

## A 700-years old blue-and-white batik from Indonesia

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### Abstract

This article describes a blue-and-white batik found on Sulawesi that dates from the 13th or 14th century. The textile is a 3-meter-long banner in a fragmentary state, with a design of two guardian animals flanking a temple-like structure and large concave-diamond motifs. A reconstruction of the original design reveals a close relationship to double-ikat *gringsing* textiles from Bali and weft ikat textiles from Gresik in East Java and from Lampung in South Sumatra. Wax residues present on the cloth indicate that a wax resist technique, similar to contemporary batik, has been used. This article argues that the cloth was probably woven in India, but that the pattern was created in Java. It is the earliest material evidence (to date) for sophisticated batik production in Southeast Asia. This cloth offers a glimpse into the early history of batik in Java and its connection with double-ikat weaving traditions.

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### Introduction

Batik is today one of the most important decorative techniques on Indonesian textiles. It is a technique for patterning a cloth by applying a resist material over specific areas, followed by dyeing. Multicolored batiks have been pre-eminently made on the island of Java, where they are associated with urban centers, such as the royal courts of Yogyakarta, Solo, and Cirebon, and with trading hubs of the northern coastal ports.<sup>1</sup> The technique first came to the notice of a wider public beyond Southeast Asia following Stamford Raffles' description of batik process in his 1817 publication *History of Java*.<sup>2</sup> Subsequently, batik has become a globally important process. Raffles' publication also marked the beginning of collecting and scholarly interest in batik traditions.

Key research questions concern the antiquity and origins of the technique: when and how did batik take root in Indonesia and what evidence exists?<sup>3</sup> In relative terms, the batik process seems to be a late introduction,

post-dating weaving and techniques such as ikat that were brought to the archipelago by Austronesian migrants (Buckley 2017). The term *batick* was recorded for the first time on a 1641 merchant ship's bill of lading.<sup>4</sup> In the 18th century, the word *batex* was associated with fine, locally made white cotton 'painted' in the local taste; at this time there was already a widespread practice of cotton cultivation and domestic weaving in Java, of which batik-making formed a large part.<sup>5</sup>

Scholars have long believed that there must be an ancient form of batik and have proposed various hypotheses about the precursors of modern batik. These include the simbut cloth (*kain simbut*) from West Java, which has rudimentary geometric and figural designs, employing rice-paste resist applied with a blunt tool such as a bamboo stick. The color is usually red for the background with line drawings reserved in white (Gittinger 1979: 115). *Batik lurik* from the Tuban area in the



Fig 1. Early batik from Thomas Murray collection, TM10017. Cotton, wax-resist dyed with indigo, 23 x 330 cm. C14 dates: 1277-1308 CE (64% probability) and 1363-1385 CE (31% probability). Top: the entire cloth, below: details from the cloth. Images © Thomas Murray.

northeast of Java is another candidate for what an early form may have looked like, prior to the development of more intricate batik patterns. As its name indicates, the cloth combines stripes and checks (*lurik*) with clusters of white dots executed with the wax-resist technique (batik) (Heringa 1991: 49). A Sulawesi batik with an unusual long format, part of a larger ritual cloth *pio puang*, has also been suggested as a possible survivor of an early batik type.<sup>6</sup> Another hypothesis for the evolution of batik supposes that the technique originated as a cheaper substitute for the more expensive gold work painting (*prada*) on cloth (Gittinger 1979: 116).

Scholars have tended to regard Javanese batik in its present form as a relatively recent phenomenon associated with the post-Majapahit period. The fall of Majapahit marks the end of the Hindu-Buddhist courts in Java and the start of Islamic dominance. Many courtiers fled Java at this time and reinstalled their rule in Bali. Based on the negative evidence that batik never became an important textile technique in Bali, some scholars suggested that it only flourished in Java in the aftermath of the Majapahit's fall (Langewis and Wagner 1964:16; Maxwell 2003: 325). Maxwell (2003: 325) further suggested that the late development of batik in Java was related to the non-sacred nature of its materials, technique, and making process.

Early textual evidence for the presence of 'batik' in the archipelago is preserved on Old Javanese legal records called *sima* charters. Although the word 'batik' does not appear in Old Javanese, there are epigraphical references from the 12th century to *tulis*—meaning handwriting, drawing, or outlining—in connection with a patterning technique involving application of color to cloth. There were several forms of *tulis*; one form, *tulis warnna* (colored drawing), was linked to a cloth whose ritual use is part of the privileges (*wnang*) of certain members of the *sima* community (Christie 1993: 191-192). Today, this word describes the most elaborate batik form, *batik tulis*, employing hand-drawn application of designs in wax using a pen-like tool called a *canting*.<sup>7</sup>

Much is still unknown about batik's early history and evolution due to the scarcity of early examples, making the few survivors particularly important. One such example is a portion of a long banner (Fig. 1) in the Thomas Murray collection, which has a C-14 date corresponding to the late 13th or 14th century. This date falls within the period of the Hindu-Buddhist kingdom of Majapahit (1293-1520s CE), prompting the question of whether this early cloth might be an example of the *tulis warnna* mentioned in Old Javanese texts.<sup>8</sup>

This article will discuss the circumstances of the cloth's preservation before describing its physical characteris-

tics and providing a reconstruction of the design. We place the cloth within the Hindu-Buddhist tradition formerly centered on the western part of the archipelago by comparing its design with the well-known *gringsing* cloths from Bali and weft ikat cloths preserved in Lampung, South Sumatra, as well as the now-vanished Gresik weft ikat tradition of East Java. From the point of view of technique, this batik employs the same wax-resist process still used in Java today and is evidence of sophisticated production at an early date. Finally, we address the use of long banners on temple architecture.

## Preservation

The Murray batik was acquired from the Toraja region of the island of Sulawesi, where it was once part of a family heirloom collection. It has survived in a fragmentary state as approximately half the original width of a long banner. It has suffered losses (likely caused by a mouse) that occur in regular intervals. From these repeated damaged areas, it appears that the textile was stored folded, probably in a basket, as was usually the case with such heirlooms in Toraja. Many types of heirloom textiles have been preserved in this region, ranging from locally made pieces to those traded to from nearby islands and further afield. These heirloom cloths are customarily displayed during communal rituals for celebratory occasions and funerals. Long banners such as this early batik were displayed hung on ancestral houses or *tongkonan*. Because ritual textiles are considered sacred, families in Toraja tend to keep them even when they are damaged.

This cloth's long and narrow format recalls the local ritual cloths in Sulawesi called *sarita*, some of which are also decorated in blue-and-white. However, the design of this early batik belongs to an entirely different category, outside of Sulawesi culture.

A considerable number of Torajan heirloom textiles are Indian trade textiles that pre-date European presence in the archipelago. Their techniques vary from wax-resist and mordant-resist painting to block-printing plus dyeing. Some have survived in nearly complete condition, such as a 15th-century cloth in the Ashmolean Museum of Oxford with a *hamsa* (geese) and rosettes design (EA1995.61). Stylistic comparisons between this Indian trade textile and radiocarbon-dated Indian textile fragments discovered in Egypt have firmly established its provenance and age (Barnes 1997). Carbon-14 dating has brought to light even earlier Indian trade cloths from Toraja, as far back as the 13th century. They attest to the long history of maritime trade between India and Southeast Asia and the regard in which trade cloths were held within the Torajan belief system.

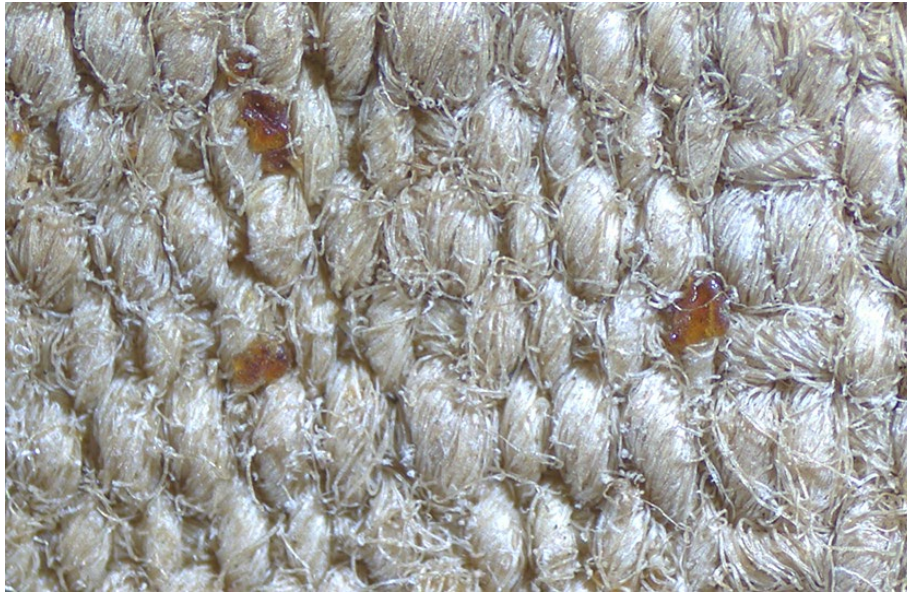


Fig 2. Microphotograph showing wax particles embedded in the weave of the cloth. The field of view is approximately 8 mm wide.

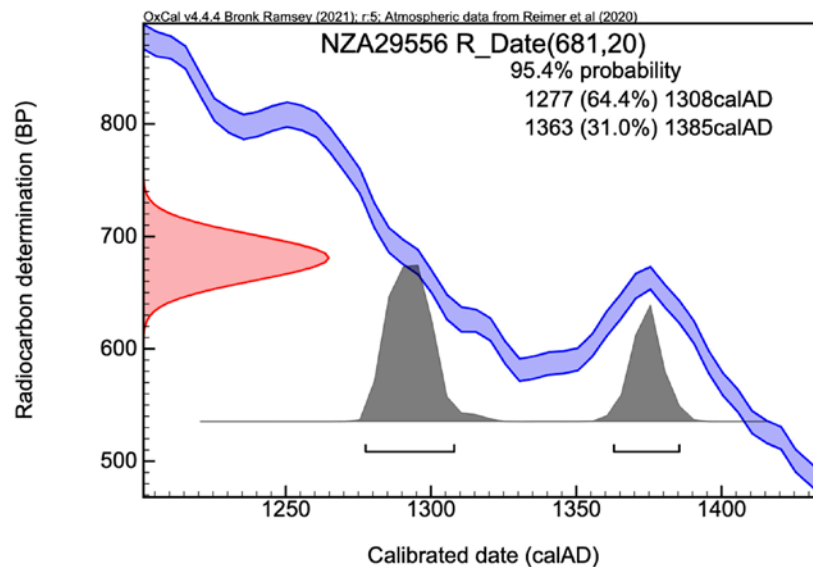


Fig 3. Radiocarbon date and calibration curves of TM10017. Testing was carried out by the Rafter Laboratory, New Zealand.

### Physical description

The banner consists of a single fragment, 3.3 meters long and 23 centimeters wide at its widest point. The cloth is missing the bottom part, probably amounting to slightly more than half of its original width. It is made of cotton, woven in a closely spaced warp-faced plain weave (around 26/cm warp count; 14/cm weft count). The warp and weft yarns are tightly spun and of similar thickness. The textile has a crisply rendered resist design in dark indigo blue on a plain undyed background. The background is now somewhat brownish with age, but its

original color was most likely ivory white. Remarkably, traces of translucent brown wax have survived in the undyed cotton areas. They are found mostly along the remaining selvedge of the cloth (Fig. 2), indicating that the design was applied to the cloth by a batik process, using a resist that is probably beeswax mixed with other materials, before dyeing the cloth in an indigo vat. The deep blue shade of the pattern was presumably achieved with multiple dips. At the final stage the wax would have been removed with a bath of hot water. Most of the



Fig 4. Detail of the early batik, showing part of one of the sections left unwoven, which are present at both ends of the cloth.

wax floated off, but small particles remained trapped in the weave. The design is equally clear on both sides, which is also an argument for a Javanese provenance. Double-sided patterning on the finished cloth is a highly valued feature of contemporary batik practice in Java. This contrasts with the patterning on Indian trade cloths, which is normally clear on only one side of the cloth.

Radiocarbon dating of the textile yielded two possible date ranges, between 1277 and 1308 CE (64% probability) and between 1363 and 1385 CE (31% probability) (Fig. 3). In other words, the cloth was probably woven sometime between the late 13th century and the mid 14th century. This means that it is one of the earliest surviving batiks from Indonesia, and the earliest definitive evidence of the use of wax-resist technique in Southeast Asia.

Both ends of the cloth include short bands of unwoven sections with exposed warps (Fig. 4). These unwoven bands are a characteristic feature of Indian cloth woven for trade, marking out standard lengths. This feature is found both on silk *patola* and on cotton trade cloths. Based on this, we assume that the fabric was woven in India and traded as yardage: such plain cloths probably constituted the largest part of the trade with India, compared with the more prestigious and expensive patterned ones.<sup>9</sup>

### Reconstructing the design

The design of the surviving part of the panel consists of pairs of confronting animals with erect tails and head-crests, flanking multi-story temple-like structures, of which only the roofs remain. Between each pair of animals, there is a half concave-diamond motif enclosing a crenelated half-square central motif. The design consists of two complete pattern repeats in the center, with half-repeats at the edges. The repeats are not identical: some design elements are shifted between each repeat. Nevertheless, the motif outlines are well-drawn and consistently rendered. This suggests the use of some aids for transferring a preliminary sketch to the cloth, rather than unaided freehand drawing.<sup>10</sup>

Undyed stippled marks along the top edge of the cloth suggest that it was originally stitched to another fabric. We propose that this was a second cloth similar to the present one, which would have made a complete design composed of two mirror-image halves.

In Fig. 5, we present a reconstruction of the pattern. To complete the design, we estimated the diamonds' endpoints, considered the animals' postures, and estimated the shape and height of the temples. We have assumed that the two animals are standing in a similar manner to pairs of animals guarding temple entrances found today in Indonesia, Thailand, and Myanmar, and that they are flanking a multi-tiered temple on a low plinth.



Fig 5. Reconstruction of the design of the batik. Top: original cloth. Center: reconstruction of one panel. Below: reconstruction of complete cloth, which is presumed to have consisted of two identical panels joined together.



Fig 6. Candi Arjuna, Dieng plateau, Central Java, 2007. Photographer: Midori. Image from Wikipedia, licensed CC-BY SA 3.0.

This standard temple form is based on Indian prototypes, found in various versions throughout Southeast Asia, constructed of stone or wood. In Indonesia, such temples (*candi*) were once typical throughout the western region. Stone temples on the Dieng plateau in Central Java are among the earliest known examples, dating from the 7th-8th century. These have characteristic tiered forms, such as Candi Arjuna (Fig. 6). Multi-tiered temples are still in use in Bali today, where each tier is often decorated with a narrow banner hung directly under the temple eaves.

Since the lower half of the design is missing, our reconstruction is necessarily speculative. By extending the curving lines of the diamond shapes downwards, we estimated the original width at around 40 cm. However, we do not know the animals' precise posture, nor if there were any other elements below them, such as a podium, an entranceway, or additional abstract elements. For simplicity, our reconstruction also omits the 'stepped' effect on the design's outlines. Nevertheless, the reconstruction gives some impression of the visual impact its makers intended. It reveals that the central focus of the complete cloth was the striking concave-diamond shapes with square crenelated center motifs, resembling a plan-view of temple architecture or walled compounds, with pairs of confronting beasts serving as symbolic guardians.



Fig 7. *Gringsing lubeng*, double ikat cloth from Tenganan, Bali. 173 x 127 cm. Cotton and gold-wrapped yarns. Yale University Museum ILE2012.30.833. Public domain image.



Fig 8. *Gringsing patelikur isi*, double ikat cloth from Tenganan, Bali. 231 x 39 cm. Cooper Hewitt, Smithsonian Design Museum: gift of Alan L. Wolfe; 1961-115-37. Public domain image.

## Parallels

There is one other important batik cloth from this early period (that we are aware of) with which to compare this cloth. The Art Gallery of South Australia (AGSA) owns a blue-and-white batik that has been dated from the 14th century (Sardjono, forthcoming). It was found in Lampung but was probably also made in Java. The AGSA batik is also rendered in blue patterns on white ground and is double sided. In term of design, the AGSA cloth consists of figures in a landscape, a completely different type of imagery to the cloth discussed here. Considered together, the two textiles show that batik-making already encompassed diverse figurative styles even at this early period.<sup>11</sup>

There are few direct parallels between the color scheme and format of the Murray batik and the designs on 19th- and 20th-century batik cloths, most of which feature intricate polychrome motifs. The closest comparisons are perhaps shoulder cloths (*sayut*) made in the Kerek region of Tuban, northeast coast of Java. The format of *sayut* is also long and narrow; some are decorated in blue-and-white. However, the designs on Kerek batiks are of sinuous waterweeds, fishes, and birds that owe much to Chinese influence, particularly the Ming Dynasty blue-and-white porcelains, which circulated widely throughout the archipelago.<sup>12</sup>

More relevant reference points for the design of the Murray batik can be found amongst ikat production rather than batik. One element, the large concave diamond shape with a square motif at its center, is also present on Balinese *gringsing* double ikat and on weft ikats from Bali, Northeast Java, and South Sumatra. These are all regions that received the most direct influence from Hindu-Buddhist culture from India and the Southeast Asian mainland. Other design features also suggest a close relationship between this early batik cloth and the *gringsing* double ikat traditions. Several well-known types of *gringsing* double ikat have figures enclosed within an elongated half-circle, with a row of concave diamond and square motifs along the center of the cloth, as in our batik. In addition, like the cloth discussed here, *gringsing* cloths from Bali are relatively narrow (around 50-60 cm), which sometimes necessitates joining pieces to create larger cloths. A complete *gringsing lubeng*, for example, is made complete by joining two similar cloths together (Fig. 7). The early batik and double ikat *gringsing* also include 'scattered stars' filling the spaces between the main design elements. We can even find an example of animals and/or figures (somewhat indistinct) flanking multi-tiered architecture on *gringsing patelikur isi* (Fig. 8).

The 'stepped' edges of the central diamond on our cloth suggest that the original inspiration was a double ikat,

where the design consists of 'blocks', corresponding to the bundles of ikat tied together in the dyeing process. These links imply that double ikat and batik traditions, which are now largely separate, were once closely related and used to create similar designs. In cases where a large cloth (such as this banner) was required, the batik technique would have been quicker and easier than the intricate and time-consuming double ikat.

To date, no double ikat cloths have been found in Java from this early period. However, a clue to its presence can be found on a metal ritual plate (*talam*) from East Java with an incised design, dated to the Majapahit period. The figures facing each other are probably the legendary star-crossed couple, Prince Panji and Candra Kirana. Both are wearing hip-cloths with stepped-diamond patterns suggesting double ikat (Fig. 9). To us, this suggests that the double ikat tradition, now confined to Bali, has its roots in Java. Nieuwenkamp, the Dutch writer who 'discovered' Balinese *gringsing* double ikats before they were widely known in the Western world, was informed that *gringsing* textiles were formerly made in the Javanese kingdom of Majapahit.<sup>13</sup> The formerly close connection between Javanese and Balinese textile traditions is further underscored by the similarity between the figures on Balinese *gringsing wayang* and those on 13th and 14th century East Javanese temple reliefs.<sup>14</sup>



Fig 9. Ritual plate, *talam*, dated to the Majapahit period from East Java. Stutterheim (1941: 50).



Considered together, this evidence strongly suggests that there was once a tradition of making double ikat in Java, of which the Balinese tradition is a lone, outlying survivor. This tradition was displaced by a shift in preference towards polychrome batik, which now dominates textile production on Java.<sup>15</sup> The presence of double ikat in former times is made more likely by the fact that both warp ikat and weft ikat making were once more widespread on the island. The Javanese ikat repertoire includes the warp ikats made for ritual use in the western parts of Java called *kain gubah* and *kain kasang*, which can be rather large and used as a ‘moveable wall or screen for creating private areas or ceremonial enclosure’ (Maxwell 2003: 160). The coastal regions of Cirebon and Pekalongan have also been mentioned as once having warp ikat traditions (Jasper and Pirngadie 1912: 166). In addition, there is also the little-known compound ikat cloth in Northeast Java called *kain kentol* (Heringa 1991: 47-48), where the warp and the wefts are both resist-tied and dyed, but the patterns do not need to be aligned in weaving. Another example that illustrates the richness of Javanese ikat tradition is the weft ikat from Gresik, which as we will see below, shares some design elements with *gringsing* and early weft ikat from Lampung.

Textiles called *gringsing*, meaning in Javanese ‘against sickness’, also appear in early texts first from Java, then Bali. A ‘red *lobheng l’ewih gringsing* painted with gold’ is mentioned in the 14th-century text *Desawarnana* (1365),<sup>16</sup> where it refers to decoration for the canopies of carriages. However, it is not clear whether this term relates to the *gringsing lobeng* double ikat still made in Bali. References to *gringsing* textiles as articles of clothing also frequently appear in later Javanese literature (*kidung*). Today, in the context of Javanese batik, *gringsing* refers to a category of background or filler motif (*isen isen*) resembling small scales with inner dots. In addition, there is also a type of batik known as *kain gringsing* in which the pattern is composed of short dashes and dots on blue-black ground (Heringa 2010: pl. 31). Because of the many associations of the term, we find it difficult to establish any firm connection between the term ‘*gringsing*’ in the Old Javanese, in the modern Javanese usage, and Balinese double ikat.

One thing that is certain is the importance of the centrally placed diamond motifs. This feature is found in the Balinese traditions of double ikat, in the Javanese tradition as seen on the *talam* depiction mentioned above, and on the Murray batik. Moreover, a central diamond motif is featured in the earliest imagery of weaving in Indonesia, from Trowulan, the Majapahit capital in East Java. The image is carved on a stone pillar base, depicting a scene from the Sang Kuriang folklore. It shows a princess called Dayang Sumbi weaving with

a body-tensioned half-frame loom on a raised open pavilion (Fig. 10).<sup>17</sup> The fabric on the loom displays a row of diamonds in the center. In contrast, this kind of design layout is not found in the eastern part of Indonesia, where warp ikat designs are usually composed of closely spaced bands of motifs of varying widths that are aligned with the warp direction.

Another important comparison for the Murray batik is a group of heirloom *bidak* cloths preserved in Lampung, which show related designs with concave-diamond and square motifs. These motifs are surrounded by complex abstract shapes and animals (birds and deer) in flight (Fig. 11).<sup>18</sup> The exact place where these cloths were produced is unknown but was probably either in Java or Sumatra. One such cloth has also been recorded as being found in Bali.<sup>19</sup> Echoes of these designs can also be seen on the 19th to early 20th-century weft ikat cloths that were formerly made in the Gresik region in the north-eastern coast of Java. Although the designs on the Gresik ikats tend to be fuzzy and indistinct, we can still detect the ghost of the concave-diamond motif. The fuzziness of the designs suggests gradual degradation that may have happened over several centuries.<sup>20</sup> Today, weft ikat weaving has been revived in Gresik area as a cottage industry, but there seems to be no continuity with the earlier tradition. The current weavers are first-generation weavers using the semi-mechanical ATBM loom instead of the traditional body-tensioned loom.<sup>21</sup>



Fig 10. Stone plinth decorated with a weaving scene: h. 21.5 cm. Image from Leiden Universities Libraries Digital Collection, OD1761.



Fig 11. Detail of bidak textile from the Thomas Murray collection (above), with interpretation of the design (below). After Sardjono and Buckley (2021). Textile photograph courtesy of Thomas Murray.

The wide distribution of textiles with concave diamond and square motifs from Lampung to Bali suggests a shared cultural tradition among these regions, of which Java (particularly the coastal areas) was the probable center.<sup>22</sup> This motif was also reproduced on 17th and 18th-century cloths made on the Coromandel Coast for the Indonesian market, indicating its high prestige and desirability. Several such textiles were discovered in Lampung, where they were still used in the late 20th century as ritual hangings and canopies (Holmgren and Spertus 1991: pl. 2a, b). It is also tempting to draw a connection between the motif in discussion and the crenelated square found as a minor element on warp ikat cloths from Sulawesi, particularly the Poso region in the north.<sup>23</sup> However, the Poso motifs may have been copied from cloths imported from elsewhere since the designs are otherwise dissimilar.

The other important design feature of the Murray batik is the pair of feline guardian animals. Such animals in the role of temple guardians—standing at entrances or corners—are part of traditional culture across Southeast Asia. Their forelegs are typically straight, while the hind legs vary from standing to sitting. Felines with fantastical features are often present in Hindu and Buddhist temples in Central and East Java. In the Majapahit period a type of feline with crest and bushy tail, like the animals

in our cloth, appeared in many scenes on temple reliefs and within small rectangular panels around the base of temples (Fig. 12). We do not know what animals the craftspeople who carved the East Javanese temples had in mind, and the crests make any comparison to an actual animal moot. However, in the coastal Javanese tradition of shadow puppetry, felines identified as civet cats (*luwak*) were depicted on the *kekayon gunung*



Fig 12. Stone carving of fantastical beast on Candi Surawana, East Java, late 14th century.



Fig 13. Stone carving of textile banner on the 'Dated Temple' at Candi Penataran, East Java, 1194. Left: temple. Above: detail of the 'textile' banner.



Fig 14. Stone carving of two rows of 'textile' banners on Candi Surawana, East Java, late 14th century.

shadow puppet as temple guardians.<sup>24</sup> Jirí Ják (2009) has described how civet cats had cultural significance in pre-Islamic Java. The animal was associated with courting couples, wedding rituals, and the sugar palm tree (*arenga*). The importance of animals with a feline aspect continued into the Islamic period from the 16th century onwards when they stood guard at the entrances of the mausolea of the early Muslim rulers of Java. These animals are related to Vietnamese and Chinese traditions of lion-dog guardians,<sup>25</sup> as well as Java's pre-existing tradition of feline guardians.

## Textiles and architecture

The question remains of the original purpose of a long, narrow cloth of this type. The design seems to have been intended to be read horizontally, and we think it likely that the cloth was used as a hanging banner underneath temple eaves. Evidence of such use for long textile hangings can be seen in the carvings on the so-called 'Dated Temple' in the Penataran temple complex in East Java (Fig. 13). The temple bears the date 1194, corresponding to the period of the Kediri kingdom, the predecessor to the Majapahit. A similar practice can be seen in Bali, where temples are decorated with different types of textiles, including long hangings called *ider-ider* that are tied under the eaves of the temples. These are usually painted with scenes from Hindu-Buddhist mythology. Another possible use of the cloth is a wrap around a temple base rather than hanging under the eaves. A stylized depiction of such a textile can be seen on Candi Surawana in East Java, dated to the Majapahit period (Fig. 14). Today, people in Bali still use textiles to cover the bases of temples, sacred images, and large trees.

The uses of cloths on religious architecture have been well documented, and textual references to textiles used as pagoda decorations in royal precincts have been noted by Ják and Hoogervorst (2017).<sup>26</sup> There are also numerous textile depictions on walls of temples in Central Java, presumably reflecting the practice of hanging textiles in sacred spaces. Many depictions of textile patterns in Ancient Java, including those on architecture, point to foreign textiles or foreign-derived influences (Sardjono 2022). The use of textiles to decorate/ define ritual spaces is not limited to the Hindu Buddhist traditions in Java and Bali, it is a widespread practice throughout the archipelago, as well as in other cultures. For example, textile banners are hung under the eaves of contemporary Tibetan temples, which are themselves based on Indian prototypes. Typical designs on Tibetan hangings are auspicious symbols with a pair of deer at the center, flanking a dharma wheel representing Buddhist teachings. The designs are large and bold, as on our cloth, since they are meant to be read from a distance.

We may never know the initial impetus for the adoption of batik in Indonesia. The technique was likely not an independent invention but introduced from outside, probably from India or China: both places had a long tradition of resist-dyed techniques and have been in contact with the Indonesian archipelago since ancient times.<sup>27</sup> What this early batik shows, however, is that the wax-resist tradition in Indonesia extends back at least 700 years.

## Conclusions

The early cloth that we have described contributes to a better understanding of the antiquity of batik in Indonesia. For the first time, we have physical evidence to support Jan Wisseman Christie's identification of a textile technique in the 12th century associated with the word *tulis*. This batik shows that a sophisticated form of the wax-resist technique was already present by the early Majapahit period. Therefore, other forms of 'simpler' batik that have survived today such as *kain simbut* and *batik lurik* may not necessarily represent earlier forms. It may be more appropriate to think of these various types as a family of batik techniques serving different clients that have existed together for centuries.

The stepped design on the cloth suggests that the early batik imitates a double ikat cloth. It is highly unlikely that artisans in Java would copy double ikat *gringsing* cloths from Bali. The opposite is more likely: that there were vibrant ikat-making traditions in Java (including double ikat) and the *gringsing* tradition in Bali is the sole survivor of this once widespread practice.

This early batik was probably part of the Hindu-Buddhist tradition of displaying textiles on sacred architecture. Its motifs belong to an older repertoire of designs organized around centrally placed concave-diamond motifs, a tradition that included both ikat and batik production and was associated with the western islands of Indonesia (Sumatra, Java, Bali). The origins of these designs are unknown: they may have been indigenous Indonesian creations, or they may have been inspired by imported Indian cloths of unknown type. This design shows that the repertoires of batik and ikat makers were closely linked during the Majapahit period, subsequently developing along the separate and distinct pathways that we see today.

*Drawings and photographs are by the authors, unless otherwise stated. The authors would like to thank Jirí Ják and one anonymous reviewer for helpful comments on an earlier draft.*

## Notes

1. Sumatra also has its own batik traditions. See Kerlogue (2001).
2. Raffles (1817) used two terms: *baték* and *bátik*. He used *bátik* when describing the batik process (p. 188), and *baték* as a general term of painted cloth used by the Javanese people for their *sarung* and headcloth (p. 96). He also noted that batik was differentiated by its background color into *bátik látur púti* (white ground), *bátik látur irang* (black ground), and *bátik látur bang* (red ground).
3. Kerlogue (2021: 35-36) summarizes early references to batik.
4. The ship travelled from Batavia (Jakarta) to Bengkulen on Sumatra's west coast (Gittinger 1979: 16).
5. Veldhuisen (1993: 22) noted that Cornelis Chastelein, a Council of Dutch East Indies member, mentioned *batex* in his 1705 report and that the growing and weaving of cotton had become 'commonplace' on Java. He commented that the commoners wore 'coarse, bad cotton cloth', and that the finest quality of locally produced white cotton was 'painted in their own style'; these are called *batex* for making shoulder cloths *selendang*. In contrast to the dress of the ordinary citizen, he noted that the Javanese nobility preferred imported from Indian cloths made in Surat (Gujarat) and from the Coromandel Coast (cf. Rouffaer 1904: 3).
6. The resist residue on the resist-dyed cloth on a *pio puang* has been examined and determined to have the melting point of pure beeswax, without additional substances such as resin, a common additive in Javanese wax resist (Nouhuys 1925: 119-120).
7. The earliest connections of *tulis* with textiles can be found in *Arjunawiwaha Kakawin* from the early 11th century (Christie 1993: 192). Canto 34.2 (translated by Robson 2008) describes one heavenly nymph 'Like the radiance of the sunset, as she was clad in a cloak of painted red' or *randi tinulis*.
8. The appearance of this term was preceded with a proliferation of new textile design names starting in the middle of the 10th century, which Christie (1993) suggested as a possible mark of a new development of textile techniques, perhaps related to the *tulis warnna* technique.
9. Today most the trade cloths found in museums and private collections are the patterned ones because they are more attractive and collectable.
10. According to Widianti Widjaja (personal communication, 2022), during her grandfather's time, batik makers would sit against a light source, hold the fabric, then place a drawing behind it and trace the image's shadows directly in wax with the *canting*. Today, the drawing would be cast on the fabric using a light table. The image would then be traced with a pencil and then waxed. Widianti Widjaja is the 3rd generation owner of the famous Oey Soe Tjoen Chinese Peranakan batik workshop.
11. A C14-dated batik from a slightly later period (15-17th century) displays yet another style and coloring. It was found in Sulawesi in the Palu River area in West Central Sulawesi. The design comprises abstracted shapes made of squarish dots in blue, white and red, with white outline against a red ground (Heringa 2010: pl. 71).
12. The Tuban area itself was a major port in Java, which reached the height of its prosperity during the Majapahit period.
13. It is not clear who his informant was (Nieuwenkamp 1906: 210).
14. This has been pointed out by many scholars in numerous publications.
15. We are not the first scholars to suggest that double ikat was once made in Java (see, for example, Gittinger 1990: 149).
16. *Desawarnana*, Canto 18:4 a, b: 'Now the King of Majapahit's carriages were numberless and bore as mark the bael; Adorned with canopies of red *lobheng l'ewih gringsing* painted with gold' (Robson 1995: 38).
17. See also discussion of this image by Bernet Kempers (1976: 241).
18. See further discussion on this piece by Sardjono and Buckley (2021).
19. This cloth was in the former Museum Nusantara in Delft and is now at the Museum Volkenkunde in Leiden. A close-up photo shows that it was woven using a loom with a reed (Sardjono 2019: 83).
20. Heringa (1991: 47) writes that Gresik weft ikat was produced in workshops run by descendants of South Indian immigrants called *Keling*. The cloth they made was referred to as 'cinden', or resembling *cinde*, a term used in Java to refer to *patola* double ikat cloths. (cf. Jasper and Pirngadie 1912).
21. Based on our observations during a field visit to Gresik in 2019.
22. Vickers (1993) demonstrates a link using the symbolism of ships portrayed in Balinese literature and *tampam pasisir* from Lampung.
23. For example, on a warp ikat skirt cloth in the National Gallery of Australia, NGA 2000.691.
24. Heringa (2010: 138) has identified civet cats present on a blue-and-white heirloom batik with *semen* pattern. The textile was collected in Lampung, but most likely produced in the north coast of Java.
25. The connection between Javanese felines from the Islamic period and their contemporary depictions in Vietnam and China has been explored by Helen Njoto (2018).
26. Jákl and Hoogervorst (2017) note the mention in Old and Middle Javanese texts of the use of imported Indian cloths named *caweli* (after the historical Indian port of Chaul), as pagoda decorations in royal precincts.
27. The emphasis on Indian influence on Indonesian textile tradition is a major theme in scholarly writings. However, both paste resist and wax resist are also part of traditional batik practice in mainland China, raising the question of whether the Indonesian and Chinese batik traditions are related. Until the mid-20th century, batik was widely used in rural areas in China for decorating bed coverings, mainly using rice paste as a resist, applied to the cloth using stencils. The substrate was usually locally woven cotton cloth, but ramie was also used in some areas. Batik never attracted imperial patronage in China, and such cloths remained simple and inexpensively produced. Batik using wax resist is still practiced by some Hmong-Mien and Daic speaking peoples in southern China, northern Vietnam, Laos and Thailand. These groups made finely drawn designs on hemp cloth and cotton cloth, using a small tool that is somewhat like the *canting*. As in China, the items made were mainly costume-related, for local use, and did not attract courtly interest, in contrast to Indonesian production.

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