

Inventing the *Pothi*: The Adoption and Spread of a New Manuscript Format in Indian Buddhism

Stefan Baums

1 Introduction*

The characteristic manuscript format of classical India and Indian Buddhism consists of a stack of prepared palm leaves, measuring about three to five cm in height by 40 to 50 cm in width, and inscribed on both sides, in three to ten lines parallel to the long edge of the writing surface. The stack of leaves is held together by one or two strings passed through punched holes, protected by top and bottom wooden covers, and often additionally wrapped in cloth. This manuscript format—usually though, as we shall see, somewhat imprecisely called a *pothi*—spread from India throughout Southeast Asia, along the Silk Roads and into Tibet. In northwestern India and Central Asia, it was eventually replaced by imitations in birch bark and paper, preserving the general format and method of binding.

The *pothi* was not, however, to our current knowledge, the original manuscript format in which Buddhist texts were committed to writing. This honor goes to birch-bark scrolls that appear to have been used in northwestern India (the area of Gandhāra) since at least the third century BCE, though the earliest surviving examples date to the first century BCE. The earliest preserved palm-leaf manuscripts in *pothi* format have likewise been found in the northwest of the subcontinent and on the Silk Roads, far away from the south Indian cradle of this format, in manuscript deposits dating back to approximately the third century CE. It is these discoveries that provide insight into the general adoption of the *pothi* format and the emergence of a new pan-Buddhist textuality, and that grant at least an indirect glimpse into the mainland-Indian manuscript

* It is a great pleasure to dedicate this article to Kenneth Zysk, who as a colleague at the Asien-Institut, University of Copenhagen, from 2000 to 2002 supported and inspired me with his deep and abiding interest in South Asian manuscripts. I presented an earlier version of my argument at a conference on Buddhist Manuscript Cultures at Princeton University, 15–17 January 2016, and give my warm thanks to Stephen Teiser for organizing the conference and inviting me to participate.

tradition that preceded it. This paper provides a contrastive characterization of the *pothi* format and the scroll format that it replaced, and discusses the historical development of the new *pothi*-based manuscript culture in northwest India and Central Asia.

2 Gandhāran Scrolls

The technique of writing reached India from the west, in the form of the Aramaic language and script used by the Achaemenid administration of the province of Gandhāra from the sixth to the fourth centuries BCE.¹ The main writing materials throughout the Achaemenid empire were papyrus for more ephemeral and leather for more durable documents.² Remains of both have been found immediately to the north of Gandhāra, most notably leather documents from the archives of the satrapy of Bactria from the late fourth century BCE, just before its conquest by Alexander the Great.³ Alexander's generals Nearchus and Megasthenes left us accounts of public administration in India, remarking in particular that writing was still not used in the capital of the Mauryan empire, Pāṭaliputra in eastern India, whereas documents on cloth (in addition to the attested leather and papyrus) were in use in the northwest.⁴

Barely fifty years later, in the middle of the third century BCE, the Mauryan emperor Aśoka inscribed his famous series of edicts on rocks and pillars throughout his empire, significantly using two different scripts. In his mainland Indian inscriptions, Brāhmī—the ancestor of all later indigenous scripts of India—made its first appearance,⁵ but in the northwest (at Shahbazgarhi

1 O. v. Hinüber, *Der Beginn der Schrift und frühe Schriftlichkeit in Indien* (Mainz: Akademie der Wissenschaften und der Literatur, 1990), 55–58.

2 Bezalel Porten, "Aramaic Letters: A Study in Papyrological Reconstruction," *Journal of the American Research Center in Egypt* 17 (1980): 39–75.

3 Joseph Naveh and Shaul Shaked, *Aramaic Documents from Ancient Bactria (Fourth Century BCE)* (London: The Khalili Family Trust, 2012).

4 David Diringer, *The Hand-Produced Book* (London: Hutchinson's Scientific and Technical Publications, 1953), 45–46. It is true that Megasthenes referred to the absence of written texts in legal proceedings in particular, and that the use of writing in other contexts cannot be ruled out on his testimony alone: Ludo Rocher, *Studies in Hindu Law and Dharmaśāstra* (London: Anthem Press, 2012), 215–218. In the absence of any positive evidence, however, the scenario sketched here still appears most likely.

5 It has been suggested, but remains uncertain, that Brāhmī may have had pre-Aśokan roots as a traders' script: R.A.E. Coningham, F.R. Allchin, C.M. Batt, and D. Lucy, "Passage to India? Anuradhapura and the Early Use of the Brahmi Script," *Cambridge Archaeological Journal* 6 (1996): 73–97.

and Mansehra not far from Peshawar), Aśoka used the script that we now call Kharoṣṭhī. Many of the letters of Kharoṣṭhī as well as its writing direction and general ductus are clearly derived from the Aramaic tradition that preceded it in this region, but an original vowel notation by diacritical marks on base consonants—as in all the later Indian scripts—made Kharoṣṭhī more suitable for the local language Gāndhārī. The most likely explanation for Aśoka's two-script solution is that in the northwest, a Kharoṣṭhī scribal tradition had already established itself in succession of the foreign Aramaic tradition in the administrative sphere, making it the only practical choice for the Mauryan emperor's edicts in this region. In the rest of his empire, however, Aśoka appears to have felt free to introduce his own new imperial script Brāhmī, improving on the system of the earlier Kharoṣṭhī (particularly in the distinction of short and long vowels) and possibly inspired by the general monumental ductus of the Greek inscriptions that were used by Alexander's successors in Bactria.⁶

Hypothetical third- and second-century-BCE Kharoṣṭhī documents on perishable material presupposed by Aśoka's northwestern inscriptions are lost, but the preserved Kharoṣṭhī birch-bark scrolls from the first century BCE onwards allow some deductions about their physical makeup. I have argued elsewhere that the earliest Kharoṣṭhī documents probably imitated Aramaic short-format scrolls of approximately 20 cm in width by 40 cm in height, substituting locally available birch bark as writing material for the Aramaic leather or papyrus.⁷ At some later point—probably after the installation of Aśoka's northwestern edicts, the introduction of a Buddhist relic cult and the establishment of the first Buddhist monasteries in Gandhāra—Buddhist texts were for the first time committed to writing in Gandhāra.

Taking a closer look at the mature Kharoṣṭhī tradition, the following picture emerges.⁸ The main manuscript format were vertical scrolls made from the bark of the Himalayan birch (*Betula utilis*). The bark of this tree has many uses unrelated to writing, such as the packaging of goods and the water-proofing of roofs and pipes,⁹ and we can thus assume that a production chain and even the occasional use for note-taking were well-established when birch bark began to take the place of imported papyrus and expensive leather. Gandhāran scrolls

6 Harry Falk, *Schrift im alten Indien: Ein Forschungsbericht mit Anmerkungen* (Tübingen: Gunter Narr Verlag, 1993), 111–112.

7 Stefan Baums, "Gandhāran Scrolls: Rediscovering an Ancient Manuscript Type," in *Manuscript Cultures: Mapping the Field*, eds. Jörg B. Quenzer, Dmitry Bondarev, and Jan-Ulrich Sobisch (Berlin: De Gruyter, 2014), 183–225.

8 For a detailed discussion see Baums, "Gandhāran Scrolls."

9 G. Bühler, *Detailed Report of a Tour in Search of Sanskrit Mss. Made in Kāśmīr, Rājputana, and Central India* (Bombay: Society's Library, 1877), 29.

come in two basic formats: a short format of approximately 20 cm in width by 40 cm in height, just as the Aramaic administrative documents that preceded it, and a long format of up to five meters in length.

Short-format scrolls consisted of a single sheet of bark separated from the tree and cut to size such that the shorter edge of the sheet was parallel to the lenticels (dark pores) of the bark. The preferred writing surface (thus typically the *recto* of manuscripts) was the whiter and smoother inner side of the bark. Lines ran parallel to the shorter edge of the sheet and contained—depending of course on the scribal hand—around 40 *akṣaras* per line. As in the Aśokan inscriptions,¹⁰ while there was no separation of words, phrases were set off by punctuation space and sometimes punctuation dots. The end of larger textual units was marked by more elaborate punctuation marks such as circles, stylized lotuses and swastikas. The very end of a text was often noted by a graphical vignette such as a lotus flower or a stūpa. Short-format scrolls were typically used for canonical texts such as small groups of prose Sūtras or short verse collections such as the *Rhinoceros Sūtra*, and sometimes for short original compositions such as Stotras. Scrolls were folded up into narrow strips from the bottom to the top of the *recto* such that the *recto* faced inwards, and the resulting folded package was sometimes folded one more time horizontally (presumably for final deposit rather than later use).

Long-format scrolls are constructed by gluing several sheets of bark together vertically, and usually reinforcing the overlaps by cross-stitching and increasing the overall cohesion of the scroll by sewing threads down the left and right margins. Long-format scrolls are inscribed and folded up the same way as short-format ones, but due to the thickness of the folded-up package never received a final horizontal fold. The vertical orientation of the long-format Gandhāran scrolls stands in contrast to both contemporary Greek and Chinese scroll formats, and it would thus appear that it was an independent innovation within the writing culture of Gandhāran Buddhism when the need arose to commit to writing longer texts.¹¹ The longest single extant scroll contains around 600 lines of text, and our sole preserved example of a multi-scroll text must have contained at least 450 lines when complete. Long-form scrolls were used for some

10 Klaus Ludwig Janert, *Abstände und Schlußvokalverzeichnungen in Aśoka-Inschriften* (Wiesbaden: Franz Steiner Verlag, 1972).

11 Counter to Lore Sander, “Early Prakrit and Sanskrit Manuscripts from Xinjiang (Second to Fifth / Sixth Centuries C.E.): Paleography, Literary Evidence, and Their Relation to Buddhist Schools,” in *Collection of Essays 1993: Buddhism across Boundaries: Chinese Buddhism and the Western Regions*, eds. Jan Nattier and John R. McRae (Sanchung: Fo Guang Shan Foundation for Buddhist & Culture Education, 1999), 72.

canonical verse texts of substantial size (such as the *Anavataptaḡāthā* and the *Dharmapada*), but especially served the needs of two new genres of literature: Mahāyānasūtras and commentarial texts. Both of these appear to have arisen in tandem with the development of Buddhist writing culture. In the case of the former this is indicated by the repeated reference to manuscripts in the texts themselves, in the case of the latter by a particular style indicating composition by a process of note-taking and subsequent revision.

The early Gandhāran scrolls preserve the full range of genres of Buddhist literature, from canonical poetry, Sūtra and Vinaya texts to scholastic treatises, Mahāyāna texts and Stotras to narrative literature, and even include a number of non-Buddhist compositions such as a Rājanīti text in Sanskrit language and Kharoṣṭhī script. From the range of genres, Sūtras and some of the scholastic treatises stand out in regard to formal characteristics pointing to particular modes of composition and use contexts.

In the case of Sūtras we only have very small-scale collections of three or four Sūtras on a single scroll and, in the case of the Senior collection, around fifteen of such scrolls deposited and apparently commissioned together.¹² What is more, many of the small Sūtra manuscripts in the Senior collection break off mid-sentence as the writing surface came to an end, giving the impression that completing the written text was not deemed important. Nonetheless, the notion of a complete collection of *Ekottarikāgamasūtras* corresponding in size to the collections surviving in Pali and Chinese existed also in Gandhāra, as is evident from a reference in one of the scholastic texts (verse commentary 11) to the ‘section with sixteen parts in the Ekottarikā.’¹³ The most plausible explanation would appear to be that canonical Sūtras continued to be primarily transmitted in oral form by specialized reciters (*bhāṇakas*), and that the extant manuscripts only represent written snapshots of a particular partial recitation taken for later reference (when the *bhāṇaka* might be unavailable) or possibly sometimes—as in the case of the Senior collection—simply to create a physical representation of the text for immediate deposit as a dharma relic.

Among the scholastic texts, three verse commentaries (CKM 5, 9, 11, 15 and 20) and a commentary on the *Samḡitisūtra* (CKM 17) present quite the opposite

12 Mark Allon, “The Senior Kharoṣṭhī Manuscripts,” in *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference ‘Indic Buddhist Manuscripts: The State of the Field,’ Stanford, June 15–19 2009*, eds. Paul Harrison and Jens-Uwe Hartmann (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014), 19–33.

13 Stefan Baums, “A Gāndhārī Commentary on Early Buddhist Verses: British Library Kharoṣṭhī Fragments 7, 9, 13 and 18” (PhD diss., University of Washington, 2009), 513.

picture. All are carefully written down on long-format (and in one case multi-volume) scrolls, in a very condensed style that presupposes knowledge of the root texts and intimate familiarity with the exegetical methods employed. Furthermore, at least one of the verse commentaries (just like one of the narrative texts) received two continuations (one by a different hand) after the end of the text had already been indicated by a lotus vignette. I argued elsewhere (in a paper presented at the 2014 conference of the International Association of Buddhist Studies in Vienna) that here we have to do with a process of ‘episodic composition,’ where written notes are taken in a context of recurring oral instruction and subsequently turned into a clean copy for future reference by either the student or the teacher (or indeed by a student for use in his future teaching career).

The word used by the Gandhāran birch-bark scrolls to refer to themselves is *pustaga*, a loan word from Iranian that originally denoted documents on leather. It had thus become disassociated from a particular materiality and assumed a general meaning of ‘book’ (in the physical sense: in the case of multi-scroll documents, each of the scrolls individually is called a *pustaga*).¹⁴ The last known Gandhāran birch-bark scrolls date to the second or at most third century CE. There is a gap in the archeological record until the production of the earliest Gilgit manuscripts,¹⁵ further to the northeast, in the fifth or sixth century CE, and it remains unclear whether the Gandhāran scroll format continued to be used for another century or two and what caused its ultimate demise.¹⁶ For the time between the third and the fifth century, the available evidence directs our attention further west to Bamiyan, where palm-leaf manuscripts in so-called *pothi* format reigned supreme.

14 The word *pothi* is itself derived from Gāndhārī *pustaga*, Sanskrit *pustaka*.

15 Oskar von Hinüber, “The Gilgit Manuscripts: An Ancient Buddhist Library in Modern Research,” in *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference ‘Indic Buddhist Manuscripts: The State of the Field,’ Stanford, June 15–19 2009*, eds. Paul Harrison and Jens-Uwe Hartmann, (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014), 79–136.

16 We can rule out the fading of Hellenistic influence—Lore Sander, “The Earliest Manuscripts from Central Asia and the Sarvāstivāda Mission,” in *Corolla Iranica: Papers in Honour of Prof. Dr. David Neil MacKenzie on the Occasion of His 65th Birthday on April 8th, 1991*, eds. Ronald E. Emmerick and Dieter Weber (Frankfurt am Main: Peter Lang, 1991), 172—as a cause since the Gandhāran scrolls were independent of the Greek manuscript tradition from the very beginning.

3 Introducing the *Poṭhī*

At an indeterminate point of time, but between the introduction of Brāhmī under Aśoka in the third century BCE and, on the evidence of the Sri Lankan chronicles, the first century BCE, also the Buddhists of South India began to record their texts in writing, inscribing them on palm leaves.¹⁷ From this time on, Indian Buddhism had two distinct written traditions separated by writing material, script and languages. In the third century CE in Bamiyan in the northwest and in Central Asia, we witness the meeting of these traditions and the emergence of a new Buddhist manuscript culture. Palm-leaf manuscripts are made from the individual fingers of the fanned leaves of the talipot palm (*Corypha umbraculifera*) native to southern India (up to the latitude of Mumbai on the west coast and of Bengal on the east coast). The alternative use of the palmyra palm (*Borassus flabellifer*) is recent (since the 16th century), as demonstrated long ago by Rudolf Hoernle,¹⁸ and thus outside the scope of the present paper. The leaves of the talipot palm were boiled, dried, polished with pumice and—as noted above—cut to a regular size of three to five cm in height by 40 to 50 cm in width.

While the earliest preserved palm-leaf manuscripts are inscribed using ink and a wooden stylus, the common treatment in modern southern India is to incise the letters into the leaves with a sharp metal stylus and then rub a solution of ink in oil into the incisions to make the letters visible (a procedure that could be repeated as needed). Dominik Wujastyk suggests that the direct application of ink to the writing surface “carried over” from birch bark to palm leaf,¹⁹ presumably intending the northwest in particular and leaving open whether the incising was the original method for palm leaves. Since no early palm-leaf manuscripts are preserved from southern India, it cannot be decided which of the two procedures is more ancient (or whether they are of the same age). It is both the ancient and the modern practice for the palm leaves to be

17 The ultimate origin of the Indian palm-leaf manuscript format remains unclear. Roman account books on wooden codices or parchment (Diringer, *Hand-Produced Book*, 192) may have become known in southern India through trade, but were bound on one side and could only have served as a loose inspiration for a type of book consisting of sheets. The practice of writing on leaves (including palm leaves) is reported from many parts of the ancient world, including Egypt, Rome and Arabia (Diringer, *Hand-Produced Book*, 37, 40, 42–45).

18 A.F. Rudolf Hoernle, “An Epigraphical Note on Palm-Leaf, Paper and Birch-Bark,” *Journal of the Asiatic Society of Bengal* 69 (1900): 93–134.

19 Dominik Wujastyk, “Indian Manuscripts,” in *Manuscript Cultures: Mapping the Field*, eds. Jörg B. Quenzer, Dmitry Bondarev, and Jan-Ulrich Sobisch (Berlin: De Gruyter, 2014), 166.

held together by one or two threads passed through the leaves. In the case of a single thread, it typically passes through the leaves at a distance of between one fifth and one third of the width of the folio from the beginning of lines, but there are also occasional examples of a thread through the center of the folio. No wooden covers or cloth wrappers are preserved among the fragmentary remains of the earliest palm-leaf manuscripts.

3.1 *Central Asia*

While both the Gandhāran writing tradition based on birch-bark scrolls and the Indian one based on palm leaves were exported along the Silk Roads to Central Asia, only the palm-leaf format gained wide currency there and was later imitated in paper.²⁰ Our sole example of a birch-bark scroll found in Central Asia is a second- or third-century Gāndhārī *Dharmapada* manuscript (CKM 77), discovered in 1892 outside the town of Khotan and now preserved in two parts in Paris and St Petersburg (another third of the manuscript, apparently intact on discovery, is now lost). The Khotan *Dharmapada* scroll differs from the typical Gandhāran scroll format described above by its great length of approximately five meters, and it has been suggested that maybe it was produced locally rather than having been imported. The language of the manuscript does share some peculiarities with the Gāndhārī of the Niya documents,²¹ but this cannot be taken as evidence that it was produced in Central Asia, since both the *Dharmapada* and the documents may simply represent the dialect of the particular group of Gāndhārī speakers that settled in the Krorayina kingdom and neighboring Khotan.²² At least the writing material birch bark was not locally available in Khotan and must have been imported,²³ but as shown by Dieter Schlingloff,²⁴ birch trees grow not only in Kashmir, but also in the Tian Shan mountain range which could have served as a source for the *Dharmapada's* writing support as well as later Central Asian birch-bark *pothis*. The question could potentially be answered if samples of Central Asian birch-bark manuscripts received the kind of material analysis that has recently been applied to Indian palm-leaf manuscripts found in Tibet and Nepal.²⁵

20 In addition to these two literary manuscript types, a Central Asian tradition of administrative documents on wood, especially prominent in the early Krorayina and Kucha kingdoms, appears to be based on Indian models described in the *Arthaśāstra*.

21 For instance, the assimilation of original [nt] to [nd] and of original [nd] to [nn].

22 T. Burrow, "The Dialectical Position of the Niya Prakrit," *Bulletin of the School of Oriental Studies, University of London* 8 (1936): 419–435.

23 Sander, "Early Prakrit and Sanskrit Manuscripts," 69.

24 Cf. Lore Sander, "The Earliest Manuscripts," 137.

25 Martin Delhey, Emanuel Kindzorra, Oliver Hahn, and Ira Rabin, "Material Analysis of

Until very recently, the Central Asian manuscript finds of the early twentieth century provided our oldest examples of palm-leaf manuscripts from anywhere in the Indic world (including the celebrated fragments of Āśvagoṣa's dramas).²⁶ What is more, for *pothi*-format manuscripts found in Central Asia, palm leaf is the exclusive writing material up to the fifth century CE (with the single exception of the *Subashi Udānavarga* on wood).²⁷ The oldest Central Asian *pothi* on birch bark, found in Kucha and containing the metrical treatise *Chandoviciti*, was probably imported from Kashmir,²⁸ though again a material analysis would be needed to rule out an origin of the writing material in the Tian Shan. Also in the fifth century, Chinese paper begins to be used for *pothi* manuscripts.²⁹ It is not entirely clear why, for more than two hundred years, almost no other writing material than the clearly imported palm leaf was used for Buddhist texts. Lore Sander suggested³⁰ that particular sanctity attached to the prototypically Indian palm leaf (similar to the use of birch-bark scrolls for amulets in India after the general demise of the format in Gandhāra), making it the preferred medium for Buddhist 'missionaries' that brought with them not only finished manuscripts but also empty palm-leaf stock, just as within India southern palm leaves were brought to the north for manuscript production.³¹

The Indian palm-leaf fragments discovered on the northern and southern Silk Roads belong to at least thirty distinct manuscripts. Between four and seven of these, found in the area of Kucha and dating to approximately the third or fourth century CE, were written in Kharoṣṭhī script and Sanskritized Gāndhārī language and appear to have contained Buddhist narrative (possibly

Sanskrit Palm-Leaf Manuscripts Preserved in Nepal," *Journal of the International Association of Buddhist Studies* 36/37 (2013–2014): 119–152. The authors suggest (144) that in their case—manuscripts from the monastery of Vikramaśīla and Nepal—empty palm-leaf folios were transported together with finished manuscripts from one monastery to another.

26 Heinrich Lüders, *Bruchstücke buddhistischer Dramen* (Berlin: Georg Reimers, 1911).

27 Hideaki Nakatani, *Udānavarga de Subaṣi: édition critique du manuscrit sanskrit sur bois provenant de Subaṣi: Bibliothèque nationale de Paris, fonds Pelliot* (Paris: Edition-Diffusion de Boccard, 1987).—Nakatani Hideaki [中谷英明], *スバシ写本の研究: 龜茲国致隸藍の『ウダーナ・ヴァルガ』* [Subashi shahon no kenkyū: Kucha Kocchi Reiran no "Udāna-varuga"] (京都 [Kyōto]: 人文書院 [Jinbun shoin], 1988).

28 Sander, "The Earliest Manuscripts," 137–138.

29 Sander, "Early Prakrit and Sanskrit Manuscripts," 83.

30 Sander, "The Earliest Manuscripts," 138.—Sander, "Early Prakrit and Sanskrit Manuscripts," 78.

31 Lore Sander, *Paläographisches zu den Sanskrithandschriften der Berliner Turfansammlung* (Wiesbaden: Franz Steiner Verlag, 1968), 25.

allegorical) texts.³² The remainder of the Central Asian palm-leaf manuscripts were written in Brāhmī script and Sanskrit language and received a detailed analysis by Lore Sander.³³ One of her main findings was the absence of Sūtra and Vinaya texts among the early Sanskrit manuscripts from Central Asia (third to fifth century CE),³⁴ and their almost complete absence among the Central Asian finds of palm-leaf manuscripts.³⁵ Instead, what we see among the early Central Asian palm-leaf manuscripts is a preponderance of scholastic treatises, court poetry and the *Udānavarga* verse collection.³⁶ Sander first of all takes this imbalance as confirmation that the *bhāṇaka* system remained intact until the fifth century (as also reported by the Chinese pilgrim Fāxiān), providing an unbroken oral transmission for Sūtra and Vinaya and making manuscripts optional.³⁷ She further suggests that Kāvya and (I would submit to a lesser degree) Abhidharma were particularly useful for winning the interest and support of local Central Asian elites, and that the *Dharmapada* or *Udānavarga* literature served a similar function with respect to the local laity, comparing how Buddhism first entered China.³⁸ Her argument remains convincing, especially when considered on a background of general scarcity of the preferred writing material palm leaf in Central Asia (as evidenced by numerous palimpsests).³⁹

3.2 *Bamiyan*

The spectacular discovery of a Buddhist manuscript trove at Bamiyan in 1993–1995, apparently a deposit of discarded manuscripts from a Buddhist monastic

-
- 32 Richard Salomon, “Kharoṣṭhī Manuscript Fragments in the Pelliot Collection, Bibliothèque nationale de France,” *Bulletin d’études indiennes* 16 (1998): 123–160.
- 33 Sander, “The Earliest Manuscripts.”—Sander, “Early Prakrit and Sanskrit Manuscripts.”
- 34 Sander herself dated the earliest manuscripts found in Central Asia to the second century CE on paleographic grounds. On the strength of more recent paleographic arguments—Eli Franco, *The Spitzer Manuscript: The Oldest Philosophical Manuscript in Sanskrit* (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2004), 29–33—and radiocarbon dating—Eli Franco, “Three Notes on the Spitzer Manuscript,” *Wiener Zeitschrift für die Kunde Südasiens* 49 (2005): 109–110—this date probably needs to be adjusted to the third century.
- 35 The one exception is a *Dharmaguptaka Prātimokṣasūtra* on palm leaf dating from the Gupta period: Sander, “The Earliest Manuscripts,” 140. Sūtra manuscripts written on paper appear in large numbers from the Gupta period onward.
- 36 Sander, “Early Prakrit and Sanskrit Manuscripts,” 79.
- 37 Sander, “The Earliest Manuscripts,” 141.
- 38 Sander, “Early Prakrit and Sanskrit Manuscripts,” 80.
- 39 I remain somewhat less convinced by her attempt to seek a historical explanation for the high manuscript profile of Abhidharma and Kāvya texts in the Council of Kashmir (apocryphally connected with the poet Aśvaghōṣa) and an ensuing Sarvāstivāda mission that chose to emphasize its foundational school texts: Sander, “The Earliest Manuscripts,” 137.

library, now takes us one step further back to the historical origin of the *pothi* format. This is obviously true geographically (with one of the main trade routes from India to the north and west running through the Bamiyan valley), but also chronologically. The Bamiyan fragments (numbering around 5,000 substantial and 7,000 smaller ones from an approximate number of 1,000 original manuscripts) date from the second or third to the seventh century CE,⁴⁰ making the oldest ones about a hundred years older than those found in Central Asia. But even more important is the fact that in the oldest stratum of the Bamiyan find, Gāndhārī fragments in Kharoṣṭhī script exist side by side with Sanskrit fragments in Kuṣāṇa Brāhmī script. Both are written on palm leaves with precisely corresponding manuscript formats and scribal conventions, presenting the end result of a meeting and amalgamation of the early Gandhāran and mainland Indian textual traditions, and thus a crucial link in the early Buddhist textual transmission from India to Central Asia.

The first thing to note is that the palm-leaf manuscripts from Bamiyan—like the Gandhāran birch-bark scrolls, but unlike the early Central Asian palm-leaf fragments—preserve the full gamut of Buddhist literary genres, from Sūtra and Vinaya texts to scholastic treatises, Mahāyāna Sūtras and collections of stories (see table 18.1). The four volumes of editions of the Bamiyan fragments so far (BMSC I–IV) contain the remains of approximately thirty-two palm-leaf manuscripts, using two languages (Gāndhārī and Sanskrit) and five different scripts.

In the earliest layer (third to fourth century) six Kharoṣṭhī manuscripts (*Mahāparinirvāṇasūtra*, *Ekottarikāgama*, *Bhadrakalpikasūtra*, *Bodhisattvapiṭakasūtra*, *Sarvaṇyāsamuccayasamādhisūtra* and an ‘auto-Stotra’) outnumber Brāhmī manuscripts in a variety of Kuṣāṇa hands (*Aṣṭasāhasrikā*, *Śāriputrābhidharma* and an unidentified commentary). The manuscripts in both scripts follow very much the same format, however. Folios were from 2.5 to 5 cm high and, as far as we can tell, up to 40 cm wide; they contained between three and five lines of writing.⁴¹ Folios are numbered on the *recto* in the first margin according to the direction of writing (the right margin for Kharoṣṭhī, the left margin for Brāhmī), and even the earliest Bamiyan palm-leaf manuscripts were very voluminous indeed: the highest preserved folio number is 248 on a

40 Lore Sander, “An Analysis of the Scripts,” in *Traces of Gandhāran Buddhism: An Exhibition of Ancient Buddhist Manuscripts in the Schøyen Collection*, eds. Jens Braarvig and Fredrik Liland (Oslo: Hermes Publishing, 2010), xxx–xxxii.

41 The two narrowest manuscripts (2.5 cm high with 3 lines of text) are both in Kharoṣṭhī, but it is not clear that this is statistically significant.

TABLE 18.1 Palm-leaf manuscripts from Bamiyan (number of folios, folio format in cm, number of lines per folio, script; Kuṣāṇa Brāhmī = 3rd–4th century, Kharoṣṭhī = 3rd–4th century, Western Gupta Brāhmī = 4th century, Northwestern Gupta Brāhmī = 5th century, Gilgit-Bamiyan type I = 6th–7th century)⁴²

Commentary	?	? × 4.8	4–5	Kuṣāṇa	BMSC II
<i>Śāriputrābhidharma</i>	160+	? × 4.3	4	Kuṣāṇa	BMSC II
<i>Aṣṭasāhasrikā</i>	248+	40 × 5	4–5	Kuṣāṇa	BMSC I, II
<i>Mahāparinirvāṇasūtra</i> (I)	?	26 × 2.5	3	Kharoṣṭhī	BMSC I
<i>Ekottarikāgama</i>	?	40 × 2.5	3–4	Kharoṣṭhī	BMSC IV
<i>Bhadrakalpikasūtra</i>	62+	40 × 3.5	5	Kharoṣṭhī	BMSC IV
<i>Bodhisattvapiṭakasūtra</i> (I)	?	? × 4.3	5	Kharoṣṭhī	BMSC IV
<i>Sarvaṇyāsamuccayasamādhī</i>	41+	? × ?	4 or 5	Kharoṣṭhī	BMSC IV
Auto-Stotra	?	?	5	Kharoṣṭhī	BMSC IV
<i>Caṅgīsūtra</i>	?	? × 5	6	W Gupta	BMSC I, II
<i>Prātimokṣavibhaṅga</i> (I)	?	? × 4.6	6	W Gupta	BMSC III, IV
<i>Vinayadhara</i>	80+	17.6 × 3.5	5	NW Gupta	BMSC III
<i>Bodhisattvapiṭakasūtra</i> (II)	?	45 × 4.5	5	NW Gupta	BMSC III
Mahāyānasūtra Collection (I) ⁴³	550+	38 × 3.5	4	NW Gupta	BMSC I
Huviṣka legend	121+	? × 3.4	3	NW Gupta	BMSC II
<i>Prasādapratibhodbhava</i>	?	? × 3.6	4	NW Gupta	BMSC II
Play	?	? × 3.9	6	NW Gupta	BMSC III
<i>Mahāparinirvāṇasūtra</i> (II)	?	? × 3	3	GB type I	BMSC II
<i>Mahāparinirvāṇasūtra</i> (III)	?	? × 3	4	GB type I	BMSC II
<i>Śalyasūtra</i>	?	?	5–6	GB type I	BMSC IV
<i>Śikhālakasūtra</i>	?	? × 4.9	5–6	GB type I	BMSC III
<i>Ityuktaka</i>	?	?	5	GB type I	BMSC IV
<i>Prātimokṣavibhaṅga</i> (II)	140+	? × 3.5	6	GB type I	BMSC I, II
<i>Karmavācanā</i>	120+	24.5 × 3.5	4	GB type I	BMSC II, III
<i>Mahāsamājasūtra</i> Comm.	?	? × 4.5	7	GB type I	BMSC III
<i>Candrottaradārikāvyaḥaraṇa</i>	25+	20 × 2.5	3	GB type I	BMSC II
<i>Ratnaketuparivarta</i>	48+	?	5	GB type I	BMSC IV
<i>Saddharmapūṇḍarikasūtra</i> (I)	?	? × 3.8	6	GB type I	BMSC II
<i>Saddharmapūṇḍarikasūtra</i> (II)	81+	? × 3	5	GB type I	BMSC II

42 Cf. Lore Sander, “A Brief Paleographical Analysis of the Brāhmī Manuscripts in Volume I,” in *BMSC I*, 285–300.

43 *Śrīmālēdevisiṃhanādanirdeśa*, *Pravāraṇāsūtra*, *Sarvadharmāpravṛttinirdeśa*, *Ajātaśatru-kaukrtyavinodanāsūtra*.

TABLE 18.1 Palm-leaf manuscripts from Bamiyan (*cont.*)

Mahāyānasūtra Collection (11) ⁴⁴	198+	54×4.7	5	GB type I	BMSC II, IV
Aśoka legend	?	?×3.5	4–5	GB type I	BMSC I
<i>Varṇārhavaṛṇa</i>	?	?×2.5	4	GB type I	BMSC II

fragment of the *Aṣṭasāhasrikā*, but judging from the available parallels in other languages, several of the early texts would have taken up well above five hundred folios in total. Manuscripts in both languages have typically one string hole near the beginnings of lines (near the right-hand side for Kharoṣṭhī and the left-hand side for Brāhmī). Last not least, the system of punctuation marks used for both scripts is the same, consisting primarily of small dots to separate phrases and a peculiar crescent-with-prong shape to mark the end of sections (with orientation according to the direction of writing). In addition, verses and other recurring textual units are marked by number signs at their end.

Among the Bamiyan palm-leaf manuscripts are a number of palimpsests, including cases where the original and the new texts were both in the same script (CKM 105)⁴⁵ and cases where an original text in Kharoṣṭhī script and Gāndhārī language was replaced by a new text in Brāhmī script and Sanskrit language (fragment MS 2376/99).⁴⁶ There are no known palimpsests among the Gandhāran birch-barks scrolls, presumably partly because the fragility of birch bark makes erasure difficult, but also because fresh writing material was readily available in Gandhāra. In Bamiyan, on the other hand, palm leaves were a rare import commodity and had to be made maximum use of.⁴⁷

As in our discussion of the Gandhāran scrolls, a closer look at particular Bamiyan *pothi* manuscripts will serve to bring out further properties of the

44 *Samādhirājasūtra, Ratneketuparivarta.*

45 Richard Salomon, “Thirty-Two Fragments Written by Bamiyan Kharoṣṭhī Scribe 7,” in BMSC IV, 367–406.

46 Matsuda Kazunobu [松田和信], “平山コレクションのガンダーラ語貝葉写本断簡について” [Hirayama korekushon no Gandārago baiyo shahon dankan ni tsuite], 印度學佛教學研究 [Indogaku bukkyōgaku kenkyū] 62 (2013): 354–346.

47 Lore Sander, “Dating and Localizing Undated Manuscripts,” in *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference ‘Indic Buddhist Manuscripts: The State of the Field,’ Stanford, June 15–19 2009*, eds. Paul Harrison and Jens-Uwe Hartmann (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014), 171–186.

writing tradition and use context that they represent (compare table 18.1). To start with, the Bamiyan Gāndhārī *Ekottarikāgama* manuscript⁴⁸ stands in stark contrast to the short written ‘snapshots’ of Sūtras taken from a primarily oral tradition in first- and second-century Gandhāra. The fragments of the Bamiyan *Ekottarikāgama* are from throughout the overall collection (when compared to the Pali *Aṅguttaranikāya*), and even though no folio numbers happen to be preserved, the proven existence of other Bamiyan palm-leaf manuscripts of over five hundred folios makes it very likely that the *Ekottarikāgama*, too, was intended to be a complete written redaction of that collection of Sūtras. This would make it the earliest known case of a complete Āgama in written form. We have no means of knowing whether such a feat had been attempted before in the northwest or elsewhere (*pace* the accounts of the Pali chronicles of the writing down of the canon under king Vaṭṭagāmaṇī Abhaya—chronicles that happen to be contemporary with the Bamiyan *Ekottarikāgama* manuscript), nor do we know what prompted the production of this particular manuscript—a monastery concerned about a possible interruption of the oral tradition, a local ruler commissioning the manuscript as a technical *tour de force* and source of merit, or yet another reason.

Comparable to the *Ekottarikāgama* is the Bamiyan manuscript of a Gāndhārī version of the *Bhadrakalpikasūtra* (CKM 128).⁴⁹ Here too, the fifty-one fragments that we have are from throughout the overall text, on the basis of a comparison with Dharmarakṣa’s near-contemporary Chinese translation and with the ninth-century Tibetan translation. One folio number (probably 62) is preserved, and the complete manuscript would have covered more than three hundred folios. The *Bhadrakalpikasūtra*’s comprehensive description of all 1,004 buddhas of our fortunate eon (not to mention its treatment of 350 sets of six perfections) stands in contrast to the much more modest treatment of fifteen buddhas of the past and present in the Library of Congress birch-bark scroll (CKM 261) and to comparable accounts in Pali and Sanskrit Buddhist literature (such as the *Mahāvadānasūtra*). Where in the case of the *Ekottarikāgama*, we have a pre-existing text collection assuming physical form, the *Bhadrakalpika* represents the expansion of of an existing scheme to truly cosmic proportions. While the precise motivation, as always, escapes us, here we

48 Chanida Jantrasrisalai, Timothy Lenz, Lin Qian, and Richard Salomon, “Fragments of an *Ekottarikāgama* Manuscript in Gāndhārī,” in *BMSC IV*, 1–122.

49 Stefan Baums, Andrew Glass, and Kazunobu Matsuda, “Fragments of a Gāndhārī Version of the *Bhadrakalpikasūtra*,” in *BMSC IV*, 183–266.

seem to be dealing with a genuine intellectual turn represented in (and facilitated by) textual practice.⁵⁰

From the end of the fourth century onwards, only Brāhmī was used at Bamiyan. Two manuscripts (*Caṅgīsūtra* and *Prātimokṣavibhaṅga*) are in an unusual angular Western Gupta style of Brāhmī which, like the earlier Kuṣāṇa Brāhmī fragments, leaves open the question of whether they were produced locally in Bamiyan or imported. This contrasts with a further six manuscripts in the local Northwestern Gupta script that began to take shape in the fifth century, and another fifteen in its local successor script Gilgit Bamiyan type I (sixth to seventh century).⁵¹ Folio sizes stayed, as far as we can tell, stable throughout this later period, but we find a number of manuscripts that fit up to six (and in one case seven) lines into the same space. Another new development during this second phase of the Bamiyan palm-leaf manuscript tradition are new physical collections of related texts—the type of *Sammelhandschriften* that we know from Central Asia. Two cases from Bamiyan involve the bundling of several Mahāyānasūtras—at least four in a fifth-century manuscript, and at least two in a sixth/seventh-century manuscript (see table 18.1). The earlier of these two manuscripts preserves the largest folio number (549) of any of the Bamiyan manuscripts.

4 Conclusions

In the preceding, I have outlined the characteristics of three distinct Buddhist manuscript traditions and textualities:⁵² those of Gandhāra, Bamiyan and Central Asia. It remains to recapitulate and to consider their possible historical connections.

The manuscript tradition of early Gandhāra (ca. third century BCE to second century CE) is characterized by birch-bark scrolls, Gāndhārī language

50 Peter Skilling, “Notes on the *Bhadrakalpika-sūtra*,” 創価大学国際仏教学高等研究所年報 [Sōka daigaku kokusai bukkyōgaku kōtō kenkyūjo nenpō] 13 (2010): 201, in connection with the *Bhadrakalpiyasūtra*, colorfully evokes an “‘age of exploration’ of time and space that led to colonizations of the cognitive map—planting flags of the Dharma [...] across numberless universes by creative action of the spirit.”

51 From the seventh century onwards and until the closure of the Bamiyan manuscript deposit, the translocal Gilgit-Bamiyan type II (a variety of Siddhamātrkā) is used, and palm leaf is replaced by imitation *pothis* in birch bark that are outside the scope of this paper.

52 The combined use of texts in any medium—written or oral—by a textual community.

and Kharoṣṭhī script, though at least the last two of these were not used invariably (we have Sanskrit texts in Kharoṣṭhī script, and we have one small Kuṣāṇa Brāhmī scroll containing extracts from a Sanskrit Sūtra). The Gandhāran scroll was derived from the Aramaic scribal tradition introduced by the Achaemenids, it remained a local tradition, and it reduced the full range of Buddhist genres to writing, but not exhaustively. Writing occurred in tandem with a continuing strong oral tradition.

In Bamiyan, one century later and five hundred kilometers to the west, we encounter an entirely different manuscript tradition (ca. third to seventh centuries CE) characterized by palm-leaf *pothi* manuscripts, Sanskrit language and Brāhmī script, but with a significant component of early Kharoṣṭhī manuscripts. Neither palm leaf nor birch bark were locally available as writing material, and the exclusive use of south Indian palm leaf (rather than the more readily importable birch bark) is historically significant. It suggests that the Buddhist textual community that established itself in Bamiyan did not come from neighboring Gandhāra, but rather from some place in mainland India, and that it brought its established manuscript tradition based on palm leaves with it. All textual indications from the manuscripts themselves (including the *Prātimokṣavibhaṅgas*) point to a Mahāsāṃghika community,⁵³ which agrees well with the Mahāsāṃghika trajectory reflected in the epigraphic record, from first-century Mathura (the Lion Capital) to third- and fourth-century Termez (numerous potsherds).

This means that the Kharoṣṭhī palm-leaf manuscripts from Bamiyan cannot be considered a direct evolution from the earlier birch-bark scrolls, adopted by the same community due to their technical superiority. What we have instead is a scenario where an immigrant textual community established itself as a neighbor of the Gandhāran tradition, beginning to interact with and absorb some (though doubtless not all) of the textual production of Gandhāra. Gandhārī texts were copied onto the same palm-leaf manuscripts that the Bamiyan immigrant community used for their own Sanskrit texts, and eventually were either translated into Sanskrit (such as the *Bodhisattvapiṭakasūtra*, preserved in Bamiyan in both languages) or fell out of use. We have, unfortunately, no contemporary data of the reverse influence that the Bamiyan textual commu-

53 Sander, "Dating," 174; Vincent Tournier, "Protective Verses for Travellers: A Fragment of the Diśāsauvastikagāthās Related to the Scriptures of the Mahāsāṃghika-Lokottaravādins," in *BMSC IV*, 407–437 and Vincent Tournier, *La formation du Mahāvastu et la mise en place des conceptions relatives à la carrière du bodhisattva* (Paris: École française d'Extrême-Orient, 2017), 51 and *passim*.

nity must have exerted on Gandhāra, but know from the later production of birch-bark *pothis* in Gilgit that the influence did in fact go both ways.

In Bamiyan as in Gandhāra, we have a full range of Buddhist literary genres, but not so, as we have seen, in Central Asia. Both the Gandhāran scroll tradition and the Indian palm-leaf tradition we see at Bamiyan left their marks in Central Asia, as sporadic exports in the case of the former, and as a sustained cultural transfer and eventual imitation (adopting Chinese paper) in the case of the latter. On the background of the rich Gandhāran and Bamiyan traditions, the absence of early Sūtra and Vinaya manuscripts in Central Asia cannot be explained by lack of precedence for committing these genres to writing. Rather, we should look to the particular conditions of the early Buddhist inroads into Central Asia, which must have been characterized by individual initiative, difficulty of transport and a limited amount of manuscripts and writing material that could be carried. The natural outcome would have been to economize in the transportation and production of written texts, relying on oral transmission wherever most feasible, such as especially in the case of Sūtra and Vinaya.

We are left with a new recognition of the central role of the Bamiyan Buddhist community. After an initial coexistence of local and translocal scripts and languages, this community created a new textuality for Greater Gandhāra and shaped its further development in Central Asia. This textuality was based on the translocal Sanskrit language and Brāhmī script, opening up communication with wider parts of the Indian Buddhist world. But the general adoption of the imported *pothi* format in Greater Gandhāra had a conditioning effect of its own that should not be underestimated. The amount of text that can be committed to a scroll is comparatively limited—the Bajaur *Mahāyānasūtra* contains approximately 24,000 *akṣaras* in 600 lines—and can only be accessed sequentially. A typical *pothi*, on the other hand, would contain around 400,000 *akṣaras* on 500 folios with five lines per page—more than fifteen times the amount of text. Combined with the feature of random access (the ability to jump directly to any desired place in the manuscript), the *pothi* format introduced Greater Gandhāra and Central Asia to entirely new ways of using writing to propagate and interpret the word of the Buddha.⁵⁴

54 It is curious that the Gandhāran tradition never developed random-access manuscripts on the basis of its indigenous scroll format. The Chinese manuscript tradition illustrates such a gradual evolution in the invention of the concertina format that in East Asia lives on to this day. From Gandhāra, we have two relic inscriptions on linked copper plates (CKI 442 and 564) that in essence are in concertina format, but the idea was apparently never transferred to manuscripts. In this way, too, the introduction of the *pothi* provided a true disruption from outside.

References

- Allon, Mark. "The Senior Kharoṣṭhī Manuscripts." In *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference 'Indic Buddhist Manuscripts: The State of the Field,' Stanford, June 15–19 2009*, edited by Paul Harrison, and Jens-Uwe Hartmann, 19–33. Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014.
- Baums, Stefan. "A Gāndhārī Commentary on Early Buddhist Verses: British Library Kharoṣṭhī Fragments 7, 9, 13 and 18." PhD diss., University of Washington, 2009.
- Baums, Stefan. "Gandhāran Scrolls: Rediscovering an Ancient Manuscript Type." In *Manuscript Cultures: Mapping the Field*, edited by Jörg B. Quenzer, Dmitry Bondarev, and Jan-Ulrich Sobisch, 183–225. Berlin: De Gruyter, 2014.
- Baums, Stefan, Andrew Glass, and Kazunobu Matsuda. "Fragments of a Gāndhārī Version of the Bhadrakalpikasūtra." In *BMSC IV*, 183–266.
- BMSC I = Jens Braarvig, ed. *Buddhist Manuscripts in the Schøyen Collection, Volume I*. Oslo: Hermes Publishing, 2000.
- BMSC II = Jens Braarvig, ed. *Buddhist Manuscripts in the Schøyen Collection, Volume II*. Oslo: Hermes Publishing, 2002.
- BMSC III = Jens Braarvig, ed. *Buddhist Manuscripts in the Schøyen Collection, Volume III*. Oslo: Hermes Publishing, 2006.
- BMSC IV = Jens Braarvig, ed. *Buddhist Manuscripts in the Schøyen Collection, Volume IV*. Oslo: Hermes Publishing, 2016.
- Bühler, G. *Detailed Report of a Tour in Search of Sanskrit MSS. Made in Kāśmīr, Rājputana, and Central India*. Bombay: [Royal Asiatic] Society's Library, 1877.
- Burrow, T. "The Dialectical Position of the Niya Prakrit." *Bulletin of the School of Oriental Studies, University of London* 8 (1936): 419–435.
- CKI = Stefan Baums and Andrew Glass. 2002–. *Catalog of Gāndhārī Texts*. <https://gandhari.org/catalog>. Part II.
- CKM = Stefan Baums and Andrew Glass. 2002–. *Catalog of Gāndhārī Texts*. <https://gandhari.org/catalog>. Part I.
- Coningham, R.A.E., F.R. Allchin, C.M. Batt, and D. Lucy. "Passage to India? Anuradhapura and the Early Use of the Brahmi Script." *Cambridge Archaeological Journal* 6 (1996): 73–97.
- Delhey, Martin, Emanuel Kindzorra, Oliver Hahn, and Ira Rabin. "Material Analysis of Sanskrit Palm-Leaf Manuscripts Preserved in Nepal." *Journal of the International Association of Buddhist Studies* 36/37 (2013–2014): 119–152.
- Diringer, David. *The Hand-Produced Book*. London: Hutchinson's Scientific and Technical Publications, 1953.
- Falk, Harry. *Schrift im alten Indien: Ein Forschungsbericht mit Anmerkungen*. Tübingen: Gunter Narr Verlag, 1993.

- Falk, Harry and Ingo Strauch. "The Bajaur and Split Collections of Kharoṣṭhī Manuscripts within the Context of Buddhist Gāndhārī Literature." In *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference 'Indic Buddhist Manuscripts: The State of the Field,' Stanford, June 15–19 2009*, edited by Paul Harrison and Jens-Uwe Hartmann, 51–78. Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014.
- Franco, Eli. *The Spitzer Manuscript: The Oldest Philosophical Manuscript in Sanskrit*. Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2004.
- Franco, Eli. "Three Notes on the Spitzer Manuscript." *Wiener Zeitschrift für die Kunde Südasiens* 49 (2005): 109–111.
- Hinüber, Oskar von. *Der Beginn der Schrift und frühe Schriftlichkeit in Indien*. Mainz: Akademie der Wissenschaften und der Literatur, 1990.
- Hinüber, Oskar von. "The Gilgit Manuscripts: An Ancient Buddhist Library in Modern Research." In *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference 'Indic Buddhist Manuscripts: The State of the Field,' Stanford, June 15–19 2009*, edited by Paul Harrison and Jens-Uwe Hartmann, 79–136. Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014.
- Hoernle, A.F. Rudolf. "An Epigraphical Note on Palm-Leaf, Paper and Birch-Bark." *Journal of the Asiatic Society of Bengal* 69 (1900): 93–134.
- Janert, Klaus Ludwig. 1972. *Abstände und Schlußvokalverzeichnungen in Aśoka-Inschriften*. Wiesbaden: Franz Steiner Verlag.
- Jantrasrisalai, Chanida, Timothy Lenz, Lin Qian, and Richard Salomon. "Fragments of an Ekottarikāgama Manuscript in Gāndhārī." In *BMSC IV*, 1–122.
- Lüders, Heinrich. *Bruchstücke buddhistischer Dramen*. Berlin: Georg Reimers, 1911.
- Matsuda Kazunobu [松田和信]. "平山コレクションのガンダーラ語貝葉写本断簡について" [Hirayama korekushon no Gandārago baiyo shahon dankan ni tsuite]. *印度學佛教學研究* [Indogaku bukkyōgaku kenkyū] 62 (2013): 354–346.
- Nakatani, Hideaki. *Udānavarga de Subāṣi : édition critique du manuscrit sanskrit sur bois provenant de Subāṣi: Bibliothèque nationale de Paris, fonds Pelliot*. Paris: Edition-Diffusion de Boccard, 1987.
- Nakatani, Hideaki. スバシ写本の研究: 亀茲国致隷藍の『ウダーナ・ヴァルガ』 [Subashi shahon no kenkyū: Kucha Kocchi Reiran no "Udāna-varuga"]. 京都 [Kyōto]: 人文書院 [Jinbun shoin], 1988.
- Naveh, Joseph and Shaul Shaked. *Aramaic Documents from Ancient Bactria (Fourth Century BCE)*. London: The Khalili Family Trust, 2012.
- Rocher, Ludo. *Studies in Hindu Law and Dharmaśāstra*. London: Anthem Press, 2012.
- Salomon, Richard. "Kharoṣṭhī Manuscript Fragments in the Pelliot Collection, Bibliothèque nationale de France." *Bulletin d'études indiennes* 16 (1998): 123–160.

- Salomon, Richard. "Thirty-Two Fragments Written by Bamiyan Kharoṣṭhī Scribe 7." In *BMSC IV*, 367–406.
- Sander, Lore. *Paläographisches zu den Sanskrithandschriften der Berliner Turfansammlung*. Wiesbaden: Franz Steiner Verlag, 1968.
- Sander, Lore. "The Earliest Manuscripts from Central Asia and the Sarvāstivāda Mission." In *Corolla Iranica: Papers in Honour of Prof. Dr. David Neil MacKenzie on the Occasion of His 65th Birthday on April 8th, 1991*, edited by Ronald E. Emmerick and Dieter Weber, 133–150. Frankfurt am Main: Peter Lang, 1991.
- Sander, Lore. "Early Prakrit and Sanskrit Manuscripts from Xinjiang (Second to Fifth / Sixth Centuries C.E.): Paleography, Literary Evidence, and Their Relation to Buddhist Schools." In *Collection of Essays 1993: Buddhism across Boundaries: Chinese Buddhism and the Western Regions*, edited by Jan Nattier and John R. McRae, 61–106. Sanchung: Fo Guang Shan Foundation for Buddhist & Culture Education, 1999.
- Sander, Lore. "A Brief Paleographical Analysis of the Brāhmī Manuscripts in Volume 1." In *BMSC I*, 285–300.
- Sander, Lore. "An Analysis of the Scripts." In *Traces of Gandhāran Buddhism: An Exhibition of Ancient Buddhist Manuscripts in the Schøyen Collection*, edited by Jens Braarvig and Fredrik Liland, xxx–xxxii. Oslo: Hermes Publishing, 2010.
- Sander, Lore. "Dating and Localizing Undated Manuscripts." In *From Birch-Bark to Digital Data: Recent Advances in Buddhist Manuscript Research: Papers Presented at the Conference 'Indic Buddhist Manuscripts: The State of the Field,' Stanford, June 15–19 2009*, edited by Paul Harrison and Jens-Uwe Hartmann, 171–186. Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2014.
- Skilling, Peter. "Notes on the *Bhadrakalpika-sūtra*." 創価大学国際仏教学高等研究所年報 [Sōka daigaku kokusai bukyōgaku kōtō kenkyūjo nenpō] 13 (2010): 195–229.
- Tournier, Vincent. "Protective Verses for Travellers: A Fragment of the Diśāsauvastika-gāthās Related to the Scriptures of the Mahāsāṃghika-Lokottaravādins." In *BMSC IV*, 407–437.
- Tournier, Vincent. *La formation du Mahāvastu et la mise en place des conceptions relatives à la carrière du bodhisattva*. Paris: École française d'Extrême-Orient, 2017.
- Wujastyk, Dominik. "Indian Manuscripts." In *Manuscript Cultures: Mapping the Field*, edited by Jörg B. Quenzer, Dmitry Bondarev, and Jan-Ulrich Sobisch, 159–181. Berlin: De Gruyter, 2014.

Body and Cosmos

*Studies in Early Indian Medical and Astral Sciences
in Honor of Kenneth G. Zysk*

Edited by

Toke Lindegaard Knudsen
Jacob Schmidt-Madsen
Sara Speyer



BRILL

LEIDEN | BOSTON