

BEAD NETTING AND PLAITING TECHNIQUES IN THE PERANAKAN WORLD

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It has long been recognized that the Peranakan Chinese peoples of Southeast Asia were expert bead embroiderers. As it happens, they were also expert bead netters and plaiters. After establishing a conceptual framework for discussing bead netting and plaiting techniques in general, this article discusses 14 pieces of Peranakan Chinese (or Minangkabau) beadwork and various techniques. The techniques likely derived not just from Europe, as early researchers tended to assume, but from island Southeast Asia and China as well. Knowledge of these and other needleworking techniques helped Peranakan beadworkers devise radically new permutations, some of them highly complex. Additional factors in the creation of new beading techniques are also considered.

INTRODUCTION

At first glance, the repertoire of Peranakan Chinese beadworking techniques appears to be small and static. Yet, as previously published examples are re-examined and additional pieces located, startling surprises come to light. This article explores some of the bead netting and plaiting techniques that flourished in the Peranakan world from ca. 1895 to ca. 1945, on the assumption that techniques, carefully interpreted, teach us things we cannot learn from motifs, patterns, or contexts of use (Nabholz-Kartaschoff 2010). Techniques emerge in worlds of practice, where tradition and innovation come face to face, as makers shape materials to ever-changing ends.¹ Peranakan Chinese bead netters and plaiters shaped beads in diverse ways, using traditional techniques common in many cultures, and innovative techniques used nowhere else in the world. This study examines a small portion of an exceptional legacy, one that expands the world's repertoire of beading techniques. The remainder awaits further research.

The “Peranakan World” and “Peranakan Beadwork”

Since at least the Southern Song dynasty (1127-1279), Chinese peoples have been sailing to the *Nanyang* or southern

oceans in mainland and island Southeast Asia to trade or, in the early Ming dynasty (1368-1644), exact imperial tribute from local rulers during maritime missions lasting many months (Reid 1996:17 ff.). These contacts infused “Chinese blood, wealth and technology” into the region, eventually enabling Chinese to “assume key positions in Southeast Asian trade and statecraft” (Reid 1996:25-27). From the late 14th or early 15th century, the Chinese apparently began to establish small commercial settlements in Java, Sumatra, and elsewhere (Lee 2014:82; Reid 1996), while retaining ties to their ancestral homelands on periodic return visits, or through relatives, friends, and associates. Thus, the Chinese, many of whom originated in Fujian and Guangdong provinces in south China, were already on the scene when the Portuguese, Dutch, and British arrived in Southeast Asia to assert European commercial and colonial interests. In 1619, the Dutch East India Company (*Vereenigde Oost-Indische Compagnie* or VOC) made Batavia (modern-day Jakarta, on the island of Java in Indonesia) the capital of what would eventually become the Netherlands Indies, comprising most of the islands of what is now Indonesia. In 1826, the British East India Company founded the British Straits Settlements along the Straits of Malacca separating what is now peninsular Malaysia from Indonesia; the early Straits Settlements included Penang, Malacca, Singapore, and Dinding in what is now Perak state, peninsular Malaysia.

Because Chinese women did not leave China in significant numbers until the late 19th century, Chinese men usually married native women, among them Batak, Balinese, and Javanese (Skinner 1996:57), Bugis from South Sulawesi, Siamese from Kelantan, Thai-speaking Muslims from peninsular Malaysia (Tan 1999:49), Dayaks from Borneo (Heidhues 2003:26, 33-35) as well as women from coastal India, Burma, and Papua (Lee 2014:83). That so many of these women were former slaves does not matter for our purposes; that a few might have known how to do beadwork, an activity gendered female in much of island Southeast Asia (Maxwell 1990:63) may be significant, as we shall see. Together, these Chinese men and native

women spoke Malay and/or Chinese (including Mandarin or dialects such as Cantonese, Hokkienese, Hakka, or Teochiu), practiced Malay and Chinese customs, and taught their dual-heritage children Chinese rituals and values. For personal or political reasons, some of the Chinese men converted to Islam and took Islamic wives (Lombard and Salmon 1993). By the early 19th century, the creolized descendants of these intermarriages came to be known as *Peranakan* or “locally-born” (Lee 2014:90-94) in Indonesia, and as “Straits Chinese” in the Straits Settlements. A Malay word, *peranakan* was also used to refer to locally-born peoples of other nationalities as well. Herein, however, “Peranakan” refers solely to Peranakan Chinese, including the Straits Chinese, who are culturally Peranakan Chinese (Tan 1999:48).

The hard-working Chinese and their offspring did well in European colonial port cities, adopting lucrative occupations ranging from “purchasing monopolies and state tax farms” to growing and trading lucrative cash crops such as sugar; mining and trading tin; shipping and ship chandlery; and acting as agents or compradores for European enterprises. All the small enterprises and services in the colonial towns were also run by Chinese, from the retail of sundry goods to metalsmithing, carpentry, construction, and the like (Lee 2014:95).

From 1850 to 1881, the number of immigrants from south China to Southeast Asia swelled; in Penang, Malacca, and Singapore alone it tripled (Cheah 2010:67). Known as *xin ke* or *sinkhek* (Chinese/Hokkienese: newcomer) in Malaysia and *totok* (Malay: pure) in Indonesia, these new immigrants – poor, rough, and often uneducated – formed communities apart from the Peranakan Chinese whose fluency in Western languages and familiarity with European colonial systems conferred wealth, social prestige, and an elite material culture in which beadwork flourished, reaching its apogee during the late 19th and early 20th centuries (Cheah 2010:61 ff.; Khoo 1996:35 ff.). The import into Southeast Asia of European glass and metal “seed” beads in beautiful colors and surface finishes did much to stimulate Peranakan beadwork production (Cheah 2010:31 ff.). We have no proof that *xin ke* or *totok* owned beadwork or produced it for others, although the latter seems a distinct possibility.

Lacking access to sources and research methods that we take for granted, early researchers such as Ho Wing Meng assumed that Chinese *nyonyas*, or “womenfolk of the Peranakan Chinese” communities (Cheah 2010:1) living in the area now known as Malaysia and Indonesia, likely produced the beadwork themselves within the confines of their homes, usually in preparation for elaborate family weddings replete with sumptuous, beadwork-embellished

bridal chambers (Ho 1987:13, 57). In 1989, evidence surfaced that pieces of beadwork had been produced for sale by local Chinese shops which stamped the pieces with their chop marks (Cheah 2010:117; Eng-Lee 1989:78, bottom).

Pioneering research by Hwei-F'en Cheah complicates the narrative still further by suggesting that a number of pieces may have been made in China, Burma, Vietnam, or elsewhere, possibly to designs specified by the Peranakan Chinese or their intermediaries (Cheah 2010:29, 2016). Cheah has found the names of women who made beadwork for sale. In the late 19th century, one of them, a resident of Penang, Siti Rahmah binte Haji Yahya, of Hadrhami heritage, reportedly made the earliest known examples of “Peranakan Chinese” bead nets and plaits using several sophisticated techniques (Cheah 2010:117 ff.). How she came to learn these techniques we do not know; they began to appear around 1895, out of the blue, as it were. These findings have destabilized our notions of “Peranakan beadwork” (Cheah 2016). No longer can we view it as a homogeneous genre; nor can we be sure that the work was performed exclusively by women (Cheah 2010:314). Inevitably, our assumptions about where a piece was made and by whom – whether in a private home by Peranakan “domesticated daughters” and “dutiful wives,” meeting family needs, or for sale through personal contacts or a commercial workshop – inflect the histories we write. Our assumptions are all the more important because so few pieces of Peranakan beadwork bear the makers’ names and provenance tends to be sketchy or nonexistent; we are often reduced to guesswork (Cheah 2016).

As used here, the term “Peranakan beaders” refers to a heterogeneous set of makers, first and foremost, to Nyonyas in Malaysia, Indonesia, and parts of mainland Southeast Asia, beading at home for personal or familial use, but also to others, beading for commercial purposes, whether female or male, residing in Southeast Asia or China. Thus, “Peranakan beadwork” is a pluralistic genre, the multifaceted product of intersecting lives. Perhaps this is not surprising, since the “Peranakan world” was a cosmopolitan, multicultural place, geographically localized in what is now Malaysia and Indonesia plus parts of mainland Southeast Asia, but linked genetically, economically, and notionally to other regions, especially to China and Europe. Visitors and settlers from India, the Middle East, and elsewhere brought their own ideas, customs, and methods to the heady colonial mix as they settled or passed through.

Instead of positing a single, definitive style of Peranakan beadwork, it probably makes more sense to identify several more or less closely related regional or local styles that changed over time (Cheah 2010:231 ff.). For, like Peranakan culture itself, Peranakan beadwork was highly sensitive

to shifting tastes and “regional and global trends” (Lee 2014:80-81). It was also a platform for brilliant advances in how beads were worked. Before taking a closer look, we pause for a short tutorial on beadwork technique.

General Beadwork Concepts and Terms

Unlike bead embroideries, in which beads are stitched to textiles or other grounds, bead nets and plaits are textiles in their own right – freestanding two- or three-dimensional beaded structures – which may or may not be stitched to a ground (Loebèr 1913:32). No classification system exists for the techniques used to produce such beaded textiles, nor has a standard terminology been established, although early beadwork scholars did offer diagrams of some techniques (Lemaire 1960:228-233; Orchard 1975:106 ff.). To promote clarity, I introduce a simple conceptual framework with a series of terms drawn partially from the textile and beadwork literature, incorporating diagrams as space allows. All of the terms are subject to change as research continues. Appearing initially in italics, the terms are applicable to both two- and three-dimensional bead nets and plaits. The universe of three-dimensional bead netting and plaiting techniques is complex, however, and merits a further set of terms. On the whole, Peranakan Chinese beaders favored techniques for creating two-dimensional bead nets and plaits, often adapting the techniques to three-dimensional purposes, rather than using true three-dimensional techniques per se, which build hollow structures (Hector 2005:32-37), generate self-replicating internal armatures (Hector 2005:91, top), or both.

Thread structure denotes the number and organization of threads in a given technique. Reframing distinctions long implicit in the beadwork literature,² I will call a piece a *net* when it is formed with a single thread that is periodically tied off and replaced with a new thread (Figures 1-2) and a *plait* when it is formed with one or more sets of threads.³ In beadwork there are at least two types of plaits: single thread and multiple thread. A *single-thread plait* typically begins when a single thread is folded in half to create two parallel threads which are then beaded together to form a single beaded strand (Figure 3).⁴ A *multiple-thread plait* typically begins either with a single-thread plait to which at least one column is added (Figure 4) or with a separate *horizontal anchor thread*, over which single threads are doubled and secured in place with a knot or one or more beads (Figure 5). There are many exceptions to the foregoing generalities; at least three may be observed in Peranakan Chinese beadwork. First, nets and plaits may begin with threads that are stitched to a ground fabric. Second, like multiple-thread plaits, nets may also incorporate separate horizontal anchor threads (Lemaire 1960: Figures 14-15). Third, single-thread

plaits can morph into multiple-thread plaits and vice versa within the span of a few centimeters; innovative Peranakan bead plaiters seem to have been fond of such *dual-thread structures*. It is much more difficult for a net to morph into a multiple-thread plait or vice versa.

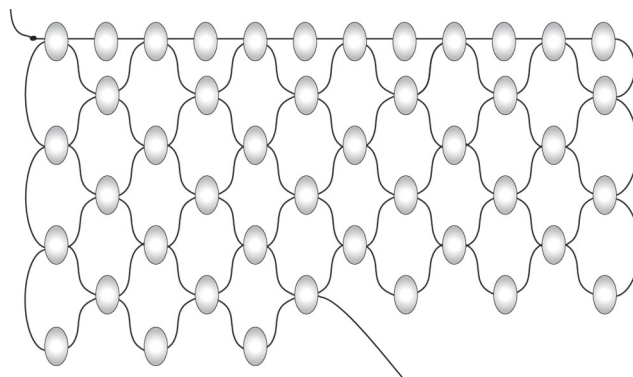


Figure 1. Simple closed-diamond net with four beads per cell, colloquially known as “peyote stitch” (one bead is added per stitch in this diagram and two beads per stitch in the panel in Figure 30) (all drawings by Carrie Iverson).

Bead nets and plaits are distinct from bead weaves, which entail the use of a separate weft thread. This distinction is often overlooked in the beadwork literature. Many researchers, myself included, have referred to bead nets and plaits either inconsistently, as “nets” or “weaves” (Hector 1995, 2005) or, ambiguously, as examples of “threading” (Ho 1987:54 ff.). Woven beadwork constitutes a category of its own, parallel to that of netted and plaited beadwork. No evidence of bead weaving has yet been found among the Peranakan Chinese (Eng-Lee 1989:27). Although a few pieces of bead crochet have been found, that technique lies beyond the scope of this study.

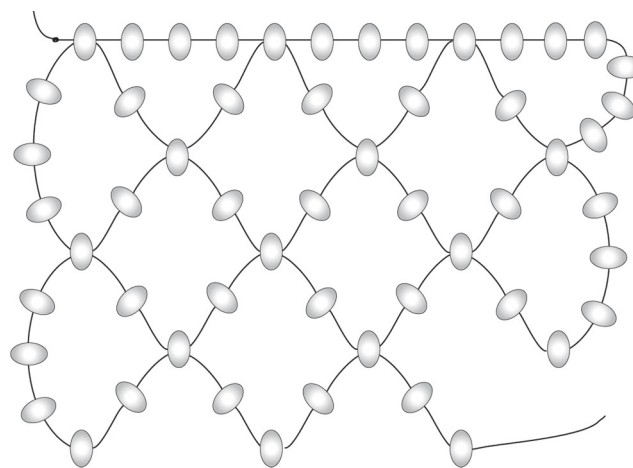


Figure 2. Simple open-diamond net with eight beads per cell (see Figures 8-9, 29 [lower register]).

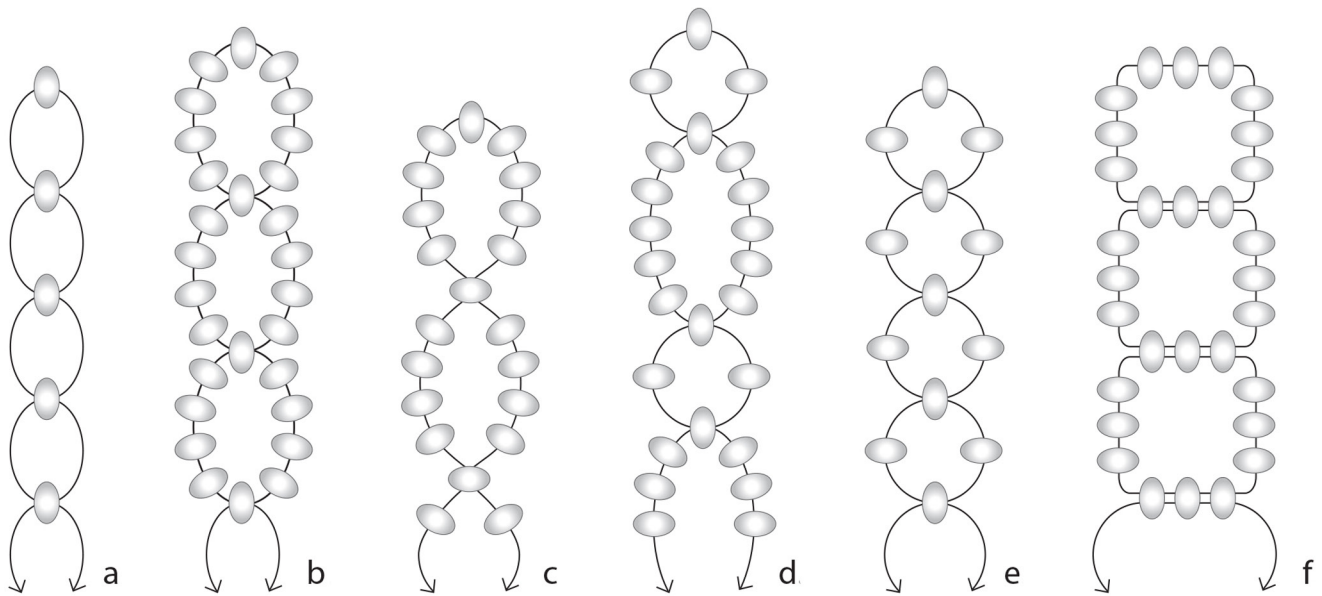


Figure 3. Single-thread plaits: a) beads connected in a simple 180° line, colloquially known as “ladder stitch,” rarely used in Peranakan beadwork; b) simple open ovals with connecting beads aligned vertically which form the scalloped edging in Figure 9; c) simple open ovals with connecting beads aligned horizontally; d) a compound of closed right-angle cells and open ovals; e) simple closed right-angle cells used to construct the chains in Figure 26; and f) simple open right-angle cells, used to create the parallel vertical bands connecting circular platelets in Figures 12-13.

The threads used to create bead nets and both kinds of bead plaits may move horizontally, vertically, diagonally, spirally, or in other directions along a *thread path* specific to the technique in use. Maintaining even *thread tension* is crucial for a smooth, regular appearance. If threads are pulled too tightly or not tightly enough, beads may bunch

together or slide apart, exposing empty threads. It is also possible to net or plait beads without using an established technique or a predetermined thread path, which is how new techniques and approaches are invented. For example, starting in the 1980s, Joyce J. Scott of Baltimore, Maryland, revolutionized American beadwork by working intuitively to

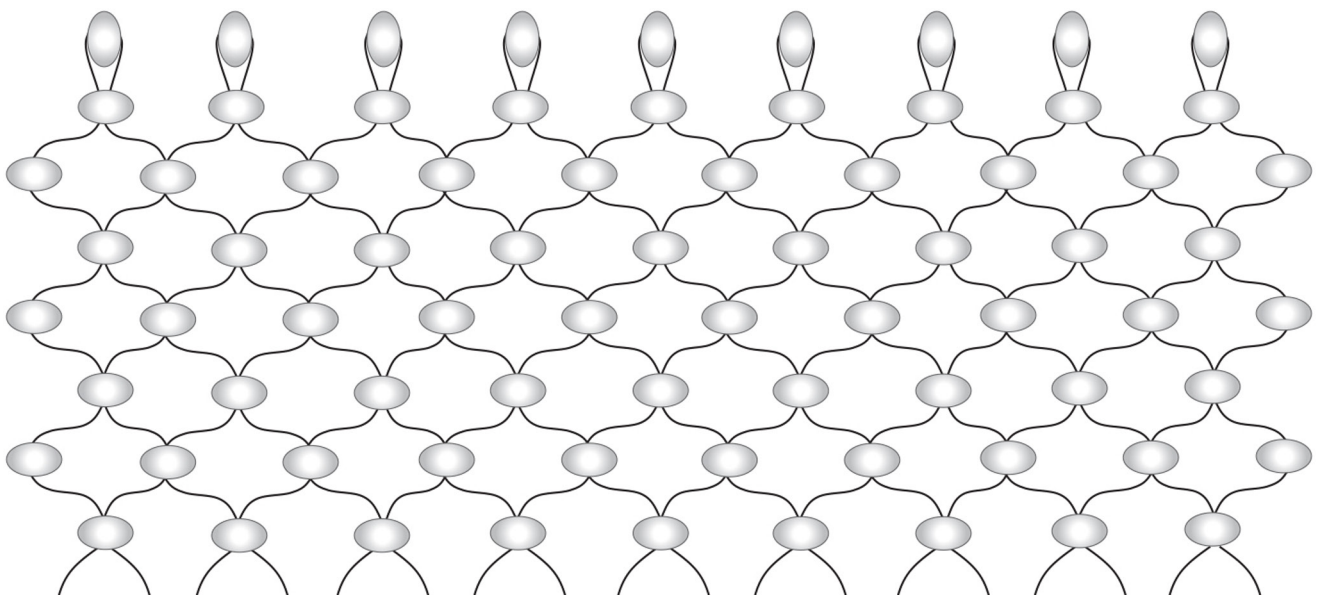


Figure 4. Simple closed-diamond plait with four beads per cell, rarely used by Peranakan beaders.

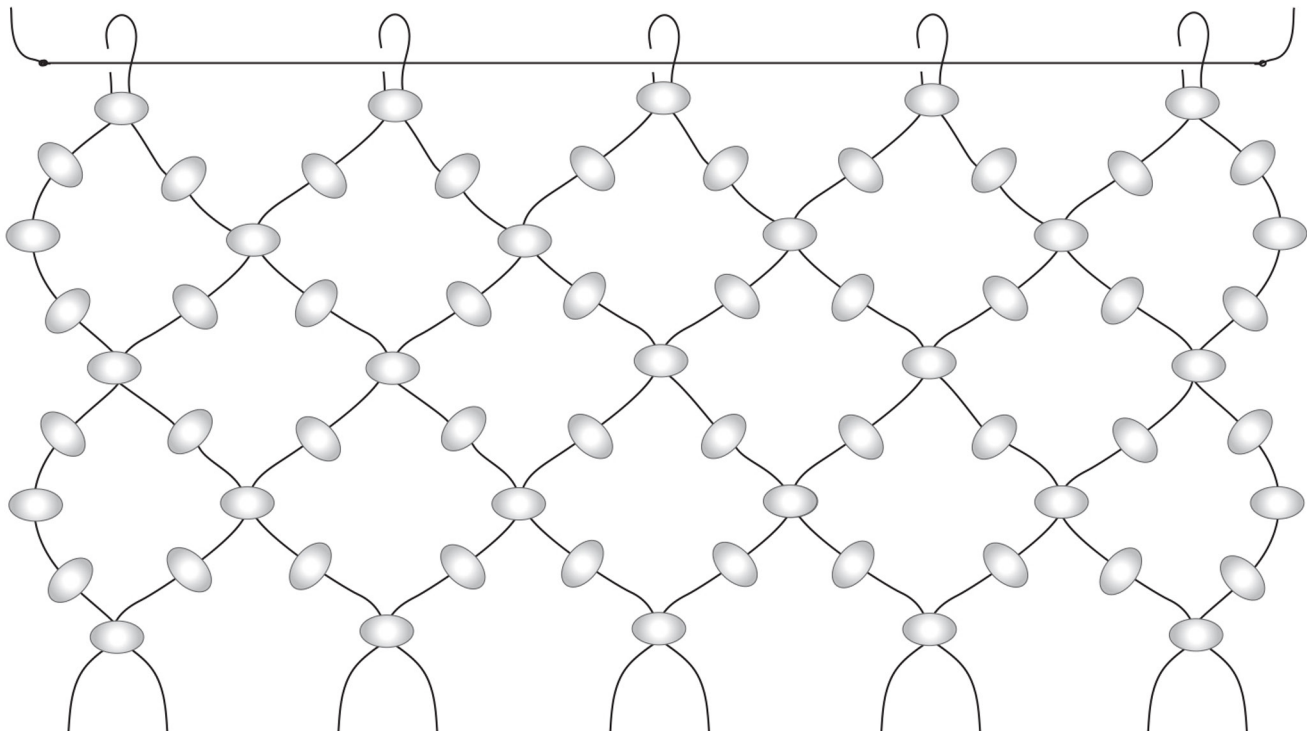


Figure 5. Simple open-diamond plait with eight beads per cell (see Figure 8, top edge).

construct asymmetrical, three-dimensional, hollow human figures using complex variations of the ancient, closed-diamond net known as “peyote stitch,” shown in Figure 1 (Scott et al. 2000: Figures 42-46).⁵

At this point we must raise a caveat familiar to textile analysts (Rowe 1984). From photos alone, one cannot conclusively determine whether a freestanding beaded panel was made with a netting or a plaiting technique. This is because panels with identical *surface-level bead patterns* may have different underlying thread structures. In other words, in some cases, nets and plaits may look alike. One way to resolve the ambiguity is to examine the upper and lower edges of a piece, which may reveal its thread structure. Another way is to unravel threads in a small area. When close personal examination of a piece is not possible, I will call the technique in question *a net or a plait*.⁶

While a beading technique can be thought of as a process (or a recipe for a process), a bead pattern can be viewed as a product of that process. Surface-level bead patterns (or simply “bead patterns”) comprise groups of individual *cells*. A cell is a two- or three-dimensional unit, symmetrical or asymmetrical in shape, composed of beads, which shares some of its beads with one or more neighboring cells. Usually, we judge the shape of a cell by looking at the edges or equators of beads, not the holes. Common cell shapes include triangles, squares, diamonds, pentagons, and

hexagons. For the introductory purposes of this article, a bead pattern is *simple* if it conjoins cells of one shape and *compound* if it conjoins cells of two or more shapes; future researchers may wish to make other distinctions. Both types of cell configurations may be present in different areas of a single piece. Techniques can also be divided into those that produce simple vs. compound bead patterns.

Cells may be *open*, enclosing negative spaces that are easily seen, or *closed*, with negative spaces that are difficult to discern. *Mesh* refers to the degree of openness of a beaded structure; most bead netting or plaiting techniques may be adapted to render either *open-meshed* (or *open*) (e.g., Figures 2, 3,b-d, f, 5) or *closed-meshed* (or *closed*) (e.g., Figures 3,a,e, 4) structures. In some pieces, open and closed techniques are combined. Thanks to contemporary computer graphics programs, the degree of openness can be estimated, with the estimate expressed as the *diaphaneity*, or percentage of open spaces vs. beads.⁷ Both mesh and diaphaneity are determined by a combination of thread path and number of beads per stitch, with a *stitch* being a unit of progress involving the addition of one or more beads at a time to the whole. “Stitch” also serves as a generic label for a technique; both usages are utilized herein, with context determining which is meant.

The more beads added per stitch, the greater the diaphaneity. Thus, a single technique may produce structures

that are more or less diaphanous, depending on how many beads are added per stitch (compare Figures 1-2 and 4-5). As a general guideline, we may say that closed beaded nets and plaits manifest a diaphaneity of approximately 15% or less, which tends to inhibit the passage of light, while their open counterparts manifest a diaphaneity of 25% or more, which facilitates the passage of light. We will call the former *minimally diaphanous* and the latter *appreciably diaphanous*, reserving *maximally diaphanous* for nets and plaits exhibiting diaphaneities of 70% or more. Examples of the latter seem to be rare not just in Southeast Asia but around the world. A 20th-century Balinese temple ornament or *salang* stands as one notable exception (Brinkgreve 2015: pers. comm.; Newman 1977:274), beaded in an open-diamond net or plait, and we will encounter another later on.

Connections between beads and threads impart structural integrity. Whereas techniques used to create non-beaded textiles typically form connections with intersecting threads, bead netting and plaiting techniques may form connections through beads, as Peranakan beadworkers usually chose to do, with threads, or a combination of the two (Hector 1995:17). The three types of connections are diagrammed in Figure 6. This expanded capacity to form connections sets beaded textiles apart from non-beaded textiles, for the simple reason that structures can be created with beads that cannot be created with threads alone. It follows that systems for classifying non-beaded textiles such as the one found in Emery (1966) are not fully adequate for their beaded counterparts, and that bead netting, plaiting, weaving, and related techniques constitute a distinct branch of textile technology.

As the three irreducible elements of any bead netting or plaiting technique, thread structure, thread path, and type(s) of connection(s) also determine the angles at which the outer edges (or equators) of beads are positioned and how the holes are oriented. For example, “right-angle” techniques orient bead edges and holes at right angles to one another. Although several recent theorists have advanced mathematical analyses of certain bead netting techniques as

“angle weaves” or expressions of tiling theory (Fisher and Mellor 2010), the full potential of *angle theory* as a tool for describing bead patterns has yet to be realized. It might be possible, for instance, to express all netting, plaiting, and allied techniques in terms of angles and/or curves.

No matter their thread structure or how they form connections, all bead netting and plaiting techniques may be modified by the thread path, the type(s) of connections formed, or the number of beads added per stitch. If the modifications are minor, a variation results; if major, a new technique emerges. Developing adequate names for such departures is difficult and to some extent arbitrary; there is no perfect method. Leaving variations for another study, I will assign new techniques multi-part names consisting of surface-level bead patterns, thread structures, and basic degrees of diaphaneity, e.g., open or closed. I will either name pre-existing techniques in a similar manner or adopt pre-existing names such as “ladder stitch,” “peyote stitch,” and “square stitch.”

We conclude this brief primer on beadwork techniques with terms that refer to geographic distributions. As a result of both diffusion and independent invention, *global techniques* are widely distributed, having been practiced in many parts of the world for periods of time extending in some cases to several millennia. Examples of bead nets or plaits with global or near-global distributions include those that incline beads at 45°, 90°, and, to a lesser extent, 180° angles.⁸ For that matter, bead embroidery can also be thought of as a global technique. The ease with which global techniques can be learned probably contributes to their tenacity. *Regional* or *local techniques* are more sparsely distributed; they may have emerged more recently. Criteria for distinguishing regional vs. local techniques have yet to be established, but I suggest that “regional” compares to “local” as “nation” compares to “state.” *Idiosyncratic techniques*, confined to one beader or a small group of beadworkers, might be seen as a sub-genre of local techniques. Of course, generalizations of this nature were easier to maintain in the pre-internet era, when the pieces illustrated in this article were made.

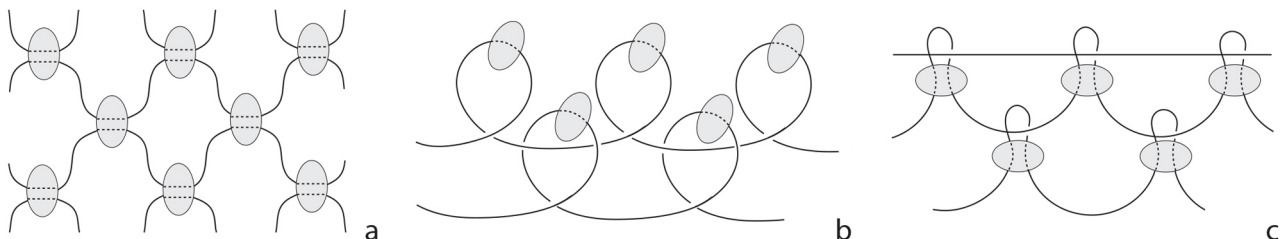


Figure 6. Connections: a) formed with beads alone, the preferred method of most Peranakan Chinese beadworkers; b) formed with threads alone; and c) formed with beads and threads.

SIMPLE DIAMOND NETS AND PLAITS AND COMPOUND INNOVATIONS

Simple diamond netting and plaiting techniques orienting beads at 45° angles (Figure 7) have been practiced around the globe following their apparent origin in ancient Egypt by about 2500 B.C. (O'Neill 1999: 306-307). The same techniques have long been practiced in the indigenous island Southeast Asian cultures amongst whom the mainland Chinese ancestors of the Peranakan Chinese settled in centuries past; countless examples have been published over the years (e.g., Gittinger 1979:74, Figure 660; Loebèr 1913: Figures VII-VIII, X-XVI; Maxwell 1990: Figures 29, 79, 82, 132-133); Newman 1977:274 [top]; Tillema 1989: Figures 27-28, 155-161; Westerkamp 2002:231, 234, 236). Scholars have suggested that diamond patterns or diagonal grids may have been “a common feature of prehistoric design” in island Southeast Asia (Maxwell 1990:218; cf. 262, 417). In fact, given that diamond patterns have been observed on impressions made in clay by knotted (non-beaded) nets dating to ca. 20,000-15,000 B.C. of the Eurasian Upper Paleolithic, we may conjecture that such patterns have long been basic elements of human textile design (Adovasio et al. 2007: Figure 8.1).⁹

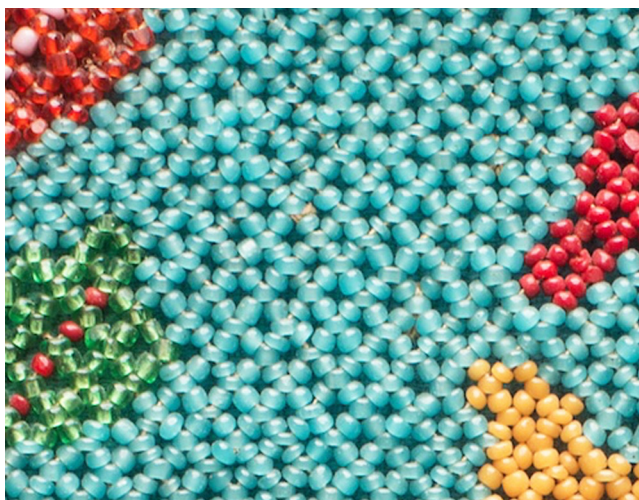


Figure 7. Detail of lower register in Figure 29, showing open-diamonds with eight beads per cell, a pattern preferred by many Peranakan beadworkers (photo: Edmond Lee; courtesy of Ken Yap).

Yet, Peranakan beadworkers did not necessarily derive techniques for making diamond-patterned bead nets and plaits entirely from indigenous island Southeast Asia cultures because the techniques were also employed in China and Europe, by cultures closely linked to Peranakan Chinese culture. Tentative evidence of simple diamond-

patterned beading techniques emerges in China by the Late Western Zhou (ca. 1046-771 BCE) (Lü and Zhang 2007:91), resurfaces in the Tang dynasty (618-907) (Wang 2005: Figures 2.9-10, 2.14, 2.16), and continues into the Qing dynasty (1644-1911) (Garrett 1994: Figure 4.18; National Palace Museum 1986: Figure 324; Xu 2004: Figures 175-178) and beyond. In Europe, beads were netted or plaited in diamond patterns by the 17th century or before (Hector 2005:114; Jen Segrest 2015: pers. comm.). It is possible, even likely, that Europeans transmitted knowledge of these techniques to the Peranakan Chinese. But some of the latter may already have been familiar with them.

Many Peranakan beadworkers used these global diamond nets and plaits much as they had been used for centuries. Others transformed them.

Simple Diamond Nets and Plaits

As they practiced these simple diamond netting and plaiting techniques, Peranakan beadworkers made systematic choices. First, they favored open cells in which each diamond encloses a negative space that is easily seen. In such *simple open-diamond* bead nets and plaits (Figures 2 and 5) all cells are identical in shape and size, all cells share beads with one or more neighboring cells, all connections are formed with beads, and the holes of all connecting beads are oriented in the same direction, either east-west, or north-south (e.g., Cheah 2010: Figures 1, 8, 10; Eng-Lee 1989:33, 39, 42; Ho 1987: Figures 2, 5, 8).¹⁰ The oldest published example of Peranakan beadwork, a *ba xian* or eight immortal headdress depicted in a 1724 engraving, bears witness to this preference (Chin 1991:150; Lee 2014:86, Figure 6.9),¹¹ as does an early-20th-century photo of the Tan Kheam Hock family which shows two women wearing *baju panjang* garments featuring designs evoking the bead or pearl bodices common in Chinese Buddhist visual culture since at least the Tang dynasty (Chin 1991:10-11; see also Scarpari 2000: Figure 70; Wang 2005: Figures 2.9-10, 2.14, 2.16).¹²

Second, when making simple, open-diamond nets and plaits, Peranakan beadworkers often added three beads per stitch, which assured a count of eight beads per cell. By adding only one bead per stitch, for a total of four beads per cell, Peranakan beadworkers could have fashioned the simple, closed-mesh, diamond-patterned nets and plaits that were common in indigenous island Southeast Asian cultures by the end of the 19th century, as well as in China, Europe, and elsewhere. But the Peranakan Chinese rarely used such *simple closed-diamond* nets and plaits (Figures 1 and 4); perhaps they too closely resembled what could more easily be created with

bead embroidery, especially “petit-point bead embroidery” (Cheah 2010: Figures 5, 69-70, 128, 161). Time and again, Peranakan beadworkers opted for netting and plaiting techniques that would yield appreciable ratios of negative spaces to beads, manifesting a diaphaneity of 25% or more. In contrast, simple closed-diamond bead nets and plaits are generally less than 15% diaphanous.¹³

Two examples of Peranakan Chinese beadwork made with open-diamond techniques illustrate many of the points noted above. Cutting into small areas of each piece reveals that the first is made with a netting, the second with a plaiting technique. The diaphaneity of both pieces measures approximately 25%. The first example, a 20th-century bed curtain tie, juxtaposes modest bead embroidery in the upper register; simple open-diamond bead netting in the tall second and serrated third registers; and single-strand bead tasseling in the fourth register (Figure 8). The second and third registers were separately made, the former without a separate horizontal anchoring thread and the latter with one that was probably integrated as work progressed; the two approaches are diagrammed in Lemaire (1960: Figures 10-12, 14-15). Interestingly, the tassels were also separately produced and attached. These and other disparities in material and craftsmanship among the four registers leave us wondering whether this piece represents the labor of one young woman, working at home to familial standards of *alus* (good) craftsmanship (Cheah 2010:108, 115-116), as early researchers would likely have assumed, or whether one or more of the registers was commercially produced. Conceivably, both modes of production may have been in play; anecdotal evidence suggests that modular methods may have been adopted in some cases, with beaded borders, tassels, or edgings commercially available as add-ons for existing pieces (Cheah 2010: Figure 19, caption). Modular methods of production were common in China for centuries (Ledderose 2000:1-7). Once again, our analysis of the meaning of such a piece will vary according to the qualities of its workmanship, the context of its making, and the perceived identity of its maker(s).

The second example of an open-diamond technique forms the upper register of a wedding bed valance probably made in Penang during the early 20th century (Hector 1995: Plate IVB, 2005:52). The valance exhibits extraordinary levels of effort and expertise, delivering a consistent aesthetic with refined workmanship and a single type and size of the two-cut European glass beads known as “charlottes” (Cheah 2010:35). Close study confirms that work on the upper register began with the row of 104 semi-circular scallops that runs along the register’s lower edge (Figures 9-10). A photo of a similar valance in progress reveals many yet-to-be-beaded threads with no needles at their ends (Figure 11);



Figure 8. Detail of a bed curtain tie, showing the second register from the top worked in an open-diamond net without a separate horizontal anchor thread at top, and the third, serrated register worked in the same way, with a separate horizontal anchor thread. Probably Peranakan Chinese, 20th century (photo: Valerie Hector; courtesy of Jan Smith, Dalmeny, Australia).

perhaps the ends were smoothed and/or stiffened with wax or another substance (Cheah 2010: Figure 105). We do not know whether plaiting progressed from the scallops up or the scallops down, but scallops, when present on a piece, are often situated at its lower edge. Each scallop in Figure 9 consists of three separate *single-thread open-oval plaits* of



Figure 9. Detail of a wedding bed valance showing scalloped edging along the lower edge of a pictorial panel featuring bird and floral motifs. Probably Peranakan Chinese, Penang, late 19th or early 20th century (photo: Valerie Hector; private collection).

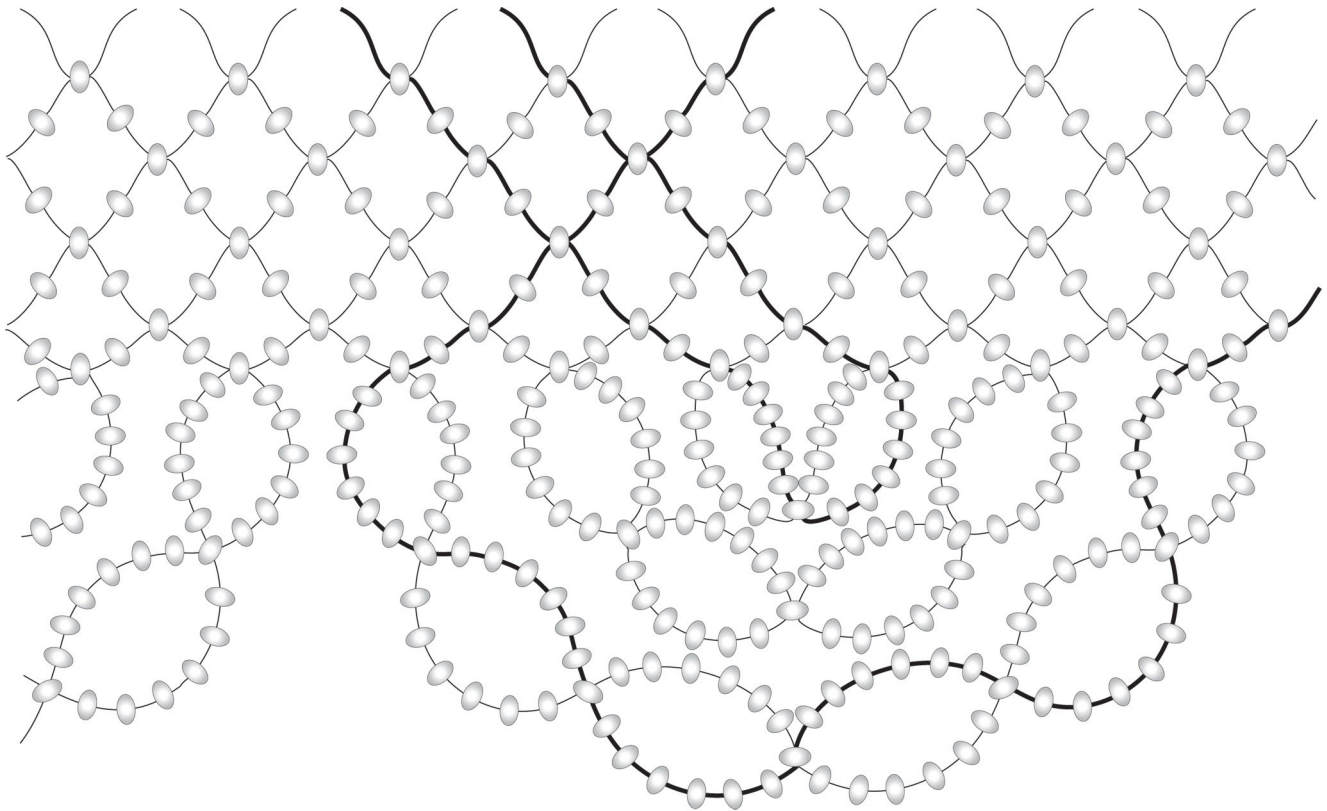


Figure 10. Diagram of the two techniques used in the wedding bed valance (Figure 9), showing three concentric, single-thread, open-oval plaits which transition into a simple open-diamond plait with a diagonal thread path.

the sort shown in Figure 3,b, arranged in concentric arcs in a manner recalling the European-inspired crochet or bobbin lace edgings on various non-beaded Peranakan Chinese textiles, especially the women's blouse known as the *kebaya* (Lee 2014:164, Figure 7.15).

As we shall see, Peranakan beaders made scalloped edgings with other techniques as well, typically using this fashionable stylistic device to soften rectilinear borders (e.g., Cheah 2004: Figures 6-7, 2010: Figures 63, 78,101; Ho 1987: Figures 2, 4, 10-11). In this case, once a number



Figure 11. Bead plait in progress, showing scalloped edging and multiple threads yet to be plaited. Probably Peranakan Chinese, late 19th or early 20th century (photo: Hwei-F'en Cheah; courtesy of Bebe Seet, Singapore).

of scallops were in place, the 12 threads emerging from each scallop began intersecting diagonally with threads from adjacent scallops, connecting beads three at a time in a *multiple-diagonal-thread, open-diamond plait* that was probably worked over a template (Cheah 2010: Figure 104), the better to render the intricate pictorial motifs scrolling across the register. In so doing, the scallops convert necessity – the need for a place to begin an open-diamond plait – into decoration. Efficiency may have been key for other Peranakan beaders as well. One of them began a multiple-thread open-diamond plait not at the perimeter but in the middle, thereby shortening the length of time needed to add new beads while reducing the risks of threads tangling (Cheah 2010:178, Figure 104).

Keeping 1,248 diagonally moving threads flowing properly in opposite directions while uniting an estimated 176,000 beads is incredibly difficult, even if only a few inches are worked at a time. It would have been easier to use a multiple-vertical-thread plait, which would have kept the threads parallel and flowing vertically. Was something gained by moving the threads diagonally instead of vertically? Once the valance was finished, even close observation could not determine its underlying thread structure. Did Peranakan Chinese beaders think diagonal-thread plaits were more traditional or durable? Or did the sheer labor intensiveness of the technique heighten the valance's monetary or symbolic value, perhaps underscoring the wealth or social standing of the family who owned it, or the virtues of the valance's maker, possibly the family's bride-to-be? Or did the longer lengths of thread that diagonal plaits consume resonate with traditional Chinese wishes for longevity, in this case, perhaps, the longevity of the family line? Questions of this nature speak to the nuanced meanings that individual beading techniques convey. Additional research is needed to determine how often Peranakan Chinese beaders and their counterparts in Southeast Asia, China, and Europe plaited beads with vertically vs. diagonally moving threads. As noted earlier, determining the direction of a thread path often requires prising apart or cutting into a piece of beadwork (for a photo of a circular diagonal bead plait produced by the Dayak peoples of Borneo, *see* Hector [2005:6]).

Compound Open-Diamond Techniques

Earlier, we distinguished simple from compound beading techniques, noting that compound techniques create bead patterns with dissimilar cell shapes. One of the earliest surviving examples in the Asian hemisphere may be found on a small scent bag attached to a woman's hair ornament which dates to China's late Southern Song dynasty (1127-1279). Published photos (Zhou et al. 1992: Plates 3, 6) are poor and

existing diagrams (Gao 2001: Figure 266) inaccurate, but the technique conjoins diamonds and octagons (pers. obs. 2006, De'An County Museum, Jiujiang, Jiangxi, Nanchang). Thus, the technique could be called a "diamond/octagon" or "octagon/diamond" net or plait. The following paragraphs examine four other compound diamond techniques, of which three are Peranakan innovations.

Not content to use pre-existing techniques for simple open-diamond nets and plaits, Peranakan beaders appear to have developed innovative compound techniques by deploying a strategy of permutation, incorporating into simple open-diamond nets and plaits cells abstracted from other techniques. In much the same way, it seems, Peranakan beaders abstracted motifs from European or Chinese visual culture and recombined them with indigenous Southeast Asian motifs (Cheah 2010:263).

A tiered hanging ornament from the Minangkabau region of West Sumatra reveals two such compounds. Like other hangings of its kind dating to the mid-20th century (Newman 1977:59), often attributed to the Islamic Minangkabau peoples with whom the Chinese intermarried, the hanging is composed of three circular, wire-framed beaded platelets connected by parallel vertical bands probably made of single-thread plaits, in this case, *open right-angle plaits* (Figure 3,f). Each platelet is stitched in a different technique, probably with wire instead of thread. The middle platelet (Figure 12) features a vertical cartouche that conjoins open diamonds with closed right-angle cells. The format echoes an element of mainland Chinese beadwork design visible in examples dating to the Ming dynasty (pers. obs.) and late Qing dynasty (Francis 1986: Figure 3). Such an *open-diamond/closed right-angle* technique is probably not unique to the Peranakan Chinese, although they may have invented their own versions of it (Crabtree and Stallebrass 2002:128 [top middle], 173 [second from left] and 192 [lower right]; Holm 1984: Figure 171). The cartouche is flanked by two halves of what appears to be a single Chinese macramé knot made of parallel lengths of beads strung on wires, then plaited to simulate the loops of the knot. The lower platelet features a technique which conjoins large open-diamond cells with small right-angle cells, plus open cells with three, four, or five sides, which may have been improvised to get the other cells to fit (Figure 13). This open-diamond/right-angle/polygon technique has not been documented elsewhere.

A third compound diamond plaiting technique used in a small rectangular panel of unknown function requires a kind of code-switching on the part of the beader, who must move dozens of threads vertically, diagonally, and horizontally while alternating between three very different plaiting techniques (Figures 14-15). That all connections are formed



Figure 12. Middle platelet of a tiered hanging collected in West Sumatra in 1946, showing a vertical cartouche containing compound open-diamond/closed right-angle net or plait, flanked by two halves of a single Chinese macramé knot. Probably Peranakan Chinese or Minangkabau (courtesy of National Museum of World Cultures; object no. TM 1678-5).



Figure 13. Detail of the lower platelet of the tiered hanging in Figure 12, featuring a compound open-diamond/closed right-angle/open-polygon net or plait (courtesy of National Museum of World Cultures; object no. TM 1678-5).

with beads must have made the task easier. The initial row contains cells composed of closed right-angle cells; threads flow first diagonally and then vertically before initiating an open-diamond plait whose threads move diagonally, shaping diamonds along with hexagons and other polygons. Soon, the open-diamond plait largely gives way to what could be called a *lateral-ladder plait* (Figure 16) whose threads move horizontally and vertically, laying down parallel rows of beads oriented at 180° angles to one another, which depict small, cross-shaped motifs. Structurally, the cross motifs are weak because the technique leaves alternating pairs of beads connected to the whole with only one as opposed to two threads. Furthermore, in the sample I made, I found it extremely difficult to maintain even thread tension because the threads kept going slack. Once the cross motifs are complete, the open diamonds return. Much more could be said about this *closed right-angle/open-diamond and polygon/lateral-ladder plait*, which ranks as one of the most difficult ever invented. The single example documented thus far may represent an idiosyncratic innovation. A series of tassels worked in single-thread, closed right-angle plaits (Figure 3,e) completes the bottom edge of the panel. The small metal platelets at the tips of the tassels connote

a Sumatran provenance (Hwei-F'en Cheah 2016: pers. comm.).

In a fourth, seemingly rare compound, Peranakan beaders made three notable choices, probably to create visual variety and richness. First, they opted for a dual-thread structure, switching between multiple-thread and single-thread plaits. Second, they conjoined cells of different shapes and lengths, alternating elongated diamonds with short ovals. Third, they augmented dimensionality by increasing the number of vertical strands running through the holes of connecting beads. Thanks to these three choices, this *three-dimensional, elongated open-diamond/open-oval plait* gives a lush, volumetric appearance (Figures 17-18).

TECHNIQUES THAT MAY DERIVE FROM MAINLAND CHINESE INFLUENCE

Early researchers suspected that Peranakan beadwork was derived from or related to European influence (Cheah 2010:41, citing Eng-Lee 1989 and Khoo 1996).¹⁴ It is true that European beading and needleworking techniques influenced Peranakan beaders, but not to the extent



Figure 14. Detail of a rectangular panel of unknown function. Possibly Peranakan Chinese, Sumatra (photo: Valerie Hector; private collection).

previously assumed. Here, we expand the scope of the inquiry, analyzing two Peranakan techniques with fairly close parallels in China, and two techniques which appear to be innovative departures, unknown outside the Peranakan world, yet bespeaking mainland Chinese influence.

Possible Routes of Mainland Chinese Influence

Influences from mainland China reached the Peranakan world in various ways, three of which are most pertinent. First, although little or no trace of them remains in historical documents, beaded items made in China were almost certainly carried to island Southeast Asia on ships that plied the ocean trade, either by Peranakans, returning home from visits to China, or as commercial exports, shipped in quantity. Although it is poorly documented, beadwork has been produced in China since ancient times (Hector 2013:42-43). By 1875, opera costume workshops in the *Zhuangyuan fang* neighborhood of Guangzhou (formerly Canton) reportedly specialized in beadwork. By 1910, “foreign merchants” using “foreign glass beads” began producing pieces specifically for export (Lin 1988:196). Second, beadwork may have been made in China to Nyonya tastes (Cheah 2010:167), just as other items such as porcelain

were. Interestingly, pieces of “Peranakan beadwork” have been found in Southeast Asia bearing “made in China” labels (Cheah 2010:71, Figures 3, 7-10). Third, mainland Chinese bead embroiderers, netters, and plaiters might have emigrated to island Southeast Asia, hoping for a better life or responding to periodic invitations from island Southeast Asian officials, traders, or shopkeepers eager to satisfy a demand for luxury items (Brinkgreve and Sulistianingsih 2009:148).

Indeed, anecdotal evidence suggests that “professional Chinese male embroiderers” living in Southeast Asia may have made beadwork in the Peranakan style (Cheah 2010:314). Peter Francis (2002:62) established a credible precedent for such a technology transfer, arguing that mainland Chinese glass beadmakers set up shop in early-17th-century Banten, Java, and southern Borneo. Judging by the few published examples of Qing-dynasty netted and plaited beadwork, many of them imperial, these Chinese embroiderers – possibly including some of the recently arrived immigrants known as *xin ke* or *totok* – could have been familiar with open-diamond nets or plaits (Xu 2004: Figures 175-178); closed-diamond nets or plaits (National Palace Museum 1986: Figure 324); right-angle nets or plaits (National Palace Museum 1986: Figures 111, 119, 315; Yang and Kao 1987: Figure 61 [three beaded medallions on base]); hexagonal nets or plaits (Li et al. 1992: Figures 25, 69, 73-74, 103); hexagonal/octagonal nets or plaits (Xu 2004: Figure 182); bead dodecahedra (National Palace Museum 1986: Figure 165); wirework (Xu 2004: Figure 28); and other techniques (National Palace Museum 1986: Figure 324; Xu 2004: Figure 143). All of these techniques and more were used to create unpublished examples of non-imperial beadwork in China during the late 19th and early 20th centuries (pers. obs.). Of course, technical proficiency is one matter; the expertise gained from long-term experience in selecting and configuring techniques for different contexts, quite another. If beadworkers formerly employed in imperial workshops in Beijing or elsewhere settled in island Southeast Asia before or after the demise of the Qing dynasty in 1911, the impact might have been significant.

Close Parallels Between Mainland Chinese and Peranakan Chinese Beadwork

In some cases, the parallels are nearly exact. The *simple open-hexagon* net or plait used to construct the fringe of a Peranakan wedding headdress in the Asian Civilizations Museum (Figure 19) also appears on the fringe of a hair ornament made in China, anecdotally attributed to the Hokkien peoples of Fujian province, the ancestors of

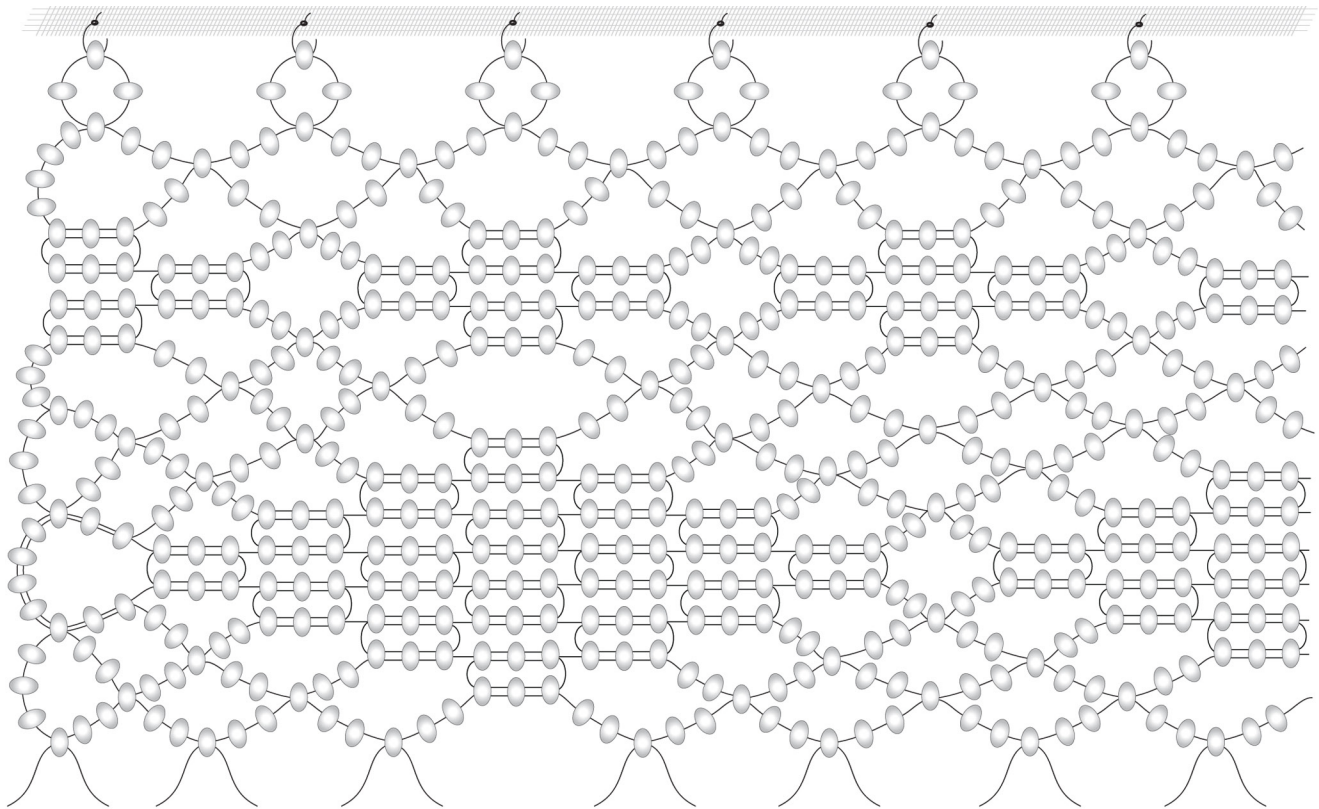


Figure 15. Diagram of the closed right-angle/compound open-diamond/lateral-ladder plait in Figure 14, one of the most difficult bead plaiting techniques ever invented.

many Peranakan Chinese (Figure 20; Tan 1999:38 ff.). The mainland Chinese example is somewhat more diaphanous, because more beads were added per stitch. Motifs on

both pieces are quite similar, consisting of concentric, polychrome, hexagon motifs on backgrounds of clear beads. These technical and visual similarities could be accidental,

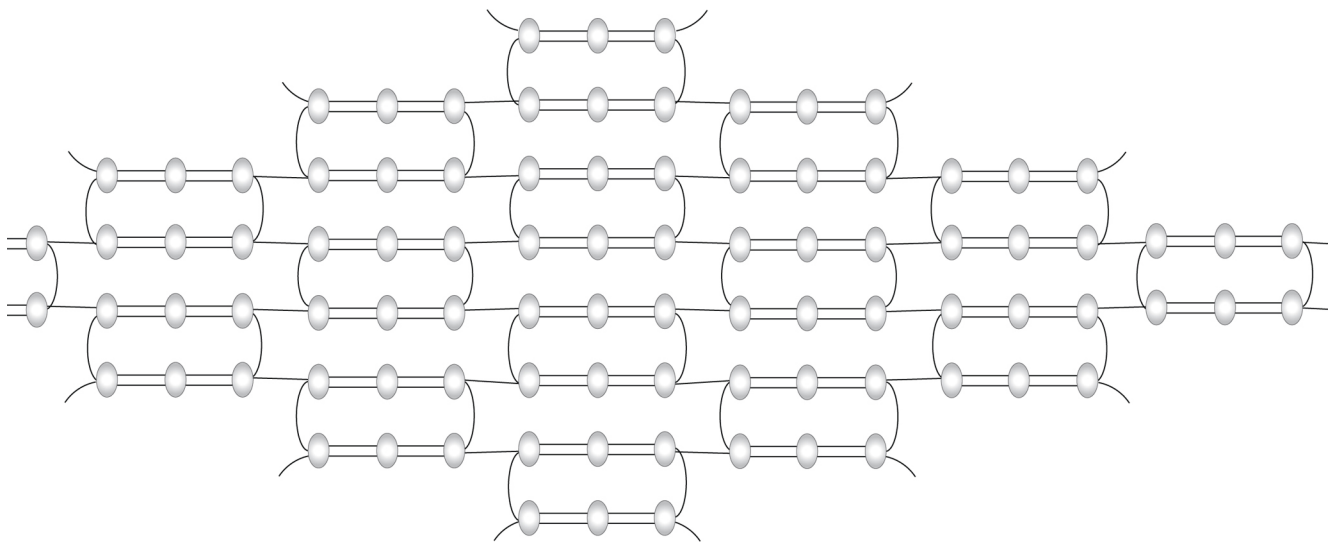


Figure 16. Detail of Figure 15, showing structurally fragile lateral-ladder plait with pairs of beads connected to the whole by one thread instead of two.

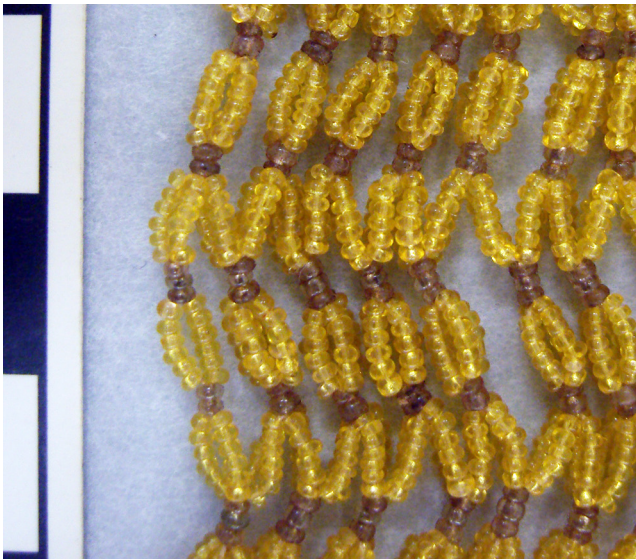


Figure 17. Detail of fringe on embroidered and beaded decoration for a bedpost. Peranakan Chinese, early 20th century (collection of the Asian Civilisations Museum, Singapore; object no. T-0415).

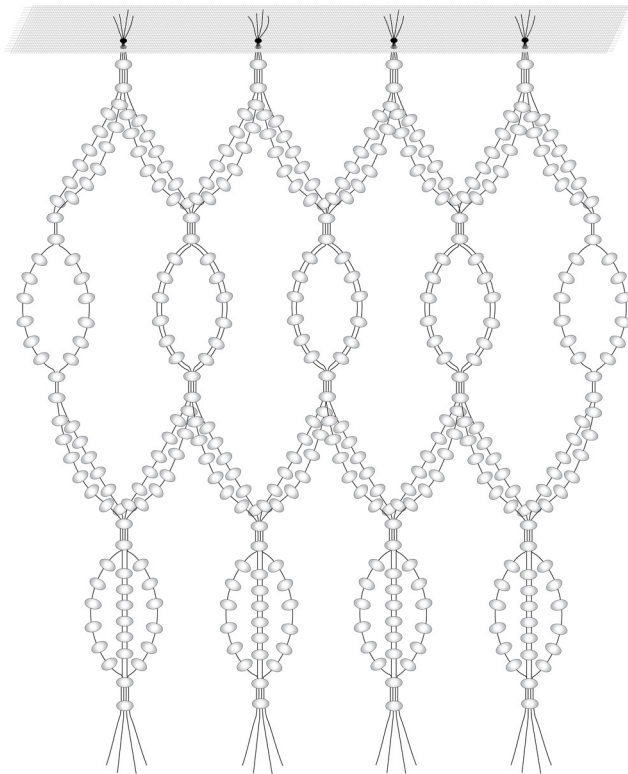


Figure 18. Diagram of the fringe in Figure 17, showing compound, three-dimensional, elongated open-diamond/open-oval plait, which could also be analyzed as a compound, three-dimensional, elongated open-oval/short open-oval plait.

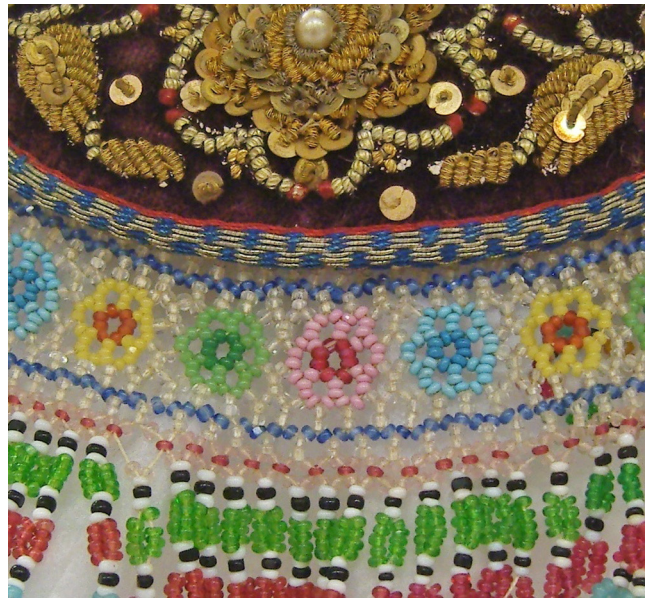


Figure 19. Detail of fringe worked in a simple open-hexagon net or plait on an embroidered headdress for a bridal attendant. Malacca, Penang (Malaysia) or Singapore, Peranakan Chinese, early 20th century (courtesy of National Museum of Singapore, National Heritage Board; accession no. G-0221-A).

but it seems unlikely, since hexagonal bead netting and plaiting techniques, well-established in China since at least the Qing dynasty (National Palace Museum 1986:126) are relatively rare in the Peranakan world.

In a second example, visible in the band of fringe encircling a bead-embroidered table cover in the Asian Civilisations Museum, the parallel is less exact (Figure 21). Construction of the fringe probably began with a row of scallops rendered in a *compound open-diamond/polygon plait* which changes to a *simple open-diamond/simple open-hexagon plait* that alternates two rows of open diamonds with one row of hexagons (Figure 22).¹⁵ The latter plait patterns beads in ways reminiscent of the patterns on mainland Chinese bamboo-bead jackets (Figure 23) of the sort worn by Peranakan brides and grooms on their wedding day to promote ventilation under their heavy silk outer garments (Eng-Lee 1987: Figure 139; Garrett 1994: Figure 6.7, 2007: Figure 211; Khoo 1996:81). There are two important differences, however. First, the bamboo bead garments are netted, not plaited (Hector 1995: Figure 15). Second, connections are formed with knotted threads on the bamboo-bead net garments as opposed to beads on the Peranakan table cover fringe (Hector 2005:24). Perhaps a Peranakan beader, having seen a bamboo-bead garment, decided to render similar bead patterns using a more complex thread structure coupled with faster, easier connections.



Figure 20. Detail of a metal hair ornament with kingfisher feather decoration and a fringe worked in a simple open-hexagon net or plait. Probably Hokkien peoples, Fujian or Guangdong province, China, early 20th century (photo: Valerie Hector; private collection).

Innovative Departures from Mainland Chinese Approaches

Two further examples, both compound plaits with dual thread structures, can be seen as innovative departures from existing mainland Chinese techniques. The first plait, which serves as the fringe of a curtain tie, features what appear to be interlocking coins (Figure 24). Coins are conventional motifs in Chinese visual culture, depicted in various media, including the mainland Chinese bamboo-bead garments just discussed. Peranakan beaders invoked this auspicious motif in new and elaborate ways by alternating single rows of interlocking coins with single rows of elongated pointed ovals. While the coins are worked as multiple-thread plaits, the elongated ovals are worked as single-thread plaits (Figure 25). Because only a few examples of this *single-thread elongated-oval/multiple-thread interlocking-coin plait* have been found thus far, always worked in silver-lined, pale gold rocailles (Cheah 2010: fringe on Figure 161), it may be a local technique. Only one analogous plaiting technique has been found – on a pair of curtain ties at the Asian Civilizations Museum (cat. no. 2005-01302). The analogue is even more complex, alternating double rows of interlocking coins with double rows of elongated ovals, plaited in golden yellow rocailles.

The second example of an innovative bead plaiting technique with roots in China, a large rectangular panel



Figure 21. Detail of a beaded round tablecloth with floral and bird motifs and scallop-edged beadwork fringe. Probably Peranakan Chinese, early 20th century (collection of the Asian Civilisations Museum, Singapore; object no. 2005-01300).

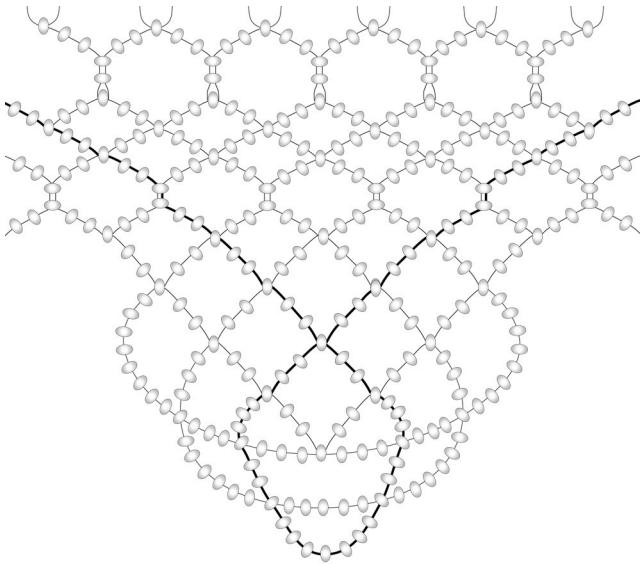


Figure 22. Diagram of the fringe in Figure 21.

of unknown purpose, seems to have been inspired not by mainland Chinese beadwork, but by traditional Chinese macramé (Figures 26-27). In fact, the technique looks like

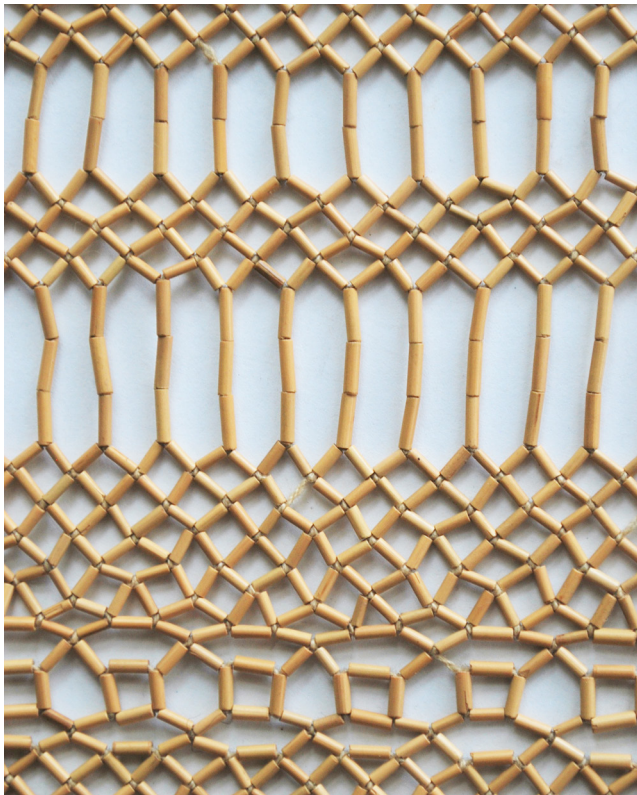


Figure 23. Detail of a knotted-net bamboo-bead jacket featuring bead patterns composed of compound open-diamond/hexagons and interlocking coins. China, late 19th century (photo: Valerie Hector; private collection).



Figure 24. Detail of compound fringe on a rectangular beadwork tapestry, featuring what appear to be interlocking coin motifs. Probably Peranakan Chinese, early 20th century (collection of Asian Civilisations Museum, Singapore; object no. T-0481-A).

a transposition into beads of a specific set of macramé knots observable, for example, in the non-beaded fringe of a white cotton hand towel attributed to Palembang in southern Sumatra (Figure 28) (Hwei-F'en Cheah 2015: pers. comm.). Transpositions of this nature probably made sense to Peranakan beadworkers, since the Peranakan Chinese often replaced “the knotted fringes traditionally used to enhance Chinese textiles” with beaded fringes (Eng-Lee 1989:27). In fact, we already witnessed one such transposition in the macramé knot formed of plaited, bead-strung wires. Twentieth-century beadworkers in south China also added glass beads to macramé structures (Szeto 1992:10, Figure 15, second band from top). Moreover, Peranakan beadworkers may also have transposed patterns visible in certain single-thread open-oval plaits into embroidery, or vice versa (compare Figure 3,b with the beaded edging in Cheah 2010: Figure 138, or Figure 3,d with the beaded edgings in her Figures 42 and 54, bottom).

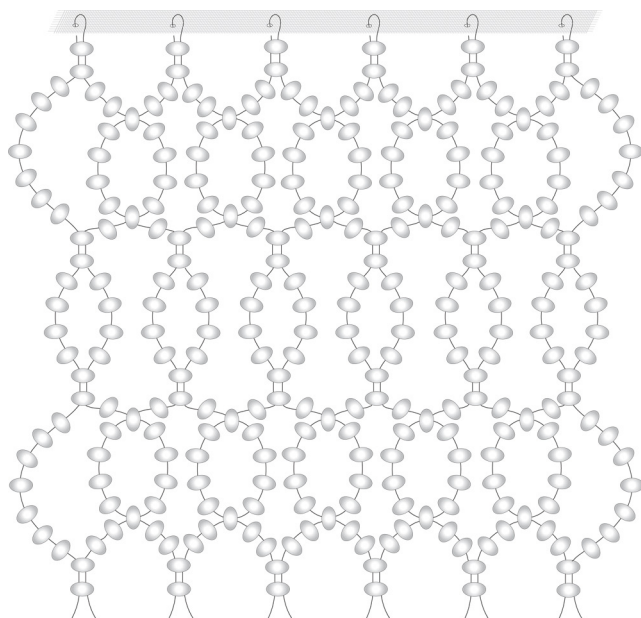


Figure 25. Diagram of the single-thread elongated-oval/multiple-thread interlocking-coin plait in Figure 24.

Like the coin/oval technique discussed above, this technique employs a dual-thread structure. Constructing thin chains of right-angle cells possibly imitating cross knots, flat knots or long *panchang* (longevity) knots (Chen et al. 1997:45, 58, 75), the single-thread plaits flow vertically and diagonally before morphing into multiple-thread plaits forming rectangular medallions possibly inspired by or transposed from *panchang* or “ten accord” knots (Chen et al. 1997:52-53, 86). The cells of the medallions vary from closed to open diamonds and other polygons, a complex assortment borne of the adjustments needed to navigate contingencies at points of transition. This *single-thread, closed right-angle chain/multiple-thread compound-diamond medallion plait* (Figure 27) seems to be rare; it has been documented on only one other piece, a panel of fringe in the Asian Civilizations Museum (cat. no. 2000-07538-003).

OTHER TECHNIQUES

Several Peranakan bead netting and plaiting techniques do not fit well into previous categories. These seeming anomalies invite us to question our assumptions anew as we search for related examples. Here we review three examples.

Having said that Peranakan beadworkers rarely used closed-diamond nets and plaits, we encounter the exception that proves the proverbial rule in a stylistically unusual panel (Figure 29) attributed to Kalimantan’s west coast, home to various mainland southeast Chinese émigrés such as the

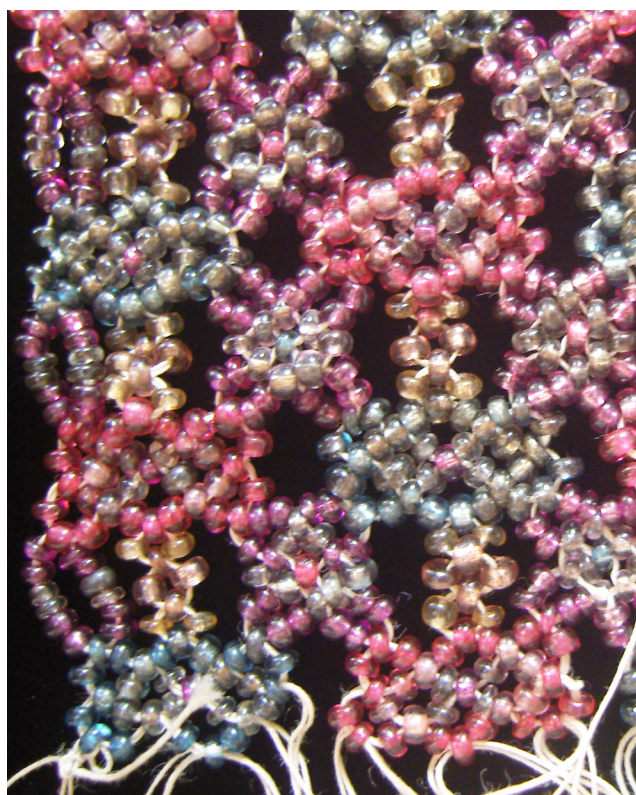


Figure 26. Detail of a large, unfinished rectangular beadwork panel. Probably Peranakan Chinese, early 20th century (photo: Hwei-F’en Cheah; courtesy of Datin Patricia Lim).

Teochiu (Hoklo) and Hakka peoples of Guangdong province (Heidhues 2003:31 ff.). Possibly referencing an historical event, the upper register of the panel portrays human figures grasping ladders, lighting firecrackers, or holding aloft Dutch flags (Figure 30). To create this closed-diamond net, colloquially known as “peyote stitch,” two beads were added per stitch, which dramatically reduced investments of labor and time. In the popular beadwork literature, this would be called “two-drop peyote stitch” (for a one-drop version, see Figure 1). How did this seldom-seen technique turn up in Kalimantan? Was the beadwork done in China, where peyote stitch was used to produce many objects around the turn of the 20th century, such as a small bead-net scent bag collected ca. 1900 by American missionaries in or near the town of Swatow (Shantou) in Guangdong province, then a Teochiu area (pers. obs. 2006, cat. no. 70/1753, American Museum of Natural History, New York; see also Hector 2005:15); or done in Kalimantan by Chinese or other beadworkers familiar with peyote stitch; or by Peranakan Chinese beadworkers living closer to the heartland of Peranakan Chinese culture? The presence of peyote stitch in Europe since at least the 17th century and European missionaries and teachers among the Peranakan Chinese introduces other variables (Cheah 2010:122-127).

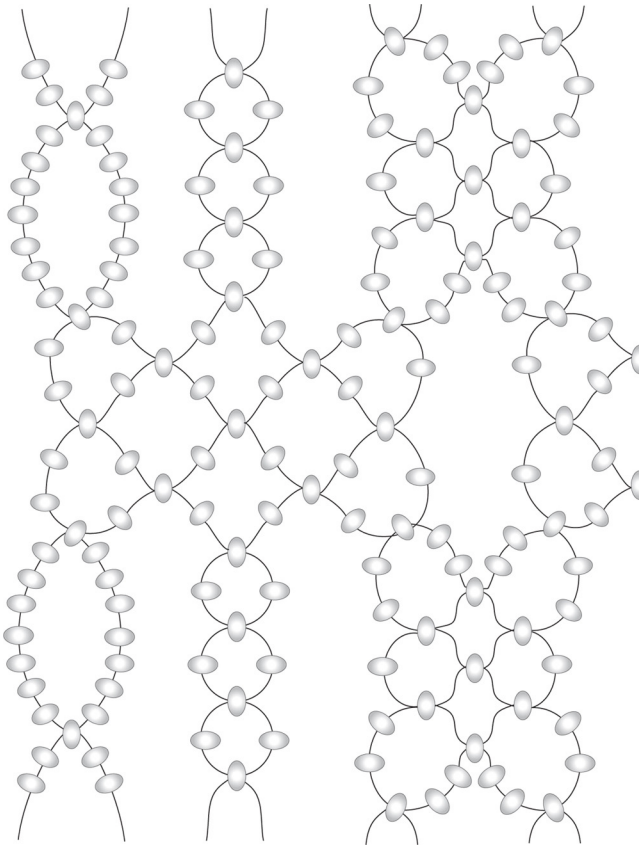


Figure 27. Diagram of the single-thread, closed right-angle chain/multiple-thread, compound-diamond medallion plait in Figure 26.

Probably worked in the simple open-diamond netting technique favored by the Peranakan Chinese (Figure 2), the lower register of the panel in Figure 29 pairs bird and stick-figure tree motifs broadly recalling those on a “Dutch batik” *sarong* or tubular skirt cloth attributed to Pekalongan, East Java, or the island of Madura (Barnes and Kahlenberg 2010: Figure 48). Several unpublished pieces of beadwork formerly in the collection of a Mr. and Mrs. Ehrich, who lived in or near Padang, West Sumatra in the 1970s, feature similar bird motifs (Hwei-F'en Cheah 2015: pers. comm.).

The second anomaly appears in the beaded fringe of an embroidered 20th-century bed curtain tie (Figure 31). Not yet found outside the Peranakan world, this *open square-stitch net* (Figure 32) displays characteristics of square stitch, a closed-netting technique that arrays beads in parallel rows and columns, and peyote stitch. Examples have been published in Cheah (2010: Figures 108-109) and Ho (1987: Figure 21). While closed-square stitch and peyote stitch create structurally sound panels, open square-stitch net produces structurally fragile panels in which only alternating pairs of beads in a row are securely connected to

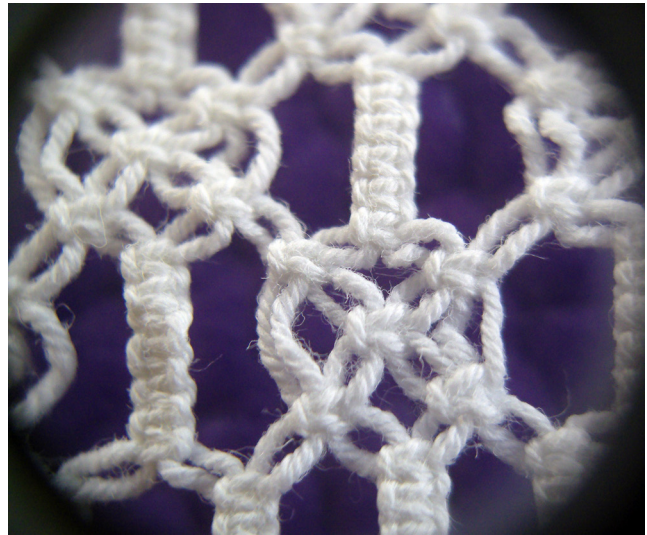


Figure 28. Detail of macramé edging of a hand towel. Probably Peranakan Chinese, Palembang, Sumatra, early 20th century (photo: Hwei-F'en Cheah; private collection).

the whole; the missing connections create negative spaces, slightly increasing diaphaneity to an estimated 15%. We observed the same structural fragility in the lateral-ladder plait described earlier (Figures 15 and 16), which used three beads per segment instead of two. Thus, it is conceivable that the open-square stitch net is somehow related to the lateral-ladder plait. Alternatively, open-square stitch may embody an attempt to reverse-engineer closed-square stitch or peyote stitch. That the handful of documented pieces of open-square-stitch net portray processional or other pictorial motifs worked at the relatively fast rate of two beads per stitch, often on a clear ground, points to a common geographic source, possibly Penang (Cheah 2016: pers. comm.).

A third anomaly lies in a long rectangular panel which may have been worked as a net or a plait, or both (Figures 33-34). The upper register is worked in a *simple open-triangle* technique recalling the sawtooth patterns on woven, printed, or beaded Indonesian textiles (Figure 6,b) (Gittinger 1979: Figure 14; Maxwell 1990: Figures 257-258, 267) and on mainland Chinese beadwork purses dating to ca. 1900 (pers. obs.). Connections are made through beads. The row of simple triangles gives way to a compound technique in the second register, also forming connections with beads, which conjoins horizontal arcs similar to those in European beadwork of the 19th and early 20th centuries (Pazaurek 1911: Figures 62, 67) with small, more or less ogival medallions consisting largely of seven four-bead cells evoking stylized flowers or *fleurs-de-lis* (Figure 35). An acceptable name for this second technique might be



Figure 29. Stylistically unusual, pictorial beadwork panel featuring two netted registers and single-strand beaded tassels. Probably Peranakan or other Chinese peoples, Kalimantan or Sumatra, late 19th or early 20th century, 56 x 181 cm (photo: Edmond Lee; courtesy of Ken Yap).

double arc/fleur-de-lis medallion. Approximately 70% open, this example achieves the highest diaphaneity of any documented piece of Peranakan Chinese beadwork.

If visual parallels for this technique exist, they are probably best sought in examples of European crochet, lace, or beadwork. Peranakan beadworkers may have learned European beading and needleworking techniques in schools run by Europeans or others (Cheah 2010:127); seen them in ladies' magazines such as *The Queen* (Cheah 2010:126, 260); or browsed catalogues devoted to the objects that could be produced with European glass beads, such as

one published by Jablonex, the Czechoslovakian glass beadmaking concern (Chin 1991:35). Pieces of European beadwork may also have been seen on foreign women; a photo taken on April 22, 1854 (Chin 1991:90) shows a European (?) woman wearing a delicate, multi-strand, seed pearl choker of unknown origin.¹⁶ The elaborate beaded edging on certain pieces of Peranakan beadwork was almost certainly influenced by techniques for making (non-beaded) European picot lace (Cheah 2010:178, n. 61, citing Crabtree and Stallebrass 2002:135 [lower left]).



Figure 30. Detail of the upper register of the panel in Figure 29 which is worked in a two-bead version of the closed-diamond net colloquially known as “peyote stitch” (photo: Edmond Lee).

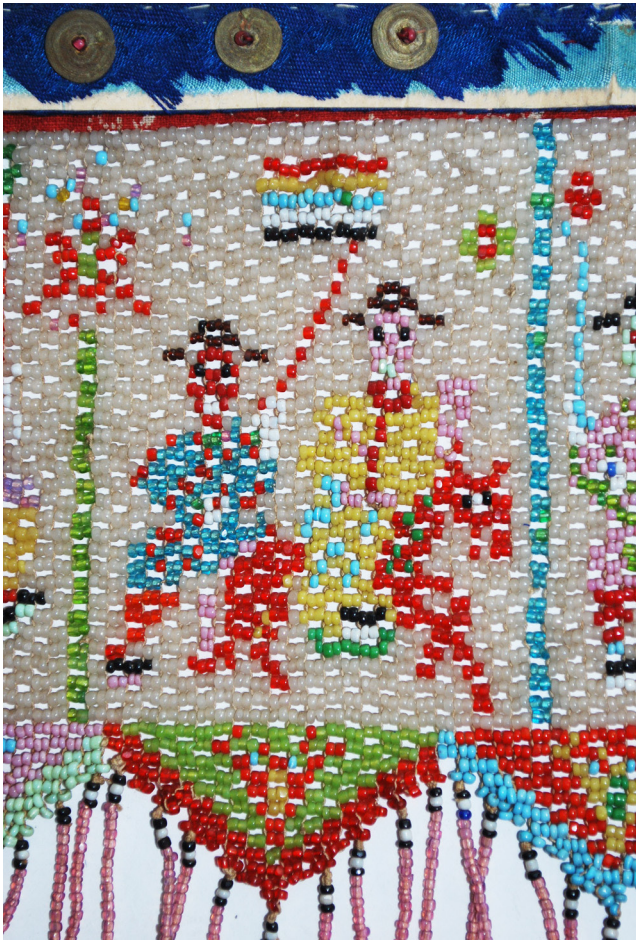


Figure 31. Detail of an embroidered and beaded bed curtain tie with fringe made of open square-stitch net. Probably Peranakan Chinese, early 20th century (photo: Valerie Hector; private collection).

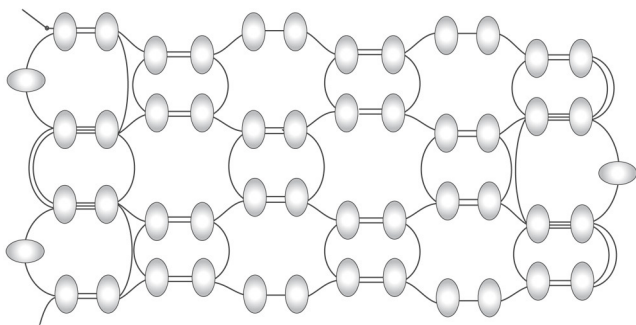


Figure 32. Diagram of the open square-stitch netting technique used to construct the beaded fringe in Figure 31.

CONCLUSIONS

Most Peranakan Chinese bead netters and plaiters seem to have favored open-diamond nets and plaits, techniques



Figure 33. Section of a highly diaphanous rectangular panel. Probably Peranakan Chinese, 20th century (photo: Hwei-F'en Cheah; courtesy of Imelda, Minang Art Shop, Bukittinggi, Padang Highlands, Sumatra).



Figure 34. Detail of the construction of a fleur-de-lis in Figure 33 (photo: Hwei-F'en Cheah).

whose distribution, as we noted, is global in scope. In the published literature on Peranakan beadwork, pieces featuring open-diamond nets or plaits vastly outnumber

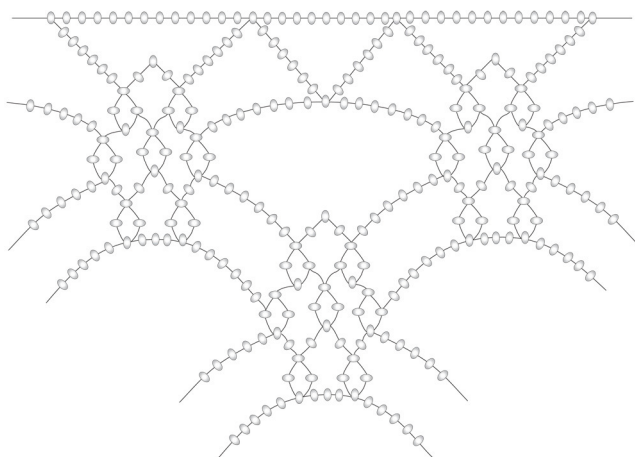


Figure 35. Diagram of the simple open-triangle/compound double-arc and fleur-de-lis medallion net or plait in Figure 33.

those featuring the other netting or plaiting techniques discussed herein. Yet, an unknown number of Peranakan Chinese beadworkers made the effort to innovate. Strategies for innovation ranged from replacing the horizontal anchoring thread commonly used to begin a multiple-thread plait with a row of decorative scallops; conjoining dissimilar cell shapes, abstracted from simpler techniques; or transposing into beadwork approaches common to crochet, macramé, or lace-making. Motifs, or imported pieces of beadwork, may also have inspired new techniques, requiring, for a start, a rethinking of how connections could be formed, threads structured, or cells conjoined or reduplicated. Finally, we may speculate that some techniques may have originated in an attempt to reproduce an unfamiliar technique or increase diaphaneity.

Achieving appreciable diaphaneity was important to many innovative Peranakan beadworkers. Although the preference for relatively open bead nets and plaits may have stemmed from a pragmatic concern such as reducing the number of beads consumed (Hwei-F'en Cheah 2016: pers. comm.), in most cases, aesthetic concerns may have taken precedence, such as a desire for contrast and openness. Appreciably diaphanous nets and plaits breathed new life, as it were, into traditional beading methods, “injecting some variety into an otherwise well-worn repertoire” (Cheah 2004:76). Most of the innovations discussed herein exhibit diaphaneities greater than the 25% characteristic of open-diamond nets and plaits with eight beads per cell. Innovators also cultivated structural hybridity, often favoring compound cell blends, dual-thread structures, or both.

Who engineered the innovations and how? Should they be credited to intellectually curious Nyonyas, eager to demonstrate virtuosity, reject familial constraints, or explore new aesthetic options – or to beadworkers working in

a commercial capacity, hoping to enhance reputations or satisfy existing clients? Was innovation a solitary process or were close associates or clients involved in an “extensive exchange, involving successive steps of elaboration and reformulation of intentions in response to semantic, iconographic, or ideological concerns” (Kesner 2008:40)? We may never know for certain. Nonetheless, with every new technique they invented, Peranakan beadworkers expanded their aesthetic options while accruing the expertise to invent again. Innovations may have begun in the mind (or, for all we know, on paper), but ideas gained material form in the real world during a labor-intensive, experimental, and improvisatory process that unfolded in a “field of forces set up through the active and sensuous engagement of practitioner and material. This field is neither internal to the material nor external to the practitioner...; rather, it cuts across the emergent interface between them” (Ingold 2011:342). The more complex innovations almost certainly required multiple revisions. In some cases, end results may have been far more appealing than initial drafts.

What of the global techniques, the open-diamond nets and plaits, favored by the majority of Peranakan beadworkers? Was knowledge of them a prerequisite for innovation? Were they, along with bead embroidery techniques, associated with the received wisdom of previous generations: *alus* methods, linked to culturally prescribed rules of behavior? The perceived imprimatur of tradition, and the relative ease with which simple open-diamond nets and plaits could be worked, might help account for their prevalence in Peranakan Chinese beadwork.

The contexts in which innovative techniques occur spark further insights. Often, the innovative techniques discussed here appear in auxiliary registers, usually as edgings or fringe, situated below focal registers composed of open-diamond nets or plaits or bead embroideries. Further, with the exception of open square-stitch net, innovative techniques were seldom used to depict the pictorial scenes so common in open-diamond techniques. Innovative techniques kept to their place, as it were. Co-occurrences of this nature call to mind a tendency noted by scholars of Peranakan culture – innovations tend to present themselves in the context of tradition (Cheah 2010:251 ff.; Eng-Lee 1989:19, 34; Lee 2014:250). Inventing new techniques may have allowed Peranakan beadworkers of any affiliation to express “a modernized Chinese identity” or aesthetic (Cheah 2010:132) or thrive in a competitive marketplace. Juxtaposing new and traditional techniques in a single piece may have allowed Peranakan beadworkers to honor the past or reconnect to their roots. In such temporal hybrids, innovation, far from threatening tradition, complements it.

Situating multiple techniques in different registers of a single piece also allowed Peranakan beadworkers to accelerate the piece’s visual and tactile interest, creating “a visual allusion

to luxury” (Cheah 2010:241) while calling attention to their own technical mastery or fluency in multiple modes of needlework. In some pieces, up to five bead-netting, plaiting, wirework, or embroidery techniques are harmoniously blended. The visual hybridity of Peranakan beadwork richly expresses the overall hybridity of Peranakan culture.

In conclusion, bead-netting and plaiting techniques link places, peoples, and cultures, while attesting to values, resources, affinities, and aspirations. Meanings reside in the type, origin, and rendering of a technique, the context in which it was worked, and its juxtaposition to other techniques in a single piece. Future researchers might use comparative-technique analysis to determine, for example, whether the beaded portions of valances attributed to Perak or Kedah states in peninsular Malaysia (Cheah 2010: Figure 31, 2014) were made by Peranakan Chinese, non-Peranakan Chinese, Malay, or other beaders, singly or in combination. Compiling distributions of innovative techniques might even allow us to define regional or local styles. Further surprises are surely in store, for Peranakan beaders were endlessly imaginative and supremely resourceful.

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ENDNOTES

1. I am paraphrasing Timothy Ingold (2010:92), whose morphogenetic theory of making eschews the Aristotelian model of imposing form on matter, emphasizing process over product and “flows and transformations of materials as against states of matter.” His ideas are especially helpful for understanding how new beading techniques get invented.
2. The distinctions are implicit in Lemaire (1960): compare Figures 12-14, 17-18, and 25, which depict nets, to Figures 9-11 and 15, which depict plaits; Orchard (1975): compare Figures 114, 116-117, 119, and 121, which depict nets, and Figures 118, 123-125, which depict plaits; and Seiler-Baldinger (1994): compare Figures 203-206, 220,a, 221, which depict nets, and Figures 220,b, 222,a-b, which depict plaits.
3. The definitions of “net” and “plait” I present do not correspond to the definitions provided by Irene Emery. Writing exclusively about non-beaded textiles, she suggests that the term “netting” be used to describe “open-meshed structures that are knotted” (Emery 1966:46). I use “netting” to refer to open- or closed-meshed beaded structures, knotted or unknotted, which are worked with a single thread. Emery (1966:61) seems to define “plaiting” as “one-set-of-element structures in which the elements *interlink* with adjacent ones.” I use “plaiting” to refer to open- or closed-mesh beaded structures that are worked with a single set of threads connected either by interlinking or interlacing via beads, threads, or a combination of both. Additional distinctions within and between the categories of bead netting and bead plaiting will need to be articulated by future researchers. For rare examples of “plait” correctly used to describe a type of Indonesian beadwork, *see* Wassing-Visser (1982:32) and Wentholt (2013).
4. Four beadwork diagrams are shown in Ho (1987:56), which may represent nets or single-thread plaits. The top diagram appears to represent an open-diamond net or plait. The others do not look familiar to me, but Ho may have studied different examples of Peranakan beadwork. Alternatively, he might have appropriated diagrams from one or more of the many instructional beadwork books popular in the 1970s and 1980s, such as Weber and Duncan (1971), for Ho “knowingly included ‘fiction and conjectures’” in his publications (Cheah 2010:xi).
5. My identification of peyote stitch as a closed-diamond net is at odds with descriptions common in the popular beadwork literature, where the bead patterns formed by peyote stitch are likened to bricks in a wall, not to closed diamonds. For scholarly purposes, however, I believe peyote stitch, a net (*see* Figure 1), is best

- understood as the closed-mesh counterpart of the open-diamond net in Figure 2.
6. I have personally studied the pieces shown in Figures 15-16, 21, 27, 30, and 38. My analyses of the pieces in Figures 14, 18-20, 24, 26, 28, 31, 33, 36-37, 40, and 42 are based solely upon photos and must be considered provisional.
 7. “Transparency,” a synonym for “diaphaneity,” is a term already used by bead and beadwork analysts to describe the light-transmitting qualities of glass beads; for that reason, I use “diaphaneity.” “Mesh” and “diaphaneity” are closely related terms, involving the ratio of beads to negative spaces. While the “mesh” of a bead net or plait connotes its degree of openness, “diaphaneity” connotes its transparency, meaning to what extent one can look through the net or plait to vistas beyond.
 8. As far as I know, this observation has not been made before; little or no research has been done on this topic. I base my comments upon several decades of studying beadwork from around the world, in person and in publications, and producing numerous pieces of beadwork myself in a wide variety of techniques. As a practitioner and researcher, I am able to ground my discussion in a “context of practical activity” (Ingold 2013:9), the better to try and “close the gap between practice and... theory” (Ingold 2013:14), much as Barber (1991, 1995) has tried to do. It is probably no accident that the bead-netting and plaiting techniques that seem to be the oldest are also among the simplest and the most widespread. Both diffusion and independent invention probably help explain the global or near-global distributions of these techniques.
 9. In mainland Southeast Asia, on the other hand, diamond-patterned bead nets and plaits are far less common, occasionally turning up among the Naga peoples of northeast India or Assam (Jacobs 1990:307, left top and bottom); the Leytu Chin peoples of Burma (James Barker 2015: pers. comm.); the Co Ho (Chil) people of central Vietnam (Richter 2000: Figure 131); and a few others.
 10. I include in this tally only examples with diamond patterns that are clearly visible. My count may be skewed slightly by the small number of redundancies between the three volumes cited. Further research is needed to rule out the admittedly unlikely possibility that scholarly bias favored open-diamond-patterned pieces of beadwork.
 11. It is impossible to say whether the *ba xian* headdress in the 1724 engraving was made by Peranakan or other Chinese in island Southeast Asia or imported from China, where such headdresses were common (Garrett 2007: Figures 233, 236). Another Peranakan *ba xian* headdress made ca. 1900 closely maintains the form of its 18th-century predecessor, but includes tassels made of a single-thread plait that aligns beads at 180° angles (Chin 1991:151), a technique rarely used by Peranakan Chinese beadworkers.
 12. Peter Lee (2014:150, 2015: pers. comm.) identifies the cloth used to make the *baju panjang* garments as “European cotton printed organdie, which in Baba Malay parlance, was referred to as ‘kasa gelair’.” How European textile designers came to use such pearl-lattice designs remains to be determined.
 13. To estimate diaphaneities, high-resolution digital images were first edited using Adobe Photoshop’s selection tool to separate out the background from the beadwork details. The images were then converted to black and white to distinguish the background from the subject matter. The percentage of background was determined with the histogram tool: first the background was selected and the number of pixels noted, then the entire image was selected and the number of pixels noted. The number of background pixels was then divided by the total number of pixels to determine the percentage of open to closed spaces (Carrie Iverson 2016: pers. comm.). When image resolution was poor, beads highly reflective or backgrounds too close in color to foregrounds, I estimated diaphaneity without the aid of computer analysis.
 14. To be fair, Khoo (1996:199) also associates the “threaded” (in our terms, “netted” or “plaited”) beadwork made in Penang with the threaded beading techniques used in “ancient Southeast Asian cultures,” though she does not go into detail.
 15. Simple-hexagonal bead plaits can be seen as variations of simple-diamond bead plaits, with elongated east and west sides. The same cannot be said of hexagonal and diamond nets, which are typically formed using very different techniques.
 16. One wonders how many European beaded purses were circulating in island Southeast Asia in the late 19th-early 20th centuries. It is important to remember, however, that many European beaded purses were made with closed-mesh techniques rarely used by Peranakan Chinese beadworkers, especially knitting and crochet.

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