before an IE front vowel, are explained as analogical substitutions (p.55), while reflexes of alternate forms such as **kleu/kleu* are regarded as instances of incomplete *satem*-palatalization in IE (pp. 10–19, 54). Meissner 2011 provides a lucid summary of the problem of IE tectals and an evaluation of Lipp’s attempts to explain palatals in non-palatalizing contexts.

Lipp also redefines the phonetic nature of the IIr. palatals. He argues that in Proto-IIr. the IE palatals could not have become alveolo-palatal affricates **č*, **j*, **jʰ* [tʃ, dʒ, dʒʰ], as commonly assumed (references in Lipp 2009 I 132), but their place of articulation was almost certainly as palato-alveolar affricates **č̑*, **j̑*, **j̑ʰ* [tʃ̑, dʒ̑, dʒ̑ʰ]. While

49 On the term “tectal” and the series of tectals, see Mayrhofer 1986, 102ff. with fn.38 and Kümmel 2007, 310–327. Reviews of Lipp’s work include de Vaan 2011, Meissner 2011 and Kobayashi 2012.

in Proto-Indo-Aryan the latter were simplified to *ś, j, h* [ʃ, ʝ, h],⁵⁰ in Proto-Iranian they were further fronted to alveolar affricates **č, *ǰ* [tʃ, dʒ]. The latter are preserved in the Nuristani languages, but developed to alveolar fricatives *s, z* in Avestan and *θ, d* in OP.

In Proto-IIr. the IE velars and labiovelars both merged into velars. Before front vowels the latter were affected by palatalization — a second time according to Lipp's reconstruction. The resulting secondary palatals, however, did not become phonemes but remained allophonic variants of the velars. They are usually represented as palato-alveolar affricates **č, *ǰ, *ǰʰ*, though Kümmel 1996, IX with fn. 1 objects that in PrIIr. such secondary palatals must have been articulated further back on the palate. He describes them phonetically as palatal plosives and proposes the notation **k̄, *ḡ, *ḡʰ* instead. According to Lipp 2009, I 3, 113–114, 142, 146–147, 148 (with IPA notation), who adopts this notation, in a late phase of PrIIr. the secondary palatals **k̄, *ḡ, *ḡʰ* developed to palatal, or in Lipp's terminology pre-palatal, non-sibilant affricates **c, *ǰ, *ǰʰ* [c̄, ǰ̄, ǰ̄ʰ] as, for instance, in French *tiens*. He explicitly denies the co-existence in PrIIr. of two distinct sibilant affricate series [t̄, d̄ʒ, d̄ʒʰ] vs. [t̄c̄, d̄z̄, d̄z̄ʰ].⁵¹ The secondary palatals remained affricates in both Vedic and Avestan, the outcome being palato-alveolar affricates *c, j, h* (< *jʰ*) [t̄, d̄ʒ, d̄ʒʰ] in Vedic and, with loss of the aspiration, in Old Iranian.

Lipp thus postulates a phonemic opposition in Proto-Indo-Iranian between palato-alveolar sibilant affricates **č, *ǰ, *ǰʰ* [t̄, d̄ʒ, d̄ʒʰ], representing the primary palatals, and palatal non-sibilant affricates **c, *ǰ, *ǰʰ* [c̄, ǰ̄, ǰ̄ʰ], representing the secondary ones. As a result of such phonetic re-definitions, in Lipp's system the notation of the PrIIr. primary and secondary palatals is inverted compared with the traditional way in which the acute accent marks the primary and the haček the secondary palatals.

Lipp 2009 II 5–350 provides an exhaustive treatment of the reconstruction of the consonant clusters involving IE TK and the question of an IE interdental spirant phoneme /β/ (Thorn). He dispenses with the assumption of metathesis TK > KT and spirantization KT > Kβ as a two stage sound change that had been posited for all IE languages except Anatolian and Tocharian. Such a process had been proposed to explain the alternation of a dental occlusive in Greek and Celtic and a sibilant (*š* or *s*) in other languages in words such as Grk. ἄρκτος, Middle Irish *art*, on the one hand, and Ved. *īkṣa-*, Av. *arša-* 'bear', on the other. Pointing to counter examples that provide no evidence for spirantization of the dental (p.7), he argues that metathesis TK >

50 Lipp 2009, 3 only partly uses phonetic symbols by representing the Indo-Aryan series as Ved. /ś/ = [ʃ], /j/ = [ʝ], /h/ = [h]. In his view the Indo-Aryan voiced palatal was a palato-alveolar affricate [d̄ʒ], or [d̄ʒ] in Lipp's I 106 notation.

51 Lipp I 147–148. I am grateful to Martin Kümmel for some clarification of these matters.

KT took place only in Greek and Celtic, where it is actually attested. As far as Vedic and Avestan are concerned, he explains the forms with Ved. *kṣ* (*ḥkṣa-* ‘bear’, *kṣám-* ‘earth’, *kṣiṇāti* ‘destroys’) vs. Av. *š, z, j* (*arša-* ‘bear’, *zam-* ‘earth’, *jināiti* ‘destroys’) as regular sound developments taking place by way of simplification of the affricate in the position after an occlusive (IE **tḱ, *dʰǵʰ, *dʰǵʰʰ* respectively, p.11).

Lubotsky 2001 discusses the supposed opposition between **sk* and **sḱ* in PrIE and their reflexes in Indo-Iranian. Usually PrIE **sḱ* is reconstructed when Ved. *ch* corresponds to Avestan *s*. Surveying the Ir. material in an IE context, Lubotsky argues that such correspondences are better interpreted as palatalized reflexes of PrIE **sk*.

On the basis of Kellens 1976, 60ff., Lubotsky 1999, 317 concludes that PrIr. **št* < PrIIr. **ét* (< IE **k̑t*) had not yet merged with **št* < IE **st* after *r, u, k, i*, because in Avestan the former sometimes appears as *xšt* (e.g. *paiti.fraxštar-* ‘interrogator’, Ved. *praštar-*), while the latter is always represented by *št*. Tremblay 2009a argues for a “Loi Kellens”, which would have been absent from OAv. but in force in the ancestor dialect of YAv., where the law survives only in relics, and in some East Iranian dialects, including Sogdian, Bactrian, Yidya-Munji and Waxi. According to him, clusters of IE palatals before dentals regularly developed to *xšt* after *ā, u, r* (except before *i*) and *n* if the root had no second tectal. His examples include Av. *spaxšti-*, Bactr. *ⱱⱰⱱχτ*, Sogd. *ʾspxšt* and Av. *frapaxšta-* ‘decorated, adorned’ (which Tremblay following Kellens, 1976, 62f. and 70 n.10 reads in Yt 14.29 instead of *frapixšta-* edited by Geldner with the ms. F1), Bactr. *ⱱβⱱχτ*, Sogd. *npʾxšt*. Lipp 2009, I 202–209 discusses and rejects the evidence which Tremblay adduces to establish a sound law.

28. Dentals

At the juncture of two IE dental stops at inflectional and derivational morpheme boundaries the outcome of Avestan *st* and *zd* contrasts with Vedic *tt, tth* and *ddh*. For instance, the *ti*-abstract from Ir. **čit* ‘to perceive’ is *cisti-* in Av. and *citti-* ‘insight’ in Ved.; from **uid* ‘to find’ the *ta*- participle is *vista-* in Av. and *vittá-* ‘found’ in Ved. Moreover, in the 2sg. perf.act. OAv. *vōistā* contrasts with Ved. *véttha* ‘you know’. Other examples include the *ta*-participle from **urdʰ* ‘to grow’, which is *vərəzda-* in Av. and *vṛddhá-* ‘grown’ in Ved. The 3sg.mid. from the present stem **dād-* of **dā* ‘to give’ is Av. *dastē*, Ved. *datte*, and from the present stem **dādʰ-* of *dʰā* ‘to set’ it is Av. *dazdē*, Ved. *daddhé*. According to the most widely accepted interpretation, first proposed by Brugmann in 1880, a sibilant developed between the two dentals in Proto-Ir. or even earlier. In Iranian the first dental was assimilated to the following sibilant, while in Indo-Aryan the sibilant between the two dental stops dropped out according to normal Vedic sound laws. However, the point in the prehistory or history of Indo-Iranian at which the interdental sibilant developed is disputed.

Hill 2003 examines the relevant phonological processes within the framework of IE sandhi and its relative chronology.⁵² As far as the progressive assimilation of the first dental to the following sibilant in Iranian is concerned, he identifies a *terminus post quem* in the rule according to which an IE **s* developed to **š* in Indo-Iranian in the position after the sounds *r, u, k, i* (the so-called *ruki* rule). This occurs because the *s* resulting from the progressive assimilation of the dental to the sibilant remains unaffected by *r, u, k, i*, cf., for example, Av. *cisti-* ‘insight’ < **ci^hti* quoted above. Hill argues that the development of the sibilant between the two dentals at the morpheme boundary must still have been ongoing even after the splitting up of the Indo-Iranian language unity, because it is found in morphologically transparent secondary derivatives, such as, for instance in YAv. *vərəθra-jąstara-* ‘better at smashing resistance’, < **ur^htra-jant-tara-*, which is an inner-Avestan denominal form built on the (unattested) present participle of the root *jan* ‘to hit’ (Hill 2003, p.25, 33). Moreover, the sequence *t^h, d^h* must still have existed at the time when word-final **-st, *-št* were simplified to *-s, -š*, because, as Tremblay 1999 has argued (see below), word-final *-st* < **-t^hst* is retained in Av. Hill concludes that the development of the sibilant between the two dentals is an inner-Iranian phenomenon (Hill 2003, pp. 64, 70).

Tremblay 1999 examines the Av. treatment of word final IIr. **-st*. He argues that the outcome of IIr. word-final **-st, *-št* and **-T-s-t*, where the status of *-s-* is phonemic, is different from that where *-s-* results from a sibilant which developed phonetically between two dentals. While in the latter case *-st* < **-t^hst* is retained, in the former case the cluster **-st, *-št* is retained only after *r* and *x* but otherwise simplified to *-s, -š* (e.g. 3sg. impf. *ās* ‘he was’ < **āst*, and 3sg. sigm. aor. *sqs* ‘he appeared’ < IIr. **šcānd-s-t*, Ved. *a-chān*). Accordingly, Tremblay argues that the 3sg. form *nāist* cannot be the inj. of the *s*-aorist, as variously suggested (e.g. Hoffmann & Forssman 2004, 230), but is instead the inj. of the root present (IIr. **nāid^ht*) of the verb *nid* ‘to blame, revile’.

Moreover, Tremblay also provides an explanation of the form of the 1sg. *nāismi*, a lengthened grade root present. He argues that in a pre-form **nāid-mi* the dental would have been assimilated to the following nasal, producing **nāinmi*, and then replaced by *-s-* on the analogy of forms of the 2sg. and 3sg. Along the same lines, Y 35.2 *naē-naēstar-* could be derived from **naid-naistar-* by regular Av. sound development involving the assimilation *-dn- > -nn- > -n-* as in *būna-* ‘bottom, ground, base’ < **budna-*, Ved. *budhná-*.⁵³

52 Reviews of Hill 2003 include Mayrhofer 2004 [2005] and Matzinger 2006. The latter provides a survey both of IE sandhi phenomena in general and of references to sandhi in phonological theories in particular (pp. 97–99 with fn.16).

53 Hintze 2007, 63–66. On the Iranian sound change **dn > n*, see Hoffmann/Forssman 2004, 97 (§63ce) and Narten 1986, 94.

29. Labials

In YAv. voiced occlusives *g*, *d* and *b* regularly develop to voiced fricatives *ɣ*, *δ* and *β* unless they are in word-initial position and after a nasal and voiced sibilant. In addition, however, there are also numerous instances of *-b-* evolving into *-ɣ-* (spelt *-uu-*). Hoffmann & Narten 1989, 82–83 established criteria for a relative chronology of *-β-* > *-ɣ-*. They interpret the fact that it is treated like etymological *-ɣ-* as indicating that *-ɣ-* developed relatively early, although it did so after the YAv. sound change *auī* > *əuī* was completed because the form *auui* remains unaffected by it. The sound *-ɣ-* < *-β-* produces *u*-epenthesis (*gəuruuāiia-* < **gərbāiia-*, Ved. *grbhāyā-*), but the fact that it prevents *i*-epenthesis (*auui*, *aoi* vs. *aiβi*) indicates that *-β-* > *-ɣ-* happened before *i*-epenthesis took place.

De Vaan 2005 examines the conditions under which *-uu-* appears for PrIr. **-b-*. Rather than assuming dialect variation, as proposed by Hoffmann & Narten 1989, 81–83, he suggests a phonetic rule according to which *-β-* was retained before *ǎ* but further lenited in front of other vowels and **i*. According to him, the variants with *β* and *uu* occur in complementary distribution at least in some of the forms. The clearest example is the preverb **abi*, which appears as *auui* in isolation but as *aiβi* when part of a compound (pp. 665f., 672–677). He also notes that in the plural endings with IIr. **-b^h-*, *-uu-* occurs mainly but not exclusively in the Yašt (p.672).

30. IIr. sibilants

Hintze 1998 argues that the hydronymy in the borderlands between India and Iran provides evidence that the pan-Iranian sound change of IIr. **s* > Iranian *h* was still in progress when the Iranian speakers moved into the area and took over topographic names, including **sarasuatī-*, **saraiya-*, from the pre-Iranian population of Indo-Aryan tongue. Possible evidence for an unchanged Iranian *-s-* in Neo-Assyrian ^Das-sa-ra ^Dma-za-āš is discussed by Hintze 1998, 147. De Vaan 2001, 191 argues that word-final *-h* < **-s* must still have been present at the time when the analogical abl.sg. forms arose in consonant stems in YAv. Lubotsky 1999 examines the treatment of *s* after *r*, *u*, *k*, *i* in compounds and reduplicated formations.

Kümmel 2012 [2013] discusses the development of PrIIr. **sr*, **nsn* and **sn* in Iranian languages, particularly in Avestan. He argues that **s* develops to *h* before tautosyllabic coronal sonorants and that this change is posterior to some other dialectal developments. This observation lends further support to the widely held view (cf. also Tremblay 2005b, 682–683), that the change **s* > *h* started in Common Iranian rather than Proto-Iranian and was still ongoing at the time the Common Iranian unity broke up (p.143). Kümmel also argues that in Avestan PrIIr. **sr-* became *θr-* in initial position and after *n*, while it developed to *-hr-* internally after a vowel. He regards the

change **sr-* > *ʒr-* as an innovation confined to Avestan and in contrast to other Iranian languages, where the reflex of **sr* is *hr* in all contexts (139–140).

31. IIr. **sɥ*

Cipriano's 1998 monograph on *La labiovelare iranica* includes a discussion of the spelling alternation in Avestan between *x^v* and *huu* for PrIr. **hɥ* in both word initial and internal position and of the nasalized reflexes *-ɲuh-*, *-ɲhuu-* and *-ɲ^vh-*. The alternations are explained by appealing to syllabification and the vocalic or consonantal nature of the semivowel *-ɥ/-u-* (pp. 289–292). The Av. evidence for the development of IIr. **sɥ* > PrIr. **hɥ* is also discussed by de Vaan 2003, 565–568, 2005a, 706. He argues that word initial **hɥǎ-* regularly develops to Av. *x^vǎ-* except in *hūuarə* 'sun' or in compounds with *hu-* 'good' as their first term, such as *hūuaspa-* 'with good horses', where syllabic *-u-* was retained or analogically restored on the model of compounds with *hu* 'good' before a consonant, such as *hu-tašta-* 'well made'. Moreover, de Vaan 2003, 567 and 2005a, 706 also argues that in the phonetic structure **hɥǎ-ɥ-* which underlies spellings such as Y 59.30 *hūūūūūōīia* 'for himself' < **hɥabīa*, Vd 13.39 *hūūūūūastra-* 'having his own garment' < **hɥa-ɥastra-*, the change **hɥa-* > *x^va-* was phonetically impeded by the following **-ɥ-*.

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Abbreviations

In References

- BAI = Bulletin of the Asia Institute
 BSL = Bulletin de la Société de Linguistique de Paris
 HS = Historische Sprachforschung
 IBS = Innsbrucker Beiträge zur Sprachwissenschaft
 IESB = Indo-European Studies Bulletin. University of California at Los Angeles
 IF = Indogermanische Forschungen
 IIJ = Indo-Iranian Journal
 JA = Journal Asiatique
 JIES = Journal of Indo-European Studies
 JRAS = Journal of the Royal Asiatic Society
 KZ = Kuhn's Zeitschrift für Vergleichende Sprachforschung
 MSS = Münchener Studien zur Sprachwissenschaft
 MFhS = Münchener Forschungen zur historischen Sprachwissenschaft
 OLZ = Orientalistische Literaturzeitung
 SbÖAW = Sitzungsberichte der Österreichischen Akademie der Wissenschaften
 SOR = Serie Orientale Roma
 StII = Studien zur Indologie und Iranistik
 StIr = Studia Iranica
 ZcP = Zeitschrift für celtische Philologie
 ZDMG = Zeitschrift der Deutschen Morgenländischen Gesellschaft

Texts

- H = Hāḍōxt Nask
 Vd = Vīdēvdād
 Y = Yasna
 YH = Yasna Haptaṅhāiti
 Yt = Yašt

Other abbreviations

aor. = aorist
Av. = Avestan
C = any consonant
CE = Christian Era
Grk. = Greek
H = any laryngeal
hrsgg. = herausgegeben
IE = Indo-European
IIr. = Indo-Iranian
impf. = imperfect
K = any tectal (velar, labiovelar, palatal)
MP = Middle Persian
OIr. = Old Iranian
OP = Old Persian
Pahl. = Pahlavi
PrIE = Proto-Indo-European
PrIIr. = Proto-Indo-Iranian
PrIr. = Proto-Iranian
R = any resonant
RV = Ṛgveda
sigm. = sigmatic
Sogd. = Sogdian
T = any dental
V = any vowel
Ved. = Vedic

Almut Hintze
Zartoshty Brothers Professor of Zoroastrianism
Department of the Study of Religions
SOAS, University of London
Thornhaugh Street, Russell Square
London WC1H 0XG
United Kingdom
ah69@soas.ac.uk