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Traditional Paper-making in the Zhuang Villages of Southwest China

Abstract: Traditional paper-making using paper mulberry (*Broussonetia papyrifera*) has a very long history in the south of China, and the use of the plant in the Indo-Pacific region goes back several millenia. The author conducted fieldwork investigations of traditional paper-making methods among Zhuang-speaking villages in the central part of Guangxi as part of a broader project to document Zhuang ethnobotany and the traditional uses of plants in village life. This chapter will give an overview of such practices as they are maintained in present-day villages, and provide details of the technical procedures employed in the process as well as the traditional names for things in the local language.

1 Introduction

Paper is formed of thin sheets, usually made by subjecting plant fibres to a process of rinsing and gluing to a flat surface.[1] There are many uses of paper: for writing, for painting, for wrapping objects in, and for making fans, umbrellas and the like. Once they had paper, people could transmit knowledge widely and easily. Compared with animal skins, bamboo splints and cloth, the advantages of paper as a writing medium are without equal. In brief, the material is beautiful and its price is cheap. One could say that paper is an emblem and medium of the advance of human civilisation. Once they had paper, people could make effective and long-lasting records of all kinds of knowledge, and transmit it down through the ages. Because of the incredible diversity of uses in social life, the making of paper is accounted the first place among the four great discoveries of ancient China, along with compasses, gunpowder, and printing.

The author has been investigating Zhuang village culture and language in the central part of Guangxi for some decades, with ethnobotany as a special focus. In this general area, including the counties of Mashan 马山, Du'an 都安, Dahua 大化

1 Unless otherwise indicated, the information in this chapter on Zhuang paper-making is derived from fieldwork conducted over many years on Zhuang ethnobotany in the Zhuang-speaking areas of Guangxi. All photographs are by the author unless otherwise indicated.

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and Pingguo 平果, village workshops producing traditional paper are reasonably widespread, and all of them utilise what is basically the same set of procedures for paper manufacture. The present report is based an investigation of a workshop in the Gongchuan 贡川 area in present-day Dahua, but we can affirm that the information presented here is part of a wider pattern.

Gongchuan is a small town on the middle reaches of the Hongshui 红水 River, not far downstream from the confluence with the Pingzhi 平治 River. It is well connected by road with other towns in the western part of Mashan county such as Yongzhou 永州, Zhouxu 州圩, and Zhoulu 周鹿 as well as the Mashan county seat at Baishanzhen 白山镇. In the 1980s a periodic market was held there every three days, attended by 5000 people speaking the local dialect of Zhuang and Cantonese.[2] The entire region is limestone karst.

2 The raw material of paper making

As far as a previous generation of scholars were able to ascertain, the character *zhǐ* 紙 for 'paper' makes its first appearance in the *San fu gu shi* 三輔故事, a text that dates from the fourth year of the Taishi 太始 reign period of the Han (93 BCE).[3] However, there is some doubt as to whether the character *zhǐ* 紙 in this work actually refers to paper or to some other material. In ancient times, raw materials for paper-making included old silk floss, old hempen cloth, old worn-out fish-nets and the like. The plant materials included *Cannabis sativa* (*dàmá* 大麻), white jute (*huángmá* 黄麻, *Corchorus capsularis* L.), flax (*yàmá* 亞麻, *Linum usitatissimum*), ramie (*zhùmá* 苧麻, *Boehemeria nivea*), and various vines (*téng* 藤); and the tree barks included paper mulberry, common mulberry (*sāng* 桑) and laurel (*yuèguì* 月桂, *Laurus nobilis*). In chronological order, hemp was the earliest of these raw materials, with use that can be traced back to the Western Han. Use of paper mulberry started in the Eastern Han, vines in the Jin period, and bamboos from the Tang period. The use of rice and wheat straw only dates from the Song period.[4]

2 Lü Mengxi et al. 1987, 27. Access to markets was important for traditional paper manufacture, even if not all the paper produced locally would have passed through the local market.

3 Tsien 1962, 131–132.

4 Needham and Tsien 1985, 52–61.

3 Paper-making in the Zhuang areas of Guangxi

In some of the more remote Zhuang-speaking areas, people still employ traditional handicraft methods to make paper in small workshops. One kind of 'native paper' made out of kudzu vines (*géténg* 葛藤, *Pueraria montana*) is rather thick and heavy, with a colour which is greyish-white. The Zhuang call the kudzu vine *gaeugat* (kau^{1} ka:t^{7}), a name in which *gaeu* (kau^{1}) means 'vine' and *gat* (ka:t^{7}) refers to the species name, 'kudzu'.[5] In the past, kudzu vines were also an important raw material for weaving cloth. The bark of their stems is rich in fibre, and after being stripped off and soaked, the fibres can be spun into threads and woven into cloth. Kudzu clothes (葛衣) and kudzu cloth (葛布) are made from this raw material. In remote mountain villages in the Baise 百色 region of western Guangxi, there are still some people who use kudzu vines for paper-making. There is an exhibit of the products of this industry in the museum of the Baise Academy (百色學院).

In the region of Mashan 馬山, Du'an 都安 and Dahua 大化 counties in the central part of Guangxi, the most important raw material for traditional paper-making is the bark of the paper mulberry. Paper mulberry has been a traditional raw material for paper making since the Eastern Han period.[6] Paper made from the bark of the paper mulberry is white in colour. Once there were brushes, ink and paper, cultural knowledge could be propagated widely and without hindrance. In this sense, one could say that the paper mulberry is a tree species that was central to the historical advance of civilisation. In the Zhuang language this tree species is called *gosa* (ko^{1} θa^{1}), where *go* (ko^{1}) is a noun head referring to vascular plants and *sa* (θa^{1}) is the species name, meaning 'paper mulberry' or 'paper'. The bark fibre is known as *sa* (θa^{1}), and the paper produced is known as *ceijsa* (ɕei^{3} θa^{1}), hence the Zhuang name of the tree.[7] Because it grows into a tall tree which is also used for timber, it is also called *faexsa* (fai^{4} θa^{1}), where *faex* (fai^{4}) means 'wood, woody plant, tree'.

The paper mulberry, along with other *Broussonetia* species, is found very widely in both karst and non-karst areas in the south of China.[8] The saplings sprout up everywhere: on the village outskirts, in the fields, and along the edges of the forests. After people cut them down, they quickly send forth new branches, which in two years or so can be cut down again. Two-year old stems are regarded as ideal

5 In this chapter, Zhuang words are given first in *Zhuangwen*, the standard romanisation for Zhuang, followed by IPA (the International Phonetic Alphabet) in parentheses.

6 Needham and Tsien 1985, 56–58.

7 In this compound, the first syllable *ceij* (ɕei^{3}) is the Zhuang rendering of *zhǐ* 紙 as a Han loan-word.

8 For karst areas see Yu Shengxiang et al. 2017, 231. This source lists 28 counties in Guangxi, 20 in Guizhou, and 9 in eastern Yunnan in which this species is found.

Fig. 1: Two year old paper mulberry

for paper making (Fig. 1). Because they are a fast-growing tree and useful, farming households also take care to preserve the old root-stocks, so that they can be guaranteed a supply of fresh stems over the long term.

The paper mulberry is called *chǔshù* 楮樹 or *gòushù* 構樹 in Chinese, and its scientific name is *Broussonetia papyrifera*. It is a deciduous tree, reaching a maximum height of 16 m.[9] The simplex leaves form opposite each other, and the leaves are ovoid or elongated ovoid in shape, and are either lobed or unlobed to form 3–5 deeply partitioned leaf sections, with leaf edges that are saw-toothed. The upper side of the leaves is rough, while the under-sides are covered in soft hairs. The male flowers are soft and catkin-shaped, while the female flowers have spherical heads. The fruits are berry-like, spherical clusters containing many fleshy fruits, which are red in colour when ripe (Fig. 2). The flowering season is in April, and the fruiting season in July.

9 The Latin name of this plant and a botanical classification are given in Zhongguo kexueyuan Zhiwu yanjiusuo 1996, 131. For a morphological description, see Zhong Jixin 1982, 146; and the online *Flora of China* (*Flora Reipublicae Popularis Sinicae*): http://www.cn-flora.ac.cn:28080/plantonline/plantonlinesite/toDetailPage?plantId=9d0a4b9ef8b34c7ca77e1b6fc876ed53 (accessed on 20 December 2022).

Fig. 2: Fruit of the paper mulberry. Photograph by Lan Richun

This species is mentioned in early Chinese sources.[10] The Tang dynasty period *Youyang zazu* 酉陽雜俎 records: 構, 穀田久廢必生構。葉有瓣曰楮，無曰構。'The *gòu* tree: when grainfields are abandoned for a long time *gòu* trees will inevitably grow there. If the leaves have petals they are called *chǔ*, and if they do not they are called *gòu*.'[11] And even earlier, Xu Shen's *Shuowen jiezi* 說文解字 records, 楮，穀也。从木者聲。'*chǔ*, this is the *gǔ* tree. [The character] follows 'wood' and has *zhě* as its sound'.[12] From this it appears that *gǔ*, *gòu* and *chǔ* may be all different names for the same tree. For the 'leaves to have petals' means that the leaf blades are palmate, and divided into sections. The same tree can produce ovoid leaf blades and palmate leaves. Some of the leaves may even grow unevenly, with deep divisions in the leaf on only one side. At any rate, this variability in leaf shape is one of the defining features of the species (Fig. 3).

10 For a classic investigation of this topic and its connection with the earlier bark-cloth culture of the Asia-Pacific, see Ling Shunsheng 1963.

11 Duan Chengshi, repr. 2012, 108.

12 Xu Shen, repr. 1981, 117.

Fig. 3: Paper mulberry, showing variation in leaf shape

Paper mulberry leaves can also be used as fodder for pigs, oxen and sheep, so they are also called *byaeksa* (pjak^{7} θa^{1}), where *byaek* (pjak^{7}) means 'green edible vegetable'. The leaves can also be used as green fertiliser. Young and tender branches are picked off and dropped into the pig pens or cattle byres, and the animals are allowed to chew on them. Anything left over is trodden in by the animals and becomes part of the fertile organic layer at the bottom of the animal pens.

The bark of the paper mulberry is rich in fibre. The fibres extracted from the bark after it is peeled off are called *sa ndip* (θa^{1} ʔdɪp^{7}), where *ndip* (ʔdɪp^{7}) means 'raw, uncooked'. The paper that is produced from them is called *ceijsa* (ɕei^{3} θa^{1}), where, as previously mentioned, *ceij* (ɕei^{3}) is the Zhuang loanword for *zhǐ* 紙 'paper'. The Zhuang name for the tree, *sa* (θa^{1}), corresponds to the pronunciation in Zhuang of *chǔ* 楮, the tree name in Chinese. So *ceijsa* (ɕei^{3} θa^{1}) means 'paper from the paper mulberry tree'. People often go by the sound of the Zhuang words and call this kind of paper *shāzhǐ* 紗紙, where *shā* 紗 represents the Zhuang pronunciation of the character 楮. This character in turn has *zhě* 者 as a phonetic component. The pronunciation in Old Chinese was the same as 賭 and 睹, both reconstructed as OC

*tag.[13] Frequently in Zhuang-Chinese correspondences, Zhuang /θ-/ corresponds to Chinese /t-/ or /tʰ-/. Thus Chinese 抖 *dǒu* 'to tremble' corresponds to Zhuang *sauj* (θau³), the 帶 *dài* in 帶子 *dàizi* 'belt, sash' becomes *sai* (θaːi¹) in Zhuang, 拖 *tuō* 'to entrust' corresponds to *daz* (ta²) and *sa* (θa¹) in Zhuang, and 撻 *tà* 'to flog, whip' corresponds to *dad* (taːt⁸) and *sad* (θaːt⁸) in Zhuang.[14]

Apart from the paper mulberry and hemp, which have long been used as sources of fibre for paper-making, another important plant, used as a raw material for the glue used as adhesive, is Evergreen Lindera (*wūyào* 烏藥). This shrub is commonly found in the rocky mountainous areas of Guangxi.

Fig. 4: Evergreen Lindera. Photograph by Lan Richun

The Zhuang call this plant *gaujveh* (kaːu³ we⁶), and also call it *gaujhaeu* (kaːu³ hau¹). The word *gau* (kaːu³) is actually 栲 *kǎo*, 'chinquapin' (*Castanopsis*). Ordinarily Zhuang people have the habit of classifying some of the plants in the camphor laurel family (*Lauraceae*) as 栲 *kǎo*, a plant of the *Fagaceae* family. The Zhuang word *veh* (we⁶) means 'to stir up', and *haeu* (hau¹) means 'stinky'. Because it is used to make paper, it is also called *gaujceij* (kaːu³ ɕei³), where *ceij* (ɕei³) means 'paper'. Thus the name means 'chinquapin [that is used to make] paper'. Evergreen Lindera is a plant of the *Lauraceae* family, and its scientific name is *Lindera aggregata*. It goes

13 Dong Tonghe 1997, 155. Zheng-Zhang 2013, 563, lists OC *thaʔ for *chǔ* 楮.

14 For a more detailed discussion, see Meng Yuanyao 2010, 163–164.

by various English common names, such as Combined Spicebush, Chinese Allspice, Evergreen Lindera, and Black Medicine.[15] It is an evergreen shrub, growing to a height of five metres, with bark of a brownish-grey colour. The leaves are leathery or somewhat leathery, alternate, ovoid or elongate to nearly round (Fig. 4). The leaves are usually 2.7–5 cm long and 1.5–4 cm across. The young shoots are bright green. When the leaves along with the tender shoots are dried, they become black in colour. The flowers are formed at the branching points along the stems, and the fruits are ovoid or nearly round. When the stems and leaves are rubbed they give off a pungent and fetid odour, and when pounded they produce a thick sticky mucilaginous paste.[16] It is this paste that is used in paper-making.

4 Method of production for traditional mulberry paper

The paper manufacturing process is known as *daek ceij* (tak^{7} ɕei^{3}) 'scooping up paper', and the craftsman who makes the paper is known as the *cangh daek ceij* (ɕaːŋ^{6} tak^{7} ɕei^{3}), 'craftsman who scoops paper') or *canghceij* (ɕaːŋ^{6} ɕei^{3}), 'paper craftsman'. The Zhuang term *cangh* (ɕaːŋ^{6}) is a Han loan from 匠 *jiang* 'craftsman'.

Farming households often harvest the twigs of the paper mulberry just after autumn. Two year old twigs and branches are preferred, since they make the best paper. First, they use the young leaves for pig fodder. After peeling off the bark, they use bamboo knives to scrape off the next outer layer. This process is called *ndan sa* (ʔdaːn^{1} θa^{1}), *ndan* (ʔdaːn^{1}) meaning 'to scrape away'. The inner layer remaining after removing the outer layer, is called *sa ndip* (θa^{1} ʔdɪp^{7}), meaning 'raw yarn' (ʔdɪp^{7} meaning 'raw'). After being dried in the sun, this is tied into bunches and sold to paper workshops (Fig. 5).

Paper manufacture is carried out in workshops on a household basis. In the past, the whole process was done by hand, taking a dozen or so steps, as described below:[17]

15 Zhongguo kexueyuan Zhiwu yanjiusuo 1996.

16 Wu Delin 2005, 55–56.

17 The chief informant for the details of this manufacturing process was Mr. Wei Youheng 韦有恒 of Gongchuan. Mr. Wei's family has been manufacturing paper for the past nine generations.

Fig. 5: Raw bundles of fibre with the bark removed

(1) *cimq sa* (ɕɪm^{5} θa^{1}), 'soaking the yarn'. In the early morning, the raw yarn is taken to the river to soak and soften it in the running water. The softened yarn is collected in the evening of the same day.
(2) *mbek sa* (ʔbɛːk^{7} θa^{1}), 'separating the yarn'. The soft yarn is torn into thin strips and any yarn of indifferent quality, or yarn which is black or damaged, is removed.
(3) *ndong sa* (ʔdoːŋ^{1} θa^{1}), 'steeping the yarn'. The wet yarn is put into a small pond, and steeped in quicklime for one or two days.
(4) *gaenx sa* (kan^{4} θa^{1}), 'washing the yarn'. The yarn is again taken to the river to be washed. The word *gaenx* (kan^{4}) means 'to mould, rub, and knead', the activity which is done to ensure that all the quicklime in the yarn is washed out.
(5) *cawj sa* (ɕaɯ^{3} θa^{1}), 'boiling the yarn'. The clean yarn is put into a pot and boiled, with quicklime or anhydrous sodium carbonate (Fig. 6). This has a bleaching action. The yarn is boiled for 8–9 hours, after which it is called *sa cug* (θa^{1} ɕuk^{8}), 'cooked yarn'. The yarn is then rinsed again (Fig. 7). Finally, the yarn is bleached again and given a final rinse (Fig. 8).

(6) *biuq hau* (piːu^{5}haːu^{1}), ‘bleaching’. This term is composed of *biuq* (piːu^{5}) ‘to bleach’, a Han loanword from *piao* 漂 ‘to bleach’, and *hau* (haːu^{1}) ‘white’, a Zhuang native word. The cooked yarn is bleached once more. Bleaching powder is put into a pool, and the yarn is soaked there for one or two days, so that it becomes soft, like silk floss.

(7) *dub sa* (tup^{8} θa^{1}), ‘pounding the yarn’. The bleached yarn is taken out, put on a wooden block, and beaten into a pulp, until it resembles a thick paste. It is then scooped up, kneaded into a ball, and placed in a stone pot for later use.

(8) *hoih gyau* (hoi^{6}kjaːu^{1}), ‘making paste’. This term is composed of *hoih* (hoi^{6}) ‘to bring together’ and *gyau* (kjaːu^{1}) ‘paste’, a Han loan-word from *jiao* 胶 ‘paste’. The leaves of the Evergreen Lindera *gaujveh* (kaːu^{3} we^{6}), a plant of the *Lauraceae* family mentioned above, are picked, dried or roasted, ground into fine powder with a pestle and mortar, then put into a bucket or a jar and stirred into a thick paste. The sediment is filtered out, leaving a paste.

Fig. 6: Boiling the raw yarn

Fig. 7: Rinsing the yarn that has been boiled

Fig. 8: The processed yarn after rinsing off the lye solution

Fig. 9: Fibre pulp being stirred in the trough

(9) *hoed sa* (hot^{8} θa^{1}), 'stirring the yarn'. A stone trough is used for stirring and mixing the yarn. This is known as an *aen cauz* (ʔan^{1} ɕaːu^{2}) 'trough', where *cauz* (ɕaːu^{2}) is a Han loan from *cao* 槽 'horse trough'. It is shaped like a large semi-circular basin, like a large pipe which has been split into two lengthwise. The trough is 130 cm long, 100 cm wide, and 80 cm deep. The paste made with *gaujveh* (kaːu^{3} we^{6}) is poured into the trough, filling it to above half-full, and about 10 kg of pulp (the yarn after beating) is poured in. They are then mixed together, until the pulp fibres are evenly suspended in the paste (Fig. 9).

(10) *daek ceij* (tak^{7} ɕei^{3}), 'scooping up the paper'. The paper fibre is scooped up with a bamboo screen mould, known as a *fwz* (fɯ^{2}). This screen was traditionally woven out of thin strips of bamboo with fine silk, but nylon thread is often used nowadays. The screen is about 68 cm long and about 60 cm wide. The bamboo screen itself is fastened to a wooden frame, made by nailing small wooden boards (2 cm thick and 4 cm wide) to a rectangular frame. It should be large enough to accommodate the bamboo screen. The frame is put into the paste and moved slightly from side to side, so that the suspended pulp fibre adheres evenly onto the bamboo screen, forming a thin layer of paper fibre (Fig. 10). The wooden frame is then taken out (Fig. 11), and the two ends on the bamboo screen are trimmed off with a bamboo knife (Fig. 12). The screen is taken out of

the frame, and hung upside down on a small bamboo mat (*reu*, reu^{1}) woven of bamboo strips. The bamboo screen is then removed from the paper (Fig. 13). This produces a sheet of wet paper, each scoop giving one sheet. The pieces of wet paper are piled up in the order in which they are scooped up. The whole process is repeated until there is a pile of 120 pieces, called a *dab* (ta:p^{8}).

Fig. 10: Scooping up the fibre pulp onto the bamboo screen

(11) *anq ceij* (ʔa:n^{5} ɕei^{3}) 'drying the paper'. The word *anq* (ʔa:n^{5}) (Ch. *an* 按) means 'to apply pressure from above', such as in the phrase *anq douhfouh* (ʔa:n^{5} tou^{6} fou^{6}), meaning to put bean curd paste into a frame to squeeze the water out. A flat wide rectangular stone slab is positioned by the side of the stone trough. On the slab are carved fine horizontal and vertical lines forming a series of squares. Surrounding this is a deep trough, with an opening for discharging water. This stone slab is called a *gek* (ke:k^{7}), ke:k^{7} (Ch. *ge* 格) meaning 'checker [pattern]', due to the square pattern on its surface. When the paper was first scooped out, the small bamboo mat (reu^{1}) is put on the slab (described in the step above). The sheets of wet paper are piled up, piece by piece, on to the bamboo mat, until there is a pile of 120 pieces. A wooden board is placed on top of this pile. Long

Fig. 11: Taking the bamboo screen out of the water

Fig. 12: Trimming the edges of the wet paper

Fig. 13: Pulling the bamboo screen off the wet paper sheet

Fig. 14: Peeling off the half-dried paper sheets

wooden sticks are then threaded through the holes on the sides of the boards, and placed horizontally on the wet paper. Stones are hung at one end of the wooden sticks, to remove the water by increasing the pressure on the pile of wet paper. The weight must be increased gradually. If it is increased to the maximum level immediately, the sheets of paper may get stuck together and become inseparable. Pressure is usually applied in the evening, and the paper will be ready by the following morning.

(12) *sat ceij* (θaːt^{7} ɕei^{3}), 'pasting the paper'. After a whole night of pressure, the sheets of wet paper are semi-dry. They are removed piece by piece (Fig. 14), and pasted up on the walls and doors of the workshop in rows. After drying naturally in the air, the paper is ready for use. The pasting is known as *sat* (θaːt^{7}), with a palm-fibre brush being used to paste the sheets evenly to the walls (Fig. 15).

Fig. 15: Pasting the paper sheets on the wall for drying

Larger workshops and factories usually have a drying oven as well, called a *daek cwz* (tak^{8} ɕɯ^{2}), which literally means 'bull ox'. Firewood is burnt in the stove, and the sheets of paper are pasted on the outer walls of the oven, to accelerate the drying process.

Taking the dried paper off the walls is called *sou ceij* (θou^{1} ɕei^{3}), 'taking in the paper'. A small pile of paper, called a *naeb* (nap^{8}), consists of 40 sheets, and *cib naeb*

guh bog (ɕɪp^{8} nap^{8} ku^{6} po:k^{8}), "ten small piles make a *bog* (po:k^{8})", a unit consisting of 400 sheets of paper. Paper is sold by the po:k^{8} (Fig. 16). A ton of raw yarn will make 130–140 po:k^{8} of paper, that is, 1 kg of raw yarn will produce approximately 0.4 kg of finished product.

Fig. 16: The completed bundles *bog* (po:k^{8}) of paper

My investigations have indicated that traditional paper workshops in this part of central Guangxi utilise what is basically the same technology and set of procedures for paper manufacture. In some places, the process is also marked by social division of labour and coordination between workshops. Some village families specialise in boiling the yarn and producing the paper mash, and then sell the half-dried paper mash on to households who specialise in straining the fibres onto the bamboo moulds. Households with more ample resources or those better positioned geographically still handle the entire production process themselves in the traditional fashion. The only difference is that households must now produce paper sheets of the size specified by the buyer. Households with capital and with members well-connected socially specialise in buying raw fibres and selling on the finished product. The technology of traditional paper production in the Gongchuan area has recently been given recognition by the Hechi 河池 regional municipality as an intangible cultural heritage item. The expectation is that this village industry will remain

viable for some time to come, given that the market for this traditional paper is vibrant and serves many purposes.

5 Main uses of mulberry paper

Paper made of paper mulberry is strong, pliable and soft. Its ink absorbing qualities are good, and it is highly suitable for writing with a writing brush. If used for copying important documents, it can be preserved for two or three hundred years without difficulty. Although modern printing presses can batch-print all kinds of books and charts, hand-produced calligraphy and painting still rely on the artistic attractiveness of hand-made paper. In particular, because traditional Zhuang song-books written in the vernacular character script contain many characters that cannot be printed mechanically, song masters prefer to use mulberry paper, make it into little thread-bound booklets, and use it to write their song lyrics on. For brush-written calligraphy practice as well, mulberry paper is still the material of first choice: it is beautiful in appearance and its price is cheap. By comparison, *xuan* 宣 paper also gives good results for both calligraphy and painting, but its price is prohibitively high. So as a medium for practicing writing or copying ordinary documents, people will normally prefer mulberry paper.

In the Zhuang areas, people often use mulberry paper for pasting on windows. In the past, there was no glass for windows, and when winter was approaching people would glue sheets of mulberry paper to the window frames. This let in the light, and could ward off the cold winds that blew in from the north.

Because mulberry paper has a certain elasticity, people also frequently use it to wrap things in. For instance, they use it to wrap small-kernel vegetable seeds, herbal medicines in powdered form, and to make fuses for fireworks by wrapping it around a thin trail of gunpowder. And so on. Folded fans and umbrellas are also made of this material, but covered with a layer of tung oil after the objects are made in order to make them water-proof and durable. When cleaning equipment, mulberry paper is often used to wipe the grease and grime off tools and machinery.

The paper is also used in all kinds of rituals, especially for funerals. Mulberry paper is used for the spirit money that is burnt as offerings, for the set of paper clothes that is prepared for the deceased to use in the afterlife, and for a wide range of other funereal items, such as paper horses, paper houses, paper stoves, and paper treasure repositories.

In the past, the market for mulberry paper was quite extensive. Paper making became one of the mainstay sidelines in the traditional economy of the Zhuang-speaking highlands. At present, this industry has entered a downhill trajectory. Even

though some people still engage in the traditional trade, the market for traditional paper has atrophied, and it is now difficult to produce paper on any considerable scale. Still, as a kind of folk handicraft, it will continue to survive and people will continue to make handmade paper, as long as there are still some people who will use it. At least this craft is not one that is difficult, or requires a very high degree of skill; the equipment needed is fairly simple, and the initial outlay is not prohibitively expensive, so as long as one has a basic knowledge of the techniques involved, even single families can engage in it. For these reasons, traditional paper-making is likely to continue as a cottage industry for the foreseeable future. By investigating these workshops, one can still see the techniques involved in paper production and admire the skill and care that goes into it.

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