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Weaving: An Introduction

Caroline Fowler and Ittai Weinryb

A sheer linen hangs in the Egyptian galleries of the Metropolitan Museum of Art, having survived millennia within stable climatic conditions in a tomb in the North African desert only to arrive on Fifth Avenue in New York City. It is nearly translucent, and despite its age, still relatively intact. Composed of finely spun flaxen thread, the linen was woven to be buried with the dead [**FIG. 1**]. The fineness of the flax threads connects weaving to the land and its waterways, demonstrating that weaving is not only about the warp and weft of thread but also the ethnobotanical knowledge necessary to produce fine threads, spun from local grasses, trees, cane, and rushes. Beyond the survival of woven fabrics in tombs, depictions of weaving on wall paintings and discussions of weaving within Egyptian funerary texts make palpable the prominence of this art form in ancient Egyptian society. The linen exists today because it was buried in a cold, dry, and dark tomb, tucked into a wooden box that was sealed—the perfect conditions for survival. Yet its existence in a museum raises questions about the display of ancient textiles too, as many have arrived in museums because they were sacred objects and buried, only to be later unearthed, sold, and traded by archaeologists, anthropologists, ethnographers, and collectors concerned with the aesthetic, historical, or economic value of a weaving, as opposed to its ongoing vitality to a living community.

While ancient Egypt as a civilization is relatively remote from our contemporary world, many weavers working in the Andes today connect their lineage to pre-Columbian weaving traditions. Similar to the Egyptian textiles, many pre-Hispanic Andean weavings survived as they were buried in stable climatic conditions. From the colonial period, weavings produced by the Indigenous communities of the Andes were unearthed, collected, displayed, and coveted by European colonizers. The traditions of weaving within the Andean communities were disrupted by both

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[FIG. 1]
Anonymous, *Length of Very Sheer Linen Cloth*, New Kingdom, Dynasty 18, early ca. 1492–73 BCE. Linen. Greatest length 515 cm, greatest width 161 cm. Weight 140 grams. 46 warp × 30 weft per sq. cm. These measurements were made and recorded by Nobuko Kajitani. Metropolitan Museum of Art, New York.

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colonialism and emerging global markets that prioritized speed as well as industrially produced dyes and other materials. Weavers such as Nilda Callañaupa Álvarez, included in this volume, have dedicated their lives to continuing the pre-Hispanic traditions of weaving, studying ancient textiles from the Cuzco region, and working with contemporary weavers to preserve the Cusqueñan weaving traditions. Therefore the display of woven textiles within a museum as an aesthetic object divorced from the lineage and community runs the risk of negating the violent colonial structures that made the collecting of ancient textiles possible.

As this volume illustrates, it is difficult to separate the history of weaving from the colonial periods in which many ancient weavings were unearthed and placed into museums. This is a history with which contemporaneous weavers in the Americas and elsewhere in the world often engage. Weaving as an art form is frequently politicized as Indigenous communities across the globe reclaim ancestral practices of weaving to affirm sovereignty in the wake of settler colonialism as well as challenge industrialized systems and capitalist economies, which threatened the economic subsistence and ancestral knowledge passed down through generations for many weaving communities.

From burial objects to symbols of political freedom, woven textiles are both utilitarian and sacred. In turn, weaving as a practice is both mundane and considered central to the metaphysical world of deities and creation. Throughout their essays, the contributors to this volume demonstrate that weaving is more than the aesthetic admiration of an object displayed in a museum, origin point for the modernist grid, or celebration of craft. Instead, weaving is a living art form and language that often defies the structure of academic writing, and also requires a specialist knowledge of materials and techniques that extends from the harvesting of plants to the ability to hold binary systems of code and pattern within one's body and intellect.

In this introduction, we will draw attention to the themes and methodological challenges that surface in this volume. As in all volumes in the ART/WORK series, this study of weaving brings together art historians and conservators to discuss the material properties of woven artworks, considering not only variations in their making across distinct geographic and temporal periods but how museums, descendants, and culture bearers today think about the conservation of weaving too. All the contributors articulate that weaving demands a particular understanding of the intersection between art history and conservation that attends not only to the ability to care for a work of art but also a recognition that weaving is a vocabulary of threads formed into a warp and a weft that, in many cases, remains a language spoken

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within communities of weavers passed down across generations. Hector Manuel Meneses Lozano makes it clear in his first essay in this volume that textile conservation (and in particular weaving) is not only about the physical repair of the object. It is an intangible process of repair that cannot be separated from the harm that consumerist capitalism has caused to individuals, communities, and certain artistic traditions. Weaving and its automatization frequently stand as the emblem of industrial capitalism, allowing for the production of labor-intensive goods cheaply and quickly. Today, the conservation of woven textiles is not only the knowledge required to care for objects produced from plant and animal fibers that are often unstable and tend to deteriorate. In addition, as many of the contributors in this collection show, it is working with the communities most directly impacted by the violence of colonialism and capitalism to preserve traditions of weaving and woven objects in ways that maintain the vitality of weaving as an art form and practice across generations.

The essays in this volume hold this tension in place, recognizing weaving as a fundamental form that dominates metaphors for writing, language, and creation itself—a practice that is increasingly politicized to decolonize and disrupt the global markets of homogeneous goods that appropriate and exploit Indigenous laborers and intellectual property. Yet weaving is the foundation of the Industrial Revolution too, and the Jacquard loom remains a symbol of not only automated labor but also the foundation of our contemporary computerized world built on binary codes. Therefore weaving is both ancient and contemporary, craft and art, sacred and extractive. It is a warp and a weft that, in their interweaving, demonstrate the complexity of trying to untangle and decolonize the violence brought on production, labor, and economies through the rise of global capitalism. Nevertheless, it is within many of the contemporary communities of Indigenous weavers that new models are introduced and current systems challenged.

Body and Loom

Greek philosopher Democritus argued that humans imitated animals, drawing attention to the skill of the spider in weaving its web, suggesting that humans learned the art of weaving from the spider. Across the ocean in North America, Navajo weaver Lynda Teller Pete describes how Spider Woman gave the Diné the art of weaving in order to bring harmony and beauty into the universe. As Pete narrates, “She [Spider Woman] had no knowledge of how to do it, but Spider Woman was observant; she watched everything in her environment, and her curiosity focused on a spider weaving a web. This became her plan for how she would weave the universe.” These are only two distinct examples, but across many cultures, weaving is a practice that creates not only the

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textiles and linens, clothes and sheets, baskets and architecture, but is a reflection of the act of creation itself as well—a process traced to the spider's ability to produce the thread and weave the web on which it will hunt, live, procreate, and die.

Although this volume focuses on weaving, we could just as well write about thread along with innovations in spinning animal or plant material. The tightness of the spin and thickness of the fiber dictate the shape and behavior of the thread, and determine the textile that can be woven. As was alluded to in the making of the ancient Egyptian linen, it was woven with flax cultivated along the banks of the Nile. For the knowledgeable eye and hand sensitive to variations in texture, weight, and fineness, certain woven objects are not only reflections of a weaver's skill but also the geographic area in which the object was made and ethnobotanical knowledge of the community. For instance, in this collection, Victoria Mitchell discusses a Wari tunic made of two types of thread: cotton that was grown in the coastal areas of Peru, and camelid wool, most likely alpaca, which came from the mountainous regions. The use of two types of raw material for the creation of a royal tunic symbolized the balance of power and resources across the geographic diversity of the kingdom.

Moreover, the mastery of producing thread does not only rely on botanical knowledge or animal husbandry. One of the most prominent threads—silk—depends on the domestication and harvesting of insect cocoons. The research team on wild silks in this volume—Sophie Desrosiers, Suzanne Lassalle, Annabel Vallard, Laurence Douny, Sophie Cersoy, and Rodolphe Rougerie—demonstrates the extensive entomological knowledge necessary for the production of silk. As they argue, although silken threads are often produced by Bombycidae, a silkworm that feeds exclusively on mulberry, there are other species of Lepidoptera that create silken threads, known as "wild," that do not feed on mulberry. This collaborative research group of biochemists, entomologists, historians, and social anthropologists reveals the diversity of perspectives and disciplines necessary to comprehending woven materials.

After the thread, there is the technological history of the loom and diversity of techniques by which the loom is threaded to produce textiles. As Ellen Harlizius-Klück and Mitchell each explore in this volume, printed pattern books emerged in the sixteenth century, and continue today to translate and decode complex patterns so that they may be infinitely repeated. Harlizius-Klück refers to these patterns as "weave drafts," which is a binary notation on gridded paper that visualizes the threading of the loom, and the necessary treadle counts and drawdowns to achieve a particular pattern. Yet in her study of woven old master canvases, Harlizius-Klück shows the limits of these notational systems, as

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[FIG. 2]
Kabir, the Hindu religious poet, working as a weaver at his loom, with two disciples, ca. eighteenth century. Miniature. Mughal School.

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she describes a tacit knowledge that weavers hold in their bodies—what she terms the "performance" of the weaver at the loom, which cannot be reduced to a universalized form of annotation. Although Harlizius-Klück focuses on seventeenth-century European canvases, her intervention also challenges weaving as a "universal" language that can be reduced to a notational system and maintains the necessity of engaging with contemporary weavers when possible, recognizing the localized knowledge on which weaving depends.

There is a long history that connects weaving to language, and across many traditions, weaving is interrelated with song and music. In ancient Greek, the word *Krekein* means to both weave and play an instrument, reflecting a similarity between certain looms and the musical lyre. Scholar Sylvia Houghteling has discussed how fifteenth-century South Asian poet and saint Kabir, born into a family of weavers, is often depicted sitting near the loom where he weaves his devotional poems, which are frequently described as crafted using a mystical warp and weft of words [**FIG. 2**]. Other scholars have also noted the intricate relationship between singing and myths, weaving and singing, suggesting that song provided certain mnemonic devices that helped weavers as they worked across difficult patterns. Textile scholar Marie-Louise Nosch points out that weaving itself is not silent, as on certain looms, it is marked by the rhythm of the heddle bars, beating of the weft, and clinking of weights holding the warp, or what Nosch calls "a domestic acoustical landscape."

In relationship to the body, looms can orient both horizontally, as in the ground loom seen in the Egyptian wooden model found in the portrait of Kabir, or vertically. Within these two different orientations to the body, there are many variants of looms, such as backstrap looms, famously mastered in the Andes to create textiles of renowned complexity, despite being a relatively simple technology by which the weaver's body provides the weight to hold the warp in tension against a stationary object. With the invention of the treadle loom, the weaver's feet entered into a choreography with the hands, as the foot treadles changed the sheds so that the hands could work on the insertion of the weft and beating.

As Pete writes in her essay, her loom is a member of the family. For Pete, the loom was built by her ancestors and handed down generation after generation. As such, the organization of labor around the loom develops around kinship, and makes the loom a focal point around which personal ties are formed and communal relations are solidified. Yet Pete's relationship to her loom is distinct from how the interplay between bodies and looms is articulated by others. In *The Rings of Saturn*, for example, W. G. Sebald describes the loom in preindustrial England

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as "a great number of people, at least in some places, spent their lives with their wretched bodies strapped to looms made of wooden frames and rails, hung with weights, and reminiscent of instruments of torture or cages." This history is captured as well in Antoin Sevruguin's photograph of women and girls in late nineteenth-century Iran—evidence of the repetitious labor embedded in weaving artifacts. The photograph suggests a history of women and children, who sat for hours in minimal working conditions. This divide between the loom as an ancestral work that connects Pete to her ancestors and the loom as a site of production that enforced alienation from the weaver's body demonstrates that weaving can be sacred, but it can be exploitative too. The history of weaving exists between these two worlds.

While weaving is an ancient technology, it is also the foundation of our modern cybernetic world. Recounted in this volume by both Mitchell and Harlizius-Klück, the invention of the Jacquard loom is an "origin story" for computing. Instead of repeating the narrative told by these two authors, it is important to recognize that this cybernetic history informs not only the contemporaneity of weaving today but the work of certain artists too. Mika Tajima, for instance, considers the intertwined histories of computing and weaving in her work *Negative Entropy*, a five-volume artist's book that produces Jacquard woven images of the sounds recorded during the process of harvesting data and information at New York University's Center for Data Science **[FIG. 3]**. In this artist's book, Tajima combines images of contemporary textile factories that use the Jacquard loom with actual textiles produced from Jacquard looms that are "images" of data processing centers. Although she was able to photograph the textile factories, Tajima was not allowed to reproduce a photographic image of the Center for Data Science. Therefore she recorded the sounds of the data processing center and then translated that sound into a Jacquard punch card with which she then produced a woven textile. In her work, Tajima makes material the seemingly immaterial sphere of data within our computerized world. Whereas the structure of computers, code, and the storage of information is founded on the binary technology of the loom, the attention to the matter of data and its harvesting often remains invisible. Even data processing centers, such as New York University's, are made "invisible" as they pose security risks. Tajima's project makes it clear through weaving that data, like weaving, reflects individual lives and communities that are increasingly dematerialized into points as an aggregation of information to be bought and sold. Weaving, then, is not only one of the most ancient forms of artistic practice; it is the structure of our contemporary world. Through attending to the materiality of weaving and its history, we can thus not only come to better understand the past but the structure of our digital lives as well.

[FIG. 3]
Mika Tajima, *Negative Entropy* (NYU Center for Data Science, high-performance computing, hot-pink quad), 2015. Cotton, polyester, rayon, wood, and wool acoustic baffling felt.

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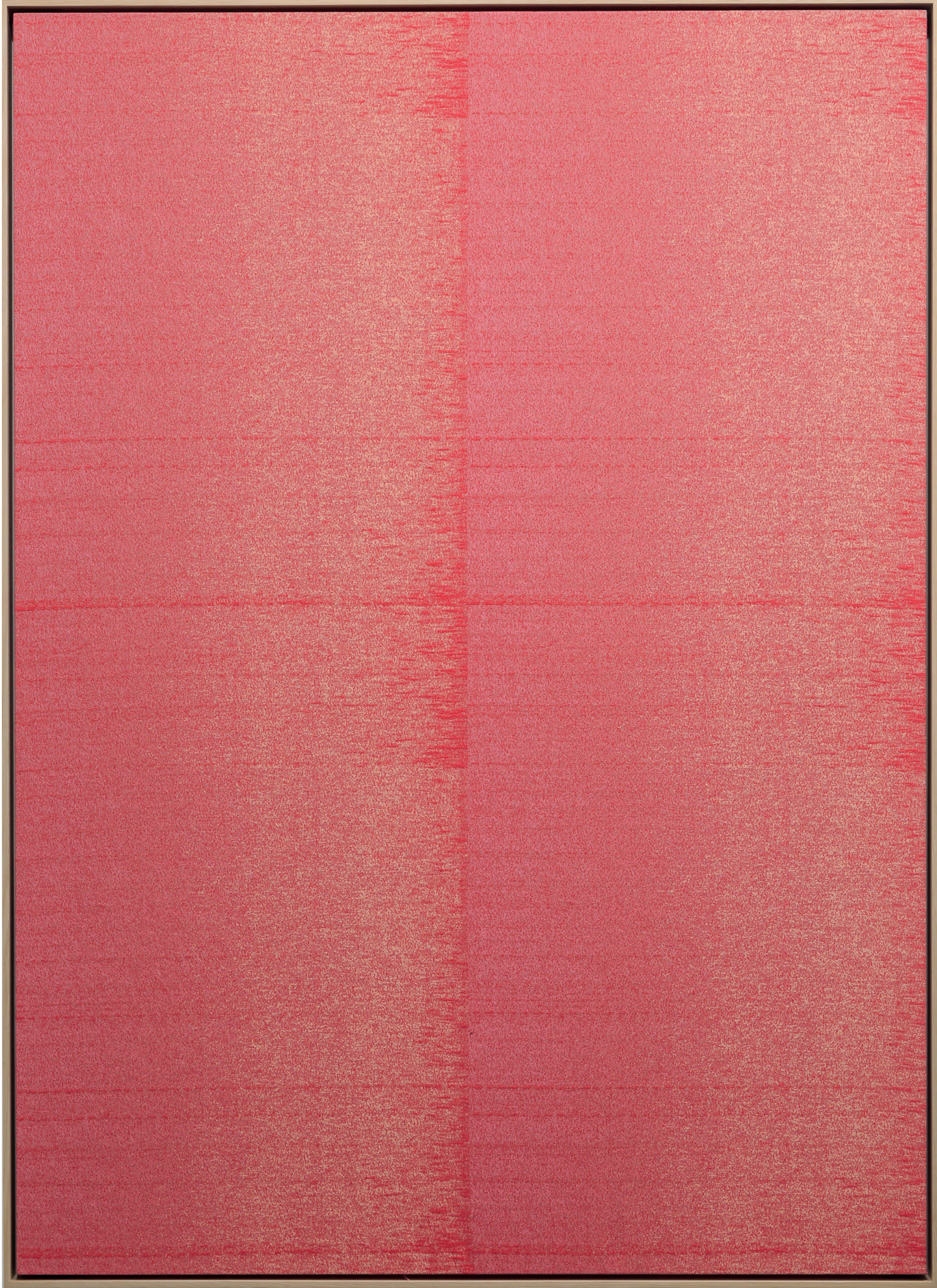

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Weaving, however, is not only central to contemporary artists. It has a long imprint within the history of modernism, tracing back to the Bauhaus and Anni Albers, who wrote the canonical text *On Weaving*. Albers's investment in pre-Hispanic weaving is a vital strand in modernism and a rethinking of the grid. Tightly woven sections connected through a scaffolding on the loom created a modernist grid that corresponds to the ancient one. If textile is a text, then the product of modernist weaving became a reuse of hieroglyphs to create a new language.

As many scholars have pointed out, though, Albers offers a case study to consider the complicated ways by which she and many of her peers engaged with past and living histories. Perhaps most complicated, Albers suggests that weaving can exist as a universal language. For example, in her book *On Weaving*, she writes that draft notation is a code that works across historical periods while "the matter of weaving is merely a matter of inference." Yet as the contributions to this volume indicate, the ability to "infer" the knowledge embedded in a particular weave often defies a universal system of notation. Moreover, Albers's engagement with earlier designs and their legacy does not consider the possibility that Indigenous communities might seek to protect their designs under copyright law, as the women of the National Movement of Weavers in Guatemala sought to protect their Mayan designs as "the books colonization couldn't destroy." Protecting Indigenous designs and weavers as creative authors under intellectual property law challenges many of the colonialist assumptions underlying copyright law, such as that weaving is a "craft" that falls under the category of "folklore" and hence belongs in the "commons." Although an outsider to an Indigenous community might not recognize the difference between two designs, the weavers from these communities are acutely aware of the distinctions, as Pete makes apparent in her essay.

This collection of pieces does not aim to tell a universal or complete history of weaving; that would be an impossible task. Instead, as in all volumes in this series, we introduce a reader to the methods by which artists, scholars, and conservators think about a particular material. The first two essays, one by a scholar of weaving, Mitchell, and the other by a conservator of weaving, Meneses Lozano, establish the history of woven materials and the questions that conservators consider when extending the life of a fiber object. As Meneses Lozano's first essay makes clear, his work is both within the museum and with Indigenous communities to preserve their artistic histories. The following shorter essays address the variety of viewpoints from which the history of weaving and its conservation might be considered. The earlier mentioned research team on raw silks demonstrates the necessity of collaborative research to write about weaving's materials, specifically the entomological complexity

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of silk. Harlizius-Klück's case study brings to the fore woven material that might be taken for granted: the ground for old master painting. Yet similar to the essay by the research team on raw silk or Meneses Lozano's work with Indigenous communities, Harlizius-Klück's essay demonstrates the necessity of working across disciplinary divides and with contemporary weavers to accurately describe the complexity of works produced in the past. Christine Giuntini, a conservator of African textiles, like Meneses Lozano, addresses the importance of working with descendants and knowledge keepers in conserving woven works, particularly in the case of weavings used in ceremonial and ritual contexts. The volume also includes essays by two Indigenous weavers, Pete, a fifth-generation Navajo weaver, and Callañaupa Álvarez, a Quechua weaver from Chinchero, Peru. Both weavers are invested in preserving their ancestral traditions, although with distinct ideas about the methods and means by which to pass on their woven histories.

Overall, this volume introduces the reader not only to a history of weaving but also the methodological questions that arise when writing about weaving. The conservation of these works (which some communities consider as living beings) is about preservation while recognizing the disruption of colonialism and emerging global markets within many cultures and societies. Today "conservation" extends beyond weaving and into the individuals who trace their ancestral heritage to earlier weavers as well as their lives. This acute awareness of colonial structures of interference and violence along with the vitality of weaving within Indigenous communities introduces an important methodological shift within both art history and conservation. As this volume illustrates, writing on weaving often demands collaboration, consultation, and rethinking certain structures and models of academic writing. From the aggregation of data to the unearthing, display, and aestheticization of warp and weft grids, it can be easy to reduce woven materials to modernist tapestries, binaries, zeros and ones, designs in pattern books, and notations for threading a loom. Yet all the essays in this collection underscore the fundamental role of bodies, lives, hearts, minds, and memories in not only the making but also conservation of woven materials. It is perhaps this vitality of the textile tradition that makes it the beginning of so many creation stories—a multivocality of threads extending across time.

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