THE CHARACTER OF THE INDIAN KHAROṢṬHĪ SCRIPT AND THE "SANSKRIT REVOLUTION": A WRITING SYSTEM BETWEEN IDENTITY AND ASSIMILATION

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Introduction

The history of writing in India is extraordinary from different points of view. First, there is the fact that writing as a cultural technique was introduced into Indian culture at a rather late point in its history. It was long after large amounts of its literature had already been created. Not only the Veda but also the late Vedic literature and even considerable portions of the Buddhist and Jain canons were already in existence when India saw its first attempts to fix language to a writing system.[1] Remarkably, this introduction did also postdate the early Indian state formation processes in the 5th century BC, and consequently it was also later than the urbanization which accompanied this state formation in the Ganges valley (cf. Strauch 2005).

The focus of my paper will be dedicated to another peculiar feature of the Indian history of writing. From its very beginning two rather different scripts were in use: the Kharoṣṭhī, a script which prevailed in the Indian North-West, i.e. modern North-West Pakistan, and spread from there to Northern Bactria and Central Asia, and the Brāhmī which began

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[1] The question of the introduction of writing in India has been controversially discussed. An excellent survey of this academic debate and a plausible scenario of this process was presented by Falk (1993). Other valuable contributions concerning this problem are von Hinüber (1990) and Falk (1996). Although it is probable that the introduction of Kharoṣṭhī preceded that of Brāhmī for some decades there is no positive evidence for the use of either of these scripts before the time of Aśoka. Any suggestions about a gradual development of Kharoṣṭhī in the centuries before Aśoka and a reconstruction of this process (e.g. Glass 2000: 11–20) must remain highly speculative. For the suggested very small time gap between the emergence of Kharoṣṭhī and Aśoka see Falk (1993: 103–105). According to Salomon, "there is no clear evidence to allow us to specify the date of the origin of Kharoṣṭhī with any more precision than sometime in the fourth, or possibly the fifth, century B.C." (1998a: 46). Recent discoveries of presumably earlier Brāhmī texts from Śrī Laṅkā still wait for further confirmation of their suggested dating between the 6th and 4th centuries BC (see Coningham et al. 1996). Since this article will concentrate on the final phase of Kharoṣṭhī, the discussion on its introduction is of minor relevance.

its career in the East of the Indian subcontinent and conquered almost all of India until it replaced even the Kharoṣṭhī in its mother-land after the 3rd c. AD. It is the Brāhmī script which became the "mother" of all modern South-Asian scripts and of many scripts in South-East Asia. The Kharoṣṭhī remained a footnote and left no further traces in the writing systems of the region. Nonetheless, it was a rather influential script which not only left hundreds of epigraphs but also a considerable corpus of Buddhist manuscripts which belong to the earliest witnesses of Buddhist literature in general.[2] In recent years our knowledge about this script and its use increased considerably due to the discovery of a series of new Kharoṣṭhī manuscripts which are presently being studied in Seattle and Berlin.[3]

Why this script died out, is still a matter of academic debate. Only recently, Richard Salomon, one of the leading experts in Kharoṣṭhī stud-ies, expressed the view that "the decline of the Kharoṣṭhī in its home-land was closely connected with, if not directly caused by, the collapse of the Kuṣāṇa dynasty." He attributes the Kharoṣṭhī case to those "cases of script disappearance that are directly attributable to dynastic changes or declines (Salomon 2008b: 149)." According to Salomon, the Kharoṣṭhī "could in theory have fulfilled the role of a Pan-Indian script, that, as the accidents of history had it, actually fell to Brāhmī and its derivatives (2008b: 144)."

It is the main aim of this paper to demonstrate a different approach to this phenomenon in the Indian history of writing and to show that the decline of Kharoṣṭhī can alternatively be interpreted as the direct result of a cultural and linguistic shift in the communities where it was used, and not—or at least not mainly—as the consequence of a political event. Taking up the general title of this book this shift could be characterized as a forced and intentional, but eventually unsuccessful border-crossing by which the Kharoṣṭhī script was supposed to adjust itself to another language, namely Sanskrit.

The paper will be divided into two parts. The first section describes the character of the script, particularly with regard to its suitability to write Sanskrit. Since the missing success of the Kharoṣṭhī is also the result of a

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[2] An easy survey about all material available in this script can be found in the "Catalog of Kharoṣṭhī Inscriptions" (CKI) and the "Catalog of Kharoṣṭhī Manuscripts" (CKM) which are both available on the homepage of the "Dictionary of Gāndhārī", a project by Ste-fan Baums and Andrew Glass (www. Gandhari.org). The page also provides an extensive bibliography.

[3] See for more information about the manuscripts studied in both projects Salomon 1999, Allon 2007, Strauch 2008.

competitive situation between both Indian scripts and their cultural contexts this section will also shortly refer to the characteristics of Brāhmī.

The second part will illustrate different attempts of Kharoṣṭhī to adjust itself to the introduction of Sanskrit as a new literary language and *lingua franca* in the Gandhāra area and its relationship to the Brāhmī script which accompanied the advent of Sanskrit.

It should be stressed that this paper does not aim at a comprehensive study on the subject. It tries to introduce a new perspective on the problem in a more essayistic form, including some new data which are based on the author's recent research on a collection of Kharoṣṭhī birch-bark manuscripts (Strauch 2008). Since the field of Kharoṣṭhī studies has recently been much in transition due to the ongoing discovery of new texts and inscriptions, the general and comprehensive history of Kharoṣṭhī remains to be written.

The Character of the Kharoṣṭhī Script

The beginnings: Brāhmī and Kharoṣṭhī under Aśoka

The first safely datable monuments of the Kharoṣṭhī are associated with the reign of the Indian ruler Aśoka (3rd c. BC). On behalf of his imperial order, rocks and pillars all over the South-Asian subcontinent were inscribed with what one might call a kind of state ideology which is partially based on Buddhist ethical conceptions.[4] While for the majority of texts the probably newly developed Brāhmī script was used, those inscriptions which are located in the extreme North-West are written in Kharoṣṭhī. Contemporary to the Aśokan Kharoṣṭhī epigraphs are some texts which continue the use of the earlier Greek and Aramaic alphabets and languages in the Indian North West (Falk 2006: 241–253). These contemporary writing cultures also indicate the most probable candidates for the *stimulus* to create a script which is capable of fixing an Indian language. According to the prevailing theories, the Kharoṣṭhī script was developed on the base of the Aramaic alphabet as used during the Mauryan period in North-Western India.[5] This presumable prototype is not only responsible for the shape of

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[4] A comprehensive survey of the Aśokan epigraphs and a bibliography are now available with Falk 2006.

[5] The complex relationship between Aśokan Kharoṣṭhī and Aramaic has been dealt with by Falk (1996). The Semitist's point of view was expressed by Voigt (2005), whose remarks provide valuable additional data but suffer from the author's lacking familiarity with the Kharoṣṭhī script and Gāndhārī language.

many individual letters but also for the writing direction of the Kharoṣṭhī
from right to left. Despite these parallels, the Kharoṣṭhī has to be defined
as a newly created script with a distinctively different character.

This first phase of Indian writing is not only distinguished by the mul-
titude of scripts but also by the fact that its texts were composed in dif-
ferent dialects. Consequently, beside their doubtless ritual function to
mark the extant of the ruler's actual or asserted influence, these edicts
were clearly meant to be understood by the local communities. For this
purpose Aśoka ordered them to be translated into various Middle Indian
dialects. Among these translations only those in the North-Western lan-
guage were written down in Kharoṣṭhī. This speaks not only in favour of
the assumption that this script was already in use at the time of Aśoka,
but also that it had been intentionally designed for the local language of
the region, the so-called Gāndhārī.

The Brāhmī, however, fulfilled from its very beginning a much more
universal function and was designed to express different local dialects of
Northern India. What both scripts shared, however, is the fact that none of
them was created to write down a Sanskrit text. This had a direct impact
on their inventory of signs.

Kharoṣṭhī and the Sanskrit varṇamālā

Usually, Indian alphabets are arranged according to the so-called
varṇamālā sequence: an inventory of sounds which was created on the
basis of Sanskrit phonology as early as in the 4th c. BC, i.e. before the
introduction of writing. It classifies the sounds of the language according
to their physiological features into different groups (cf. table 1).

A script which could claim to match these Sanskritic phonemes would
be expected to provide graphemes for all these sounds. Since not all of
them are needed for Middle Indian, the earliest Brāhmī and Kharoṣṭhī
have only a restricted inventory of signs. The table below contrasts the
traditional varṇamālā alphabet and those sounds which were not repre-
sented in the scripts in their initial stages. It should be stressed that in the
case of Kharoṣṭhī this survey mainly relies on the conventional phonetic
evaluation of the respective graphemes, which is in many cases, however,
far from certain.[6]

Table 1. The Sanskrit varṇamālā alphabet and its relation to early Brāhmī and Kharoṣṭhī

▢ not in Kharoṣṭhī

not in Brāhmī and Kharoṣṭhī

Vowels

Simple vowels

short	a	i	u	ṛ	ḷ
long	ā	ī	ū	ṝ	

Diphthongs

short	e	o
long	ai	au

Consonants

Explosives	voiceless		voiced		Nasals
	non-aspirated	aspirated	non-aspirated	aspirated	
Velars	ka	kha	ga	gha	ṅa
Palatals	ca	cha	ja	jha	ña
Retroflexes	ṭa	ṭha	ḍa	ḍha	ṇa
Dentals	ta	tha	da	dha	na
Labials	pa	pha	ba	bha	ma

Semisonants	ya	ra	la	va

Sibilants	śa	ṣa	sa

Spirant	h

Vowel modificators	ṃ Anusvāra	ḥ Visarga

Consonant modificators	Virāma

Relying on this *varṇamāla* based comparison one can easily get the impression that both alphabets contain by and large the same inventory of signs. Their coincidences can be explained on the basis of the common Middle Indian phonology: both lack the velar *ṅa* and the special aspiration sign Visarga, and both lack the signs for sonantic *r̥/l̥* and the diphthongs *ai* and *au*.

Beside this seemingly common inventory both alphabets also share their *abugida* character. Every consonantal sign of the script includes a subsequent vowel (cf. Daniels & Bright 1996: 4), in the case of the Indian scripts a short *a*. To change the quality or quantity of this basic vowel one has to add another diacritical sign. The inherent vowel expressed by a sign makes it also necessary to signify vowelless consonants. This had to be done either by the graphical instrument of sign combinations, the so-called ligatures, or—if the consonant appeared at the end of a word—by a further diacritical sign. Since the Middle-Indian languages are characterized by a strong tendency to assimilate different and to omit final consonants, both early variants of Kharoṣṭhī and Brāhmī contained a very limited choice of ligatures and no special diacritic mark for a final consonant. In addition, both scripts generally refrain from designating geminated consonants, in which the Middle Indian languages are extraordinarily rich due to the described tendency of consonant assimilation.[7]

Beside these shortcomings which had to be overcome to make both alphabets fit for Sanskrit, the Kharoṣṭhī shows a further significant difference: It is unable to signify the vowel quantity of *ă*, *ĭ* and *ŭ*. It is rather improbable that the Gāndhārī speakers did not know about this distinction. Thus this fact can be best explained as a structural inconsistency which was probably inherited from the Semitic model of the script. It is mainly this difference, which marks the Brāhmī as the more developed of both scripts, which is better adjusted not only to the requirements of Middle Indian phonology but also to those of Sanskrit.

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[7] A special position among the consonant clusters is held by the combination of consonants with the semivowel *r*. Since the local dialect of the Indian North-West obviously did not assimilate this sound in post- and preconsonantal position, the Kharoṣṭhī knew special diacritics for these combinations from the very beginning. Although this sound combination was obviously also known in other Middle Indian dialects, its adequate realization in the Aśokan Brāhmī caused a few problems which were, however, quickly overcome in the subsequent century (cf. Dani 1963: 54f.).

Kharoṣṭhī and the Arapacana

As useful as the *varṇamālā* arrangement might be for a direct comparison of both scripts, it hides some of the characteristic features of Kharoṣṭhī and gives the impression that with some exceptions both alphabets share a common character. This impression quickly disintegrates when we consider the sign inventory of the Kharoṣṭhī on the base of its own alphabet, which is known today by the name Arapacana because it starts with the five letters *a-ra-pa-ca-na*. In recent East-Asian Buddhism this alphabet is associated with the Buddha Mañjuśrī, and its name—Arapacana—is regarded as a kind of *mantra*, i.e. a magical spelling (Salomon 1990: 255). In a much earlier period the alphabet was also used as a kind of memorizing device: important categories of Buddhist doctrine were memorized in the sequence of the alphabet. Remains of this use can be observed in quite a large number of Buddhist texts, where various lists of Buddhist terms contain passages which can be traced back to the sequence of the Arapacana (Pagel 2007: 18–38).

We do not know how old this alphabet is and since when it had been used for the arrangement of the Kharoṣṭhī sign system. The fact that it contains some signs which are obsolete in the mature phase of Kharoṣṭhī (no. 28, no. 40) seems, however, to speak in favour of a quite early date of the Arapacana.

Until most recent time the inventory of the alphabet had to be reconstructed on the base of few Sanskrit texts, like the Śatasāhasrikā and Pañcaviṃśatikā Prajñāpāramitā or the Lalitavistara, which contain an almost complete but sanskritized version of this alphabet in Brāhmī writing (Brough 1977, Salomon 1990). In many cases it was not possible to determine which concrete Kharoṣṭhī sign hid behind the respective Sanskrit-Brāhmī "transcription". Only recently, several incomplete variants of the Arapacana alphabet written in Kharoṣṭhī could be identified. The oldest of them was discovered on an ostracon in the course of excavations of a Buddhist monastic complex at Kara-Tepe, near Termez, Uzbekistan (Salomon 2004, Fussman 2011: 87, 107 KT). According to its archaeological context its date can be fixed into "the late first or early second centuries A.D." (Salomon 2004: 45). Another part of the Arapacana alphabet was found among the inscribed wooden tablets from Niya in Chinese Turkestan, which can be dated into the 3rd, early 4th centuries AD (Salomon 1990). This rather limited evidence is supplemented by the widespread use of Arapacana letters as location markers in Gandhāran art and architecture. Many objects—reliefs, sculptures, etc.—bear small

Kharoṣṭhī signs which indicate their arrangement in a certain complex (Salomon 2006, Koizumi 2007). All this evidence allowed a rather reliable reconstruction of the alphabet up to its 35th letter (cf. table 2). Fortunately, among a collection of manuscripts which was discovered in the Bajaur district, not far from the Afghanistan-Pakistan border, and is currently being studied at Freie Universität Berlin, a text could be identified which contains a compilation of verses which are arranged in the order of this alphabet (= BajC 5, cf. Strauch 2008: 121–123). Each half of every verse begins with the same letter. On the basis of this text and the incomplete versions which were previously known it is now possible to establish the complete inventory of signs as listed in the Arapacana alphabet.

The following table (table 2) will demonstrate the inventory of signs as given in the Bajaur fragment 9 and its relation to other versions of the Arapacana alphabet. Arapacana signs which are not part of the varṇamālā alphabet are left unshaded in columns 1 and 6. (Section 1). Moreover, the table will show the varieties of secondary modifications attested in various sources of Kharoṣṭhī writing (Section 2). A third section will illustrate the use of the basic and modified signs in a Kharoṣṭhī text from Bajaur which is composed in Sanskrit (= BajC 9).

> The Arapacana alphabets in the table are reconstructed according to the following publications:
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> – Brāhmī representatives from Skt. texts: Salomon 2004: 47
> – Niya tablet: Salomon 1990: 265–268, fig. 7 (with the exception of no. 21 (śpa), no. 28 (ṭa) and no. 35 (ṭha) which were corrected on the basis of the digital image of the plate (available at http://idp.bl.uk/database/large.a4d ?recnum=16781&imageRecnum=20818) for spa, (tha), and [ṭha]
> – Kara-Tepe ostracon: Salomon 2004
> – Location markers: 1–17 (a-ma): Zar Dheri (Koizumi 2007), except 13 (ya) (Salomon 2006: 199), 18 (ga): Nimogram (Salomon 2006: 200), 24 (kha): Butkara (ibid.), 26 (sta): "Chorasan, Gandhara" (ibid.).
>
> The Bajaur signs are extracted from the verse initials of Bajaur fragment 5, except when preceded by *. In these cases the signs had to be taken from other portions of the text.
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> Most of the modified signs are extracted from Glass 2000. Their exact provenance is indicated in the following annotated survey. This table does not aim at a complete inventory of modified signs and is meant only for illustration purposes. The actual—recently attested—number of modifications is higher than shown here. A more complete survey has to be undertaken after most of the recently studied Kharoṣṭhī manuscripts are edited. It is possible that some of the signs identified by Glass as phonetically relevant graphemes are mere ornamental varieties of the basic sign. If the character of a modification is unclear, this is indicated by *.

- *pa: Glass 2000: 84 (Gardner plate 30, no.3). Although Glass mentions the variant pa (transliterated as ṕa) among the letters composed with the help of the respective syllable modificator ("Cauda") (2000: 136), his chapter on the variants of the sign pa contains only one letter of this type which is considered by him as a footmark (2000: 84). It is generally difficult to distinguish the phonetically relevant substroke from the merely graphical footmark of almost identical shape.
- c̄a: Glass 2000: 62 (Niya documents)
- ña: Glass 2000: 82 (Khotan Dharmapada)
- ḍa: Glass 2000: 79 (British Library scribe 21)
- d̠a: Glass 2000: 72 (Niya documents). Although Glass is referring to this variety in his chapter on modifiying signs (2000: 136), he refuses this identification in his chapter on the sign da and suggests considering it as one of the phonetically irrelevant footmark variants (2000: 73). For sake of completeness we will, however, pertain to distinguish this variant from its basic sign. Rapson et al. (1920–29) transliterate this letter as ḍa.
- ṣa: Glass 2000: 103 (British Library scribe 9)
- s̠a: Bajaur Collection scribe 4
- v̠a: Glass 2000: 98 (Niya documents). As Glass points out, this letter is already found on the coins of Vima Kadphises, where his name is spelt v̠ima.
- ṭi: Glass 2000: 77 (Bajaur casket)
- *y̠i: Glass 2000: 94 (Bajaur casket). It is not clear whether this variant really represents a modified consonant. Again Glass mentions this letter among the examples for the consonant modifier (2000: 136), he considers it in another chapter as a footmark variety of the letter ya (2000: 94).
- ḵa: Glass 2007: 95 (Senior scribe)
- k̄: Bajaur Collection scribe 3
- s̄e: Glass 2000: 109 (British Library scribe 14)
- s̠a: Glass 2000: 107 (British Library scribe 9). It is not clear whether the

    variants Ɫ (Wardak vase) and ♂ of some British Library scribes represent the same sign. They are regarded by Glass as early variants of the letter s̠a. In one of the BajC manuscripts, however, both variants were used side by side, indicating perhaps that they were perceived as different graphemes. The same graphical distinction between the ordinary s̠a and this under-bent sa is also found in the Arthapada manuscript of the "Split Collection" where both signs perhaps even designate different phonemes. Cf. Falk 2011b: 14f.
- m̄a: Glass 2000: 93 (British Library scribe 8)
- *m̠i: Glass 2000: 92 (Wardak vase). Again the status of this sign is unclear. Like the pa, the d̠a and the yi it was listed by Glass among the modified signs (2000: 136), but considered in the description of letters as a footmark variety (2000: 92).
- gi: Glass 2000: 59 (Khotan Dharmapada)
- ḡa: Glass 2000: 58 (Khotan Dharmapada)
- tha: Bajaur Collection scribe 9

- *ja:* Glass 2000: 65 (British Library scribe 9)
- *ja:* Glass 2000: 66 (Bajaur casket)
- *śa:* Glass 2000: 99 (British Library scribe 10). According to Glass, "the superscript line with *śa* is not thought to signify a different phoneme, but rather to distinguish *śa* from *ya* which can be almost identical" (2000: 99). Although this interpretation is quite plausible, it seems advisable to consider this sign for the time being as a separate and phonetically relevant variant of the basic grapheme *śa*.
- *śa:* Glass 2000: 100 (Bajaur casket)
- *kṣa:* Glass 2000: 116 (Niya documents)
- *ñ:* Bajaur Collection scribe 9
- *he:* Glass 2000: 113 (Niya documents)

Table 2. The basic and modified signs of the Kharoṣṭhī Arapacana alphabet and their Sanskrit reflexes in BajC 5

1 Arapacana alphabet- Basic signs						2 Modifications		3 Sanskrit reflexes (BajC 9)	
No.	Sanskrit-Brāhmī representatives	Niya tablet	Kara Tepe ostrakon	Location markers	Bajaur fragment BajC 5	Bar above	Extension below	Basic signs	Modified signs
1	a			a	* (sign)			a	
2	ra			ra	ra (sign)			ra	
3	pa		[pa]	pa	pa (sign)		*pa (sign)	pa	
4	ca		[ca]	ca	ca (sign)	ca (sign)		ca	śca
5	na		[na]	na	na (sign)	ña (sign)		na/ṇa	
6	la		la	la	la (sign)			la	
7	da		da	da	daṃ (sign)		ḍa (sign)	da	
8	ba		ba	ba	ba (sign)			ba	
9	ḍa		[ḍa]	ḍa	ḍa (sign)		ḍa (sign)	ḍa	
10	ṣa			ṣa	ṣa (sign)	ṣa (sign)	ṣa (sign)	ṣa	
11	va		[va]	va	va (sign)		va (sign)	va	
12	ta		ta	ta	ta (sign)		ṭi (sign)	ta	

Table 2 (*cont.*)

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1 Arapacana alphabet- Basic signs						2 Modifications				3 Sanskrit reflexes (BajC 9)	
No.	Sanskrit-Brāhmī representatives	Niya tablet	Kara Tepe ostrakon	Location markers	Bajaur fragment BajC 5		Bar above		Extension below		Basic signs	Modified signs
13	ya		ya	ya	ya				*yi		ya	
14	ṣṭa		[ṭha]	ṭha	ṭha						ṣṭa/ ṣṭha	
15	ka		ka	ka	ka		k̄a		k̲a		ka	
16	sa	[sa]	sa	sa	sa		s̄e		s̲a		sa	
17	ma	(ma)	ma	ma	ma		m̄a		*m̲i		ma	
18	ga	(ga)	ga	ga	ga		ḡi		g̲a		ga	
19	tha	tha	tha		tha		t̄ha				tha/ stha	stha
20	ja	(ja)	ja		ja		j̄a		j̲a		ja	
21	śva	śpa	[ś..]		śpa						—	
22	dha	dha	dha		dha						dha	
23	śa	śa	śa		śa		s̲̄a		ś̲a		śa	
24	kha	kha	kha	kha	kha						kha	

Table 2 (*cont.*)

1 Arapacana alphabet- Basic signs					2 Modifications		3 Sanskrit reflexes (BajC 9)	
No.	Sanskrit-Brāhmī representatives	Niya tablet	Kara Tepe ostrakon	Location markers	Bajaur fragment BajC 5	Bar above	Extension below	Basic signs	Modified signs
25	kṣa	kṣa	kṣa		kṣa	kṣa		kṣa	kṣa
26	sta	sta	[sta]	sta	sta			sta	
27	jña	ña	[ña]		ña	n̄		jña	jña
28	rtha	ṭa	ṭa		ṭa			—	
29	bha	bha	bha		bha			bha	
30	cha	cha	cha		cha			cha	
31	sma	spa			spa			—	
32	hva	vha			vha			—	
33	tsa	tsa			tsa			tsa	
34	gha	[gha]			gha			gha	
35	ṭha	[ṭha]			ṭha			—	
36	ṇa				ṇa			ṇa/na	
37	pha				pha			pha	

Table 2 (*cont.*)

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1 Arapacana alphabet- Basic signs					2 Modifications		3 Sanskrit reflexes (BajC 9)	
No.	Sanskrit-Brāhmī representatives	Niya tablet	Kara Tepe ostrakon	Location markers	Bajaur fragment BajC 5	Bar above	Extension below	Basic signs	Modified signs
38	ska				ḱa			ska	
39	ysa				za			—	
40	śca				ća			—	
41	ṭa				ṭa			—	
42	ḍha				ḍha			—	
*	ha				*ha	h̄e		ha	

It might be worth noticing that the versions of this alphabet represented here—although they originate from quite different regions and cultural contexts of the Kharoṣṭhī using area—are remarkably consistent. This clearly speaks in favour of a coherent use and commonly accepted shape of the Arapacana alphabet throughout the attested history of its use.

If we compare this repertoire with the *varṇamālā*, we observe:

1. Nearly all phonemes of the reduced Middle Indian variant of the *varṇamālā* as represented in the Aśokan scripts are part of the Arapacana alphabet. They are indicated here by shaded cells. The exceptions are the phonemes *jha* and *ha* which are not part of the alphabet. In the case of the aspirated *jha* it is quite possible that it was unknown to the Gāndhārī language.[8]

The reason for the absence of *ha* is however a mystery. It is clearly present in the earliest varieties of Kharoṣṭhī. A not very convincing explanation could point to the fact that some dialectical variants of Gāndhārī seem to reduce the Old-Indian phoneme *h* to *y* or hiatus (cf. Brough 1962: 92f.). Accordingly, the Arapacana could have been developed in a region which did not know the voiced glottal sound *h*.

2. In comparison to the *varṇamālā* arrangement the Arapacana alphabet contains a considerable number of additional letters (here left unshaded). These additional signs can be divided into different categories:

A—Some of these signs can be explained as representations of sounds which are only found in the Gāndhārī speaking area for which the Kharoṣṭhī was designed. To this category belong the signs for *vha* (no. 32), which most probably determines a voiced or voiceless spirant like *v/f*, and *za* (no. 39), a voiced sibilant which is absent from other Indian dialects.

B—The phonetic value of the remaining signs is less clear. Although the graphical shape of some of them seems to suggest that they represent either sound combinations (no. 31 *spa*, no. 33 *tsa*) or modifications of basic phonemes (no. 26 *sta*, no. 28 *ṭa*, no. 35 *ṭha*, no. 38 *k̇a*, no. 40 *ċa*), the respective transliterations are mere reconstructions and do not reproduce their actual phonetic value.

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[8] In earlier transliteration systems the Kharoṣṭhī sign *za* was transliterated as *jha*. For its now commonly accepted transliteration cf. Glass 2000: 110.

Without entering the discussion of the complicated and not yet completely understood phonology of the Gāndhārī language and its relation to the orthography of the Kharoṣṭhī script, we may restrict ourselves here to the observation that the Arapacana alphabet contains eleven letters which are not part of the Sanskrit phonological system as displayed in the *varṇamālā* and are thus strictly taken not necessary to write Sanskrit. At the same time these "superfluous" letters form an indispensable part of the Kharoṣṭhī alphabet.

Regardless of their original phonetic value all of the signs of the Arapacana alphabet are perceived as basic letters which can be subject to further modifications, like the designation of the vowel value and its nasalization by a set of diacritics. Another important category are special diacritics for the pre- and postconsonantal semivowels -*y*-, -*r*-, -*v*-. Obviously, consonant clusters with these semivowels occurred in at least some varieties of Gāndhārī and are therefore part of the Kharoṣṭhī script from its very beginning (cf. table 3).[9]

In addition to this initial inventory the Kharoṣṭhī scribes developed a method to further modify the original value of the basic signs by attaching

Table 3. The vowel and semivowel diacritics of conventional Kharoṣṭhī

Vowel diacritics

ka	ki	ku	ke	ko	paṃ

Semivowel diacritics

rka	kra	vya	sva

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[9] All sample letters are extracted from the Bajaur manuscript BajC 2, with the exception of *vya* (BajC 9r).

different diacritics. The structural basis for this approach can already be observed in the fundamental sign inventory as displayed in the Arapac-ana. Here we can discern sign groups like *pa: pha* (no. 3: no. 37), *ca : ća* (4: 40), *va: vha* (11: 32), *ḍa: ṭha : tha: sta : ṭa : ṭha : ṭa* (9: 14 : 19 : 26: 28 : 35 : 41), *ka: ḱa* (15 : 38) or *ga : gha* (18 : 34), where phonetic relationship is clearly expressed by the graphical modification of basic signs.

It is remarkable that in cases where we can clearly distinguish the basic sign from its modified variant the basic form regularly precedes the modi-fied one in the sequence of the alphabet. It is therefore possible that the order of the Arapacana letters reflects the historical sequence of their cre-ation. Thus it can hardly be seen as a mere coincidence that most of the signs for aspirated sounds, which were probably originally unknown to the Gāndhārī language, are in the second half of the alphabet. I call this process which took place until the alphabet as such was closed for further additions of signs "primary modification". It is difficult to say, when this process came to an end, i.e. when the Arapacana alphabet had reached its complete shape. It cannot be excluded that the alphabet was not yet complete by the time of Aśoka. At least some of its basic signs (no. 21: *śpa*, no. 32: *vha*, no. 33: *tsa*, no. 38: *ḱa*, no. 40 : *ća*) are obviously absent from the inventory of the Aśokan Kharoṣṭhī as represented in the rock edicts at Shahbazgarhi and Mansehra. However, like any *argumentum ex silentio* this absence cannot prove that other unattested varieties of the script did not contain these missing signs. It is therefore possible—though hypothetical—that Glass' statement according to which "(b)y the time of the Aśokan inscriptions, the Kharoṣṭhī alphabet was complete" (2000: 20) is correct.

In the centuries following Aśoka this primary modification was supple-mented by two types of secondary modifiers—a horizontal bar above the letter and an extension added to the foot of the letter (cf. above table 2). The phonetic value of these modifications is not completely clear, and according to the present state of research their use was by no means con-sistent. Concerning the first variety, however, there now seems to be good evidence that it mostly indicates the duplication—or prolongation—of a consonantal sound. It must be stressed that it shares this function with other graphical devices. Thus a preconsonantal *r* and a post-consonantal *v* was also occasionally used to designate consonant clusters, including geminated consonants (cf. Baums 2009: 198, table 45). Less clear is the function of the underlining variety which is sometimes difficult to distin-guish from an ornamental foot-mark without phonetic meaning. In many

cases it can be interpreted as a marker of a fricative pronunciation, but other types of modification are not excluded.[10]

The number of true combined letters which use two or more basic signs for designating consonant clusters is very limited. According to the hypothesis suggested here they are originally alien to this script and belong to the later phase of Kharoṣṭhī writing which experienced strong influence from the Brāhmī writing system (cf. below).

This detailed description of the alphabet and its use was intended to show that the Kharoṣṭhī by its nature was not phonological like the Brāhmī but phonetic. Throughout its history it showed a strong tendency to depict different allophones by different or modified letters. This resulted in a rather large diversity of signs which hardly corresponded to the phonological structure of the language the script designated.

This phonetic character is closely connected with and still complicated by the fact that the Kharoṣṭhī shows very weak tendencies towards a standardization of its orthography. Thus we easily find for one lexeme a multitude of different spellings. Although it is not excluded that these various spellings reflect different phonetic realizations of the same word, we have to consider that they might simply be caused by different orthographical conventions, including historical spellings. This results in considerable synchronic and diachronic diversity of orthographical usages.

As an example for this feature one may cite the frequently attested word derived from Old Indian *pratiṣṭhāpita* "erected". Its orthographical reproductions in the Kharoṣṭhī records[11] include *pratistapita* (CKI 155), *pratiṭhapita* (CKI 328), *pratiṭhavita* (CKI 257), *pratiṭhaviṭo* (CKI 48), *pratiṭhavida* (CKI 243), *pratiṭhaviḍa* (CKI 32), *pratiṭhavidu* (CKI 405), *pratiṭhaviṭe* (CKI 176), *pratiṭhavito* (CKI 65), *pratistavitae* (CKI 403), *pradiṭhaviḍa* (CKI 464), *pradistavita* (CKI 60).

Although such orthographical variants might provide valuable information about the dialectical variance in the Gāndhārī speaking area, they are rather obstructive in terms of standardization which is, however,

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[10] For its assumed function as fricative marker cf. Glass 2000: 136f. More differentiated is the interpretation of this graphical device as suggested by Baums (2009). While *k̲* "indicates [j] derived from a velar" (140), *ḍ* as used in the Niya documents and by British Library scribe 14 indicates the sound [ṛ] (141), *d̲* could designate a fricative (141) and *s̲* is said to indicate "the change from [s] to [z]" (150).

[11] The inscriptions are cited according to the "Catalog of Kharoṣṭhī Inscriptions" (CKI), see above fn. 2. Cf. there for detailed bibliographical references.

necessary if a script is intended to be used for other languages than that it was created for.

The "Sanskrit Revolution"

The Aśokan inscriptions and all other epigraphical documents in the subsequent two centuries were composed in Middle Indian languages. Not a single written Sanskrit text of this period has been found so far. This fact can at least partially be explained by the adverse attitude of the Brahmins towards the newly introduced writing culture. Thus still the Mahābhārata, a work which was composed in the three centuries before and after Christ (13.24,70) states:

> vedavikrayiṇaś caiva vedānāṃ caiva dūṣakāḥ
> **vedānāṃ lekhakāś** caiva te vai **nirayagāminaḥ**

> Those who sell the Veda, who spoil the Veda,
> *who write down the Veda* will certainly *go to hell.*

Writing was regarded by the Brahmins an inappropriate means to preserve and transmit their religious texts. This attitude was mainly due to their monopolistic position in the sphere of religious literature. It was one of their main tasks to preserve the textual tradition and to apply it in ritual contexts. Any attempt to democratize this sphere—and script is of course an instrument in this direction—would challenge this position and was consequently rejected. It is therefore not surprising that the growing writing culture was first adapted by other social and religious groups. The most important among them were the Buddhists. The majority of inscriptions which are attested between Aśoka and the 1st c. AD consequently belong to Buddhist monasteries and record the dedication of buildings or sculptures. The persons who left these epigraphs help to determine the social strata which used writing. They belonged either to the ruling aristocratic class or to the class of merchants and artisans.

The language policy of the Buddhists promoted the development of Middle Indian dialects as literary languages. They translated their literature into the dialects spoken in the areas of their activities. Although in the first centuries following Aśoka the texts were mainly orally transmitted the Buddhists soon started to make use of the new cultural technique of writing. The exact date of this event is in most cases unknown, but the Pāli canon e.g. is said to have been written down in the middle of the 1st century BC (von Hinüber 1990: 63–66). The newly discovered

manuscripts from Gandhāra can be dated slightly later, into the period
between the 1st c. BC and the 2nd c. AD, and thus provide another reliable
date for this process.

In the same time, however, the Brahmins tried to gain ground again.
Especially those among them who specialized in legal affairs and political
sciences and were closely related to the ruling elites began to adopt writ-
ing as one of their traditional disciplines of learning (*kalā*). It is possible
to trace this gradual process in the literature of this time, e.g. the intro-
duction of written documents into legal procedure as witnessed in the
Dharmaśāstra literature (cf. Strauch 2002: 19–52). This development was
accompanied by the growth of a new, mighty religious movement which
is nowadays subsumed under the term Hinduism. The texts of this move-
ment such as the great epos Mahābhārata with its influential Bhagavadgītā
were no longer the secret knowledge of a small group of specialists but
were widely propagated. Hinduism provided the ideological base for the
spread of the Brahmanical culture over the entire Indian subcontinent
(cf. now Malinar 2009: 50–66). The basic means of communication in this
process was Sanskrit, which not only served as *lingua franca*, but also
regained its status of a religiously legitimized literary language. It is sig-
nificant that the earliest Indian inscriptions which show clear traces of
Sanskrit phonology are not originating from a Buddhist background, but
can be ascribed to the newly arising Hinduist culture.[12] The status of San-
skrit gradually became so strong and influential that even the Buddhists
in India started to sanskritize their texts.[13] Traces of this sanskritization
are felt throughout: not only in early Buddhist literature but also in the
inscriptions of that time (Damsteegt 1978). The Kharoṣṭhī epigraphs show
that also the Gāndhārī speaking area was subject to this process from
about the late 2nd/early 3rd c. AD onwards (Salomon 2001: 141).

In India proper the specialists from the *brāhmaṇa* circles had devel-
oped the Brāhmī script into an adequate instrument for a phonologically
correct reflection of the Sanskrit language. By the end of the 2nd century
AD the Brāhmī disposed of a complete inventory of signs and sign combi-

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[12] Cf. e.g. the Brāhmī epigraphs from Ghosuṇḍī and Hāthībāḍā (Salomon 1998a: 86f.).

[13] Cf. for the general conditions of this process and the influence from the side of Brah-
manical culture Salomon 2001: 248–251. Controversially discussed is the significance of
writing for the emergence of a new Buddhist movement, the Mahāyāna, which is said to
have a special attachment to writing and written artifacts like books (for a summary of
the recent discussion and further references cf. Drewes 2009). As recent research shows,
Mahāyāna was also influential among Gandhāran Buddhism (Strauch 2010).

nations in order to express Sanskrit in a non-ambiguous way. The general consistency of orthography and the graphical solutions which were found speak in favour of a somehow controlled or at least harmonized process based on a sound knowledge of Sanskrit phonology and grammar.

The "Internal Sanskritization" of Kharoṣṭhī

But how did the proponents of the Kharoṣṭhī script react to this Pan-Indian challenge? The number of manuscripts or inscriptions which belong to the group of sanskritized or Sanskrit texts is rather limited. Nearly all of them are quite late and are datable to the 3rd c. AD or even later, i.e. into the final phase of Kharoṣṭhī (cf. Salomon 2001). Fortunately, among the texts of the Bajaur Collection there is one manuscript which seems to belong to an earlier phase of Kharoṣṭhī Sanskrit writing (= BajC 9 recto). According to its palaeographical features and the evidence of the collection as a whole it should not be later than the 2nd c. AD (Strauch 2008: 108–111). The manuscript contains a collection of verses which belong to the Brahmanical genre of Nīti literature, i.e. political science.[14] This text shows that the process of sanskritization did not only involve a *linguistic* shift within the boundaries of Buddhist literature but did also include a *cultural* change which implied a more intensive confrontation with new branches of non-Buddhist literature composed in Sanskrit.

The Bajaur manuscript BajC 9 is written in a conventional Kharoṣṭhī using the typical Arapacana signs and its modification markers. There is no extensive use of newly created conjunct signs or special indicators for vowel quantity which are typical for later varieties of Sanskrit in Kharoṣṭhī script. Therefore, at the first glance the text looks like ordinary Gāndhārī. But phonetic features like the use of external and internal sandhi and morphological forms which are characteristic only for Sanskrit reveal its true language. Moreover, the text is composed in the Āryā meter.

In most cases it is possible to reconstruct from the defective Kharoṣṭhī spelling the correct Sanskrit text. The principles which were used for writing Sanskrit can be demonstrated on the base of one of the verses which lists the components of the royal income (BajC 9 recto, verse 8):

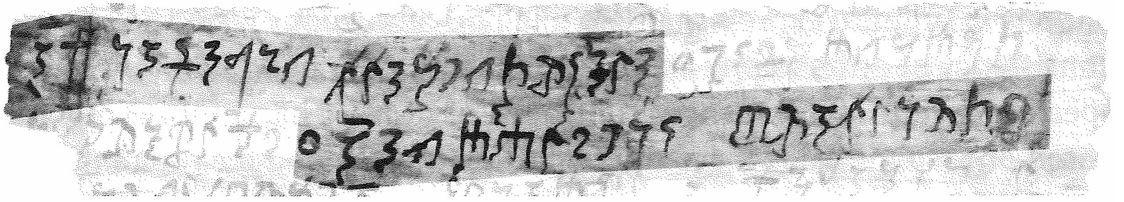[14] For more information about this text see Strauch 2008: 125–127.

Fig. 1. Extract from the manuscript BajC 9, recto.

Kharoṣṭhī spelling	Sanskrit reconstruction
dhaṇa-dha*nya*-ku*pya*-yavase*ṃdhan*{e}ṇi	dhana-dhā*nya*-ku*pya*-yavase*ndhan*āni
ya*tra*yudhani ca rathac̄a	ya*ntr*āyudhāni ca rathā*śca*
upakaraṇani ca kośo	upakaraṇāni ca kośo
naravahana-śipi-yodhac̄a	naravāhana-śi*lp*i-yodhā*śca*

Translation: The treasure (are) money, grain, forest produce,[15] grass, machines and weapons, chariots and instruments, men, vehicles, crafts-men and soldiers.

For giving a more complete picture of the overall appearance of the manu-script, the following survey will be complemented by selected evidence from other portions of the same text.

1. *Vowel quantity* (*above* = **bold print**)

Throughout the manuscript the quantities of the vowels are not indi-cated. Other text portions show that also diphthongs are not indicated but represented by their respective monophthongs (*ceva* = Skt. *caiva*).

The sonant *r̥* is expressed either by *ri* (*nripati* = Skt. *nr̥pati*) or *ir* (*hir-daya* = Skt. *hr̥daya*), or—in a labial environment—by *ur* (*vurdhi* = Skt. *vr̥ddhi*).

2. *Simple consonants*

With the exception of the confusion of dental and retroflex nasal (*n/ṇ*), which is typical for most of the varieties of Kharoṣṭhī and reflects the sup-posed indistinctiveness of the pronunciation of both sounds all simple (short) consonants are represented by their expected Kharoṣṭhī equiva-lent (cf. above table 2).

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[15] This connotation of *kupya* is obvious from the chapter 2.17 of the Kauṭilīya Arthaśāstra which is exclusively devoted to the duties of the "Director of forest produce" (*kupyādhyakṣa*). See also Kangle (1969: Glossary, s.v.).

3. *Consonant clusters* (*above = cursive print*)
Consonant clusters are indicated generally only in cases when the conventional inventory of Kharoṣṭhī offers a possible grapheme. Geminated consonants are not indicated (*t* = Skt. *tt*).

3.1 Semivowel diacritics (-y, -r, r-, v-)
Clusters containing the semivowels *y* and *r* are usually indicated by means of the primary modifiers of the Kharoṣṭhī, like above *nya, pya, tra*. As an example for preconsonantal *r atmartha-*: Skt. *ātmārtha-* and *durge*: Skt. *durge* can be cited, postconsonantal *v* is found in *kritva* = Skt. *kṛtvā*.

3.2 Basic Arapacana signs expressing sound combinations
Although the phonetic realization of these signs (Arapacana no. 25, 26, 38) is disputed, the scribe of BajC 9 apparently perceived them as representatives of Old Indian sound clusters. Thus we find in the text *kṣa* (no. 25) for Skt. *kṣa* (*kośakṣaya* = Skt. *kośakṣaya*), *sta* (no. 26) for Skt. *sta* (*śastreṣu* = Skt. *śāstreṣu*), and *ka* (no. 38) for Skt. *ska* (*saṃkrita* = Skt. *saṃskṛta*) (cf. above table 2).

3.3 Secondarily modified Arapacana signs
In other cases the Kharoṣṭhī either uses the possibility of additional modifying signs, e.g. a bar above the letter (*ca* = *śca*) or an anusvāra indicating the class nasal (*ṃdha* = *ndha*). The horizontal bar is also used for the sound combination *jña* which is depicted as *ña* with bar above (𐨑), a sign which is so far unattested in Kharoṣṭhī palaeography. Another unattested combination is found in *tha* (𐨠) which is used beside unmodified *tha* (= Arapacana, no. 19, 𐨠) occasionally for Skt. *stha*. A different internal derivation for this sound combination which is based on the Arapacana sign *sta* (no. 26) is found in later Central Asian Kharoṣṭhī (𐨯, *sthi*, Glass 2000: 133).

Another special modification is represented by clusters containing a pre- or postconsonantal *l*, where the vertical lower end of the basic sign is crossed by a stroke: *klaṃ* (𐨐), *kle* (𐨐), *lkaṃ* (𐨫). This rarely attested device can be associated with the ligature *lpi* found in the Kharoṣṭhī legends of Vima Kadphises (𐨤) and in later Central Asian Kharoṣṭhī (𐨫) (cf. Glass 2000: 132).

3.4   No indication

Occasionally consonant clusters are not indicated at all, even if the conventional Kharoṣṭhī would provide a solution (*tr = ntr, p = lp*).

3.5   Combined signs

Only in very rare cases the scribe makes use of combined signs which join basic letters. Most of them are also attested in contemporary Kharoṣṭhī records, like e.g. *tma* 𑁦 (*atmartha* = Skt. *ātmārtha*).

Furthermore, the Kharoṣṭhī of the Bajaur manuscript does not indicate Visarga or final consonant.

It is quite obvious that this Bajaur text represents an early attempt to cross the language border towards Sanskrit on the basis of the instrumentarium developed within the Kharoṣṭhī script. I would like to call this process "Internal Sanskritization of Kharoṣṭhī". It has to be distinguished from the later phase which makes extensive use of the tools which have been developed and successfully used by the Brāhmī alphabet. Due to this indebtedness to an external source this later type can be named "External Sanskritization of Kharoṣṭhī".

The interaction of Brāhmī and Kharoṣṭhī

While the influence of Brāhmī might have been rather weak in the Aśokan period[16] it became more substantial in the subsequent centuries when Indo-Greek and Indo-Scythian rulers held sway over the North-West. The peak of this development was certainly reached under the dynasty of the Kuṣāṇas. From the end of the 1st c. AD onwards they started to establish an empire which united Bactria, the Hindukush area, the Indian North-West and the north of India up to Pāṭaliputra, i.e. modern Patna, thus covering a huge area where both Kharoṣṭhī and Brāhmī were in use. Although the Kuṣāṇas did not actively promote any of both scripts, the social and economic mobility within the boundaries of their empire and with its direct neighbours, the Western Kṣatrapas and Sātavāhanas in Gujarat and on the Deccan, resulted also in an interaction of both writing systems. We do not only find the occasional use of Brāhmī and Kharoṣṭhī in areas which were

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[16]   That biscriptuality was an old phenomenon, is shown by the case of the scribe Capaḍa who produced parts of the Aśokan edicts at Brahmagiri, Siddapur and Jaṭiṅga Rāmeśvara. He added to the otherwise Brāhmī texts his title *lipikara* "scribe" in Kharoṣṭhī letters (Salomon 1998: 136).

originally remote to them[17] but also the increasing occurrence of Brāhmī-Kharoṣṭhī biscriptual legends on seals and coins as well in Northern India as in the Kharoṣṭhī using area in the North-West. It might be interesting to notice that the Kuṣāṇas themselves did not actively participate in this process. Instead, under Kaniṣka I (after 127 AD) they replaced their originally biscriptual-bilingual Greek-Kharoṣṭhī legends, which they had inherited from their predecessors, by a single Bactrian legend.

Other dynasties, however, as the neighbouring Kṣaharātas who shifted from the North-West to Gujarat, i.e. into a Brāhmī using area, continued the older system and added a Brāhmī legend, a tradition which was continued from Bhūmaka via Nahapāna up to the Kṣatrapa ruler Damazāda (Senior 2001: 194–200). The use of Kharoṣṭhī was abandoned when the Middle Indian legends were replaced by Sanskrit under the ruler Rudradāman. The opposite development is attested by the coinage of the Pāratarāja dynasty who ruled from the 2nd till the 4th c. AD in Baluchistan. The earliest rulers in the middle of the 2nd c. AD used exclusively Brāhmī legends before the dynasty shifted to the use of Kharoṣṭhī which can be safely dated up to the end of the 3rd c. AD.[18] This evidence also shows the sphere of influence the Brāhmī reached during the first centuries AD.

Although it cannot be excluded that some examples of this early Kharoṣṭhī-Brāhmī biscriptuality were accompanied by bilinguality,[19] most

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[17] For Kharoṣṭhī scribes in the Brāhmī area see e.g. the famous Mathurā Lion Capital inscription of the 1st c. AD (CKI 48, see now Falk 2011b) and the Mathurā bilingual inscription dated (Kuṣāṇa) year 40 = 167 AD (CKI 440, Chattopadhyaya 1980–82, Bhattacharya 1984). Even more eastern examples are found at Bharhut (Cunningham 1879: 8, pl. VIII) and Patna (CKI 166, Konow 1929: 177f., plate XXXVI). For a probably imported Kuṣāṇa period Brāhmī inscription found in the Peshawar valley see Falk 2004: 139f. Earlier examples for the use of Kharoṣṭhī outside its original territory are the 3rd–2nd c. BC biscriptual inscriptions from the Kangra valley in Himachal Pradesh (Vogel 1902–03, CKI 167+168).

[18] For more information about the Pāratarājas and their coinage see Tandon 2006, 2009 and Falk 2007. The chronology used here follows Tandon 2009, the *terminus post quem* of the latest Kharoṣṭhī issues can be reliably fixed on the base of overstruck coins (Tandon 2009: 154–156). Other contemporary biscriptual coinages like those of the Audumbaras (ca. 1st c. AD) and the Kuṇiṇdas show that the introduction of Brāhmī cum Kharoṣṭhī legends was initially mainly restricted to territories and by dynasties which were peripheral to the core-land of Gandhāra and its ruling elites, but located at important trade routes which connected this area with Brāhmī using territories (cf. Chattopadhyaya 2003: 59–60).The much earlier attempt by Agathocles and Pantaleon (190–180 BC) to introduce Brāhmī on their coins is not considered here (cf. Bopearachchi 1991: 175, pl. 7, séries 9 +10, 182, pl. 9, série 6). It remained without further consequences for the development of writing in the region.

[19] A clear case of bilinguality seems to be the Kharoṣṭhī-Brāhmī Kanhiāra inscription (Vogel 1902–03, Konow 1929: 178, CKI 168). Here the Sanskrit text *kṛṣṇayaśasya ārāma mādagisya* written in Brāhmī is accompanied by the Gāndhārī *kriṣayaśasa aramo* in

biscriptual epigraphs seem to represent the same Middle Indian language. If a more accurate definition of this language is possible at all, it can be attributed to the North-Western, i.e. Gāndhārī speaking region. Thus not only many of the biscriptual seals (e.g. Konow 1929: 100, 102) but also the biscriptual Kuṣāṇa period Mathurā epigraph (Bhattacharya 1984) are nothing more than Gāndhārī written in Brāhmī script. In many cases the scribes simply transferred Kharoṣṭhī orthographical usages into the new script.[20] This clearly shows the direction of assimilation and its agents. Obviously Kharoṣṭhī scribes tried to use Brāhmī for their own language, which might affect the orthography of the Brāhmī written by them. As far as we can observe on the basis of the available evidence, there was no remarkable tendency to an opposite influence. It seems that as long as the media of communication was a Middle Indian language there was no need for a Kharoṣṭhī scribe to seriously revise his script and to leave the above described internal limits of its instrumentarium.[21]

With the beginning of the 3rd c. AD the picture changed. The Middle Indian language of Gandhāra had been reshaped into a kind of sanskritized *lingua franca* which was not very different from the varieties of Sanskrit which were in use in other parts of the Indian subcontinent. This sanskritized language affected all spheres of writing, i.e. not only epigraphical records but also the transmission of Buddhist literature. In the beginning

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Kharoṣṭhī (my readings). The inscription which was found in the Kangra valley in modern Himachal Pradesh seems to be very early and can probably be dated into the 2nd c. BC. It supports the idea that the preferable medium for writing Sanskrit was Brāhmī while the use of Kharoṣṭhī was at that period confined to Gāndhārī text.

It is not clear, whether the bronze die with the text (Kharoṣṭhī) *sidhatasa*, (Brāhmī) *sidhataśa* is also such a case of bilinguality where the Brāhmī is meant to designate an East-Indian dialect—(Ardha-)māgadhī—which replaces dental *s* by palatal *ś* (*Archaeological Survey of India, Annual Report* 1936/37: 39, pl. X, f,g). It is also possible that it represents an example for the incorrect use of the sibilant which is typical for the earliest Brāhmī as used by Aśoka. See for this seal now Aman ur Rahman & Falk 2011: 186, TM 07.07.01.

[20] A possible example for such a transfer of Kharoṣṭhī orthography is the use of preconsontal *r* to designate a geminated consonant in a Mathurā epigraph of the Kuṣāṇa period (Lüders 1961: 82f., § 46): *derya* = *deyya*. Such a usage of Kharoṣṭhī orthography can also be verified in much later documents. Thus we find in the frequently attested spelling *seryathā* = *seyyathā* in Buddhist Sanskrit texts (ibid.: 83) and in a peculiar Prātimokṣasūtra manuscript from Qizil of the 6th/7th c. (von Simson 1997) which reads e.g. *adirna* for *adinna* (583). For this device in Kharoṣṭhī texts see now Salomon 2008a: 97.

[21] An interesting case how a "foreign" sound is designated in Kharoṣṭhī are the Pārataraja names Kožana and Kožiya. The Kharoṣṭhī coins mentioning them introduced a new Kharoṣṭhī sign by modifying the letter *z* with the help of an additional hook added to its lower right and a circle on its top. The Brāhmī parallel seems to be based on the established ligature *ysa* /za/ which was, however, not used by the Kharoṣṭhī scribes as a model for their new sign (Falk 2007).

of this sanskritization Kharoṣṭhī continued to be in use. In the sphere of Buddhist literature this is impressively proven by the sanskritized Buddhist texts in Kharoṣṭhī script which are part of the British Library, Pelliot and Schøyen Collections.[22] According to recent radio-carbon dating the relevant Schøyen fragments can most probably be dated into the 3rd c. AD (Allon et al. 2006: 288–291).

The inscriptional evidence of this period shows that the use of Kharoṣṭhī for this sanskritized Gāndhārī became gradually replaced by that of Brāhmī. In many cases the transition is connected with the advent of foreigners originating from Brāhmī using areas (Falk 2004). As far as we can judge from the available material, this process first concentrated on two distinctive environments:

A—Non-Buddhist establishments which obviously preferred the use of Brāhmī as a script which was not linked to the Buddhist culture of Gandhāra. As an example for this category the numerous epigraphs discovered in the early Hindu site Kashmir Smast can be cited. They show how the peculiar—still heavily Gāndhārī based—sanskritized language of the region was tried to be reproduced in the newly introduced Brāhmī script (cf. Falk 2001 and Falk 2008b: 138–143).[23]

B—Peripheral places of the Kharoṣṭhī using area with a high factor of social mobility which were less reluctant to accept a new script. The Buddhist monastery complex Kara-Tepe near Termez (Uzbekistan) can serve as a paradigmatic place for this category. Here we find the contemporary use of Brāhmī and Kharoṣṭhī probably datable into the 3rd–4th c. AD.[24]

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[22] The Sanskritic features of the respective manuscripts are described in Salomon 1998b (Pelliot), Salomon 1999: 123, Salomon 2001: 243 (British Library), Allon & Salomon 2000: 266–271, Salomon 2001: 243–247, and Allon et al. 2006: 288–290 (Schøyen). The same category of relatively late sanskritized Kharoṣṭhī texts is represented by a hitherto unpublished palm-leaf folio from the Kabul Museum which probably hails from a cave at Bamiyan (Falk & Strauch, forthcoming).

[23] Forms such as the ending -sya for the genitive sg. masc. clearly show the Skt. character. The inconsistency in the designation of vowel quantity and prakritisms or hyper-sanskritisms such as pāṇīka and pāṇīā (for Skt. pāṇīya) and pratitthāvita (for Skt. pratiṣṭhāpita-) indicate the underlying Gāndhārī phonology.

[24] The editor of these inscriptions suggests a much later date for some of the bilingual epigraphs comparing the records of the monk Buddhaśira(s) with the Brāhmī inscriptions of Central India and the Deccan of the 5th/6th c. AD (Vertogradova 1995: 32). On the base of the palaeographical arguments presented by her it seems, however, more plausible to presume a date in the late Kuṣāṇa/early Gupta period, i.e. around the end of the 3rd, beginning of the 4th c. AD. A still earlier date is now suggested by Gérard Fussman (2011:

A series of biscriptual inscriptions on ceramic vessels[25] shows that Brāhmī and Kharoṣṭhī virtually reproduced the same sanskritized language.

That the gradual introduction of Brāhmī did also affect places in the Gāndhārī core-land can be shown by a bilingual epigraph from a Buddhist site near Peshawar (Falk 2004: 146f., plate V, d) and by a vessel with a Brāhmī inscription from a Buddhist monastery near Haḍḍa called *mahāsenāraṇya* (pot 1: Sadakata 1999: 65–66, plate II). Interestingly, the same monastery name is attested on another ceramic pot inscribed in Kharoṣṭhī (pot 2: CKI 360, Salomon 1996: 238–242, plates 8–14). Here we read in sanskritized orthography: *saghe cadurdiśe masenaranye*[26] "To the community of the four directions at the Mahāsena monastery." Obviously the Mahāsenāraṇya has completed the shift from Kharoṣṭhī to Brāhmī in the period between the production of both vessels. It seems that this shift was preceded or accompanied by a change of Kharoṣṭhī orthography. The initial phase of this development can be illustrated with the help of another pair of pots. The same sanskritized spelling as found on the pot from the Ma(hā)senāraṇya is seen on a yet unpublished vessel from the Mahāpriyāraṇya monastery near Haḍḍa. Here the same unusual ligature *ṇya* and additionally even a long *ā* occur: *mahāpriaraṇye* (pot 3: Strauch, forthcoming). This evidence can be contrasted with the variant *mahapriyaramñe* in conventional Kharoṣṭhī orthography as found on another vessel from the same monastery (pot 4: CKI 223, Fussman 1969).[27]

All these vessel inscriptions represent different stages in the development from conventional Kharoṣṭhī to Brāhmī, caused by the sanskritization of the North-Western language:

41–45) who dates the biscriptual texts of Buddhaśira(s) between 50 and 200 AD while Jīvananda is placed by him between 150 and 250 AD.

[25] The multiscriptual inscriptions of the Kara-Tepe monks Jīvananda and Buddhaśira(s) are published by V.V. Vertogradova (1995: 106–113, 2004: 69–72) and Fussman 2011: 63–88 (Buddhaśira(s) alias Buddhamitra) and 67f. (Jīvananda). Another triscriptual text of Jīvananda which was not recognized as such seems to be 51 KT (Fussman 2011: 75f.). The Kharoṣṭhī text on sherd 51 KT b can clearly be read as [j]i[va]na[ṃ]das[y]a. The script is identical with that used on the other pots of this person.

[26] What Salomon interprets as "long, decorative extensions to the last syllable of a word" (1996: 239) can now be safely identified as subscribed -ya. Hence his readings *masenarane* and *budhaghosasa* have to be corrected to *masenaranye* and *budhaghoṣasya*. For *masena* as contracted form of *mahāsena* cf. Salomon 1996: 242.

[27] As Salomon (1999: 243) rightly points out, Fussman's reading *mahapriasaṃñe* has to be corrected.

Language	Gāndhārī	Sanskritized language	
Script	Conventional Kharoṣṭhī	Modified Kharoṣṭhī	Brāhmī
Mahāsenāraṇya		*masenaranye* (*pot 1*)	*mahāsenāraṇye* (*pot 2*)
Mahāpriyāraṇya	*mahapriyaraṃñe* (*pot 4*)	*mahāpriaraṇye* (*pot 3*)	

As this evidence shows, the process of sanskritizing did not only affect the literary and administrative language of the region but also had a considerable impact on the orthography of the Kharoṣṭhī. As mentioned before, of both scripts it was the Brāhmī which had already found the basic answers to the challenge of sanskritization. What would be more natural than the attempt to use these answers for the adjustment of Kharoṣṭhī?

The "External Sanskritization" of Kharoṣṭhī

The following short survey will list the most characteristic changes of Kharoṣṭhī in the late phase of its adaption to Sanskrit phonology as witnessed by the few examples of sanskritized Kharoṣṭhī texts.[28] Beside the few texts of the Schøyen, British Library and Pelliot collections the most extensive repertoire for this late type of Kharoṣṭhī is represented by the documents on wood and leather discovered in the beginning of the 20th c. by Aurel Stein in Niya and Endere (Boyer et al. 1920–29). Most of these documents are written in the administrative language of the Kroraina kingdom which is based on Gāndhārī but largely influenced by an underlying dialect related to Tokharian (cf. Burrow 1937). Some of them, however, contain Buddhist verses which are composed in the Buddhist Sanskrit of the period (Iwamatsu 1998, 2000, 2001, 2002). The entire corpus can be dated into the 3rd/4th c. AD (Brough 1965). Both the foreign elements of the language as well as the desire to express Sanskrit affected the development of the Niya Kharoṣṭhī which is abundant in newly created sign modifications and combinations (Boyer et al. 1920–29: 295–322).

In the late Sanskrit or sanskritized Kharoṣṭhī texts *consonant clusters* are usually formed by writing the respective basic signs one above the

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[28] Since the number of these texts can be expected to increase and only some of the known texts are published so far, the survey is just a cursory overview to indicate the general characteristics. The major texts which are available at present are listed in Salomon 2001 and Allon et al. 2006.

other. This method clearly adopts the way which is the standard one for Brāhmī. As opposed the "internal" way of expressing such combinations by non-standardized diacritics, this approach guarantees a phonologically adequate reading.[29] The necessary unambiguity is, however, never reached, since all Kharoṣṭhī texts attested so far simultaneously continue the less distinct "internal method". Thus despite its otherwise sanskritized or—better—brahmiized character the Schøyen manuscript applies $\bar{s}$ for Skt. *sna* and *j* for Skt. *jha* (Allon & Salomon 2000: 267).

Table 4.[30] Selected consonant clusters in late Kharoṣṭhī as opposed to the orthography of the manuscript BajC 9

Skt.	External Sanskritization			Internal Sanskritization	
	Schøyen Collection	Pelliot Collection	Niya documents	Bajaur fragment 9	
kta	𐨐𐨿𐨟		𐨐𐨿𐨟	𐨟	ta
jña	𐨗𐨿𐨙	𐨗𐨿𐨙		𐨙	ña
tta	𐨟𐨿𐨟			𐨟	ta
ṣṭha	𐨠		𐨠	𐨠	ṭha
stha	𐨠			𐨠	tha
lpa			𐨫𐨿𐨤	𐨫	lkaṃ

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[29] An interesting and rather early example for this device is found with the ligature *sthu* (�) on the two Wardak vase inscriptions dated into the (Kuṣāṇa) year 51 (= 178 AD) (CKI 159 = Konow 1929: 165–179, CKI 509 = Falk 2008a). Remarkably, it occurs only in the foreign, probably Iranian, name Hasthunā. The two dots above the final letter (*nä*) seem to indicate another orthographical peculiarity which was probably introduced into Kharoṣṭhī from a foreign writing system. Konow (1929: 166) compares this device with the vowel designation -*ä* of Śaka Brāhmī texts. Usually such double dot above a consonant sign is used to designate the Skt. Visarga and probably derived from the corresponding Brāhmī sign. Cf. also the discussion in Salomon 1998: 131, 143 and Glass 2000: 137f.

[30] With the exception of *stha* (Allon & Salomon 2000: pl. X,1) and the BajC signs, all Kharoṣṭhī signs are extracted from Glass 2000.

Table 5.[31] Additional signs of late Kharoṣṭhī and their Brāhmī models

		Vowel quantity		Visarga		Virāma	
Brāhmī	ā			yaḥ		tam	
Kharoṣṭhī	ā			taḥ		dhik	

Other orthographical needs for writing Sanskrit were only sporadically satisfied. Thus the Visarga is found only in the few Kharoṣṭhī manuscripts from the Northern Silk Road which are now part of the Pelliot Collection (Salomon 1998b) and in few of the later Kharoṣṭhī tablets from Central Asia (cf. ibid.: 131). In Kuṣāṇa times the Brāhmī had started to write this sound as double dot on the right side of a letter. The new Kharoṣṭhī sign which arranges these dots on the top of the basic sign can be interpreted as an adaptation of this method. Its occurrence in Central Asia is clearly based on the prominent presence of Brāhmī in this area.

Another feature which was introduced rather late into Kharoṣṭhī is the indication of *vowel quantity*. The earliest attempt seems to be represented in the Avadāna texts of the British Library Collection scribe 2 from about the 2nd century which is restricted, however, to the initial *ā* (Lenz 2010: 17). The long quality of the vowel is indicated by a stroke to the lower right of the letter which can be associated to the shape of the -*ā* diacritic as found in some varieties of Kuṣāṇa Brāhmī (cf. table 5). The same practice is also occasionally attested in epigraphical records, generally in the case of inscriptions which show Sanskrit influence and were written in a bis-criptual environment (e.g. Kara-Tepe, Vertogradova 1995: 19f.). It remained in use in Central Asia where we find the only text of Kharoṣṭhī literature which shows a consequent approach to the indication of vowel quantity (Niya document no. 523, Boyer et al. 1920–29: 191, tr. Burrow 1937: 103). Remarkably, this tablet contains also one of the few Kharoṣṭhī evidences for the indication of *final consonants*. In Kuṣāṇa Brāhmī this problem was solved by adding a consonant sign in a smaller size than the preceding. The same device was used by the scribe of Niya document 523, obviously under the influence of the Brāhmī orthography (cf. Glass 2000: 138). This

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[31] The Kharoṣṭhī signs are extracted from Glass 2000, the Kuṣāṇa Brāhmī signs *ā* and *yaḥ* from the Indoskript database (http://userpage.fu-berlin.de/~falk/), the *tam* from Sander 1968: table II.

influence is also traceable in the shape of the numerals 1–3 written as horizontal strokes instead of the usual verticals. The same brahmiized numerals are found in some of the Schøyen manuscripts (Glass 2000: 139f.).

These few observations might be sufficient to characterize the main features of the external sanskritization of Kharoṣṭhī by the end of the 3rd c. AD. The technical realization of Sanskrit phonology as well as the contexts of the inscriptions and manuscripts indicate that this process took place in a distinctively biscriptual Brāhmī-Kharoṣṭhī environment where the Kharoṣṭhī was exposed to the principles of Brāhmī orthography and tried to adapt them for the reproduction of the newly introduced Sanskrit language.

The influence of Brāhmī on the Kharoṣṭhī orthography, however, did never result in a consistent adjustment of Kharoṣṭhī to the Sanskrit phonology. Besides adapting Brāhmī orthographical devices the Kharoṣṭhī scribes continued to use a multitude of diacritical modifying signs and never tried to reduce the inventory of letters down to a reasonable number.

Conclusions

Kharoṣṭhī was designed for the specific needs of the North-Western language Gāndhārī and remained closely linked to this region and language throughout its use. As shown by its own inventory of signs—as represented in the Arapacana alphabet—it is a distinctly phonetic script which tries to reproduce phonetic variants by a multitude of basic signs and supplementary modifiers. An attempt has never been made to transform the script into a phonological writing system which confines itself to the consequent tagging of phonemes. Moreover, the phonetic character of the script was never regulated by commonly accepted orthographical standards.

The attested attempts to use Kharoṣṭhī for writing Sanskrit or a sanskritized language can be attributed to two different and clearly distinguishable approaches. While the first one—which I call "Internal Sanskritization"—uses the instruments developed within the limits of Kharoṣṭhī writing by applying the basic Arapacana signs and their primary and secondary modifications, the second approach is clearly influenced by the methods which are peculiar for the Brāhmī. This "External Sanskritization", which could also be labeled as "Brahmiization", is characterized by the increasing use of combined signs (ligatures) and graphical devices which are otherwise confined to the Brāhmī script (Visarga, Virāma). Although the "internally sanskritized" Kharoṣṭhī seems to be historically older, it did not

become obsolete after the application of the external (Brāhmī) devices. Both methods continued to be used within the same text up to the very end of the Kharoṣṭhī period.

To enable Kharoṣṭhī to cross its linguistic limits and to be used for Sanskrit would have required a serious reform of the writing system which would have consequently adjusted its inventory of signs to the needs of Sanskrit phonology. Such a reform would have presupposed a strong cultural or political agent with a profound interest in maintaining Kharoṣṭhī as a writing system. It seems that this interest did not arise in Gandhāra proper when by the end of the 3rd c. AD the use of Gāndhārī as *lingua franca* and literary language came to an end and had to give way to Sanskrit. Neither the political elites nor the Buddhist institutions resisted when this linguistic shift was accompanied by the introduction of a new script which was much better adapted to Sanskrit phonology and in this regard much superior to Kharoṣṭhī. Although the Buddhists had made a certain attempt to sacralize the Kharoṣṭhī script by ascribing the Arapacana alphabet a magic and ritual power, this did not result in a status which would have prevented their shift to the new alphabet. The different versions of the Lalitavistara story of the young Bodhisattva as a school-boy show impressively how pragmatically the Buddhists handled this problem. In this story the future Buddha is supposed to learn the alphabet. Of course, due to his outstanding capacities his knowledge of scripts supersedes that of his teacher by many times. Altogether 64 different scripts are enumerated by the future Buddha, the first of them being Brāhmī and Kharoṣṭhī. Moreover, when the school-master starts to teach the alphabet, the present young boys and the Bodhisattva do not only learn the respective letters but also a great number of religious concepts which are associated to each of them. While in the older version, preserved in Dharmarakṣa's Chinese translation of this text (308 AD), it is the Arapacana order which the teacher is reciting (Brough 1977), its younger Sanskrit parallel rearranges the whole passage according to the sequence of the Sanskrit *varṇamālā*.

The continuing use of Kharoṣṭhī in some other areas was mainly caused by the status the Gāndhārī language pertained in these peripheral communities. As long as Gāndhārī or a related dialect was in use as administrative or literary language, Kharoṣṭhī continued to be used as well. When the Gāndhārī lost this status and began to be replaced by Sanskrit the use of Kharoṣṭhī came to an end as well. The gradual displacement of Kharoṣṭhī was consequently the direct result of the gradual sanskritization of its cultural environment.

Accordingly, the mysterious decline of Kharoṣṭhī is not so much due to a dynastical or political change, as assumed by Richard Salomon,[32] but to a cultural and linguistic shift which is known under the term sanskritization. The new language brought along a well-adjusted writing system which was readily adapted in the writing culture of the area.

As shown above, this pragmatical shift from Kharoṣṭhī to Brāhmī had both internal and external reasons. While the phonetic character of the Kharoṣṭhī script and its missing orthographical standardization were serious internal barriers, it was mainly the existence of the superior Brāhmī alphabet which externally prevented the Kharoṣṭhī to cross the border which was erected by the advent of the Sanskrit culture.

Acknowledgements

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[32] It is hardly possible to qualify Kharoṣṭhī as "bureaucratic script of the Kuṣāṇa empire" (Salomon 2008b: 149). The only "official" epigraphical records of this dynasty are written in Bactrian, which was certainly the preferred language. What we know of the language policy seems to indicate that the language and script of the respective region was used in administrative affairs.

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