



Glass bead curtain with double happiness motif, China, 20th century. Chinese glass beads, wood. Private collection.

## 20TH-CENTURY CHINESE GLASS BEAD CURTAINS

by  
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### ABSTRACT

*Jika tulisan purba dapat dipercayai, langsir manik dikatakan telah diperbuat di negeri Cina sejak berkurun dahulu. Tetapi kita tidak dapat melihat rupanya kerana tiada contoh yang masih tinggal. Dalam abad ke 20, langsir manik diperbuat daripada macam-macam bahan: biji-biji keras, batang-batang buluh, unsur-unsur kertas gulung atau lipat dan plastik yang dibentuk. Sehingga tahun 1980-an, manik-manik diperbuat satu persatu dengan tangan sebagai satu benang kaca cair yang dililit satu atau beberapa kali disekeliling mandrel (sebatang besi) yang bersadur, dan kemudian ia disejukkan. Bengkel kaca dari zaman dahulu di Boshan, wilayah Shandong menghasilkan kebanyakan dari manik-manik ini dan beberapa langsir manik kaca juga. Sewaktu zaman Republik Cina tahun 1911-1949, corak langsir manik kaca yang biasa berkembang dan bercirikan komponen rekabentuk yang boleh ditukar ganti. Dalam kertas ini saya membandingkan komponen rekabentuk dalam sepuluh langsir manik kaca dari abad ke 20, membezakan gaya langsir manik yang biasa dari yang luarbiasa. Saya akan membincangkan perbezaan di dalam mutu manik dan perkembangan manik baru untuk langsir manik dalam tahun 1960-an.*

If ancient texts can be believed, bead curtains have been made in China for many centuries. We don't know what they looked like, since no examples survive. In the 20th century, bead curtains were made of many materials: seedpods, bamboo stems, rolled or folded paper elements, and molded plastic. The most costly were made of glass. A single curtain might contain 40-80,000 glass beads. Until the 1980s, the beads were individually made by hand as a thread of molten glass was wound one or more times around a coated mandrel, then allowed to cool. Longstanding glass workshops in Boshan, Shandong province produced many of these beads and a number of glass bead curtains as well. During the Republic of China period (1911-1949), formulaic glass bead curtain styles evolved

featuring interchangeable design components. In this paper I compare design components in ten 20th century glass bead curtains, distinguishing formulaic from idiosyncratic bead curtain styles. I also discuss differences in bead quality and developments in the 1960s of new beads specifically for bead curtains.

### BEAD CURTAINS OF IMPERIAL CHINA (221 BC–AD 1911)

A trio of wives, a pair of concubines, a handful of emperors and random barbarians: all reportedly used bead curtains during China's imperial era (221 BC–AD 1911). More than once, it was men who were said to have put bead curtains on display, thereby demonstrating wealth, power and taste, while women are said to have hidden behind them, raising or lowering them at will. At least, this is what Chinese texts of previous centuries would have us believe. We have no other source of information. One of the earliest firmly dated accounts of a bead curtain was written by Wang Jia (d. 390) of the Jin dynasty (265–420). A writer of 'stories of strange events' (*zhiguai*), some of which are vaguely historical in nature ('*Shiyiji*: Records of Picked-up Leftovers,' accessed 31 June 2013). Wang associates bead curtains with ancient emperors, their beautiful, secluded women and opulent interiors.

"Yue had two beauties, one named Yiguang and the other Xiuming; they were presented to [Emperor] Wu, who placed them in the royal concubines' residence, and strung up a curtain of fine beads behind which they hid during the day and waited for the moon at night. The two would come inside and sit down, making themselves up in front of a mirror behind the bead curtain. All who caught a glance of them were affected, and called them goddesses" (Zhang et al. 1985: 448 [under *zhu bo*], citing *Record of Omissions: King Ling of Zhou [Shiyiji : Zhoulingwang]* by Wang Jia [d. 390] of the Jin dynasty [265–420]; cf. Meng 2004: 107.

This early association of bead curtains with beautiful women endured over the centuries, eventually becoming a trope or conventional metaphor, one that resonates in the Chinese imaginary even today.

Were bead curtains really used by emperors during China's Spring and Autumn period (770–476 BC), as Wang says? We simply do not know. In all likelihood, Wang's account indicates only that bead curtains probably existed in the China of his own day. References to bead curtains continue

to accumulate in later centuries, appearing in other histories as well as poems, essays and rare imperial workshop manuals. Only the manuals are resolutely factual, and even they leave out much; most of the other texts draw as much upon imagination or memory as upon empirical experience. In other words, texts reveal not how bead curtains actually were, but how they were perceived or – more to the point – how they were represented. Here I will briefly summarize what texts of the imperial era tend to say about the material, structural, kinetic and aural qualities of bead curtains. I have discussed these matters in greater depth elsewhere (Hector 2013).

When materials are mentioned, they are relatively costly; bead curtains are said to be made of real pearls (*zhen zhu*), glass (*liuli, boli*), crystal (*jing, shui jing*), and sometimes jade (*yu*). We do not know whether 'crystal' referred to stone or glass. While actual bead curtains of the imperial era might also have been made of humbler materials such as seed pods, bamboo stems or paper, they do not seem to have been immortalized in words, or not to the same extent. Structurally, the bead curtains referenced in the texts fall into two main categories (Meng 2003, 2009). The first category apparently consists of parallel vertical strands of beads, probably suspended from a bar or other support. I suggest we call them 'multi-strand' bead curtains. The most common Chinese term for them and for bead curtains in general is *zhu lian*. We are less certain about the second category. It consists of 'crystal curtains' (*jing lian, shui jing lian, qing lian*), some of which were apparently made not of beads but of long thin strips of glass said by one early Qing commentator to be 'woven' together (Zhang 2008: 344 ff; cf. Meng 2003: 104; Meng 2009). In actuality, the technique may have been twining, and the strips may have been united to form Chinese bamboo blinds. Apparently, despite potential structural differences, crystal curtains were also thought of as bead curtains.

If we read the texts closely enough, we notice that the two categories of bead curtains also differ kinetically (Meng 2003, 2009). Multi-strand bead curtains exhibit a wide range of motion. Pivoting from their point of attachment to the bar above, the strands sway gently in the ambient air or splay out sharply in all directions when a human body passes through them, eventually to resume their steady state. Gathered to one side or tied in the middle, the strands can be configured in various ways. Crystal curtains, on the other hand (at least some of them), seem to manifest a different kinetic capacity in that they can be rolled up or down, much like a scroll. One can walk under – but not through – them. While the production of crystal

curtains seems to have ended with the fall of the Qing dynasty (1644–1911) in 1911, the production of multi-strand bead curtains continued, as we will soon see.

The aural qualities of bead curtains interest a number of writers, who note the pleasing sounds created as a breeze moves through a crystal curtain or long strands of beads clink gently against one another. Sometimes the sounds are likened to ‘tinkling jade’ (Meng 2003: 99), an analogy that might evoke the sets of hanging jade chimes or lithophones enjoyed by ancient emperors and aristocrats as expressions of cosmological harmonics and other auspicious matters. Jade itself has long carried auspicious connotations of purity, durability and longevity in Chinese culture.

By the end of the imperial era some writers took issue with bead curtains. Early Chinese feminist Jin Tianhe (1874–1947) launched a scathing critique in his 1903 essay ‘A Woman’s Bell’ (Nüjie zhong), which urged women to liberate themselves from the confines of the inner chambers, the proper place of women in traditional Chinese thought: ‘Pearl-stringed curtains {*zhu lian*} and embroidered chambers may look like palaces in the heavens, but in fact they are worse than prisons’ (Jin Tianhe 2013 [1903]: 255).

Jin was not necessarily targeting bead curtains themselves, but the trope of the solitary woman, cut off from the world and the possibility of making greater contributions to Chinese society, in his view. As we will soon see, Jin’s critique ended neither the production nor use of bead curtains in post-imperial China, but it may have contributed to a shift in their function.

#### 20TH-CENTURY GLASS BEAD CURTAINS: ICONOGRAPHY

Glass beads have been made in China since at least the Warring States period (475–221 BC) of the Zhou dynasty (c.1046–256 BC) (Hui 2008; cf. Liu 1995). Exactly when glass beads began to be used in bead curtains, we cannot say. The textual references I have encountered thus far are of little help. Many do not specify bead materials. Others are couched in ambiguous or figurative language. A few include one of the two main terms for glass (*liuli*, *boli*) without including *zhu*, the word for ‘bead’ and ‘pearl’. Further research will be required to identify the earliest incontrovertible references to glass bead curtains or glass strip blinds.

Thankfully, more information is available about 20th-century glass bead curtains. Examples survive in quantities sufficient to compare designs and bead types. Before making those comparisons, however, we ask what was special about glass bead curtains. Glass scholar An Jiayao, a native of the port city of Yantai in Shandong province, recalls that in the 1940s her mother received two glass bead curtains as part of her dowry (An 2012 pers. comm.). An emphasizes their pleasant visual, tactile and aural qualities, and their ability to deflect flying insects while promoting ventilation and privacy:

... glass bead curtains were the best. They were very decorative and felt good when hung. The sound they made when passing through them was pleasing to the ear, and they effectively prevented mosquitoes and flies from entering the room.... They were mainly used when it was hot, the door to the house would be open, and the curtains would let in air while preventing flies from entering. They also could prevent people in the yard from seeing what the people inside were doing.

Glass bead curtains were luxury items, An notes, owned only by ‘wealthier families’. Only 10 per cent of all Chinese bead curtains in the mid-20th century were made of glass beads, she estimates; others were made of ‘grass seeds’ or rolled paper beads. Like their counterparts of other materials, glass bead curtains were displayed seasonally, often in the front door of a house, generally from April until October. In the winter months they were taken down and stored.

Next we turn to 20th-century glass bead curtain iconography. It is possible to divide the 50 or so examples I have seen thus far into five iconographic categories. Category 1 consists of geometric motifs (Fig. 1: striped curtain); Category 2, of pictorial motifs (Fig. 2: lantern curtain); Category 3, of inscriptive motifs (Chinese characters) (Fig. 3). Designs in Category 4 are hybrid, combining elements from groups 1–3. There are 4 distinct types of hybrid designs: combining geometric with inscriptive motifs (Fig. 4); geometric with pictorial motifs (Fig. 5: phoenix and peony); pictorial with inscriptive motifs (Fig. 6); and geometric, pictorial and inscriptive motifs (Fig. 7). Curtains in Category 5 bear colour but no iconography; they seem to be rare and the one example I have found dates to the early 21st century. I will mention them briefly later. Whether certain styles were

preferred in certain parts of China at certain points of time, we do not know. Probably glass bead curtains were made in different provinces, but to date I have only found conclusive proof that they were made in Shandong province, specifically, in the Boshan industrial district of Zibo city, where archaeological excavations indicate that a glass bead-making industry flourished during the early Ming dynasty (1368–1644), and possibly during the preceding Yuan dynasty (1271–1368) (Francis 2002: 59).

Information on Boshan's 20th-century glass bead-making industry has been collected by glass carver and historian Zhang Weiyong. A long-time resident of Boshan, Zhang writes in some detail about the curtains made during the Republic of China period (1911–1949) by Liu Zaihai and his family. Liu was a master glass bead-maker who owned several 'rice' head (*mi zhu*) furnaces and employed many master apprentices. He also employed members of his own family. Zhang credits Liu for initiating glass bead curtain production in Boshan (Zhang 2008: 279). The Liu family reportedly used specific bead curtain designs, among them 'phoenix piercing peony' (*fengchuan mudan*), 'phoenix flying towards the sun' (*danfeng chao yang*), and 'mountain solitude' (*gaogang du li*) (Zhang 2008: 280). Most of Liu's curtains contained inscriptions and meanders (Zhang 2008: 279). Thus, although we cannot say precisely which of our five design groups flourished in Liu's workshop, we know that geometric, pictorial and inscriptive motifs were in use. That designs were given names suggests they were produced more than once. Liu family bead curtains were sold mainly in Sichuan province, Zhang tells us, and later in Yantai in Shandong province. The curtains were also sold in Boshan, where they hung in the doorways of barber shops and restaurants (Zhang 2008: 279).

Many issues remain to be explored. For example, how long was the Liu family glass bead curtain workshop in operation? Did designs change over time? Were templates used or did the beading proceed freehand? Were certain tasks gender-specific? Did other workshops in Boshan also produce glass bead curtains in the Republic of China period; if so, what did their designs look like? Did the owners of those workshops also employ family members? How did the institution of a glass (*liuli*) cooperative in the 1950s or 1960s affect the Boshan bead and bead curtain industry? Zhang informs us that Liu family members were invited to teach their bead curtain production techniques at the cooperative (Zhang 2008: 279). But what kind of designs would have been deemed appropriate in the changed political

climate that attended the establishment of the People's Republic of China in 1949 and the socialist initiatives that soon followed? Later, we will see that politically charged inscriptions and motifs appeared on at least two curtains probably dating to the 1960s–1980s.

A small detail, preserved for us by Zhang Weiyong, allows us to link one glass bead curtain in my database to the workshop of Liu Zaihai. The detail is this: the Liu family attached glass bead curtain strands to 2-part boards made of bamboo. One of the boards was short, narrow and hinged in the middle. Such a board could be strung by two people in the course of one long working day (Zhang 2008: 279). After all strands were attached, the board was folded in half to facilitate packaging and transport (Zhang 2008: 279). When the folded board reached its destination it was unfolded and embedded into the back of a longer, wider board. Only the larger board was visible when the curtain was viewed from the front. The curtain board in Fig. 8 is constructed in precisely this way, of two boards that appear to have been shaped and drilled by hand. The holes run diagonally from the lower edge of the small board to its back side. Thus, we may tentatively attribute this board to the Liu family workshop, and date this bead curtain (Fig. 9) to 1911–1949. The curtain's iconography lends further credence to this attribution. Inscriptive, pictorial and geometric motifs are all present. We will describe them briefly, individually and in combination, the better to pursue comparisons in coming paragraphs.

The curtain in Fig. 8 is divided into two registers: a small horizontal register at the top, and a larger vertical register at the bottom. The top register contains three red *shou* (longevity) characters inscribed on a black background. The bottom register features an asymmetrical pictorial vignette of a crane, looking skyward and standing before a pine tree against a clear ground. Individually and collectively, the crane and the pine tree are symbols of longevity. Together, they may be read as a rebus, a pictorial pun that calls to mind a saying, in this case, a typical birthday wish: 'May you, like the crane and pine, enjoy similar longevity' (Bartholomew 2006: 7.13.5). The crane was formerly a symbol of high civil rank, a rare and treasured achievement, attainable in the imperial era only after years of study and many difficult exams. The motifs are framed on all four sides by blue meander motifs on a white ground. A common decorative device since the Yuan dynasty (Bartholomew 2006: 7.39), meander (*huiwen*) motifs have appeared on Chinese textiles, porcelain, wood, bronze and stone. Because

they create a visual effect of being unending, meanders are associated with longevity, eternity (Bartholomew 2006: 7.39) or never-ending luck or fame. One wonders whether the strands of a tasselled bead curtain, themselves quite long, might also have connoted longevity. Meander motifs typically energize the edges of a bead curtain, setting off its other design elements and transforming the composition into a stable, well-structured, symmetrical whole, in part by echoing the rectilinear outlines of the top and bottom registers.

Each of the major iconographic elements in the crane/pine curtain in Fig. 8 parallels that of another curtain in our database. For example, the trio of longevity characters in the top register recurs in the top register of a ninth curtain. Similar crane/pine vignettes recur in the bottom registers of our tenth and eleventh curtains. In our tenth curtain, the crane is more finely drawn. It stands to the left of a gnarled tree with yellow flowers, possibly a pine tree, and looks through the branches of the tree to the sun, which floats on a bed of clouds. Large meander borders frame the bottom register at left and right. A pair of endless knot (*panchang*) motifs occupies most of the top register. Along with the crane, the endless knot, originally a Buddhist symbol, signifies unending longevity (Bartholomew 2006: 7.19). The crane in our eleventh curtain is also finely drawn. It stands just to the left of the pine tree, gazing to the upper right, while the orange-sun-on-a-bed-of-clouds motif floats in the upper left of the bottom register, out of the crane's line of sight. A flowering plum(?) tree fills the top register. Meander motifs are absent. Instead, the top and bottom registers are framed by narrow bands of colour. Set in starkly contrasting colours, the bands invite attention, but they are not as graphically compelling as meanders. Bead curtains with crane motifs must have been rather popular, because An Jiayao's mother had one. Its colours were beautiful, its motifs refined, An recalls.

We could go on tracking iconographic parallels between the curtains discussed above, noting that endless knot motifs appear in the top registers of at least two curtains, or that differing lotus motifs appear in the bottom registers of two other curtains. Eventually we would come to realize that parallels operate not just at the level of the individual component or register, but at the level of the composition as a whole. For example, with respect to motifs, background colours and borders composed of meanders or concentric circles, our twelfth curtain is strikingly similar to the curtain in Fig. 5. Although both curtains show peony motifs at top and bottom, there is one major difference: where a butterfly appears in the lower register

of our twelfth curtain, a phoenix appears in the lower register of Fig. 5. Both creatures, the one real, the other mythological, face the peonies as if preparing to alight. The curtain in Fig. 5 may represent an example of the fengchuan mudan design used by Liu Zaihai, which brings together the king of birds with the king of flowers, a most auspicious pairing, which augurs 'great blessings and prosperity' (Bartholomew 2006: 6.37.1). The two peony curtains' rebuses differ slightly. Whereas the paired phoenix and peony carry a wish for 'wealth, rank and good fortune' (*fugue jixiang*) (ibid.), the paired butterfly and peony wish the viewer 'an accumulation of blessings, wealth and high social status' (*fudie fugue*) (Bartholomew 2006: 6.34.3). Minor differences include the diagonal vs. vertical orientations of the peonies in the respective bottom registers and how finely the various motifs are drawn. Were these two curtains produced in 2 different workshops, or in the same workshop, possibly at two different periods of time? We simply do not know.

Yet there is no mistaking that the same iconographic components recur across many 20th-century glass bead curtains, at least within the subset of curtains that contain registers, borders, and one or more pictorial motifs. While the spatial organizing devices – bordered top and bottom registers – do not vary much, motifs do, and this leads to another question. Could it be that the motifs were interchangeable from curtain to curtain and drawn from a stock set of motifs such as those collected in an embroidery pattern book? Bead curtain templates, if indeed they existed, could also have served as motif repositories. The use of interchangeable motifs would have increased the number of possible design permutations, thereby allowing workshops to multiply variations and satisfy all tastes. Moreover, the number of beads needed per colour for a single motif could be predicted in advance. Of course, we should not assume that all motifs were equally combinable; certain combinations may have been considered inauspicious. Apart from generating efficiencies of design and bead acquisition, such an approach might have increased efficiencies of stringing. If bead curtain stringers could string the same motifs over and over, production times might be reduced.

There is precedent for the use of interchangeable component parts in China. Lothar Ledderose calls them 'modules'. He adduces a wide range of evidence from c.1200 BC on to demonstrate that modular patterns and production procedures were applied in many media, including bronze, pottery, lacquer and wood, not to mention in the Chinese writing system itself (Ledderose 2000: 1–7). It would not be surprising, therefore, to

discover that principles of modularity also informed 20th-century glass bead curtain production. Certainly, Liu Zaihai's use of two part bamboo curtain boards might be interpreted as one modular strategy, the presence of top and bottom registers, another. More research is required before we can conclude that modular strategies also operated at the level of design, as I have tentatively suggested. We could also explain recurrences of motifs and placement by positing that similar designs were used by different bead curtain workshops.

If bead curtain iconography could be formulaic in some cases, it could also be idiosyncratic in others. At least, it may seem idiosyncratic when compared with other entries in our admittedly small database. If our database were to expand, we might realize that seemingly idiosyncratic curtains are but tokens of a type. In the meantime, we invoke one example of a curtain which features in its lower register two swallows under a weeping willow tree, flying towards a branch of apricot blossoms. This trio of motifs generates a rebus that wishes the viewer *xinglin chunyan*, ('May you attend the spring banquet in the Apricot Grove'), which was 'the Tang-dynasty imperial garden where the banquet for successful candidates of the palace examination was held' (Bartholomew 2006: 4.3.1–2). China's centuries-old civil service examination system was abolished in 1905. While it is possible that this curtain predates that year, perhaps another type of exam was intended, e.g. for university entrance in a later era. A curving black line sprouting tendril-like motifs serves as a border that separates the curtain's two registers. In my view, this line renders the curtain idiosyncratic. The line separates the depictive space into registers, but they are unlike the rectangular registers we usually see. Their curvilinearity echoes that of the other motifs, including the pink 6-petalled flower, possibly an apricot flower, superimposed on the black line.

Two further curtains may seem idiosyncratic when compared with the curtains in Figs. 1–2 and 4–6 but these two may be products of a later era with different notions of what bead curtains should look like, or products of workshops outside the Boshan area. Instead of rebuses or other auspicious motifs or, as in the case of the geometric curtain in Fig. 1, motifs that have no overt symbolic significance, both of these curtains bear political motifs. We will analyse each in turn. Four red characters run down the length of the curtain in Fig. 3, producing a phrase that eventually became a political slogan. Written in bold red standard script on a plain white ground, they read *zili gengsheng*, which can be translated 'self-reliance'. A virtue extolled

in China for many centuries, self-reliance assumed added significance in the 1950s–1970s when, struggling to modernize with minimal resources and little foreign aid, Mao Zedong (1893–1976), Chairman of the People's Republic of China from 1949–1976, urged the Chinese people to rely upon their own initiative to further the country's social, economic and political progress. The characters are framed on at least three sides with bands of red and amber-coloured beads, bands which may be interpreted as geometric motifs, or not. This curtain probably does not predate the 1960s or 1970s, when the same slogan, often worked in red, appeared on other items of Chinese visual and material culture, among them political banners and wall posters (Landsberger and van der Heijden 2009: 183). Far from tendering auspicious sentiments, such a slogan is hortatory, prescribing acceptable attitudes and behaviours.

The curtain in Fig. 7 also presents a slogan, this time composed of three characters written in red in running script, a personal script style believed to reveal the essence of the writer's character. More to the point, the three characters simulate the much-admired calligraphy of Chairman Mao. 'The East is Red' (*Dongfang hong*) was the title of a song popular during the Cultural Revolution period (1966–76) which likens Chairman Mao to 'the red sun in our hearts' (Lu 2004: 101 ff.). As a slogan, 'the East is red' advocated unwavering loyalty to Chairman Mao while championing the supremacy of China under his leadership. The characters almost seem to spring from the sun below them, which rises in a yellow sky over a blue sea speckled with islands of unknown significance. These are stock motifs of the era, expressed in an unusual format. The curtain is framed on three sides by a narrow border that pulses with dashes of colour, a border that seems to be unique to this curtain. If auspicious sentiments are intended, they are directed more to Chairman Mao or China in general than to the viewers of this particular curtain.

## 20TH-CENTURY GLASS BEAD CURTAINS: BEADS

One of the most common Chinese glass bead-making techniques is known as 'winding'. Wound beads are made one at a time as a thread of molten glass is 'wound' around an iron mandrel. Wound beads fall into three broad categories that Peter Francis called 'furnace-wound', 'drip-wound' and 'lamp-wound' (Francis 2002: 11). Most if not all 20th-century Chinese glass bead curtain beads appear to have been furnace-wound.

In the furnace-winding method, a batch of glass is melted in a crucible inside a furnace, typically located in a factory. A glass worker “reaches in ... and forms a peak of glass atop the batch ... From the peak, he builds a bead on the mandrel by twisting” the mandrel in the glass (ibid.). After a final heating, the bead is “knocked off the mandrel during a brief period when the iron cools and contracts faster than the glass” (ibid.). The bead is then “deposited into an annealing chamber, where it cools slowly” (ibid.). Furnace-wound beads often reveal within their perforations a “thin layer of black iron oxide deposited by the mandrel” (ibid.). Their exteriors, on the other hand, sometimes possess sharp, protruding peaks where the molten glass thread was abruptly disengaged during the winding process. Drip- and lamp-wound beads lack such peaks. No matter how they are formed, all wound glass beads “have the fabric of the glass and any small bubbles (called ‘seed’) oriented around the perforation” (ibid.).

Furnace wound beads continued to be made until about 1984, when Paddy Kan witnessed three glass bead-makers at work around a coal-fired furnace with six openings at the Boshan Glass Factory in Shandong province (Kan and Liu 1984: Figs. 1–15). Of the 4000 workers employed at the factory, only five still made beads. Zhang Weiyong outlines the decline of the furnace wound bead-making industry in 20th-century Boshan, noting that in about 1911 there were 300 bead-makers in Boshan, with perhaps 50 furnaces in use; in 1936 there were 80–90 bead-makers using about 14 furnaces; in the 1950s there were 12 furnaces, run by the government; and in the 1980s, the furnaces disappeared (Zhang 2008: 273). Only very small factories still made beads (ibid.).

Wound glass beads have also been called ‘coil’ beads because of their distinctive shape; “they look as though they were cut from a piece of coiled spring” (Francis 2002: 76). However, not all wound beads assume a coiled appearance; many are quite smooth and regular, the result of further firing after the winding process is complete. For this reason it is best to use the more general term ‘wound’. Wound beads have been used in Chinese beadwork for centuries, in knotted net garments (Han 1998: 88), toggles (Han 1998: 101) and scent bags (Hector 2005: 15), not to mention handbags, hair ornaments, beaded beads, lantern ornaments, hanging ornaments, table screens and so on (pers. obs.). All of the bead curtains we have discussed thus far are made of wound beads.

Thanks to Zhang Weiyong, we have a sense of the wound glass bead terminology that prevailed in 20th-century Boshan. There were many names for different types of beads (Zhang 2008: 271–3). We know that Liu Zaihai used ‘5-qian’ beads (*wu qian zhu*) in his curtains (Zhang 2008: 279); a qian is equal to about 3.78 grams. Five-*qian* beads were poorly made and irregular, but fast and inexpensive to produce; the irregular oblates in the crane/pine curtain with the 2-part curtain board (Fig. 8) would qualify as such. However, the wound beads in the geometric curtain in Fig. 1 are even more irregular. Some are oblate in shape; others, more barrel-like, with sharp protrusions where the molten glass was disengaged from the bead in haste. Were such highly irregular beads known by another name, or simply as ‘5-qian’ beads? In 1964, blaming slumping bead curtain sales on poor quality beads, master Boshan glass bead-maker Ren Silong invented ‘curtain beads’ (*lianzi zhu*), which were more regular because of better finishing techniques. Curtain beads were more costly to produce than 5-*qian* beads because they took longer to make (Zhang 2008: 270, 279).

These distinctions allow for tentative dating of the bead curtains we have seen thus far. We can divide them into Groups A and B. While curtains in Group A, shown in Figs. 1, 4, 5, and 6, appear to be made of 5-qian beads, the curtains in Group B, shown in Figs. 2–3 and 7 appear to be made of curtain beads. Curtains in Group A, then, might have been made sometime between 1911 and 1964. Curtains in Group B probably postdate 1964. Interestingly, the two groups of curtains differ markedly with respect to iconography and aesthetic. Two of them (Figs. 3, 7) express political concerns unknown in other curtains; the third (Fig. 2) juxtaposes lanterns bearing auspicious double-happiness motifs with seemingly prosaic vegetable motifs seemingly drawn from the everyday world of the garden or the kitchen.

Yet, caution is required before we posit 1964 as a firm dividing line for bead types. Further research will be needed to ascertain when the production of 5-*qian* beads ended; it might have continued beyond 1964 as a way to make less expensive beads. As late as the 1980s, 5-*qian* beads were integrated into bead curtains, albeit in smaller quantities. For example, our fourteenth curtain depicts a single pictorial motif of a peacock displaying its feathers against a clear back ground. The curtain is made almost entirely of tube beads (*guan zhu*), save for six 5-*qian* beads at the top of each strand, and two at the bottom. These glass tube beads were not wound but drawn, using

a method current in Boshan in the 1980s (Zhang 2008: 280). Whether the technology was imported and/or mechanized has not been established. Traditionally, drawn glass beads are formed when an air bubble is blown into a gather of molten glass that is then drawn out by hand to form a tube, later to be cooled and divided into smaller lengths to form beads (Francis 2002: 11). Many beads result from a single draw, which makes drawing a more efficient bead-making process than winding. While the diameters of the tube beads in the peacock curtain are regular, averaging 3 mm, the lengths are irregular, ranging from 4.5 to 13 mm. I estimate there are 23,436 glass tube beads in the peacock curtain. While this curtain might have seemed quite modern in the 1980s, it was probably not the first tube bead curtain produced in China. Anecdotal evidence indicates that glass bead curtains might have been made earlier in the 20th century, perhaps in Boshan while the area was under Japanese control from 1937–1945 (Robert K. Liu and Jamey Allen 2013 pers. comm.).

Because tube beads tend to be long, fewer are needed to fill a bead curtain. Oblate beads are shorter. As a result, more are needed. The crane/pine curtain in Fig. 8, for example, contains 118 strands bearing an average of 480 oblate beads. As we noted earlier, these are irregular beads, probably of the *5-qian* variety; they measure on average 5 mm in diameter by 3–5 mm in height. The estimated total of oblate beads in this curtain is 56,650. There are also a few single-holed green teardrop-shaped beads measuring 5 mm in diameter by 10–11 mm in length. One teardrop is (or was) wired to the end of each strand. When the curtain was first made, there would probably have been 118 teardrops.

Another curtain that combines wound oblate beads with wound beads of other shapes is the self-reliance curtain in Fig. 3. As we observed, this curtain appears to be made of costly curtain beads (*lianzi zhu*). All are finely finished, with no visible coils or tails. An exact count was recently undertaken. The curtain contains a total of 40,719 beads in the colours below. The blue and pink beads probably represent repairs.

- 17,282 opaque white barrel-shaped beads measuring 5 mm in diameter by 6 mm high
- 18,490 opaque red beads in oblate shape (5 mm diam. by 2–2.5 mm high)
- 4,842 translucent amber-coloured oval-shaped beads (4.5–5 mm diam. by 8–10 mm long);
- 102 pale blue ovals (4.5 mm diam. by 7–11 mm long)
- 3 opaque pale pink ovals (4.5 mm in diam. by 7–10 mm long)

Laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) analysis has been conducted on two beads each from the crane/pine curtain in Fig. 8 and the self-reliance curtain in Fig. 3. The beads are made of “a silica glass containing significant quantities of soda, alumina and lime” (Laure Dussubieux 2013 pers. comm.), among other ingredients too numerous to mention. This type of glass has been used in China for many centuries. In terms of chemical composition, the four bead curtain beads most closely resemble a set of glass beads dating to the later 19th century recovered from the Sullivan Island site in Washington state (ibid.).

The greatest number of beads of any curtain in our database is found in the lantern curtain in Fig. 2. It contains 136 strands bearing an average of 641 beads, for an estimated total of 87,176 beads. As indicated above, the beads are highly regular, measuring on average 4.5 mm in diameter by 3 mm in height. Tiny air bubbles are visible inside the clear beads, suggesting that these beads were made by winding. The exteriors of a few beads are partially encased in what looks like separator or ash, which are easily peeled off. This was one of three identical curtains purchased in the 1980s by American bead-worker and performance artist Joyce Scott of Baltimore from a shop in New York City’s bead district (Joyce Scott 2012 pers. comm.). The fact that all three were identical suggests first, that templates were used, and second, that single designs were produced in multiples, possibly for export.

Vast quantities of effort and expense were devoted to the production of the glass bead curtains we have been discussing. Glass-making ingredients and tools had to be gathered and prepared, a furnace fuelled and heated to the right temperature, and workers trained in the proper techniques. It is exceedingly difficult to reconstruct how much time was required to produce a single bead, but with the aid of American glass bead-maker Anne Havel, I will venture some highly speculative estimates. I assume that *5-qian* beads took less time to produce than curtain beads. If we allow 30 seconds for the production of each *5-qian* bead, including the time required to coat the mandrel with separator, apply the molten glass, cool or anneal the bead, separate it from the mandrel and clean it of separator residue, then, with 56,560 beads, the crane/pine curtain in Fig. 8 would have required 28,280 minutes of work, or 471.3 hours, which comes out to 58.9 8-hour days. Allowing 45 seconds for the production of each curtain bead, the 87,176 beads in the lantern curtain in Fig. 2 would have required 1,089.7 hours, or the equivalent of 136.21 8-hour days. Even if we halve my estimates, the beads for the crane/pine curtain in Fig. 8 would have consumed about



27 8-hour days, the beads for the lantern curtain in Fig. 2, about 68 8-hour days. These figures help explain why only 10 per cent of bead curtains in China's mid-20th century were made of glass, as An Jiayao told us. It is all the more remarkable, then, that a monumental glass bead curtain was hanging at the Zibo Color Glass and Art Factory in Boshan in 1991. Robin Atkins photographed the curtain, which dwarfed her student interpreter. The curtain displayed a landscape scene featuring pagoda, mountain and cloud motifs, stretching nearly from floor to ceiling. How many beads were required? I would guess at least 300,000. Whether they were *5-qian* beads, curtain beads or beads of another variety, we do not know.

We conclude our survey with a passing glance at glass bead curtains in China's 21st century. Thus far I have only seen examples in monochrome bright yellow beads, hanging in shop doorways in Boshan in 2012. Examined at close range, the beads appear to be drawn, with gently rounded edges indicative of tumbling or furnace finishing. At any rate, these are the only examples to date of Category 5 glass bead curtains. I do not know whether these curtains are localized to Boshan or distributed more widely. Monochrome glass bead curtains were almost surely made in China before the 21st century, but my database contains no examples. Monochrome glass strip curtains were made by the early Qing dynasty. Sun Tingquan called them *qing lian*; they were bluish-green in colour (Zhang 2008: 279; cf. Meng 2003: 104).

## CONCLUSION

In the preceding paragraphs we have assembled something of a history of bead curtains made in China, a history which begins abruptly in the 4th century and ends just as abruptly in the early 21st century, with much that is missing in between. In Part I we witnessed recurring references to bead curtains in texts of the imperial era, references which relate bead curtains to beautiful women, powerful men, opulent interiors. Writers of the texts comment upon the engaging visual, aural and kinetic aspects of bead curtains, sometimes mentioning the materials of which they were made, more often, not. Bead curtains continue to intrigue Chinese writers of our day; in a recent novel, Wang Anyi likens one to the hanging branches of a riverside weeping willow tree (Wang 1995: 145).

While glass strip curtains, possibly blind-like in structure, seem to have been in use by the mid-17th century, we do not know when multi-strand

glass bead curtains came into use. No pre-20th century examples survive. Earlier we discussed a number of multi-strand glass bead curtains, sorting them into four iconographic categories. We noted sufficient parallels of composition and motif to allow us to hypothesize that glass bead curtains were produced in a modular fashion, with interchangeable design elements whose use might have increased efficiencies on several levels. Yet, not all curtains followed standardized design formulas; a few seem to have been more idiosyncratic. We discovered that motifs functioning as rebuses or visual puns conveying auspicious wishes are frequent in glass bead curtains made of irregular *5-qian* beads. As we saw above, these *5-qian* curtains probably predate 1964, and some may date to the Republic of China period (1911–1949). We observed three curtains that seem to be made of the more regular curtain beads (*lianzi zhu*), noting that, aesthetically and iconographically, they are very different from curtains made with *5-qian* beads. Finally, we considered a curtain made of tube beads (*guan zhu*), a likely product of the 1980s, which nevertheless contained a small percentage of *5-qian* beads. Category 5 curtains are represented by monochrome yellow examples on display in Boshan in 2012.

What does the future hold for China's glass bead curtains? As we saw, a few continue to be made, at least in Boshan. Knowledge of them seems to be fading among the general public. Meng writes, incorrectly, they died out at during the Ming and Qing dynasties (Meng 2003: 104). For her part, a maker of paper and plastic bead curtains in 1980s rural Shandong province does not recall ever seeing a glass bead curtain (Liu Fengwei 2013 pers. comm.). Nowadays, glass bead curtains are vastly outnumbered by plastic bead curtains. Demand for the latter continues to grow, apparently. Experts in *feng shui* or Chinese geomancy use plastic bead curtains to reconfigure the *qi* or energy of a residence or business, believing that plastic bead curtains, carefully selected for length and colour and hung in exactly the right spot, can act like 'liquid correction fluid' (*xiu gai yi*), attracting positive while deflecting negative influences (Chyi Chung 2013 pers. comm.). The Chinese internet is full of articles on the topic, which has gained new relevance in recent years as low-rise buildings, a traditional venue for bead curtain display, are supplanted by hi-rise apartment blocks containing units that may not be laid out in a geomantically favorable manner (ibid.).

Ironically, plastic bead curtains reflect and transmit light very much like glass beads do. But plastic beads are less costly and come in a wider range of colours and styles. Furthermore, many are faceted, which increases their

sparkle; none of the glass beads in the curtains we have studied have facets. Instead of implicating China's ancient glass industry, plastic bead curtains implicate its modern petrochemical industry, one of the largest in the world, which got underway only in the late 1950s. Beads that were once made slowly by hand are now mass-produced by computer-controlled machines as the old-fashioned temporalities of the past yield to the fast-paced temporalities of the present. Still, the prevalence of plastic bead curtains allows us to hope that in China, the bead curtain genre will endure, in part by adapting to the needs of the times. At some point in the future, like their glass bead predecessors, plastic bead curtains may also be outmoded by another, as yet undetermined bead material. One thing is sure: as of 2013, bead curtains continue to enjoy a well-defined place in Chinese visual and material culture, even as they inspire the Chinese imagination. The glass bead curtains we have studied in this paper are all the more precious for being products of the receding Chinese past.

## BIBLIOGRAPHY

- Bartholomew, Terese Tse  
2006 *Hidden Meanings in Chinese Art*. San Francisco: Asian Art Museum.
- Francis, Peter Jr.  
2002 *Asia's Maritime Bead Trade, 300 B.C. to the Present*. Honolulu: University of Hawaii Press.
- Han Han (Luo Yuan Yuan)  
1998 *Chinese Antique Glass (Zhongguo gu boli)*. Taipei: Yishu Jia Chubanshe. Unpublished English translation by Jeff Keller.
- Hector, Valerie  
2005 *The Art of Beadwork: Historic Inspiration, Contemporary Design*. New York: Watson-Guptill.
- 2013 Chinese Bead Curtains, Past and Present. *Beads: The Journal of the Society of Bead Researchers*. 25 (forthcoming).
- Hui Li  
2008 Chinese Glass before the Han Dynasty. PhD dissertation, Eberhard-Karls University of Tübingen.
- Jin Tianhe  
2013 (1903) The Women's Bell. In *The Birth of Chinese Feminism: Essential Texts in Transnational Theory*, ed. Lydia H. Liu, Rebecca E. Karl and Dorothy Ko. New York: Columbia University Press.
- Kan, Paddy and Robert K. Liu  
1984 Chinese Glass Beadmaking. *Ornament* 8(2): 38-67.
- Landsberger, Stefan R. and Marien van der Heijden  
2009 *Chinese Posters: The IISH-Landsberger Collections*. Munich: Prestel-Verlag.

- Ledderose, Lothar  
2000 *Ten Thousand Things: Module and Mass Production in Chinese Art*. Princeton, NJ: Princeton University Press.
- Liu, Robert K.  
1995 Ancient Chinese Ornaments, Zhou to Han. *Ornament* 19(1): 46–55.
- Lu Xing  
2004 *The Rhetoric of the Chinese Cultural Revolution: The Impact on Chinese Thought, Culture and Communication*. Columbia: University of South Carolina.
- Meng Hui  
2009 The Elegant Blue Bead Curtains of the Temple of Heaven (Tiantan lan zhulian xiu). *Beijing Youth Newspaper (Beijing Qingnian Bao)*, 19 Oct. 2009. <http://www.qianlong.com/2009-10-21>, accessed Aug. 31, 2012. Unpublished English translation by Jeff Keller.
- Sprague, Roderick and An Jiayao  
1990 Observations and Problems in Researching the Contemporary Glass-Bead Industry of Northern China. *Beads* 2: 5–14.
- Wang Anyi  
1995 *Song of Everlasting Sorrow: A Novel of Shanghai*, translated by Michael Berry and Susan Chan Egan. New York: Columbia University Press.
- Zhang Weiyong  
2008 Boshan Liuli. In *Boshan Pottery, Porcelain and Glass Culture (Boshan Taoci, Liuli Wenhua)* Tianjin Guji Chubanshe, Tianjin. Unpublished partial English translation, Jin Shenghua.
- Zhang Qiyun, Lin Yin, Gao Ming (eds)  
1985 *The Encyclopedic Dictionary of the Chinese Language (Zhongwen dacidian)*. Taipei: Zhongguo Wenhua Daxue Chubanshu, Unpublished partial English translation by Jeff Keller.



Plate XXXII : Fig 1 striped curtain



Plate XXXIII : Fig 2 : lantern curtain



Plate XXXIV : Fig 3 Chinese characters

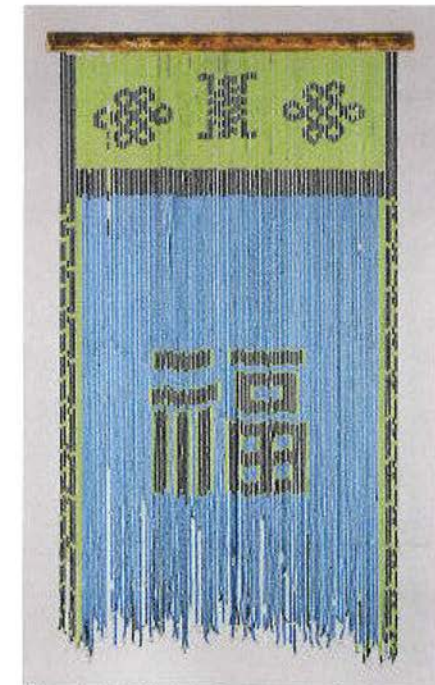


Plate XXXV : Fig 4 geometric with inscriptive motifs



Plate XXXVI : Fig 5 : phoenix and peony



Plate XXXVII : Fig 6 pictorial with inscriptive motifs



Plate XXXVIII : Fig 7 geometric, pictorial and inscriptive motifs



Plate XXXIX : Fig 8 crane/pine curtain