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Preliminary Remarks on the Drangsong Collection of Bon Manuscripts in Mustang, Nepal

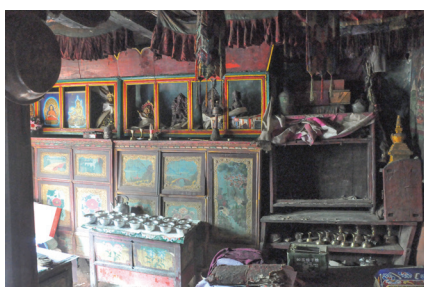
Abstract: This study presents preliminary observations of a collection of manuscripts from a private household in the town of Lo Monthang, in Mustang, Nepal. The manuscripts, which were used by generations of royal priests belonging to a family named Drangsong, contain for the most part ritual texts for the protection and prosperity of the kingdom of Mustang and its subjects. The collection of 280 manuscripts, assembled from different parts of Tibet and the Himalaya over six centuries, was subjected to codicological and text-historical research. The shuffled folios were first sorted into distinct texts that were numbered and photographed. Further analyses were then undertaken on the basis of images and notes taken *in situ*, as well as loose pieces of paper from the most damaged leaves identified within individual volumes. Knowledge of the materials and ritual practices involved in the creation of physical objects have been applied to better understand the textual, material and social aspects of this unknown, unique and endangered collection.

1 Background to the collection and scope of research

The aim of this research is to carry out a codicological and text-historical study of a unique collection of manuscripts belonging to the Bon religion of Tibet. The value of this collection is twofold: first, the collection was assembled from different parts of Tibet and the Himalaya over six centuries, and offers a rich body of material which can be retrieved by codicological analyses that contribute to our understanding of book and papermaking traditions in the region, as well as social aspects of Tibetan manuscript production; and secondly, in terms of its content, it offers a window onto some of the kinds of religious activities that were considered to be important for the rulers and their subjects in a Tibetan kingdom: these manuscripts were used in rituals for the protection and prosperity of the kingdom of Mustang, its people and members of royal lineage. Knowledge of the materials and ritual practices involved in the creation of physical objects enable us to

understand the interaction between religion, patronage and political authority in Tibetan society. The findings provide a historical background for the meaning of these books as both sacred and material entities.

The Drangsong collection of manuscripts is named after the family in whose house it is kept in the vicinity of the King's Palace in the town of Lo Monthang, the capital of the former kingdom of Lo (Mustang), in Nepal (Figs 1a and 1b). At present we have no conclusive documentation about the origins of the family, although members of later generations do appear in literature from a later period – notably, in the biography of a Bonpo monk from East Tibet who spent many years in Mustang and Dolpo (Fig. 2).



Figs 1a and 1b: The house where the Drangsong collection is stored, in Lo Monthang, to the left, and the place in the house where books are kept to the right.

According to an oral account given by the present occupant of the house, named Wangdü, the house came to be occupied in the mid-fifteenth century, during the reign of the second king, Agön Zangpo.¹ It is said that the progenitors of the Drangsong lineage in Lo Monthang were Bonpo lamas whom Agön Zangpo invited to occupy the house and to act as his domestic chaplains (*bla mchod*). It was this king who built the walled city with the palace and the two main temples, Thubchen and Jampa Lhakhang, and according to the oral account, he had the adjacent land cultivated and invited people from the surrounding settlements to take up residence in the city. Those who accepted this invitation were allocated certain corvée duties: a number of households were required to plough and sow the king's fields, and three households had the task of harvesting them. These duties are said to have continued until they were abolished in the late 1950s. Twenty minutes' walk to the west of the city is a hill, now used as a cemetery, that

¹ For the history of Mustang in the fifteenth century see: Jackson 1976, 1978 and 1984; Vitali 2012.

bears the traces of extensive settlement, including portions of a perimeter wall and a large stupa. This is Jaragang, a former Bonpo community. A priestly family of that name continues to flourish in Lubrak, the only remaining Bonpo village in Mustang, situated to the south of the Muktinath Valley.²

The manuscripts have not been used since the priestly line ended in the 1950s or 60s. Successive generations of the lineage continued to serve the royal family until around 1960, when the last male member of the line, Pema Trinle, died, leaving no male heir. His priestly duties were assumed by a Buddhist astrologer generally remembered by his title *rtsis pa* ('astrologer'). Following his death, the role of chaplain passed to a medical practitioner of noble family named Trashi Chözang, who died in the 1990s, and was succeeded by his two sons, the layman Gyatso and the monk Tenzin. The kings of Mustang were Buddhists who were loyal supporters of the Sakyapa school of Tibetan Buddhism throughout the six centuries of their reign; however, the family were originally adherents of the Bon religion, and it is because of this archaic legacy that all the domestic and personal rituals of the royal family were derived from Bon and performed by hereditary Bon lamas.

The collection, consisting of some 280 different items with a total of 2,900 folios, cards, or individual sheets of paper, represents the ritual repertoire of the priests of the kings of Mustang.³ The first part of the work on this collection, which consisted of sorting shuffled folios into distinct texts, then numbering and photographing them, was performed in the field. For both the content and general physical appearance of the items, a table was drawn up comprising eleven columns: 1. Text number; 2. Text title (where present) in Wylie transliteration; 3. A brief summary of the item's contents; 4. Number of folios; 5. Format; 6. Size; 7. Type of paper based on papermaking technology and sieve print; 8. Number of paper layers; 9. Thickness of paper; 10. Surface treatment; 11. Sampling location (if precisely known).

Further analysis was subsequently carried out on the basis of the photographic documentation and paper micro-samples were taken *in situ*. The next step, which is now ongoing, is to create a catalogue with more detailed information about the content of each text.⁴ Each entry contains six subheadings: 1. Item number and filenames of the corresponding photographs; 2. Title in Tibetan and

² For an ethnographic and historical account of Lubrak, see Ramble 1984.

³ The manuscripts are being digitized and gradually added to our project website: 'Mustang Manuscripts: Documentation and Preservation' <http://mustang.uw.edu.pl/?page_id=9920&lang=en> (accessed on 8 Feb. 2021).

⁴ This part of the work is being done by Charles Ramble and Naljor Tsering, a doctoral student at the École pratique des Hautes Études in Paris.

transliteration; 3. Translation of title; 4. Transcription of colophon(s); 5. Translation of colophon(s); and 6. Remarks.

At the same time, on the basis of images and notes taken *in situ*, as well as the loose pieces of paper from the most damaged leaves identified within individual volumes, features such as format, layout and type of illustrations are being described, and manuscripts are grouped according to these characteristics. Detailed studies and laboratory analyses of paper samples are now being carried out in collaboration with the Interdisciplinary Laboratory of Archaeometric Research at the University of Warsaw, using integrated methods such as microscopic fibre analysis, Reflectance Transformation Imaging (RTI), polynomial texture maps (RTI / PTM), and X-ray fluorescence spectrometry (XRF).⁵

2 What we can learn from the textual content

Not all the items have colophons, but those that do sometimes have several: a main colophon at the end and other, usually briefer, entries at the end of certain sections of the texts. At the time of writing this article, a full list of catalogue entries has been drawn up and all the titles and colophons have been entered. Altogether there are over 300 colophons – more than the number of items in the collection. The translation and analysis of this material is currently in progress.⁶ Approximately a quarter of the total number have already been translated, making it possible to extract valuable information from these sources. ‘A brief fumigation ritual for the protective divinities of Bon’ (manuscript archived as vol. 4) may serve as an illustration of our descriptive method (Table 1).

Table 1: Example of table used to record basic data for each item in the collection.

1. Text number	V004
2. Text title (where present) in Tibetan	བོན་སྐྱོང་བསང་འདུས་[བསྐྱུས]།

⁵ The research on paper, ink and paints is being carried out by Agnieszka Helman-Ważny and Barbara Wagner, with the assistance of Agata Szubartowska and Alicja Świącicka, students at the Faculty of Chemistry at the University of Warsaw.

⁶ Items are progressively added to our project web site: ‘Mustang Manuscripts: Documentation and Preservation’ <http://mustang.uw.edu.pl/?page_id=7455&lang=en> (accessed on 8 Feb. 2021).

Table 1 (continued)

3. Text title (where present) in Wylie transliteration	<i>Bon skyong bsang 'dus [bsdus]/</i>
4. A brief summary of the item's contents	A collection of fumigation ritual texts
5. Number of folios	38 folios, bound at left, including cover
6. Item number and filenames of the corresponding photographs	V004_IMG_1076-1115
7. Translation of title	A brief fumigation ritual for the protective divinities of Bon.
8. Transcription of colophon	<i>Bon skyangs [skyong] bsang 'dus rdzogs so// dmu rgyal rnal 'byor nyi ma ming can gyis mdzad pa'o// bkra shis/</i>
9. Translation of colophon	Here ends the collection of fumigation texts for the protectors of Bon. This was composed by the one named dMu rgyal rNal 'byor nyi ma. Virtue.
10. Remarks	dMu rgyal rNal 'byor nyi ma is another name of the well-known scholar gShen Nyi ma rgyal mtshan (fourteenth century), from the gShen lineage in Central Tibet. He founded Ri rgyal Khri brtan nor bu rtse monastery in Tsang in 1360, when he was 30 years old.

For now, a few general observations based on translations of colophons may be made by way of preliminary conclusions:

- The texts that make up the collection were composed by authors in numerous locations, extending from Dolpo in the west to Gyalrong (Sichuan) in the east, over a period ranging from the twelfth to the nineteenth centuries.
- In addition to the identity of the authors and the places in which they composed these texts, certain colophons add information about the scribe who made the particular copy, the location in which the copy was made, and the circumstances in which this took place.
- In several cases, the colophon provides the name of the copyist's master, sometimes a well-known figure, and the place of writing, thereby providing clues as to the date of writing and the location in which the paper and other materials may have been produced.
- Even at this preliminary stage of analysis a picture is emerging of a very wide network of Bonpo lamas extending over a vast territory and spanning many centuries. The most important Bon centres for Mustang in terms of geographical proximity were those in Dolpo, where members of the Drangsong lineage (whose actual name was Awa, Tib. 'A pha) had links with lamas from different locations in Pungmo, Samling and other places, belonging to several eminent priestly clans such as Yangal, Tretön and Ranag.

- The colophon of one text even provides information about the earliest members of the Drangsong family to be relevant to the kingdom of Lo. Oral tradition has it that the association between the lineage and the royal family began in the time of the second king, Agön Pal. However, the colophon of one text states that it was composed by a certain ‘Knowledge-holder of the Awa family named Khyimar’, who is described as being a contemporary of the first king, Amepal (see Fig. 2). The original text is not available but was copied at some unspecified point because – according to the copyist – the original had become blackened and unreadable.

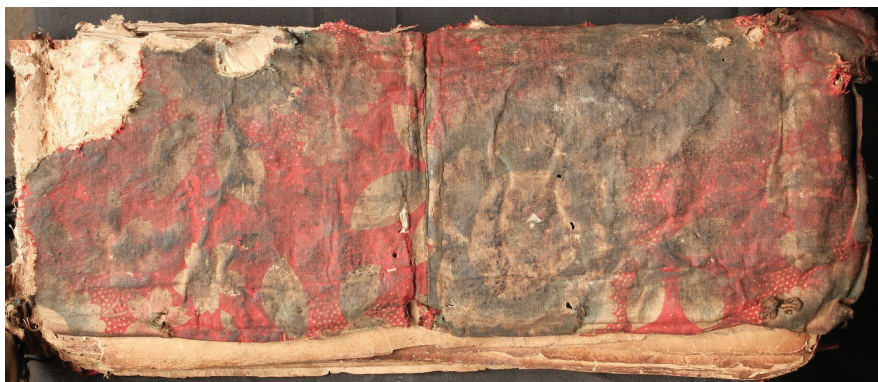


Fig. 2: Text of a ritual for the propitiation of local divinities composed by Rigdzin Awa Khyimar, the royal chaplain during the time of the first king, Amepal (manuscript archived as Drangsong vol. 12). This text is a copy that was made by Drangsong Yungdrung because the original had become blackened and difficult to read.

3 Highlights of the Drangsong manuscripts: format, layout, and illustrations

The items in the collection range in size from a longbook of 566 folios down to single sheets of paper, such as protective amulets or short series of sacred formulae (mantras). This variety of formats and sizes can be explained by the specific functions of the particular manuscripts and the way in which they were used, the long period of time over which they were created, and the wide geographical range of their provenance.

The batches of manuscripts were wrapped together in cloth as mini-collections, rather than each one being protected by its own particular wrapping (*dpe*

ras). The original covers were not preserved. The content of these mini-collections wrapped together may point to the ownership or theme of particular sets of texts.

The *dpe cha*, consisting of rectangular unbound leaves, certainly became the dominant book format in Tibetan culture, and it is also the main format we found in the Drangsong collection (Figs 3–7).⁷ We counted 280 texts in loose-leaf format. They vary in size, layout and materials. Most common are manuscripts measuring 7–10 × 30–38 cm, which is smaller than the usual Tibetan manuscripts of *pothi* format, especially those containing canonical works.

Layout is dependent on the choice of format. Thus, in our sample – due to the smaller size of folios – the number of text lines was most often five or six, which is less than what is usual in large canonical manuscripts. The loose-leaf format tends to offset the text with large marked-off margins, particularly on the right and left sides, or sometimes by a full frame. Such full frames can be decorated in various ways. There is a group of manuscripts with thick-coloured frames, especially on title pages, as it is the case of manuscript no. 229 (Fig. 3). There is a series of manuscripts with similar frames and margins sketched in purple ink, as illustrated by manuscript no. 167 (Fig. 4).

The guidelines themselves can be in a diluted ink that is hardly visible, but may sometimes be very obvious. In other cases, the guidelines are nicked, that is, a straight shallow line made with a sharp tool. In our sample, margins and frames were most often marked with red, purple, or black ink, both weak and thick. Base lines are drawn in faint yellow or other-coloured paint. In some manuscripts the last folio consists of a ruled page without any text, which makes it easier to see how the page was prepared for writing.

A variety of graphs, such as the ‘head mark’ (*yig mgo*), are traditionally used in Tibetan manuscripts to begin the text. Head marks, which differ from text to text, are also used to indicate the start of a headline or the start of the first paragraph in a longer text.

A common head mark is *yig mgo mdun ma* ཡ, which is often multiplied or extended with further decorations (Figs 3, 5 and 6), such as the extension graph *sgab ma* ར. A head mark can be written alone, or can be followed by a couple of closing marks, notably one or two *shad*, e.g. ཡ||. Less common head marks, used

⁷ It is sometimes referred to as the *pothi* format, named after the Indian term for the model on which it was based. The Indian prototype is made out of palm leaves, and it is this form that the Tibetan longbook reproduces in paper. From its proliferation from the fifteenth century onward, wood-block printing or xylography cemented the *dpe cha* as the predominant format for the Tibetan book.

in Bonpo literature, are variations of *gter yig mgo*, such as truncated A 8, *um rnam bcad ma* ཨུམ་རྣམ་བཅད་མ་, *um gter tshed ma* ཨུམ་གཏེར་མེད་མ་.

As far as the visual presentation of texts is concerned, it was possible to distinguish groups of texts characterised by the same features, such as yellow markings of words, red rubrics, red or blue diamond-shaped patches pasted onto the paper surface, almost certainly as place-marks, as is the case at the present day. They may, for example, indicate the point at which the lama should add an instrumental accompaniment with, say, drum, bell or cymbals.



Fig. 3: Text for the visualisation and worship of the tantric divinity Takla Membar. Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 229.

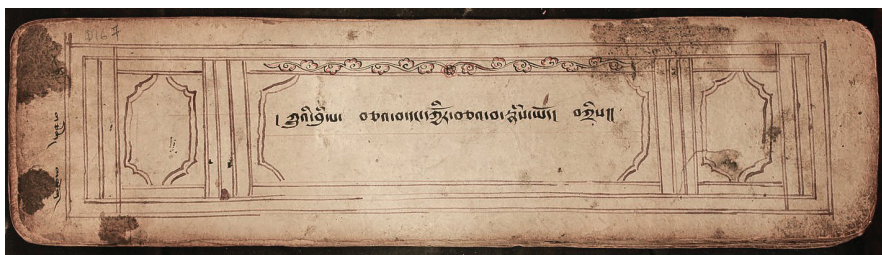


Fig. 4: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 167.



Fig. 5: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 200.

We often observed variations in the size of the script – for example, instructions in ritual manuals are invariably in a smaller script than that which is used for the sections to be chanted aloud, as seen in manuscript no. 160 (Fig. 6). Here the instructional part has been written in *'khyug ma tshugs*, and the litany in *tshugs thung*. The colophon of manuscript no. 202, evidently written by a scribe with limited training, uses a smaller script, a hybrid of *'khyug ma tshugs* and *tshugs ring*, with the characteristically long descenders of the latter (Fig. 7).



Fig. 6: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 160.

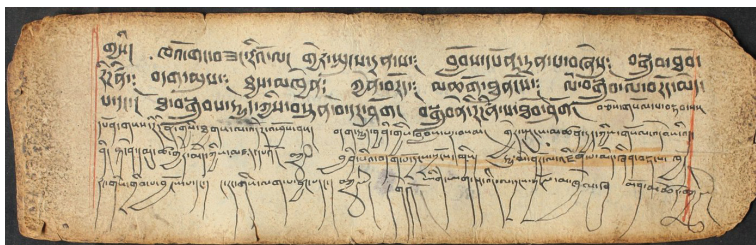


Fig. 7: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 202.

Despite the dominance of the longbook format, a significant number of ritual items had the form of bound books or single sheets of paper. Interestingly, the format of bound manuscripts, represented by 17 items,⁸ whether sewn at the top or to the left, usually measured 9–10 × 27–30 cm, which is very closed to the measurements of the loose-leaf format of the Drangsong collection. Manuscript no. 4, *A collection of fumigation ritual texts*, consists of rectangular leaves, possibly originally prepared for *pothi* loose-leaf format, then folded in half and sewn (Fig. 8). Manuscript no. 252 shows that a loose-leaf format was sometimes bound later (at the top in this case) (Fig. 9). The bound format probably better served the purpose of such manuscripts, since it would be easier to follow the text when leaves were fixed in their order. More often, however, the folios of the Drangsong manuscripts are folded at the longer edge and sewn at the top, as illustrated by the manuscripts archived as nos 3 and 5 (Figs 10 and 11). The manuscript archived as no. 5 has a textile cover that has been attached by stitching it to the paper leaf and wrapped inside (Fig. 11).



Fig. 8: Manuscript bound at the side containing 'A brief fumigation ritual for the protective divinities of Bon' (archived as manuscript no. 4).

⁸ These were manuscripts nos 3, 4, 5, 6, 7, 8, 9, 12, 14, 15, 16, 54, 70, 73, 97, 252, and 267.



Fig. 9: Drangsong collection, Lo Monthang, Upper Mustang, item no. 252.



Fig. 10: Manuscript bound at the top (archived as manuscript no. 3).



Fig. 11: Manuscript bound at the top (archived as manuscript no. 5).

Nine manuscripts were in the form of single sheets bearing diagrams or a short text, two were *tsakalis*, and one was a set of ritual cards. Diagrams were usually a type of amulet with protective symbols prepared for specific occasions. The 'protective wheels' (*srung 'khor*) in Figs 12a–c are amulets that might be worn for personal protection or affixed to a door. The first two provide protection by means of mantras, and the third by means of auspicious symbols. The image in Fig. 12d seems to be a device for the repulsion of harm caused by apostate Buddhist monks.



Figs 12 a–d: Drangsang collection, Lo Monthang, Upper Mustang, item no. 37 (a); item no. 278 (b); item no. 17 (c); item no. 11 (d).

Tsakalis are known as ‘initiation cards’ precisely because they are used in initiation rituals (such as empowerment, ritual mandalas, transmission of teachings, substitutes for ceremonial items, visualisation aids and funerals) to empower neophytes into the particular domain of Buddhism or Bon that they represent (Fig. 13). Typically, the initiate is shown each of the cards in turn before being blessed by means of the officiant touching his or her head with the whole set. The subjects found in *tsakali* cover a range from main deities and protectors to their various power attributes and appropriate offerings.⁹



Fig. 13: Two of a set of *tsakalis*, cards used in tantric initiations. Drangsong collection, Lo Mon-thang, Upper Mustang, item no. 98.

⁹ Li 1995.

Five simple paper cut-outs representing *lu* (*klu*, serpent spirits), as seen in Fig. 14. These devices are used in rituals for the propitiation of the *lu*, usually to ensure rainfall.



Fig. 14: Simple representations of *lu* (serpent spirits) for use in propitiatory rites. Drangsong collection, Lo Monthang, Upper Mustang, item no. 243.

4 Illustrations, ornaments and doodles

The leaves shown below, from manuscript no. 251, are a good example of illuminated pages when the paintings are planned as part of the layout of the book (Fig. 15).



Fig. 15: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 251.

The back folio from manuscript no. 215 show examples of ornamental flourishes that are used at the beginning of texts (*yig mgo mdun ma*). The scribe has apparently used the available blank paper as a surface on which to practise his skills in drawing these motifs (Fig. 16). Many other manuscripts in the Drangsong collection feature such ornaments. As seen on the front page of manuscript no. 256 containing the sacred Bon formula *om ma tri mu ye sa le 'du*, the outlined figure has a superfluous letter *sa* that has not been filled in, probably because the scribe subsequently noticed that he had duplicated it in error (Fig. 17).

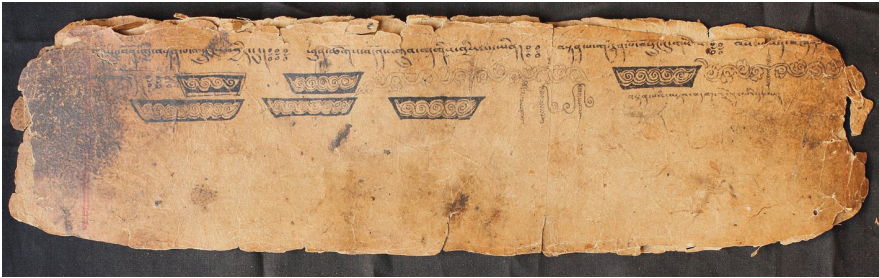


Fig. 16: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 215.



Fig. 17: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 256.

In the context of Tibetan books, ephemera such as doodles have been little studied to date. A few such examples contribute to our understanding of the histories of the manuscripts in which they appear: for example, they convey information about the users rather than the manuscript itself or the scribe, since these drawings were made long after the texts were originally created. They allow us to learn about the people who used and interacted with these old books. Drangsong manuscript no. 169 for example shows drawings representing effigies used in ransom rituals (Fig. 18), while manuscript no. 105 contains the sketches of various motifs

used in sacred art (Fig. 19), and manuscript no. 194 sketches illustrating different ritual gestures (*mudras*) (Fig. 20).



Fig. 18: Drawings representing effigies used in ransom rituals. Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 169.



Fig. 19: Sketches of various motifs used in sacred art. Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 105.



Fig. 20: Sketches illustrating different ritual gestures (*mudras*). Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 194.

5 Material study: paper and ink in the Drangsong manuscripts

The most important source materials for papermaking in Tibet were (and continue to be) the various plants of the Thymelaeaceae botanical family. However, exceptions to the use of these materials have been noted, and involve the use of both rare local products and also of industrial paper that was commercially available from the beginning of twentieth century. These materials are generally present as individual fibres of wool, cotton, or other unidentified substances, feather fragments, grass-type pulp and industrial wood pulp. Every new batch of papers from this region that we tested for fibre composition has helped to build a clearer picture of the history of paper.

While there is a suggestion that paper was available in the Zhangzhung polity of western Tibet, and that invitation letters from the Central Tibetan court to the Chinese imperial princess in the seventh century were on paper, the *Tang Annals* mention that in 648 the Tibetan emperor Songtsen Gampo requested paper, ink, and other writing utensils from the Chinese emperor.¹⁰ The identification of fibres of *Daphne* species in samples of Tibetan manuscripts from Dunhuang supports the view, affirmed by material analyses of extant manuscripts, that Tibetans were producing paper at least by the ninth century and that they used plants of the Thymelaeaceae family – which grow widely in the Himalayas – as raw material.¹¹ Tibetan paper was thus originally made from shrubs of these species (*shog shing*, ‘paper trees’, in Tibetan), which usually grow in valleys up to an altitude of 3,600m above sea level. Even higher above on the Tibetan plateau, the roots of the *Stellera chamaejasme* species (*re lcag pa* in Tibetan) were used for local paper production. The oldest samples of *Stellera* species used in Tibetan manuscripts have been identified in a manuscript from Central Tibet dated to the tenth century, and one from Western Tibet dated to the eleventh.¹² After the fifteenth century *Stellera* often came to be added to

¹⁰ Uebach 2008, 61.

¹¹ Helman-Wazny and van Schaik 2013, 738; Helman-Wazny 2016, 546–549.

¹² The earliest confirmed manuscript which contains *Stellera* fibres is dated to the late tenth century by C14 and textual evidence. This manuscript, discovered by Professor Pasang Wangdu of the Tibetan Academy of Social Science, was produced in the area of Samye monastery in Central Tibet: Wangdu 2016, 555; Helman-Wazny 2016, 549. Other manuscripts containing *Stellera* fibers originating from Tholing and possibly dated to the eleventh century were studied by Amy Heller (Heller 2016; Heller and Eng 2017). Another relatively early example of paper containing *Stellera* fibres is a sample provided by Amy Heller from one of the

Daphne and *Edgeworthia*, possibly for increasing the softness of *Daphne* paper to make it more absorbent and thus suitable for printing.¹³ When used alone, the *re lcag pa* root yields a particularly soft type of paper, which, owing to the texture of its fibres, is considered by Tibetan papermakers to be of lower quality than bark paper.

The fibres of Tibetan paper typically have a range of morphological properties, which can be detected during scientific examination by applying a combination of techniques. The samples of paper from Drangsong manuscripts are currently being examined, and the results will be published as separate case studies. The information presented in this chapter will therefore be confined to preliminary observations.

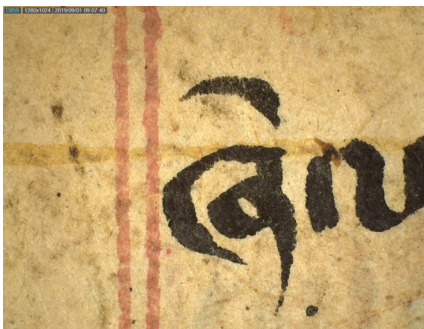
First, macroscopic observation was performed *in situ*, and macro photographs of details with macro lenses and Dino-Lite Digital Microscope were taken, illustrating the paper surface preparation, interaction between paper and ink, and paper structure observed with back-lighting. Even from these preliminary observations we were able to distinguish a group of manuscripts written on paper with primary white paint on the surface (Figs 21 and 22a–b).



Fig. 21: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 249.

Prajñāpāramitā manuscript volumes from Bicher monastery in Dolpo, western Nepal (Heller 2009).

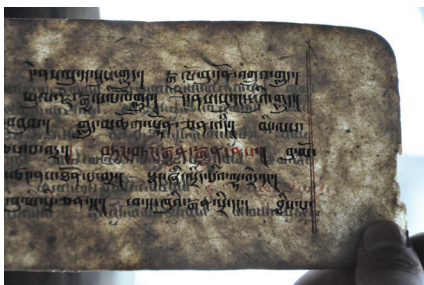
13 Helman-Ważny 2016, 552.



Figs 22a–b: Details of text fragments written on paper processed with white paint (Fig. 22a: item no. 27), and without this extra step of preparation photographed with Dino-Lite digital microscope (Fig. 22b: item no. 30).

The fact that there are different sizes and shapes of manuscript folios suggests that papermaking moulds may not have been standardised. However, we should be cautious about deducing the size of the moulds on which paper may have been made from the available folios, since sheets could of course be cut to the required format.

Both types of sieve print, notably woven and laid, were found in the Drangsong manuscripts (Figs 23a and 23b). Interestingly, there is a group of laid papers characterised by 12 laid lines within a space of 3 cm, and in some cases the chain line intervals are visible.



Figs 23a–b: Drangsong collection, Lo Monthang, Upper Mustang, manuscript no. 37.

The thickness of the paper, depending on how many layers of paper are glued together, ranges from 0.04 to 0.35 mm.¹⁴ The range of thicknesses measured within the same leaf is similar to that found in other collections of Tibetan manuscripts. The fibre distribution within the paper sheet makes it possible to categorise manuscripts according to the quality of the paper that was used in their production.

Paper analysis aims to undertake fibre identification¹⁵ to ascertain the raw materials used for paper production; the RTI / PTM technique was used to reveal visible damage and tool traces as signatures of surface processing; macroscopic observations were made to understand the technologies used during the production of these papers; XRF measurements were taken to detect other components that may have been added to paper during its production.

A catalogue of samples in MS Excel was created by Agata Szubartowska and Alicja Świąćicka, students working in our project team. From among 273 manuscripts, 52 samples of manuscripts were selected for microscopic fibre analysis, Reflectance Transformation Imaging (RTI), polynomial texture maps (RTI / PTM), and X-ray fluorescence spectrometry (XRF).

The qualitative analysis of the elemental composition of the paper was performed using the X-ray fluorescence spectrometry method. Most of the objects are homogeneous, and the main elements are: Ca, Fe, K, S, Cl and Si. The samples are differentiated by the presence of the appropriate secondary elements: Cu, P, Ti, Mn, Sr, As, Zn and Al.

From fifty-two selected samples, three are being analysed by mass spectrometry with inductive coupled plasma and laser micro-sampling (LA-ICP-MS). Further LA-ICP-MS tests and Raman spectroscopy of selected samples are also planned.

14 Thickness is measured in at least five different places per panel.

15 This is carried out by analysing collected specimens of paper using a transmitted light microscope with camera. The samples were prepared in a fine suspension of individual fibres, and placed on slides for observation at varying magnification from 50× up to 400× with both plain and polarised light. Attention was paid to stain colouring, morphology of fibres, and other elements of the pulp. Each of the samples was prepared as a solid preparation in Canada balsam (oleoresin consisting of a viscous yellowish to greenish liquid exuded by the *Abies balsamea*, balsam fir of North America). First, they were placed on a microscope slide, then a few drops of water were added to it, and they were carefully defibrated and spread with the help of preparation needles. The material was then covered with a coverslip, and left to dry. The next step was to open the coverslip and apply a drop of Canada balsam. The coverslip was replaced, and the slide pressed between the metal plate and the magnet was left until the Canada balsam had dried. For more details see: Szubartowska et al. 2021, 53–76.

Within the Thymelaeaceae family of plants, *Stellera chamaejasme* fibres are easily identifiable in paper samples, and can be clearly differentiated from *Daphne*, *Edgeworthia*, and *Wikstroemia* despite the fact that all plants belong to the Thymelaeaceae family. The latter three, however, are still not fully referenced and cannot be easily distinguished from one another. However, differences between the above Thymelaeaceae family plants and other plant species are obvious, so it is possible to distinguish particular types of raw materials. This ability to distinguish separate species in paper fibre makes fibre analysis a particularly helpful procedure for locating regional origin and sometimes for dating, especially when used in combination with other methods.¹⁶ When comparing the results of fibre analysis of manuscripts with the distribution of the same plant, we can obtain information about the possible region of a book's origin. The area suggested by plant distribution can be critically compared to other sources of information, such as textual content and manuscript format. In this way, we can learn whether all features originate from the same area (understood as a cultural context, country, or region) or not.

The results help in answering some questions about trade and import of paper and manuscripts in the Himalayas and Central Asia, even though much more research needs to be done to achieve higher precision for regional attribution. Here the goal is to characterise a larger sample of material from the Drangsong collection and pull all the results together for comparative study. Other aims were to learn about the relationship between raw materials used and properties of the resultant paper; to determine the origin of the paper by comparing fibre identification results with the local occurrence of the same plant; and to know more about fibrous materials used for papermaking in the past in order to trace the history of papermaking.

Other materials, such as ink and paints, will be identified in collaboration with the Interdisciplinary Laboratory of Archaeometric Research, Faculty of Chemistry, University of Warsaw. XRF (X-Ray Fluorescence Spectrometry) will be used for determination of major elemental composition, and RS (Raman spectroscopy) will provide information on molecular composition of chemical compounds. GC-MS (gas chromatography with mass spectroscopy) will help to identify the binding media used for the preparation of inks. The complementary use of these three methods for analysis of the same samples will allow for the reliable identification of their chemical composition.

The inks employed in Tibetan books and documents were manufactured by craftsmen according to diverse recipes. The compound is mixed with water imme-

¹⁶ Helman-Ważny and van Schaik 2013.

diately before use. Tibetan black ink (*snag tsha*) is most often composed of soot mixed with animal glue. In general, carbon-based inks are produced by a dispersion of soot or black carbon particles in a water-soluble binder. The soot that is used is generally derived from burning resinous wood (such as *Pinus roxburghii*, often used in Nepal, or *Pinus wallichiana* in Bhutan), butter in lamps, or other combustible substances. Most of the inks are black, but we also find red and occasionally other colours in Tibetan books, as well as inks prepared with precious minerals for special purposes. Coloured inks are made by pulverising the appropriate plant or mineral pigments with a mixture of glue, sometimes made by boiling yak hide and bones. Other organic components could be added, such as gum, honey, borax, or, for special purposes, unusual and extravagant materials, such as medicinal substances, drops of blood, or crematory ashes, that modified the ink's real or imagined properties according to need. Besides their organic compounds, inks may also contain distinctive trace elements.

6 Function, ritual use and cultural context

Many, if not most, of the manuscripts in the Drangsong collection are components of rituals concerned with providing protection, expelling physical or supernatural afflictions, and generating prosperity and well-being. These are the kinds of rituals for which there is understandably the greatest demand in daily life, and while they do not feature very prominently in the more salvation-oriented setting of monasteries, they are still widely practised by hereditary lamas in village communities (Figs 24–27).¹⁷

In view of the fact that manuscripts, and not merely the texts that they support, are an inalienable part of the Bon ritual tradition, a close study of the codicological and material aspects of the documents forms an important part of the Drangsong project. Preliminary examination suggests that, even though the texts in the collection may have been composed or copied in locations that are

¹⁷ As part of a long-term project in the framework of a collaboration between The Kalpa Group (Switzerland) and the Centre for Research on East Asian Civilisations (CRAO, Paris), Charles Ramble has directed the production of video documentation of numerous rituals within these categories. The project has entailed photographing, transcribing and translating a large number of texts, mainly from South Mustang, relating to some of the rituals – part of a living tradition – that are to be found in the Drangsong collection. Descriptions of these rituals, along with presentation of the relevant texts and links to the corresponding ritual performances can be found on the website www.kalpa-bon.com (accessed on 8 Feb. 2021).

very distant from one another – possibly as far apart as eastern Tibet and Dolpo – they may form a community of scribal practices, orthographic conventions and other features that was maintained by Bonpo clerics. Certain exorcistic rituals require the use of paper, ink and styli made from special ingredients and according to precise dimensions. For example, in the instruction manual for the creation of the exorcistic drawing seen in Fig. 24, it is specified that the priest should use ‘poison paper’ measuring one span and four finger-widths; that the stylus, which should be of the same length as the height of the paper, should be made from an arrow that has killed a yeti or a bear, and that the ink should be made from a mixture of blood from a yeti (or bear) that has been killed with a sword, a poisoned mule and a rabid dog. It is likely that the manuscripts in the Drangsong collection contain such instructions, but since similar tantric texts are widely used by some Buddhist schools (especially the Nyingmapa), it remains to be determined whether some of these specifications are distinctive of Bonpo texts.



Fig. 24: Bon ritual being performed in Mustang.



Figs 25–27: Bon rituals being performed in Mustang and Dolpo.

7 Conclusions

The Bon manuscripts in the royal Drangsong collection constitute an information-dense repository of craftsmanship, history, and ideas spanning at least six centuries. At the project start we were fully aware that the success of our project on Drangsong manuscripts rested on a coincidence of a set of propitious circumstances. To begin with, it is extremely rare that such a large and unstudied collection of Tibetan manuscripts, especially those of the Bon religion and belonging to a royal lineage, should become available for research. Secondly, the performance of rituals based on such manuscripts is an endangered tradition that is transmitted not in monasteries but along lineages of hereditary lamas. Third, the geographical location of the field sites entails a certain risk. The difficulties of the trail and of working in an environment of cold and dust at high altitude offer ample possibility for equipment failure, and hence delays. However, we had not anticipated the Covid-19 pandemic and the fact that we would need to face even more limitations. Despite the confinement measures, although with some adjustment to new rules, we have already been able to make the majority of the collection available online, and now catalogue descriptions, translations of titles and colophons, transliterations of selected works and the results of paper analysis are gradually being added to our website.

At the present stage of investigation it is not possible to identify obvious features of works contained in this collection that might distinguish them from Tibetan Buddhist manuscripts. Whatever the case, we hope that the interdisciplinary research carried out within this project will contribute to a better understanding of the Bon tradition, its manuscripts, and the cultural history of the region.

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