



Bruce Huett
Cambridge University, United Kingdom
brucehuett@compuserve.com

 0000-0003-2377-6517

The revival of Himalayan papermaking: historical, social-cultural and economic aspects

Abstract: We normally hardly notice the mass-produced paper products that pass through our hands on a daily basis, which we then recycle. In fact it has recently been predicted that books printed on paper will be replaced by digital formats. However, paper endures and specialist craft papers are now being produced in increasing quantities, especially valued by artists and conservators, but also by tourists visiting paper-producing areas around the world. Paper is therefore flourishing even in our computer and mobile-phone focused world. One of the areas benefiting from this revival is the Himalayas. As well as serving the tourist trade these products are now exported world-wide, as they were when paper first arrived in Europe in the eleventh century. There are even organisations that run Tibetan-style paper making workshops in America. This paper focuses on the papermaking revival in Tibet (China), Nepal, Bhutan and Sikkim (India). Using information gained from visits to producers, middle men, as well as retail and export operations, it seeks to compare the economic and social factors influencing the revival, including conservation issues. The conclusion highlights the fact that, even in the twenty first century, hand-crafted items still play an important rôle in our lives.

Key words: Paper, Himalayas, China, Tibet, Nepal, India, Bhutan, *Stellera*, *Daphne*, *Edgeworthia*.

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Introduction

Until the middle of the twentieth century the production of hand-made paper flourished in the countries of the Himalayas.¹ It was used for government documents at all levels of administration and, because of its durability, for documents that needed to be kept for a long time, such as legal, commercial and land transaction records, as traditionally made paper is particularly resistant to insect damage. The large Buddhist monastic centres in the Himalayan region also used this paper for their religious texts, which were produced in large quantities.

Beginning in the twentieth century, however, industrial paper began to replace hand-made paper and by the middle of the century traditional papermaking had largely died out. Even the large monasteries renowned for their printing on local handmade paper (e.g. Derge) transferred to industrial paper, as did governments and lawyers. The revival of hand-crafted papermaking in the Himalayas began in the 1980s, but with different characteristics in each country depending on the nature of governmental and NGO support, and the social and economic drivers. I have been able to visit sites in Tibet (Nyemo, Lhasa, Tingri and Kyemtong) and Yunnan and Hotan in China. I have also seen operations in rural Nepal and conducted interviews at retail and exporting outlets in the capital Kathmandu.²

A brief history of Himalayan papermaking: Origin and Expansion

Tibetan Plateau

It is now generally agreed that papermaking probably emerged in China around the second century CE. There may have been some small-scale local production prior to this, but the official account has it that it was initiated by a government official Cai Lun possibly in 105 CE. It is suggested that papermaking techniques came to Tibet in the seventh century CE with the arrival of Princess Wencheng from China as a bride for King Songtsen Gampo. The Tang annals report that in 648 CE Songtsen Gampo requested papermakers from China to teach Tibetans to

¹ J. Trier, *Ancient Paper of Nepal. Result of ethno-technological field work on its manufacture, uses and history with technical analyses of bast, paper and manuscripts*, Copenhagen 1972, pp. 69–94.

² Felicity and Brian Shaw have been very generous with information about the revival (and history) in Bhutan and Anna Balikci Denjongpa from the Namgyal Institute of Tibetology in Gangtok has provided information about the revival in Sikkim (India). I am very grateful to other researchers in this field especially Agnieszka Helman-Ważny, Alessandro Boesi and Jim Canary for their generosity in sharing their research findings.

produce their own paper and ink³. The expansion of printing led to a significant increase in papermaking in Tibet during the fifteenth and sixteenth centuries⁴. There are also accounts of papermaking in Yunnan, south-western China in around 250 CE and I speculate that there may have been minor diffusion from here to the Tibetan plateau and to Nepal.

There was speculation, from oral transmission, at a conference in 2018 about a polity in western Tibet called Shangshung, which existed prior to the Tibetan Empire, that small amounts of paper might have been present for medicinal purposes (the plants used to make Tibetan paper have medicinal properties) and even Bon religious texts⁵. There is, however, no archaeological evidence for this and the earliest extant Bon documents date to the tenth century. Some fragments of Nepalese style paper made from *Daphne* plants were, however, found near Yarkand, to the north-west of Tibet in the nineteenth century⁶. These were dated at the time to the fifth century CE. This dating has not, unfortunately, been confirmed more recently. This finding would indicate that paper was being made in areas of Nepal and India from a much earlier date than previously thought and that some of these skills may have been transferred onto the western fringes of the Tibetan plateau.

It seems that large scale use (and possibly production) was linked to the development of the Tibetan Empire and the adoption of Buddhism as the state religion. It links to the period when the Tibetan written language was probably developed and it could be argued that writing materials would not have been in large demand before this. The expansion of the Empire also required a system of communication to facilitate administration, diplomacy and trade. Although wooden tallies had been the main medium for this, they were discontinued in 744 as a result of an imperial edict⁷ and were replaced by paper. The year 744 is also the earliest dated attestation of the Tibetan word for paper: *shog* in Tibetan literature. With the expansion of the Empire areas where paper plants grew were conquered, thus increasing the availability of source material. Expansion also provided a larger labour pool (papermaking is extremely labour-intensive).

The increase of Buddhist institutions with large-scale monastery building and the arrival of Buddhist manuscripts from India which needed to be copied and translated from Sanskrit also fed this growth. This would have

³ P. Pelliot, *Histoire ancienne du Tibet*, Paris 1961, p. 6.

⁴ M. Clemente, *Printing the wider perspective*, [in:] *Buddha's Word*, ed. M. Elliott, H. Diemberger, M. Clemente, Cambridge 2014, pp. 80-84.

⁵ B. Huett, *The Origin Of Tibetan Paper Making: A Silk Road And Shang Shung Connection?* [in:] *Proceedings of the 2018 Shangshung International Seminar*, Lhasa 2018, forthcoming.

⁶ A. Hoernle, *The Weber M S Another collection of ancient manuscripts from Central Asia*. Part 1, "Journal of the Asiatic Society of Bengal" 1893, vol. 62, no. 1, pp. 1-40.

⁷ H. Uebach, *From Red Tally to Yellow Paper*, [in:] *Tibetan studies in honour of Samten Kar-may*, ed. S. G. Karmay, F. Pommaret, J.-L. Achard, Dharamsala 2009, p. 61.

required a great deal of paper. There is an interesting parallel with the advent of papermaking in Japan and the arrival of Buddhist monks in the seventh century. There were alternative media for this copying, but I suggest they were unsuitable in Tibet because:

- palm leaves, the traditional Indian writing material, were not easily available (although they had been used)⁸;
- birch bark or wood (used in tally form) was unsuitable for scriptures and was also in short supply on the Tibetan Plateau;
- the transport of large quantities of paper from other parts of China might have been uneconomic.

Large-scale papermaking, however, was probably not widespread, as quality papermaking requires significant skills and time, as well as water, wood and the plant material, some of which are in short supply in large parts of the plateau. *Stellera*, the root plant material for papermaking, is only available on the plateau and may not have been as widespread as it is now⁹ and *Daphne* (the other main component of early Tibetan paper) would have had to be transported from the lower slopes of the Himalayas.

There may also have been a variation in the way paper was made in different areas. There were probably many factors involved in deciding which source plant to use and the ingredients added during the process. This would have included local availability, time available for processing, the quality of the paper produced, the durability and demand criteria. Helman-Ważny and Sam van Schaik conclude that “root paper was probably only made where other plant sources were unavailable”¹⁰ because of the extra labour resources and time required. *Stellera* was thus probably only used for significant production in the remoter areas of the high plateau and for small scale local production in the wider Tibetan area. It is interesting that the revived tradition in Nyemo uses local *Stellera* material.

Nepal

In terms of Nepal Jesper Trier mentions the possibility of papermaking beginning in the ninth or tenth century CE and that the oldest extant Nepalese

⁸ R. Sankrityana, *Sanskrit Palm-leaf manuscripts in Tibet*, “The Tibet Journal” 2012, vol. 37, no. 1, p. 27+. *Gale Academic OneFile*, [accessed 8.10.2020].

⁹ A. Boesi, *Paper plants in the Tibetan World: A preliminary study*, [in:] *Tibetan Printing: Comparison, Continuities and Change*, ed. H. Diemberger; F.-K. Ehrhard; P. Kornicki, Leiden 2016, pp. 501-531.

¹⁰ A. Helman-Ważny, S. van Schaik, *Witness for Tibetan Craftsmanship: Bringing together paper analysis, Paleography and Codicology in the Examination of Earliest Tibetan manuscripts*, “Archaeometry” 2013, vol. 55 no. 4, p. 733.

manuscript on paper dates back to the twelfth century (dated 1105 CE)¹¹. We do not know, however, whether this paper was made in Nepal or imported. Palm leaf use was not abandoned until about the fourteenth century, so the volume of production was probably not large in the earlier period. As has already been mentioned, the Nepalese-style paper samples found near Yarkand and dated to the fifth century CE may indicate that paper was produced in western Nepal much earlier¹².

Bhutan

Paper and papermaking skills probably transferred to Bhutan from the Tibetan plateau. It was reported that Bhutan exported paper to Tibet at the time of Trisong Detsen in the eighth century CE as a religious offering¹³ and that this was used for the Buddhist canon at Samye monastery. In the tenth and eleventh centuries Bhutan possibly produced the best paper in the region and supplied large quantities to Tibet, as it had abundant resources of the plant material used in papermaking.

Decline in production

From the 1920s large scale production began to die out. Lithang monastery in Sichuan, for instance, ceased printing partially because hand-made paper had become too expensive. It was cheaper to buy mass produced printed texts on industrially produced paper. Trier, however, reports that papermaking continued in Tibetan areas of China in Tingri, Shigatse, Lhasa, Giamda Dzong (between Lhasa and Nyingchi), Ghiamdo (at the confluence of the Yarlung with the Kin-Sha), Batong Litang (Kham) before 1959. In some cases operations were close to caravan routes¹⁴. A Czech film made in 1956, *Zápisník z Tibetu* (*Tibetan Notebook*), directed by Jiří Plojhar and produced by Československé armádní filmové studio, shows papermaking by women in the Kyichu river, probably near Lhasa.

Nevertheless, during the 1950s other manufacturing units closed in Tibet, e.g. Kyemtong and Ngamring, and the closure of the border between Nepal and Tibet in 1959 resulted in a decline in papermaking in Nepal, as they lost the important Tibetan market, and by the 1960s the traditional Nepalese industry was virtually moribund, due to even more serious competition from

¹¹ J. Trier, *Ancient Paper of Nepal. Result of ethno-technological field work on its manufacture, uses and history with technical analyses of bast, paper and manuscripts*, Copenhagen 1972, p. 26.

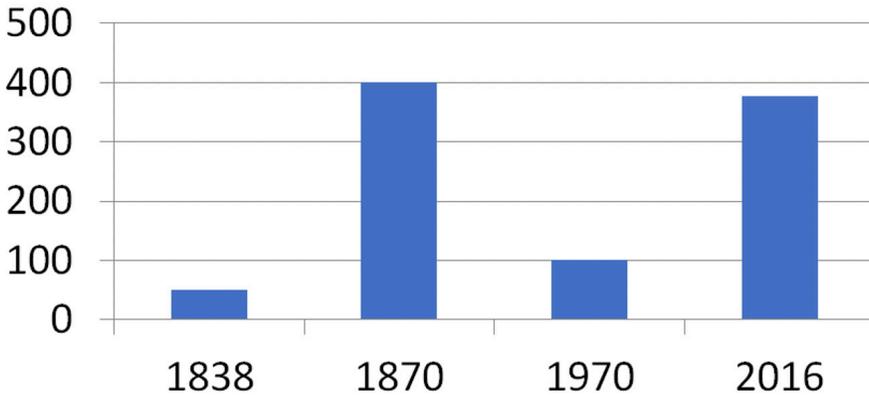
¹² A. Hoernle, op. cit.

¹³ J. Dorji, *Intangible cultural heritage of Bhutan*, Thimphu 2015, p. 203.

¹⁴ J. Trier, op. cit.

the import of machine-made papers from India. By 1980 only a few families in Baglung and the neighbouring Parbat District communities still retained knowledge of the traditional production process. The figure below shows the decline (and revival) of Nepali workshops (Fig. 1). This was a worldwide phenomenon. Hand-made papermaking in the US had almost disappeared by 1947. Modernising societies sought to transform and enter the age of industrialised production, and this included paper production. In Himalayan countries papermaking was considered part of a peasant tradition and was therefore considered old-fashioned, backward and inefficient.

Fig. 1. Number of traditional papermaking units in Nepal 1838 to 2016.
Graph by author from Trier¹⁵ and Gautam¹⁶



The decline was so extensive that, when interest in reviving the papermaking techniques grew, it was often extremely difficult to find people who could remember the skills. In one area of Tingri in Tibet there was only one old woman who still knew the way to make paper and she was recruited by a local party official to restore the production. When the practice was revived in Lhasa, the country was scoured for people who retained the requisite skills. The situation was similar at the original site of the production of paper money in Kyemtong in Tibet, where the woman who revived the practice learnt the skills from the Lhasa revival initiative.

¹⁵ J. Trier, op. cit.

¹⁶ S. Gautam, *Lokhta paper: Reliable income source*, [online] <https://thehimalayantimes.com/opinion/lokhta-paper-reliable-income-source> [accessed 23.08.2020].

Revival: Overview

An interest in reviving traditional craft skills (related to ethnic / national identity) developed during the 1980s. These skills were recognised under the United Nations intangible cultural heritage initiative. The revival has been assisted by the development of a market through the tourist trade, artists and conservators. The monastic institutions have also now returned to using the traditional hand-crafted paper and I know of two cases where the whole of the Buddhist canon is being re-printed on traditional paper.

The Chinese government-promoted revival of papermaking began in Tibet in 1978 as a Cultural Heritage project, as is noted in the records of the Plenary session of the 11th Central Committee. In the 1980s villagers across the Tibetan plateau were encouraged to revive the traditions, hand-made paper was shown in exhibitions and some regional archive bureaux once more began to use it. In 2006 it was listed as a UN Intangible Cultural Heritage in China.

In Nepal the revival began in 1980 with a UNICEF initiative: “Community Development through the Production of Hand-Made Paper Project” with the Agricultural Development Bank of Nepal / Small Farmer Development Programme. By 2016 there were estimated to be 20,000 people employed in the production of paper¹⁷.

The revival in Bhutan began later with the government sponsoring a programme that began in 2013 and employed Japanese instructors on the process and the approach to marketing, including targeting the export market. One example was the Trashi Yangtse Dzongkhag Project.

In Sikkim (India) the papermaking revival also began later, around 2010, and was driven by NGOs partially interested in providing support to impoverished rural areas. In neighbouring Kalimpong one enterprise began in 1992 with two others in 2006 and 2007.

Papermaking Revival: Detail in Tibet

I first became aware of the revival when visiting an orphanage run by Jampa Tsundhup in Lhasa, where he proudly showed me his papermaking operation, in which the children helped. He died a few years ago but his was a remarkable story of someone dedicated to reviving traditional Tibetan crafts. As the director of the Jatson Chumig Handicraft Workshop, he also worked on the revival of traditional Tibetan boot and hat making. His small shop attached to the orphanage was full of beautiful hand-made items.

¹⁷ S. Gautam, *op. cit.*

I assisted him with the translation of his trilingual book on traditional Tibetan papermaking: *Preserve and Development of the Manufacturing Technology of Traditional Tibetan Paper*¹⁸. This describes the way he located and brought together 10 experts from around the country, the eldest being 76. Some of them came from lineages of papermakers going back several generations. The group also included a calligrapher, as calligraphers are important consumers of high-quality paper. He used three other skilled advisors, of whom two were from Nepal. There was also some assistance and funding from American scholars. Thanks to all those contacts he was able to tap into an ancient lineage of papermakers and therefore he visited several places:

Dagbo Gyatsa, Zelung in Nang County, South East

Nyemo located slightly west of Lhasa

Ngamring located in Western Central Tibet

Dege in Kham, Sichuan

Using these sources he had by 2010 trained 19 young students (including 2 girls) from his Institute and two monk students from Ronbok monastery in papermaking.

At several of the sites that I visited I found that there was a strong lineage of papermakers, where the skills (and they are considerable at each stage in the process) are passed down from generation to generation. Tsundhup was therefore attempting to establish a new stock of papermakers. Women, in some locations, had been important holders of the skills. The importance of this process was highlighted in a newspaper account accessed online: (China Tibet online) in August 2018 (Tan 2018) of the attempt to pass on the tradition in Nyemo County, an operation I visited:

Tsering Tobgyal Dorje encouraged his two sons to return home to learn papermaking skills. He said “This tradition has been passed down by our ancestors; come home and do it, too!” At first, his sons spent their time absentmindedly in the workshop. Seeing his sons’ behaviour, he took out the national-level intangible cultural heritage inheritor certificate and said: “Is this just for our family? No, it’s something the country needs us to do”. “Holding the heavy certificate, the brothers realised their mistakes and began to follow their father seriously, learning the skills properly”. He said “Tibetan paper has been bequeathed to us by our ancestors. It is both a craft and a culture. We must not only maintain it, but also pass it down”¹⁹.

When I first visited in 2009, it was a small family business with five people involved. The enterprise has now expanded and moved to a new factory in an industrial park in the county town. One important feature of the success is that

¹⁸ J. Tsundhup, *Preserve and Development of the Manufacturing Technology of Traditional Tibetan Paper*, Lhasa 2010.

¹⁹ N. Palden and Daqiong, *Tibetan paper making enjoys a revival*, [online] http://usa.chinadaily.com.cn/epaper/2016-08/26/content_26606456.htm [accessed 23.08.2020].

good quality hand-made paper is highly prized by artists and calligraphers. In an article in the *China Daily* a Chinese papermaker commented: “As people get richer, students of calligraphy and painting will not care so much about the price” adding that he anticipates a rise in demand for hand-made paper²⁰.

Artists who use paper made in Nyemo have commented²¹:

Xiao Yin (47): a Chinese poet: “My friends told me it was the best Tibetan paper” and “I was impressed by the production method”. “It is different from other kinds of paper production. It stresses the selection of raw materials and the skills used in production”. He uses it to paint Chinese watercolours.

Meng Fanhua: an artist/calligrapher: “It has stronger water-absorbant qualities, and it is enriched with decorative effectiveness [...] He has been using the paper for calligraphy for many years”.

In 2019 I met a calligrapher from Chengdu, Tsultrim Gukyap, who now makes his own paper because of its special properties. I viewed some of his work and it certainly accommodated his exquisite brush strokes to display their beauty to the full.

Special Characteristics of Himalayan paper

As these artists agree, Himalayan paper has special features that make it particularly attractive for artists and conservators, as well as for long term storage. It also has characteristics that distinguish it from industrial mass-produced papers and Chinese hand-made papers. These factors have contributed to the success of the revival.

Some of these features mean the paper is:

- largely free from attack by insects, worms or mice;
- finely textured when the paper is of the best quality;
- strong and durable, and therefore good for administrative, legal and tax documents, and scriptures;
- light in weight, so it is easy to transport and store on upper floors;
- recyclable.

Characteristics important to artists and calligraphers are that:

- writing does not fade;
- ink does not soak into the paper.

²⁰ L. Zhu, *Papermakers set to write new survival story*, “China Daily”, [online] <http://www.chinadaily.com.cn/a/201808/10/WS5b6cce57a310add14f384f83.html> [accessed 23.08.2020].

²¹ Personal communication.

Plants used

The plants which give Himalayan paper its special characteristics are all from the *Thymelaeaceae* family. The bast (*phloem*) fibres have long, narrow and supportive cells which provide tensile strength without limiting flexibility²². These are excellent properties for making paper.

The four principle plant species are:

1. *Stellera chamaejasme*

This only grows at an altitude above 2,600 metres. The root is used, the outer layers being peeled off and the inner fibres used for papermaking. It makes a characteristic soft, but not very strong paper, so is often combined with *Daphne*. Another way to increase its strength is to glue several sheets together.

2. *Daphne* sp

This grows on the lower slopes of the Himalayas at altitudes between 1,800 and 2,800 metres. There was a substantial trade in *Daphne* fibres from the lower slopes to the plateau during the height of paper production on the plateau. The paper produced is stronger than *Stellera* paper.

3. *Edgeworthia* sp

This also grows on the lower Southern slopes. From my knowledge of Tibetan documents it is less commonly used on the plateau and the paper produced is stronger than *Stellera* paper.

4. *Wikstroemia* sp

In addition to other varieties of *Wikstroemia* used in papermaking it is possible that the highest quality Tibetan paper, the type used to make Tibetan currency, used a variety of *Wikstroemia* spp: *W. lungtzeensis*, *W. lichiangensis* or *W. canescens*²³. Unfortunately neither the plant material which I brought back from China nor the fibres from my Kimshog paper samples have been definitively identified as *W. lungtzeensis*, *W. lichiangensis* or *W. canescens*. This plant grows in very limited micro-climates on the Himalayan slopes in the vicinity of Tsari. The place is called Kyemtong and the paper Kyemshog from the plant Kyemshing. This may be the same paper that Desideri mentions at Takpo in 1715²⁴.

In Nepal a number of different *Daphne* species are used (see Trier for a detailed list²⁵). In Bhutan five different *Daphne* species and one *Edgeworthia*

²² A. Boesi, op. cit.

²³ See www.efloras.org *Flora of China* vol. 13.

²⁴ J. Trier, op. cit., p. 65.

²⁵ *Ibidem*.

are used for different styles and qualities of paper²⁶. In Sikkim *Edgeworthia gardneri* is the most common component²⁷.

Paper made of hemp and *Broussonetia papyrifera* (paper mulberry) has also been occasionally identified in Tibetan books²⁸. These raw materials were widely used in China and Central Asia, so it may suggest that such paper was produced outside Tibet. Richard Othon Meisezahl found that the outer layers of four layered sheets of Tibetan paper were made of paper mulberry and bamboo fibres²⁹. Paper mulberry grows in south-eastern TAR, Sichuan and Yunnan up to an altitude of 2,100 metres (and in central China) and it could be used for papermaking in these regions. There are a number of other plants that are used occasionally for paper making in Himalayan areas, but these are not significant.

The earliest surviving Tibetan documents on paper found on the Tibetan plateau are made from plants local to the plateau or growing on the slopes to the south. These include ninth or tenth century samples produced in central Tibet and found in Dunhuang³⁰, as well as tenth-century fragments found in central Tibet³¹. Numerous examples of eleventh century manuscripts were produced in various parts of central Tibet. The only known exceptions are ninth-century manuscripts produced in Dunhuang on rag paper and recently found in central Tibet³². *Stellera* root fibres are the dominant component in early manuscripts from both central and western Tibet. *Daphne/Edgeworthia* is more common in Nepal, Sikkim and Bhutan and has been used in Tibet more frequently since printing was introduced³³.

Helman-Ważny and Van Schaik reviewed the composition of 50 Tibetan language documents found at the Dunhuang caves in China³⁴ and found that the majority were made from rag paper and concluded that they were made in the Dunhuang area or other parts of China. Six samples, however, were made from

²⁶ Personal communication from Felicity Shaw 2016.

²⁷ Personal communication from Anna Balikci Denjongpa 2018.

²⁸ A. Helman-Ważny, S. van Schaik, op. cit., pp. 707-741.

²⁹ R.O. Meisezahl, M. Harder-Steinhäuser, G. Jayme, *Alltibetische Handschriften im Reiss-Museum, Mannheim, "Libri"* (Copenhagen) 1961, vol. 11, no. 1, pp. 1-48.

³⁰ A. Helman-Ważny A., *The choice of materials in early Tibetan Printed Books*, [in:] *Tibetan Printing: Comparison, Continuities and Change*, ed. H. Diemberger; F.-K. Ehrhard; P. Kornicki, Leiden 2016, pp. 532-554.

³¹ P. Wangdu P., *Paper, Patronage and the production of books: Remarks on an 11th Century manuscript from Central Tibet*, [in:] *Tibetan Printing: Comparison, Continuities and Change*, ed. H. Diemberger; F.-K. Ehrhard; P. Kornicki, Leiden 2016, pp. 555-559.

³² Sangpo S., *Phuri Manuscripts (Phu ri yig tshangs gces btus)*, ed. by Tibetan Ancient Books Research Institute of Tibet University, Lhasa 2018.

³³ A. Helman-Ważny, *Overview of Tibetan Paper and Papermaking: History, Raw Materials, Techniques and Fibre Analysis*, [in:] *Tibetan Manuscript and Xylograph Traditions. The Written Word and Its Media within the Tibetan Culture Sphere*, ed. O. Almogi, Hamburg 2016, pp. 171-196.

³⁴ A. Helman-Ważny, S. van Schaik, op. cit.

Daphne or *Edgeworthia* fibres. Two are considered to have come from central Tibet, and were probably made there. None was made from *Stellera*. A letter found in Miran, on the Silk Road, which possibly came from central Tibet, was made from *Daphne* or *Edgeworthia* and paper mulberry³⁵. Boesi also states: “twelfth/thirteenth century Tibetan documents brought from Tibet to Kharahoto (in Mongolia) by Tibetan monks were also made from *Daphne* or *Edgeworthia*”³⁶.

Along the Silk Road routes North of Tibet and in China paper seems generally not to have been made from *Daphne* or *Edgeworthia*. This is presumably because the additional cost and difficulties in transporting raw materials from the southern slopes of the Himalayas to these areas was deemed unnecessary when other more local plants were available. When Trier examined documents written in Tibetan in Nepal, he found one example of *Stellera* paper out of a total of 22 samples, the rest being *Daphne* or *Edgeworthia*³⁷.

Plants used for paper making in other parts of China include hemp, bamboo, mulberry, rattan, ramie (Chinese grass), rice and wheat straw. Rags and fishing nets are also used. I saw paper being made from mulberry in Khotan, to the north of Tibet on the southern Silk Road, but was told by the local papermaker at the Ajrim Hotan Mulberry Paper Manual Manufacturing Center (sic) in 2016 that hemp was more traditional. *Wikstromia delavayi* is used in the Naxi areas in Yunnan to the south-east of Tibet³⁸.

Sustainability

I also discovered that there are some environmental conservation issues related to traditional papermaking. *Daphne* takes between 5 and 7 years to regenerate, so there have been concerns about collecting too much in some areas where there is a lot of papermaking. It was reported to me that some local authorities in Tibet have put restrictions on collecting the plant, but I have not personally encountered this. Nepal has banned the use of local wood for fires to dry the paper, in order to preserve the forest vegetation of the upper slopes (Forest Act 1993). The situation in relation to the felling of *Daphne* is being monitored, as it is concentrated in areas within access of Kathmandu. Some operators, for instance Shree Binayak Pimidhanda Community Forest Papermakers operate a sustainable harvesting system based on a 7-year cycle to allow for *Daphne* regeneration³⁹.

³⁵ A. Helman-Ważny, S. van Schaik, op. cit

³⁶ A. Boesi, op. cit., p. 514.

³⁷ J. Trier, op. cit.

³⁸ L. Yang, *The Role of Montane Forests for Indigenous Dongba Papermaking in the Naxi Highlands of Northwest Yunnan, China*, “Mountain Research and Development” 2011, vol. 31, pp. 334-342.

³⁹ Personal communication K.C. Santosh 2016.

In Bhutan several small producers have given up due to the lack of plant material⁴⁰. Due to this situation a survey was carried out in 2008⁴¹. This concluded that more intensive management was desirable. The situation is therefore carefully monitored as part of their conservation and biodiversity initiative.

In 2007 I saw attempts to cultivate paper *Daphne* in Bhutan and in 2014 *Stellera* in Nyemo in Tibet. I do not know, however, whether these ventures have been successful.

The papermaking process⁴²

Himalayan paper production is strikingly similar to Chinese paper production. I have, however, observed that there are variations within the stages due to the fact that different plant fibres are used. This results in variations in the length of each stage of the process and the additives used. There are also small, but significant differences in the process between countries and even sites within countries. Each manufacturer maintains that he has his unique secret processes at each stage, which gives his paper its particular special properties. Interestingly Hodgson's description of the process in Nepal in the 19th century⁴³ is very similar to what I have observed in Nepal in the 21st century.

First stage: Collect the plant material

This is an arduous, time-consuming and labour-intensive process. It has not been mechanised. For *Stellera* it is a question of digging up the roots of the plant, which can be two feet long, in the hard Tibetan soil. For *Daphne* and *Edgeworthia* the plants are cut down on the higher slopes and transported to the manufacturing sites. In both cases it is important to be able to identify which plants will provide the best fibres. In Nepal the work is now often carried out by women.

⁴⁰ Personal communication Felicity Shaw.

⁴¹ S. Tobgay, *Consultant report on developing a national strategy for NWFP development in Bhutan*, Thimpu 2008.

⁴² The description of the process is based on a number field trips to Tibet, other parts of China and Nepal between 2010 and 2017 and on descriptions of the process by contacts in Bhutan and Sikkim

⁴³ B.H. Hodgson, *On the Native Method of Making the Paper, Denominated in Hindustan, Nipalese*, "The Journal of the Asiatic Society of Bengal" 1832, vol. 1, pp. 8-11.

Second stage: Remove the fibres, clean and break up

This involves stripping the root or stem to reveal the bast fibres (Fig. 2). Headaches may be suffered when stripping *Stellera* because of the release of chemicals that make the paper resistant to insect attack.

Fig. 2. Stripping the bark from *Stellera* root to remove the bast. Shora Tibetan papermaking factory Nyemo, Tibet, China. Photo by B. Huett, 2013



Third stage: Boiling

The fibres are then boiled until soft and loose, for about half a day in the case of *Stellera*. The main ingredient in Tibet is roasted barley, but the addition of other materials (e.g. wood ash, earth, minerals) is often unique to the manufacturer. In some of the larger operations the mixture is mechanically stirred, although purists consider this a deviation from traditional hand-made methods.

Fourth stage: Cleaning

The resulting pulp is then washed several times and impurities removed. For Kyemshog the very high-quality paper from Kyemtong, where the paper for Tibetan money was made, I saw three women removing every speck of contamination with tweezers; an incredibly labour-intensive task (Fig. 3).

Fig. 3. Removing impurities from Kyemshog paper. Kyemshog paper factory. Kyemtong, Tibet, China



Fifth stage: Pounding

This also takes a significant amount of time and labour using a form of pestle and mortar (Fig. 4). For quality papers the material is then cleaned again.

Fig. 4. Pounding the paper pulp. Bhugmochne nepali paper industry factory. Nepal. Photo by B. Huett, 2013



Sixth stage: Distributing the pulp on the frame

The material is then mixed into a pulp with very clean water using a blender (again in some larger operations a mechanical blender is used, but in the smaller rural operations this is carried out by hand). A wooden frame/mould, normally with a woven textile mesh, is then held in a large tank of water and the pulp poured on to the surface of the water (the floating method). The frame is then raised, carefully distributing the material. This task requires great levels of skill. I have been told that it takes seven years to perfect the skill of achieving a fine, evenly distributed paper. The frame is then carefully removed, ensuring that there are no bubbles between the fibres. The making of the frames in the traditional manner is, in itself, a significant skill with experienced craftsmen using tendon joints and small wooden pegs to attach the textile mesh (Fig. 5).

Fig. 5. Lifting frame with paper sheet from tank. Shora Tibetan papermaking factory. Nyemo. Tibet, China. Photo by B. Huett, 2013



Seventh stage: Drying

The frames are then placed vertically on racks in the sun for several hours. They are turned regularly. In the higher regions of Nepal drying was done in front of wood fires. This has now been discontinued by the government in order to conserve wood, so production now takes place lower down. At one

of the larger operations in Thimpu in Bhutan electrical dryers are used, but again this is controversial, as it is argued that this is “industrialisation”.

Final stage

The final stage depends on the use to which the paper will be put. In some cases, especially with *Stellera* paper, several sheets are stuck together with glue which may be flour and water or animal based. For higher quality papers the surface is coated with a glaze (often flour based) and then polished using a smooth hard object. Zi stone is considered the best although specially constructed modern tools, some plastic, are now used.

Thing shog paper

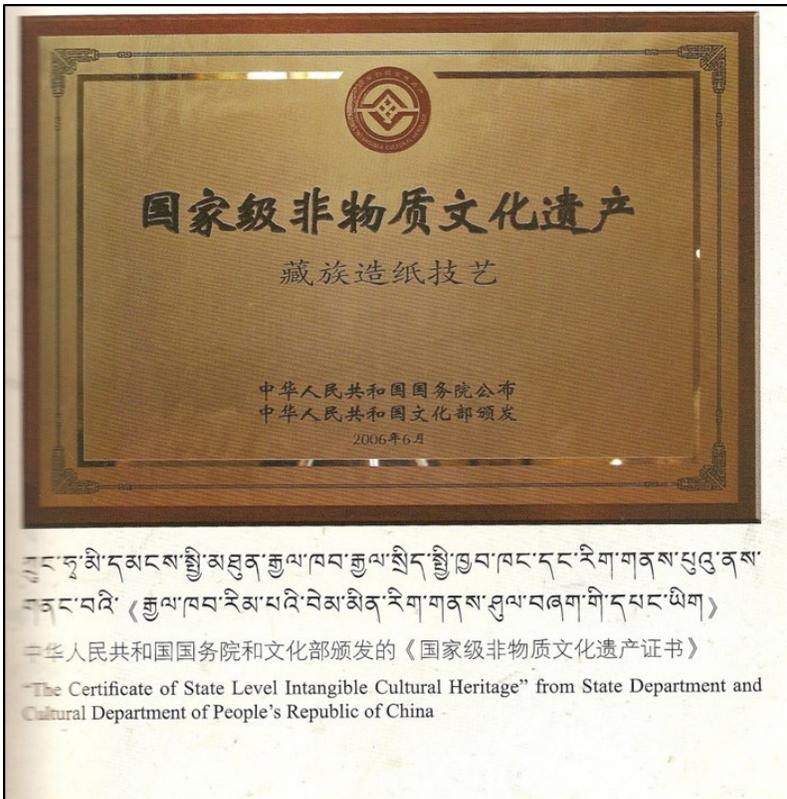
Thing shog (*mthing shog*) is an extremely specialised paper, the making of which is also being revived. It is a blue-black paper used for luxury manuscripts. The base is Shogbu paper, strong and firm consisting of several layers of *Daphne* paper stuck together using wheat paste. Sometimes indigo is used to dye the edges and vermilion is used for borders. The paper is prepared using yak brain, lampblack from burning oil or pine wood and yak hide glue. The writing is done with gold or silver using a using a flax or roasted wheat-based binder. James Canary has documented this⁴⁴. Sonam Norgyal, a calligrapher based in Lhasa, was instrumental in the revival of this process. He has sadly since died.

Economic and social considerations

The nature of the paper making a revival varies between countries, and within countries, in terms of the economic and social frameworks employed. The revival often appears to be linked to ethnic pride and the importance of ensuring that old skills and traditions are not lost, as societies battle for individual and national identity in a global neo-liberal digital era. The use of the intangible cultural heritage certificate that Tsering Tobgyal Dorje used to encourage his sons is an example of this (Fig. 6). For it to continue to survive, however, it does, ironically, have to be able to compete on the global market.

⁴⁴ J. Canary, *Thingshog (mthing shog) Luxury illuminated Manuscripts on Blue-black Paper*, [in:] *Buddha's Word*, ed. M. Elliott, H. Diemberger, M. Clemente, Cambridge 2014, pp. 108-110.

Fig. 6. Chinese Government Intangible Cultural Heritage Certificate for local enterprises. Photo by B. Huett, 2012



Tourism is a significant component of the GDP for all of these countries. Craft industries, such as papermaking, are an attractive element of this. Some tourist agencies now include visits to papermaking enterprises in their packages, e.g.:

- China: Wonders of Yunnan,
- India: Tawang tourism,
- Nepal: Raja Paper Crafts, Khatmandu⁴⁵,
- Bhutan: Jungshi Paper Factory, Thimpu.

Tourism is a growing economic factor in China. In 2017 it contributed about 11% of GDP, about USD 1.45 trillion, and employed (directly and indirectly) approximately 28 million people. In 2002 the promotional theme for tourism was folk arts of China.

Tourism is also significant in Nepal, contributing 7.9% of GDP in 2018 and providing about 1 million jobs and US \$724 m. in 2019. It was increasing at

⁴⁵ Raja Paper Crafts, [online] <http://www.rajapaper.com/> [accessed 23.08.2020].

15% per year. Hand-made paper products are the fifth largest export product in the handicraft category⁴⁶. Of the total products, only 10% are sold locally and the rest are exported.

In Bhutan there is a policy of restricting western tourism in order to preserve the environment and the culture. Tourism is still, however, an important element in the economy and in 2017 the revenue from tourism was US \$79.8 m. This is important, as this trade is less dependant on Indian government involvement than are the hydropower and steel industries, which make a large contribution to the GDP.

Each country deals with the support frameworks to this industry in a different way and there is a different dynamic between the ethnic and cultural elements and commercial aspects. Of all the countries China has most effectively followed the UN intangible cultural heritage approach and this is of particular relevance to the papermaking revival, as we have seen from the example of Tsering Tobgyal Dorje. In my experience, now somewhat dated, this has resulted in units starting up with little thought to commercial viability. Significant support was provided for the purchase of equipment and start-up costs. This was normally through local government administrative structures with central government encouragement and financing as I experienced in Nyemo, Tingri and Kyemtong. These frameworks could not, however, provide the skills to enable the enterprises to become effective commercial operations and there was little or no marketing advice. I am unaware of any major export for hand-made paper from Tibet. In fact, a significant amount of the “Tibetan” hand-made paper sold in Lhasa is imported from Nepal by Chinese businessmen. The situation may, however, have changed since my last visit, as the report in 2018⁴⁷ indicated that the small family operation that I visited in Nyemo in 2009 has expanded and moved to the local industrial park. Other recent reports in Chinese media have also provided evidence of successful operations near Lhasa⁴⁸.

In contrast, the Bhutanese papermaking revival had a commercial focus from the start. Although some small-scale paper making continued in Bhutan into the 21st century, the government-sponsored revival began much later than in China: in 2013 rather than 1978, through the Ministry of Economic Affairs, Department of Cottage and Small Industry, supporting 34 enterprises. The government viewed it as an economic opportunity to assist with the tourist trade and the financial situation in the more impoverished areas of the country, focusing particularly on employing women. US \$195,000

⁴⁶ S. Gautam, op. cit.

⁴⁷ T. Tan, *A family of four generations devoted to Tibetan paper making*, [online] http://eng.tibet.cn/eng/index/features/201808/t20180806_6151023.html [accessed 23.08.2020].

⁴⁸ L. Mingwen, *The Colourful Tibetan Paper*, China's Tibet 2017.

was invested. They initiated a supply chain for the materials and small-scale producers to supply larger-scale operations in the capital and they employed Japanese advisors to set up the main enterprises. Initially this involved 30 Bhutanese individuals, ranging in age from 20 to 60, of which 11 were female and the training took 10 days.

As well as quite large operations, for example the Trashigang Dzongkhag Project, very small-scale producers were also supported. A case in point is the Radi (Tashigang) project employing just five people⁴⁹. The main retail outlet (which also manufactures on a mechanised scale) is Jungshi in the capital Thimpu. This also exports world-wide, especially to Sweden, Austria and, surprisingly, Japan. It is also recommended on the government tourist website as a place to visit in order to see the traditional craft in operation. A video may be seen at: <http://www.youtube.com/watch?v=wIa3VtSswyA>.

Fig. 7. The different factors involved in the revival are summarised in the following table

COUNTRY	STATE		NGO	CHARITY	PRIVATE	INTERNATIONAL	LOCAL COMMUNITY
	NATIONAL	LOCAL					
TIBET	YES	YES		YES			YES
NEPAL	YES*		YES	YES	YES	YES	YES
BHUTAN	YES		?		YES	YES \$195,00 investment in Japanese training	YES
SIKKIM	?		YES	MONASTIC		Singapore University	YES

Nepal occupies an intermediary position. The government has provided little support or initiative and, as already mentioned, it was UNICEF in 1980 that launched the revival with the “Community Development through the Production of Hand Made Paper Project” allied with the Agricultural Development Bank of Nepal / Small Farmer Development Programme⁵⁰. In 1985 the Japanese International Co-operation Agency (JICA) approached the Nepalese government and interested Nepali entrepreneurs went to Japan for

⁴⁹ The Bhutanese information is from Felicity Shaw in personal communications.

⁵⁰ S. Biggs and D. Messerschmidt, *Social responsibility in the growing handmade paper industry of Nepal*, “World Development” 2005, vol. 33, no. 11, pp. 1821-1843.

training. In that year Nepal's first private papermaking enterprise began (GPI). By 2016 20,000 people were employed in the industry. 80% of production is exported, making it one of the country's major exports: US \$4.2 million in 2009 (Food and Agriculture Organisation of the UN 2009) Much of the development has been through NGOs, which have built on the old traditions widespread amongst the higher areas to the north amongst Tibetan speaking groups.⁵¹ There is a sub group of the Tamang called Kagate bhote, the papermakers from Tibet.

In Sikkim, and other parts of northern India, the papermaking revival has been sporadic and mainly based on local initiatives, often associated with NGOs with, in one case, assistance from a foreign university. Chorten Gompa, a monastery in Gangtok, the capital, once more makes its own paper for printing Tibetan religious document. Most of the monks are from eastern Bhutan⁵².

Targeting impoverished female labour

Regarding this need for commercial success, some operations have identified the opportunity to use papermaking to assist some of the more impoverished areas and peoples in the remoter parts of the Himalayas, where other sources of income are in decline. Often these are Tibetan-speaking areas where trade was significantly affected by the closure of the border with China in the late 1950s.

A number of operations are notably operated on a community basis, with profits channelled into improvements in local facilities. The Borong-Polok papermaking unit in Sikkim was set up specifically to provide an economic livelihood for the locals, supporting over 50 households, targeting particularly single mothers or divorcees.⁵³ For the Shree Binayak Pimidhanda Community Forest Operation in Nepal the annual profit is shared between the 240 households.⁵⁴ The target for the main community project in Bhutan: the Trashi Yangtse Dzongkhag Project is that it will become a self-supporting village co-operative⁵⁵.

The involvement of women is interesting. I am uncertain what the gender distribution was for papermaking in Tibet before the 1950s, but accounts indicate that both men and women were involved, possibly with men in the managerial positions in larger operations. I visited the Lhasa operation of Jampa Tshunhup on a number of occasions between 2007 and 2012 to interview him and his staff. He played an important rôle in the Tibetan papermaking revival and trained women as well as men, in particular the woman who restarted the

⁵¹ S. Biggs and D. Messerschmidt, *op. cit.*

⁵² Personal communication from Anna Balikci Denjongpa.

⁵³ *Ibidem.*

⁵⁴ Unpublished personal communications from K.C. Santosh: Case Study on Daphne.

⁵⁵ Personal communication from Felicity Shaw.

Kyemshog operation. I visited this operation in 2016. It was staffed by women, although the manager was a man. I also visited the Nyemo operation in Tibet in 2015 and 2017 and interviewed participants. This was mainly operated by the men in the family, although the women participated in the process. Perhaps the most remarkable experience was a visit to Tingri in Tibet. We were advised that there was a local papermaker and half an hour later an elderly woman (in her eighties) arrived on a motorcycle. The far-sighted vision of a local official persuaded her to start very small-scale papermaking again in this locality. She was the only person in the neighbourhood who still remembered how to do it.

At the small papermaking operation I visited in Nepal, Bhugmochne Nepali Paper Industry, men were the main workers, but women also played their part. Women were certainly involved historically in carrying paper material from the collection point to the manufacturing areas, but the manufacturing was done by men.⁵⁶ Now, however, 80% of the people working in papermaking in rural areas are poor women from disadvantaged households⁵⁷. In Bhutan the revival specifically targeted impoverished areas, focusing particularly on employing women.⁵⁸ There was similar targeting by NGOs in Sikkim, like the above-mentioned Borong-Polok papermaking unit⁵⁹.

Conclusion

The revival and survival of hand-made papermaking worldwide has been impressive and now appears to be competing successfully with the competition from digital technology. It is becoming a serious craft globally and I have even found Tibetan papermaking classes taking place in Washington State, USA. In Canada a company (Tibetan Paper and Handicraft: www.tibetanpaper.com) advertises its Himalayan paper as follows: "Holiday season is around the corner and we have very exciting eco friendly Himalayan paper greeting cards in many designs".

As well as the tourist and gift industries, another reason for the success of the revival is that it is much prized by artists, and they are prepared to pay the prices that the labour-intensive craft demands. The Dutch artist Rembrandt in the seventeenth century bought paper from Japan and China for his engravings⁶⁰. In 1986 Nigel Macfarlane, in a book about hand-made paper in the Himalayas (printed on Nepalese hand-made paper) predicted

⁵⁶ J. Trier, op cit.

⁵⁷ S. Gautam, op. cit.

⁵⁸ Personal communication from Felicity Shaw.

⁵⁹ Personal communication from Anna Balikci Denjongpa.

⁶⁰ J. van Breda, *Rembrandt etchings on oriental papers: papers in the collection of the National Gallery of Victoria*, "Art Bulletin of Victoria" 2014, vol. 38, Melbourne.

the end of traditional papermaking: “the making of paper by the ancient and traditional methods as described in this book is unlikely to continue for many more years”⁶¹. Thankfully he was wrong and we continue to enjoy the delightful products of this highly skilled craft.

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⁶¹ N. Macfarlane, *Handmade papers of the Himalayas*, Oxford 1986.

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