



An Application of Hemp as Fiber Material in Art Applications from Past to Present: A Brief Artist Perspective

Kirstin A. Dunlap^a and Klaus Dölle^{b*}

^a *College of Visual and Performing Arts- Comstock art Facility, Syracuse University, 1075 Comstock Ave, Syracuse, NY 13210, USA.*

^b *Department of Chemical Engineering, College of Environmental Science and Forestry (ESF), State University of New York (SUNY), One Forestry Drive, Syracuse, NY 13210, USA.*

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/ARJASS/2024/v22i1506

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/111347>

Review Article

Received: 03/11/2023

Accepted: 08/01/2024

Published: 11/01/2024

ABSTRACT

Hemp has been a longstanding material choice for textile creations. As far back as early Chinese civilizations humans have been using hemp for items including paper, clothing, rope, and various other household items. As trading moved westward, more civilizations began to pick up on cultivating hemp for textile uses. This was easily done due to the simplistic growing conditions necessary for hemp. Items made from processed hemp have since been found and collected from all over the globe and are now preserved in history and art museums. These items began getting recognition by art communities in more recent years. After World War II fiber art became a recognized art medium instead of its previous classification of utilitarian craftwork. Since then, fiber art has flourished, and it is celebrated in art museums and similar works worldwide. Now, old and new items and textiles utilizing hemp are preserved through art museums and collections.

*Corresponding author: Email: kdoelle@esf.edu;

Keywords: Art history; fiber art; handmade papermaking; hemp fiber; historic artifacts.

1. INTRODUCTION

Hemp and other bast fibers have long been used to create textiles for household and utilitarian purposes as archeological finds have documented. Attributed to hemp's ease of growth and high durability, it has long been a prime component for clothing, ropes, sailcloth, and other more delicate applications including paper. The soil requirements for hemp growth are low and made for many early civilizations, particularly Ancient Chinese civilizations, to take advantage of all it offers.

Throughout history, we continue to see hemp being used as a prime material while other fiber options are being discovered. Hemp's resiliency has led to many ancient textiles being recovered and preserved in historical and art contexts. Although fiber textiles were not considered to be an artistic craft until after World War II, these textiles are often classified as early art historical documents.

After World War II an increased understanding of the artistic value in these objects rose and artists specializing in fiber art became popularized. Fiber works created vary in form and functionality. Most commonly woven, knitted, stitched, and otherwise handcrafted fiber works and handmade paper root fiber art. Hemp continues to be a valued material through these processes as hemp's environmental benefits triumph over other common commercially reliant materials.

2. HEMP USED THROUGHOUT EARLY CIVILIZATIONS

Hemp became a widely used fiber to fulfill many tasks when China began cultivating Cannabis Sativa (hemp) at roughly 2700 BC [1]. Hemp fibers proved to be highly resourceful, being used for clothing, sails, and papermaking among others. Hemp textiles were located near Taixi village in Hebei province dating to the Shang Dynasty, 1700 to 1100 BC [2]. As for paper uses, hemp paper fragment findings date back to 140-87 BC in China near Xi'an. Hemp paper is thought to be the earliest paper sample as fragments of hemp paper found predate paper's invention attributed to T'ai Lun in 105 CE in China [3,4].

Ancient Chinese papermaking utilized diverse plants, including bast fibers which contrasted

with techniques of Western cultures who used cloth and cordage. Western cultures did not begin processing plant fibers for paper creation until relatively recently [6]. In mid-1450 Maize, Germany saw the first commercially printed set of books. Using mostly hemp paper, Johann Gutenberg printed over 150 copies of this Bible in Latin. This became the Gutenberg Bible which was the first book run printed fully with moveable type; utilizing what became the first form of mass-market printmaking [3]. A fragment of the printed Gutenberg Bible is shown in Fig. 1.

Hemp and other bast fibers have historically been a common medium for their environmental and cultural benefits as well. To begin with, hemp's commonality for product production is largely attributed to its ability to grow in high pH, muddy soils that are unsuitable for many other crops [7]. This reason is largely attributed to hemp's use for hand papermaking for a long period as well. Traditional hand papermaking is the more sustainable option as it utilized renewable resources and helps to bind communities and social groups through practice and labor [8]. Unlike materials such as cotton, bast fibers require less intervention in the growing and cultivation process which makes it easy to grow these fibers for smaller communities and personal production. Cotton and synthetic fibers have negative environmental effects due to pesticide and irrigation use and toxic emissions. Cultivation of cotton is therefore labor and resource dependent as it requires specific growing conditions and aids. These factors contribute to it having a high climate impact [9].

As cultivation of Cannabis Sativa moved west it has been recorded too those Western civilizations including Scandinavian Viking and Middle Ages found hemp's course nature advantageous. Remains of hemp household textiles, rope, and sails of this time have been preserved [9]. Many of these objects have been preserved from an archeological viewpoint although many of these artifacts can equally be found in various art museums worldwide. This occurred later on when textiles began being recognized as a creative practice instead of solely for utilitarian purposes [10].

Fig. 2 displays an example of an artifact dating back to Italy from 1705-15. In this artifact, textiles were used to depict The Adoration of the Magi, a story from the Bible. This biblical story, for



Note. Biblia latina, 42 lines, (Mainz: Johann Gutenberg and Johann Fust, about 1455). On paper. British Library. CC0 Public Domain Designation (Gutenberg & Fust)

Fig. 1. Gutenberg bible [5]



Note. The Adoration of the Magi. Italian, late 14th century. Material includes linen and cotton plain weave with linen plain weave, embroidered with silk and gilt-metal-strip-wrapped silk in bullion, split, and stem stitches, laid work, couching, and couching padded with cotton. Underdrawings and wash in sepia ink. Edging is hemp plain weave. Robert Lehman Collection, 1975. The Metropolitan Museum of Art. CC0 Public Domain Designation

Fig. 2. The adoration of the magi [12]

instance, has been rendered by various artists including Leonardo Di Vinci many years prior in 1481 [11]. This practice of utilizing textiles to create fabric tapestries to show stories of the Bible was common for many centuries. Fabric tapestries would be hung in places of worship in place of a painting or print potentially which would have been more costly to acquire during this time period.

3. DEVELOPMENT OF FIBER ART

Various fiber-based artifacts from around the world have been recovered and preserved as art objects and now live in museums worldwide. Fibrous materials were used as an art medium for ages through techniques including weaving, knitting tinting, and other methods; all of which appear in artifacts dating throughout the history of mankind [13]. Despite the objects not being recognized as art items at the time of their creation, society's current standards for art now include many items including wall hangings, clothing, and ceremonial papers. Fig. 3 shows an intricately patterned textile used for clothing that uses hemp and floral embellishment from 1625-1675.

It was after World War II that fiber art began being viewed as an artistic medium instead of only as a functional object [10]. At this time the loom was also reevaluated as a tool for art

making as weavers learned to utilize fibers to construct nonfunctional forms to be validated under the title of art [10]. Fiber art began to take varying forms as it expanded away from common household manufacturing. Through this process fiber artworks created can be described through a wide narrative including terms such as freestanding, two-dimensional, three-dimensional, varying in size, figurative, nonobjective, representational, or any other type used to discuss traditional art forms. Most notable is the introduction of fiber being used to create nonfunctional, purely aesthetic, and potentially conceptual purposes.

As fiber art is a recently acknowledged art form, it often still fights for the classification of art over craft. Material choices often have a large impact on whether the work is considered more on the side of art or craft as well. Using more traditional cotton or synthetic fibers as well as materials such as silk, which carry an ingrained sense of value, push the work to be accepted as more of a craft or utility object over art by the public. To combat this fight to be recognized as art, many artists pushed their material decisions to utilize more that are not found in the home as frequently. For artists such as Sheila Hicks "These common concerns led to the production, albeit with great variation, of large-scale, radically abstract, hand-constructed objects in coarse animal fibers, heavy-gauge rope, and other



Note: Made 1625-1675. England. Hemp, plain weave; embroidered with silk in tent stitches. 28.4 x 53.9 cm (11 1/4 x 21 1/4 in.). The Art Institute of Chicago. CC0 Public Domain Designation

Fig. 3. Panel of uncut "Slip" designs [14]

highly textured, synthetic, and plant-based fibers such as sisal, hemp, and jute. The exploration of hand technique (woven and off-loom) included” [15].

Public recognition of fiber art as an artistic medium occurred with Lenore G. Tawney’s exhibition of fiber work at the Staten Island Museum in 1961 [10]. Tawney became a strong runner in the effort to have textile and fiber work classified as artwork. Fig. 4 displays Tawney’s ability to make fiber art painterly, a well-recognized artistic practice. Her practice was

captivating and pushed the bounds of the medium. Regarding her work, biographer Karen Patterson is cited to have said:

“The way that her works change the shape—the texture— of a room places new demands on us. They feel partially immersive, which makes us want to both get closer and yet maintain a respectful distance. They emanate intimacy, inspire contemplation, heighten awareness, and increase a sense of *presentness*, which is exactly what weaving insists upon” [16].



Note. Lenore Tawney. Landscape. 1958. Silk, cotton, bast fibers, and rayon, plain weave with discontinuous wefts and exposed warps; knotted warp fringe over wooden pole wrapped with linen, plain weave. CC0 Public Domain Designation (Tawney)

Fig. 4. Landscape [17]

It did not take long for fiber art to gain additional traction of recognition in the public eye. In 1969 the Museum of Modern Art held the United States' first group exhibition titled *Wall Hangings* which promoted fiber art as 'high art'. Curators of this show, Mildred Constantine and Jack Lenor Larsen explained their views on the emergence of fiber art stating "during the last ten years, developments in weaving have caused us to revise our concepts of this craft and to view the work within the context of twentieth-century art." [15]. *Wall Hangings* at the Museum of Modern Art installation photos can be seen in Figs. 5 and 6.

Outside of textile-specific works, handmade papermaking is a large artistic practice continuing to utilize hemp and other bast fibers. Handmade papermaking is the craft of forming sheets of paper out of a range of desired materials by hand in small, unique batches

instead of exact commercial production. Paper art can be works constructed utilizing paper as a material or it can be the paper itself, especially when the paper has been manipulated for a desired artistic purpose or aesthetic [8]. Figs. 7 and 8 display an art object of a handmade book utilizing hemp, linen, cotton, and various inks.

Benefits of hand papermaking outside of the environmental ones include the artist's ability to manipulate factors on a minute scale to create unique results. Manipulations may result in a change in ink absorption ability, texture, grain appearance, coloring, and many other methods. similar to textile fiber art, papermaking can incorporate other non-fiber materials either into the fiber pulp itself or during later application. This process acts akin to that of fiber art as it is rooted in taking a natural fiber and altering the treatment and application in a non-conventional or mass-utilitarian method to form an art object.



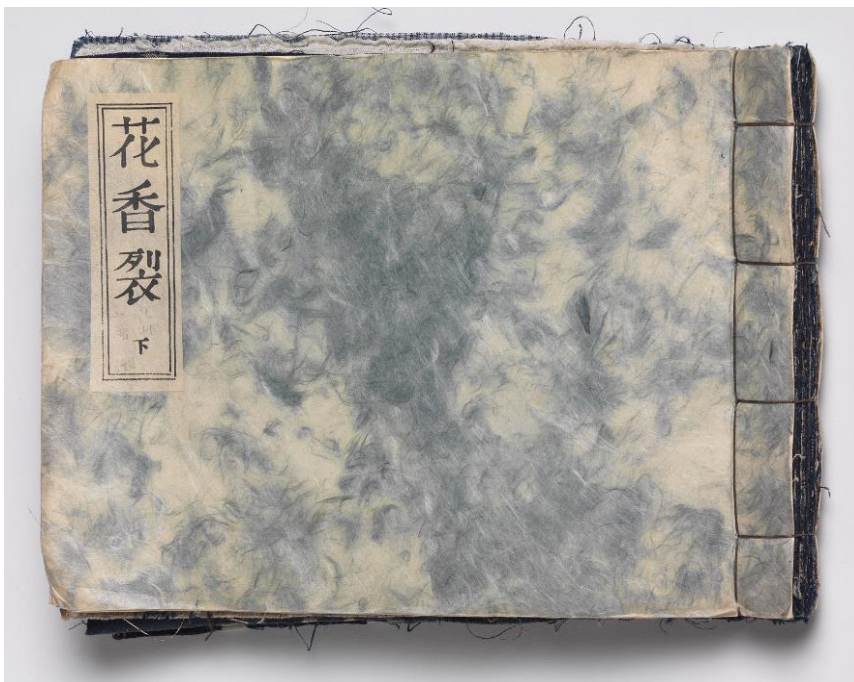
Note. Wall Hangings at Museum of Modern Art. Feb 25–May 4, 1969. Curated by Mildred Constantine and Jack Lenor Larsen. CC0 Public Domain Designation

Fig. 5. Installation photo 1 [18]



Note. Wall Hangings at Museum of Modern Art. Feb 25–May 4, 1969. Curated by Mildred Constantine and Jack Lenor Larsen. CC0 Public Domain Designation

Fig. 6. Installation photo 2 [18]



Note. Japanese sample book. Materials include hemp, cotton, linen, indigo, paper mulberry bark. 19th-20th century. Cotsen Textile Traces Study Collection. The George Washington University. CC0 Public Domain

Fig. 7. Japanese sample book 1 [19]



Note. Japanese sample book. Materials include hemp, cotton, linen, indigo, paper mulberry bark. 19th-20th century. Cotsen Textile Traces Study Collection. The George Washington University. CCO Public Domain Designation

Fig. 8. Japanese sample book 2 [19]

4. CONCLUSION

Hemp has been a prevalent fiber used in textile creation as far back as historians have been able to study humankind. Popularity of the material is due to hemp's ease of cultivation and low growing conditions, environmentally friendly nature compared to other fibers, versatility through creation, and ability to bond communities. Archeologists have recovered a plethora of artifacts comprised of hemp including paper, clothing, rope, sailcloth, tapestries, and others that reflect hemp's importance in utilitarian usage. In modern times as fiber art became more of a recognized artistic medium hemp continues to be a frequently named material. As hemp is used less often for household goods, it is less seen as a utilitarian material compared to ancient times. Hemp is now used for its rigidity and aesthetics for art making as we have seen continuing through contemporary artmaking.

Artists will continue to utilize hemp as a prime component of fiber artmaking largely due to its ease of access, environmental benefits compared to other fibers, and strong application characteristics.

ACKNOWLEDGEMENTS

The authors wish to thank the College of Visual and Performing Arts at Syracuse University and the Chemical Engineering Department at the State University of New York, College of

Environmental, Science and Forestry in Syracuse, New York for the support for this research project.

COMPETING INTERESTS

Author has declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

REFERENCES

1. Ranalli P, Venturi G. Hemp as a raw material for industrial applications. *Euphytica*. 2004;140(1-2):1-6.
2. Lu X, Clarke RC. The cultivation and use of hemp (*Cannabis sativa* L.) in ancient China. *Journal of the International Hemp Association*. 1995;2(1):26-30.
3. Becker H. Growing and hand-processing Fiber Flax and Hemp for Hand Papermaking. In *International Conference on Flax and Other Bast Plants*. 2008;150-158.
4. Dölle K. Paper for Screen Printing Application – A Paper Development Study.

- Journal of Engineering Research and Reports (JERR). 2022;21(9):45-63.
5. Gutenberg J, Fust J. Biblia latina, 42 lines, (Mainz: Johann Gutenberg and Johann Fust, about 1455). On paper. British Library. Accessed 5 March, 2023. Available: www.bl.uk/collection-items/gutenberg-bible
 6. Becker, H. Hemp for Hand Papermaking, Hand Papermaking. 2002;17(2):16-22.
 7. Skoglund G, Nockert M, Holst B. Viking and early Middle Ages northern Scandinavian textiles proven to be made with hemp. Scientific reports, 2013;3(1):1-6.
 8. Hubbe M, Bowden C. Handmade paper: A review of its history, craft, and science. BioResources. 2009;4(4):1736–1792.
 9. Sandin G, Roos S, Johansson M. Environmental impact of textile fibers – what we know and what we don't know: Fiber Bible part 2; 2019. Accessed 12 December 2023. Available: <http://urn.kb.se/resolve?urn=urn:nbn:se:ri:diva-38198>
 10. Lunin LF. The Descriptive Challenges of Fiber Art; 1990.
 11. Monti R. Leonardo da Vinci: From the adoration of the Magi to the annunciation. Sillabe. 2002.
 12. The Adoration of the Magi, Italian, late 14th century. Robert Lehman Collection; 1975. (n.d.). The Metropolitan Museum of Art. Accessed 7 March, 2023. Available: https://www.metmuseum.org/art/collection/search/461561?searchField=All&sortBy=Relevance&what=Textiles%7cHemp&ao=on&showOnly=openAccess&ft=*&offset=0&rpp=40&pos=28
 13. Henning, EB. Fibreworks. Cleveland, OH: Cleveland Museum of American Art; 1977.
 14. Panel of Uncut Slip Designs, 1625-75. (n.d.). Art Institute of Chicago. Accessed 5 March, 2023. Available: <https://www.artic.edu/artworks/148862/panel-of-uncut-slip-designs>.
 15. Auther E. (2002). Classification and Its Consequences: The Case of Fiber Art. American Art. 2002;16(3):2-9.
 16. Patterson K (Ed.). Lenore Tawney: Mirror of the universe. University of Chicago Press; 2019.
 17. Tawney L (n.d.). Landscape. Art Institute of Chicago; 1958. Accessed: Retrieved 5 March, 2023. Available: <https://www.artic.edu/artworks/61672/landscape>.
 18. Wall Hangings, Feb 25–May 4, installation images. 1969. Museum of Modern Art. Available: 5 March, 2023. Available: <https://www.moma.org/calendar/exhibitions/1800?>
 19. Japanese sample book. 19th-20th century. (n.d.). The George Washington University. Accessed: 5 March, 2023. Available: <https://collections-gwu.zetcom.net/en/collection/item/48180/>

© 2024 Dunlap and Dölle; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/111347>