

Basket Weaving and Woven-Fiber Technology in the Pre-Pottery Neolithic (PPN) By Rick Doble



"The [basket that this] grandmother is weaving about herself
is to be used as a store for grains and vegetables."

This storage basket is very similar to an early Neolithic basket that was just found.

This is a colorized b&w photo from

American Indians: first families of the Southwest by Huckel.

<[https://commons.wikimedia.org/wiki/File:American_Indians_-
first_families_of_the_Southwest_\(1920\)_ \(14775904322\).jpg](https://commons.wikimedia.org/wiki/File:American_Indians_-_first_families_of_the_Southwest_(1920)_ (14775904322).jpg)>

"Relatively few tribes of American Indians understood pottery, except in the crudest form. As for basketry, it may be said that every Indian from the land of the Esquimaux down through Mexico was a basket weaver."

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ABSTRACT

It is clear from the fact that pottery had not been invented until late in the Neolithic era, that other tools and implements must have been fabricated during the Pre-Pottery Neolithic (PPN). Serge Svizzero points out in his quoted article that agriculture would have required a necessary set of support tools and containers to be successful; it is not enough to say that the Neolithic way of life occurred because of agriculture and the domestication of animals. In this article, I present direct and indirect evidence of Neolithic basketry to show that many of these implements could have been made using woven-fiber technology or basket weaving skills, a technology that may have been passed down from Upper Paleolithic societies. And I suggest these skills continued to be employed all during the Neolithic time period. Furthermore, I suggest these skills were passed on to the emerging civilizations in Mesopotamia and Egypt who made full use of this technology when needed.

INTRODUCTION

There is a large gap in the commonly accepted timeline of Neolithic technological development. Agriculture, domestication of animals, polished stone tools, pottery, and textiles are the accepted hallmarks of the Neolithic time period. But pottery did not occur until about 6,500 BCE and the domestication of pack animals did not occur until 3,500 BCE. This means that during the early part of the Neolithic, or for at least 3500 years, a large number of containers, implements, and tools were made with pre-pottery, pre-pack animal technology. And the technology that probably provided many of these things was basket weaving technology or woven-fiber technology as I have suggested this technology be called. Yet when I researched this topic, I could find almost no mention of basket weaving technology in the early Neolithic even though there is now direct evidence of basket use. However, I was able to find a substantial amount of information about Neolithic pottery. Clearly, baskets played a major role in the establishment of Neolithic settlements and were widely used before and after pottery took hold.

THE NEOLITHIC TIME PERIOD: It is generally agreed that the time period of the Neolithic in the Levant went from ca. 10,000 BCE to ca. 4000 BCE when the first cities began to emerge in Mesopotamia. The first part of the Neolithic era, known as Pre-Pottery Neolithic A & B (PPN), ran from ca. 10,000 to ca. 6,500 BCE. This was followed by the Pottery Neolithic time period which ran from ca. 6,500 - ca. 4,000 BCE. In other words the PPN eras lasted about 3500 years and its technology preceded the later Pottery Neolithic which lasted about 2500 years.

NOTE: These dates can only be roughly assigned and will change as discoveries are made. At the moment the above applies to the areas around the Tigris and Euphrates Rivers and the Persian Gulf.

This is another example of basket technology being taken for granted or simply not considered, even though it was crucial for Neolithic development and furthermore it had become highly developed and useful in the time period before the Neolithic. Later it would be just as important to the first civilizations.

ABOUT THE NEOLITHIC TIME PERIOD

The Neolithic is not a fixed time period. It is a time after the Upper Paleolithic (the late Old Stone Age) and before the emergence of civilization when hunter-gatherers settled into a permanent sedentary life of villages and agriculture. For example, in Europe the Neolithic ended much later than in Mesopotamia and Egypt. The first civilizations in Mesopotamia emerged about 6000 years ago while the first European civilizations began less than 4000 years ago.

NOTE ABOUT THE MESOLITHIC: There is a time period between the Upper Paleolithic and the Neolithic called the Mesolithic which was a transitory period when many hunter-gatherers became semi-nomadic, for example. In this blog-article I mainly am concerned with the Neolithic time before the emergence of civilization.

WOVEN-FIBER TECHNOLOGY AND NEOLITHIC CULTURES

It is my contention that advanced woven-fiber technology by nomadic hunter-gatherers of the Upper Paleolithic (see my earlier blog-article) was passed on to Neolithic cultures. Then during the Neolithic sedentary way of life people were able to expand and develop these technologies to create a kind of "infrastructure" that would allow them to farm and settle in villages. As Svizzero points out (see next), the Neolithic was not just about farming and domesticating goats and sheep, it required a wealth of support items many of which were woven-fiber based, such as large grain storage baskets used to store seeds for next year's harvest, waterproof woven fiber containers (often coated with bitumen) for irrigation and carrying water, grass houses, small boats, sandals, hats, fences, and much more.

WOVEN-FIBER TECHNOLOGY IN THE NEOLITHIC ERA

When the Neolithic revolution -- or more likely a slow transition -- occurred, there must have been a large number of support implements and methods that developed but are not often mentioned. The following quote makes this clear.

Persistent Controversies About The Neolithic Revolution

"The domestication of plants and animals is a necessary but not a sufficient condition for the transition from foraging to an economy fully-based on agriculture to occur. Indeed, domestication can be seen as an innovation but many other innovations are required for the whole human population to be fed from agropastoralism activities. "These additional innovations are respectively related to the production of food resources, their processing, storage and consumption. Even if we consider agriculture in its first stage, specific tools and techniques are required, for instance, a digging stick to sow grains, an irrigation system, even if it is very basic or a sickle to harvest cereals. Once they have been harvested, domestic cereals require human activity, in the form of threshing and winnowing, to separate and disperse seeds. Once the seeds were

obtained, they had to be stored in order to reduce the seasonal food risks. This requires some storage systems.

"Even though the innovations listed above seem us to be very basic they were all necessary for a complete transition to agriculture."

(Svizzero, "Persistent Controversies About The Neolithic Revolution")

PACK ANIMAL, any domesticated animal that is used to carry freight, goods, or supplies. The ass or donkey is the oldest-known pack animal, having been in use possibly as early as 3500 BCE

<<https://www.britannica.com/technology/pack-animal>>

WHAT WAS USED BEFORE PACK ANIMALS? BURDEN BASKETS?

Although the following is only an educated guess, I believe it is worth considering as it provides a logical way that harvesting and processing grain, for example, would have been done before pack animals.

I suggest that early Neolithic people employed 'burden baskets'. These are often huge baskets, carried on the back, that are capable of carrying a substantial amount of harvested plants. These baskets are still in use by hunter-gatherers today and were widely used by nomadic Native American Indians and other tribes. They were so important many Indian tribes had a unique design and also a unique name for these baskets as they had a special status. And they are still in use today in virtually every region of the world. Of course, like all baskets, we do not have direct evidence as these baskets from long ago would have decayed and left no indication of their existence. But their wide cross-cultural use, use by contemporary hunter-gatherers, and continued recent use on farms suggest that they could have been made in the Neolithic time period and would have helped accomplish the work these societies needed to bring in the harvest.



Contemporary pygmy hunter-gatherers use burden baskets for a variety of purposes.
<[https://commons.wikimedia.org/wiki/File:Pygm%C3%A9es_\(RDC\).jpg](https://commons.wikimedia.org/wiki/File:Pygm%C3%A9es_(RDC).jpg)>



Back baskets in Slovenia ca. 1963.

<https://commons.wikimedia.org/wiki/File:Ka%C5%A1perjev_Janez_z_listnim_ko%C5%A1em_%22kranska_svetloba%22,_Podlani%C5%A1%C4%8De_1954.jpg>

<[https://commons.wikimedia.org/wiki/File:V_ko%C5%A1u_nosi_seno_s_travnika,_Spodnje_Zre%C4%8De_1963_\(2\).jpg](https://commons.wikimedia.org/wiki/File:V_ko%C5%A1u_nosi_seno_s_travnika,_Spodnje_Zre%C4%8De_1963_(2).jpg)>

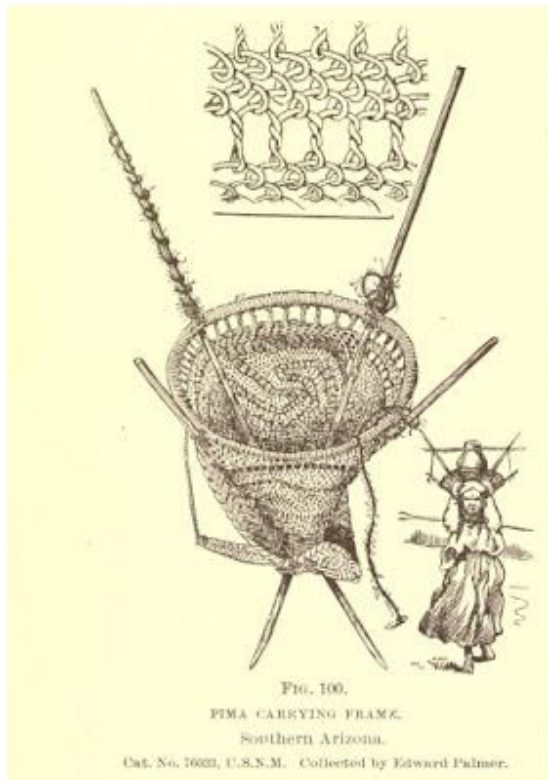


LEFT: "Haymaking - man collects grass in a pannier"

RIGHT: Harvest in Argenteuil (France) at the beginning of the 20th century.

<https://commons.wikimedia.org/wiki/File:046_Fienagione_-_uomo_raccoglie_l%27erba_in_una_gerla.jpg>

<https://commons.wikimedia.org/wiki/File:Vendange_argenteuil_95.png>



LEFT: Pima Carrying Frame
(Aboriginal American Basketry, 1904, Fig. 100, p. 294)
RIGHT: "Pima Indian woman...carrying firewood in her Kathak"
(University of Southern California, 1904, Pima Indian woman)



LEFT: Carrying Basket, Paiute Indians, Utah.
(Aboriginal American Basketry, 1904, Fig. 185, p. 494)
RIGHT: "Apache Indian woman carrying a "Kathak" on her back, Arizona, ca.1880."
(University of Southern California, ca.1880, Apache Indian woman carrying a "Kathak")



"Silva, 3 years old, goes to the field with her mother in 1954," Slovenia.
<https://commons.wikimedia.org/wiki/File:Silva,_3_leta,_Planina,_gre_s_koškom_z_materjo_na_njivo_1954.jpg>

Burden baskets are just one example of woven-fiber technology that could have been used in the Neolithic era. And even when pack animals were common, they carried baskets, such as these esparto donkey panniers pictured here.

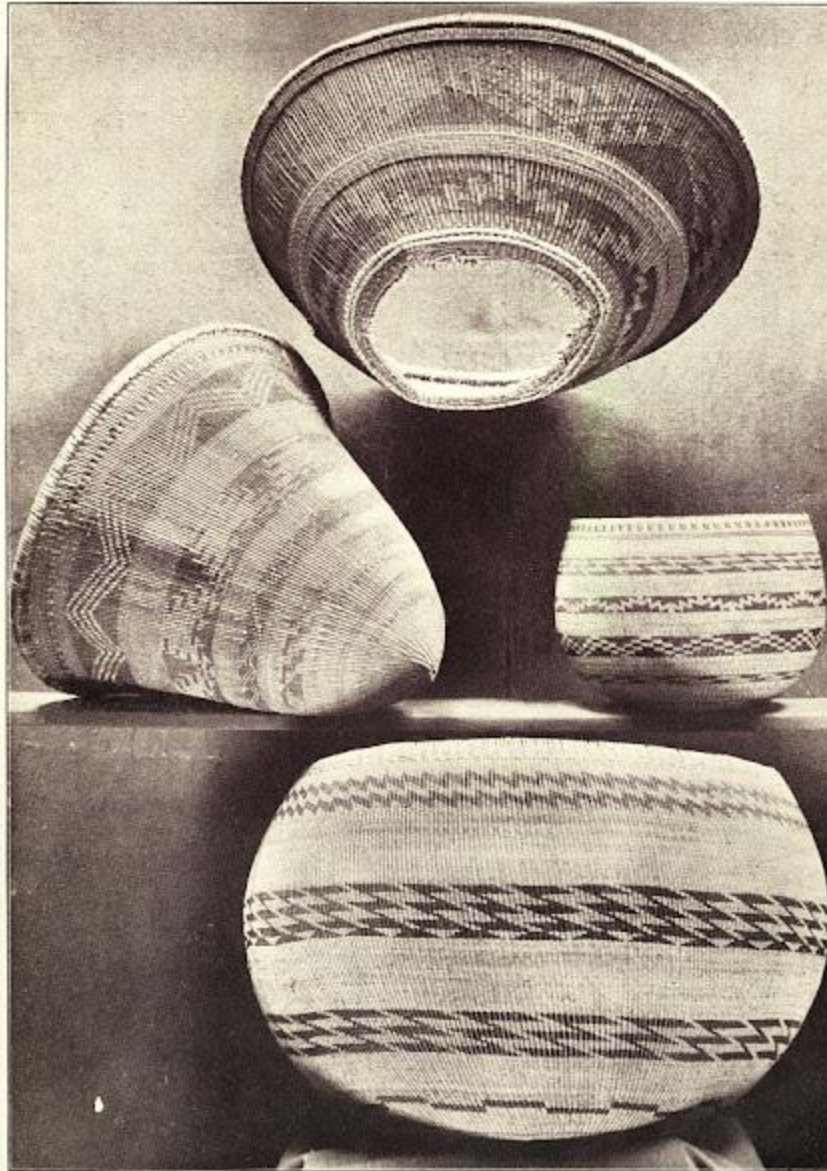


https://commons.wikimedia.org/wiki/File:Donkey_panniers.jpg

BASKET IMPLEMENTS IN THE PRE-POTTERY NEOLITHIC

As I pointed out earlier, for more than half of the Neolithic era, there was no pottery, yet these agricultural societies clearly needed a wide variety of containers and related items for harvesting, winnowing, milling, sifting, and storing plus household items for cooking.

I argue that many woven-fiber items were invented, created, and used for agriculture. But as I wrote in the article before this one, much of this technology had been handed down from Paleolithic societies. Here are some examples of grain processing baskets that Native American Indians used around 1900 when these photos were taken. As I have pointed out in my previous article, many Native American Indians lived a way of life that was roughly equivalent to the Upper Paleolithic in Europe so studying their technology may be helpful.



POMO MILLING BASKETS.

COLLECTION OF C. P. WILSON. SEE PAGE 355.

Examples of milling baskets; Pomo milling baskets.
(Aboriginal American Basketry, 1904, Plate 97, explanation p. 350)



LEFT: Paiute Indian woman grinding acorns for flour, Lemoore, Kings County, ca.1900.
[https://commons.wikimedia.org/wiki/File:Paiute_indian_woman_grinding_acorns_for_flour,_Lemoore, Kings County, ca.1900 \(CHS-922\).jpg](https://commons.wikimedia.org/wiki/File:Paiute_indian_woman_grinding_acorns_for_flour,_Lemoore,_Kings_County,_ca.1900_(CHS-922).jpg)

RIGHT: Yokut woman shifting meal.
<https://archive.org/details/aboriginalameric00maso/page/n579/mode/2up>



"Gathering Seeds--Coast Pomo," 1911, Edward_S._Curtis_Collection.
https://commons.wikimedia.org/wiki/File:Edward_S._Curtis_Collection_%E2%80%94_Gathering_Seeds--Coast_Pomo.jpg



From this photo, it appears that the 'paddle' this Pomo Indian woman used was carefully constructed. It has a wrapped handle and a strong paddle surface for hitting plants so that she could collect their seeds in a burden basket.

BASKETS ARE TOOLS

For some reason, baskets are not often included as tools, but they are. Thinking of baskets as tools changes the way that they are evaluated and also elevates their importance.

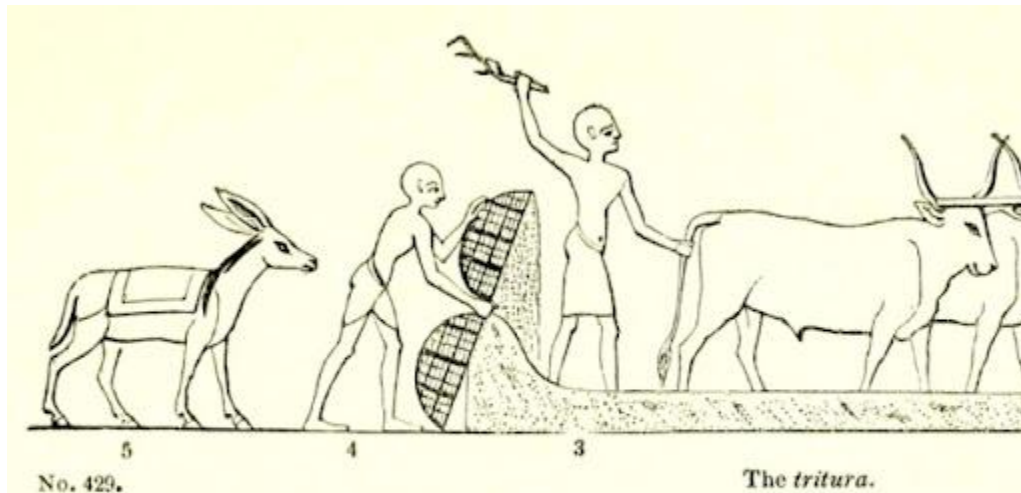
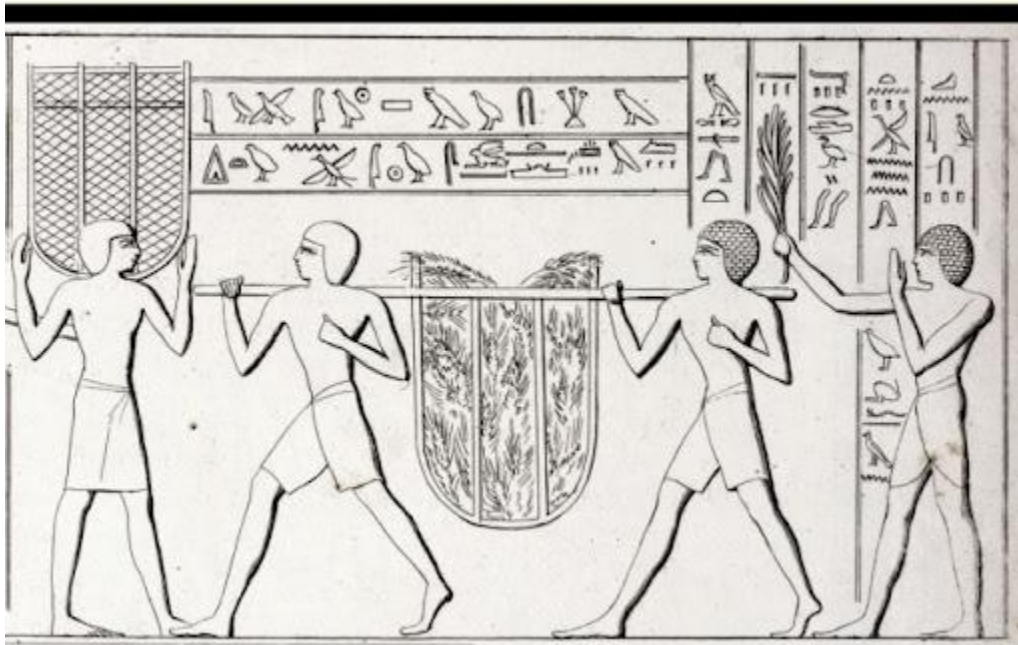


Fig. 1. The steward, or the owner of the land.
 2. throws the ears of wheat into the centre that the oxen may pass over them
 3. The driver.
 4. brings the wheat to the threshing floor, in baskets carried on asses.
 The oxen are yoked together that they may walk round regularly.



Baskets were important tools for Egyptian agriculture.

TOP: [https://commons.wikimedia.org/wiki/File:A_second_series_of_the_Manners_and_customs_of_the_ancient_Egyptians_\(Page_87\)_BHL21584712.jpg](https://commons.wikimedia.org/wiki/File:A_second_series_of_the_Manners_and_customs_of_the_ancient_Egyptians_(Page_87)_BHL21584712.jpg)

BOTTOM:

[https://commons.wikimedia.org/wiki/File:Mietitura_delle_spighe-ricolta_e_battitura_delle_medesime_\(NYPL_b14291206-425523\).jpg](https://commons.wikimedia.org/wiki/File:Mietitura_delle_spighe-ricolta_e_battitura_delle_medesime_(NYPL_b14291206-425523).jpg)

ESPARTO WOVEN-FIBER ARTIFACTS

Just how versatile was this technology? What kind of products could it provide? Woven-fiber technology was dependent on the plants that grew wild locally. So reeds were plentiful and versatile around Mesopotamia,

papyrus was widely used in Lower Egypt, and in Spain and in North Africa the esparto plant was valued for its many uses.

Fortunately, in the case of esparto, we have direct evidence since many baskets, shoes, and mats from the Neolithic era (5200-4600 BCE OR 7200-6600 BP. Los Murcielagos Cave, Albunol, province of Granada, Andalusia) have survived intact. They were found in a dry cave near Granada Spain. The existence of these items also shows that basketry and weaving technologies were being widely used in the Neolithic.



Esparto distribution.

https://commons.wikimedia.org/wiki/File:Esparto_distribution.jpg

The following is quoted from:

Traditional Craft Techniques of Esparto Grass (Stipa tenacissima L.) in Spain

https://www.academia.edu/19717708/Traditional_Craft_Techniques_of_Esparto_to_Grass_Stipa_tenacissima_L_in_Spain?auto=download

"Numerous archaeological artifacts and remains of esparto basketry have been discovered that date from the Neolithic period in southeast Spain. THESE PIECES DEMONSTRATE HIGH STANDARDS OF QUALITY COMPARED WITH MORE MODERN PIECES. [ED. My emphasis] In addition, there are many imprints of esparto basketry in clay or pottery (Ayala and Jiménez 2007). Among the abundant archaeological remains, some of the most outstanding are the artifacts dating back to 7,200– 6,600 BP, which were found with several mummies in Cueva de los Murciélagos (Granada). These pieces represented clothes, hats, tunics, sandals, baskets, and ropes—ALL MADE WITH THE FINEST TECHNIQUES. [ED. My

emphasis] In some cases, the artifacts included colored espartos." (Fajardo et al. "Traditional Craft Techniques of Esparto Grass...")

The authors list all the things that can be made with esparto:

Baskets (wide variety), Beehive, Belt for mules and donkeys, Bottle and container covers, Bowls, Canteen, Chair, Cheese mold, Clothing, Covered basket, Donkey pannier, Dough basket, Espadrilles Esparteñas, Fan, Ferret basket, Fishing net, Fish trap, Fodder basket to feed animals, specially mules and horses, Hat Sombrero, Long rug, Net for fishing or to carry straw in the cart, Oil mill basket for pressing olive pulp, Pitcher, Rope, Round rug, Saddle, Saffron basket to collect saffron flowers, Sandals, Shepherd spoon, Provisional spoon to eat curd, Shutters to keep the home fresh, Shepherd's slings, Snail basket to catch snails, Sowing basket, Stool, Swarm catcher to catch bee swarms, Table mat, Toys and ornaments, Tunics.

Baskets, Shoes, And Mats From The Neolithic Era (5200 - 4600 BCE or 7200 - 6600 BP)

Found In Los Murcielagos Cave, Albulol, Province Of Granada, Andalusia, Spain.



LEFT: Bowl RIGHT: Detail of bowl

https://commons.wikimedia.org/wiki/File:Cester%C3%ADa_Murci%C3%A9lagos_03.JPG



LEFT: Basket RIGHT: Detail of basket

<https://commons.wikimedia.org/wiki/File:Cester%C3%ADa_Murci%C3%A9lagos_02.JPG>



LEFT: Mat fragment. RIGHT: Detail of mat fragment.

<https://commons.wikimedia.org/wiki/File:Fragmento_de_estera_Neol%C3%ADtico_Museo_Arqueol%C3%B3gico_Nacional_de_Espa%C3%B1a.jpg>



Neolithic Sandals

<[https://commons.wikimedia.org/wiki/File:Sandalias_del_Neol%C3%ADtico_de_Albu%C3%B1ol_\(M.A.N._Inv._595_y_596\)_01.jpg](https://commons.wikimedia.org/wiki/File:Sandalias_del_Neol%C3%ADtico_de_Albu%C3%B1ol_(M.A.N._Inv._595_y_596)_01.jpg)>



LEFT: Recreation of a Neolithic snail basket,
a traditional basket for collecting and gathering snails
RIGHT: Detail snail basket

<https://commons.wikimedia.org/wiki/File:Snail_basket.jpg>

There are also many ways of processing the esparto plant and many ways of weaving the plant for various purposes which show the depth of knowledge people had.

DIRECT EVIDENCE OF NEOLITHIC BASKETRY IN AGRICULTURE

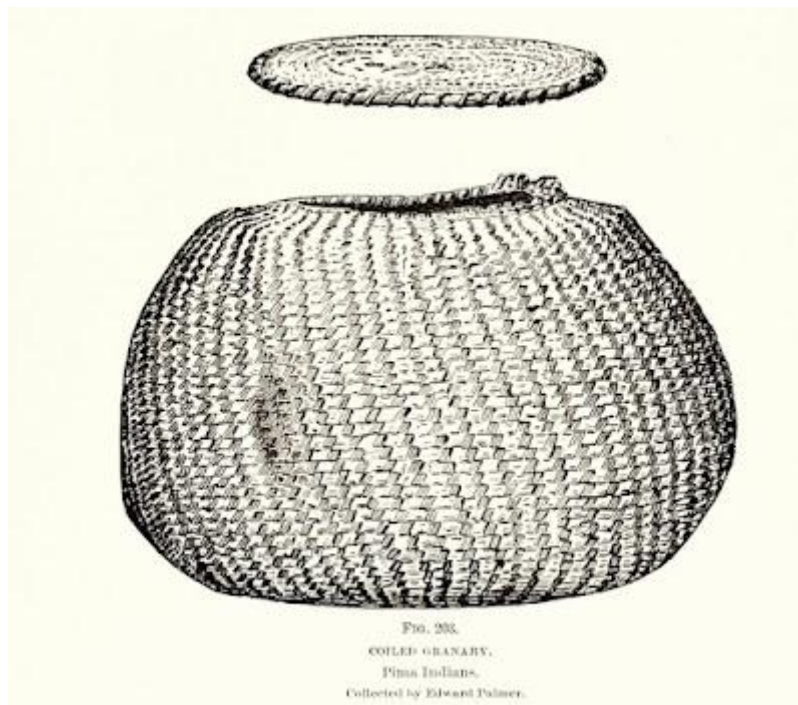
In 2021 in Israel the world's oldest complete basket, including lids, was discovered and dated to 10,500 years ago (BP), or near the beginning of the Neolithic era.

This large basket could hold about 92 liters or about 24 gallons, about as big as a human torso. According to Dr. Haim Cohen of the Israel Antiquities Authority project, "the ancient people who manufactured it probably...used it for storage."

This find was a major discovery. It was direct evidence of basketry in the early part of the Neolithic.(Palace "Oldest Basket Ever Found")

<<https://www.thevintagenews.com/2021/03/24/basket/>>

This basket looks remarkably like this Native American Indian basket pictured next. The size, the shape, and even the lids are similar.



Coiled Granary, Pima Indians

The newly discovered basket in Israel looks remarkably like this large Native American Indian one which was also used for storage and had similar lids.
(Aboriginal American Basketry, 1904, Fig. 203, p. 524)

OTHER NEOLITHIC BASKET FINDS

"The oldest basketry found in Egypt dates to the Neolithic period (ca. 5900–4000 BCE). In the Fayum Oasis, about 100 km (60 miles) southwest of Cairo, grain storage pits were excavated in the desert floor, lined with

coarse straw basketry." "Near the Neolithic grain storage pits part of an extremely finely coiled basket was found, dated to about 4200 BCE, made of separate bundle and winder materials..." (Wendrich "Basketry in Ancient Egypt")

"Basketry is known from the earliest sites in Egypt [ED: Neolithic]. Remains of baskets have been found in the Fayum dating to the Neolithic period, about 5000 BCE. Basketry found in a predynastic context [ED: i.e., Neolithic] is often of very high quality, not surpassed later." (Bizzari "Weaving And Basketry In Ancient And Modern Egypt")

This direct evidence indicates that basket weaving was an essential technology in the Neolithic. But baskets are not the only example of woven-fiber technology. Weaving cloth, building large grass houses, and thatching roofs, were also highly developed. This has been well established. So weaving skills were widespread and very much a part of Neolithic life.

ABOUT WEAVING AND NEOLITHIC LOOMS

The establishment of weaving and making cloth throughout Neolithic societies, both in the Levant and later in Europe, indicates that in the early Neolithic these societies were well acquainted with the art of weaving in general and also skilled in the making of thread.

Impressions of plain-weave have been found in clay and dated to 23,000 BCE. However, it is an educated guess that these early impressions came from small handlooms for making belts and narrow strips.



"Guatemalan woman, handloom, 1970s."

<https://commons.wikimedia.org/wiki/File:Guatemalan_woman_hand_loom_1970s.jpg>

The large looms necessary to make fabric and clothing, which are characteristic of the Neolithic era, probably looked like this.



This is a recreation of a Neolithic warp-weighted loom about 5300 years ago. The recreation is by The ArcheoParc Schnals Museum of South Tyrol, Italy. The clothing pictured here is also a recreation by the museum and part of their loom display.

<https://commons.wikimedia.org/wiki/Category:Archeoparc_Schnals_-_Museum#/media/File:Archeoparc_-_%C3%96tzi_Webstuhl.jpg>

"The first proof of true weaving [ED: weaving wide cloth] occurs circa 7000 B.C.E. at the start of the Neolithic, with impressions of plain-weave and basket-weave on clay at Jarmo (north-east Iraq) and a pseudomorph (minerals having outward characteristics of organic materials) of a plain-weave textile on a bone at Çayönü Tepesi (southern Turkey). These fabrics are too well done to be the start of weaving." (Barber "Prehistoric Textiles")

NEOLITHIC BUILDINGS

Weaving was also an important part of building. In the early Neolithic, homes were often made with weaving skills.



Recreation of Neolithic huts
in the Steinzeitdorf Kussow open-air museum, Damshagen, Germany.
<https://commons.wikimedia.org/wiki/File:Kussow,_Steinzeitdorf.jpg>

Some Native American Indian buildings, such as this one below, showed sophisticated weaving skills. As I have argued, I believe that Upper Paleolithic and Mesolithic technology was highly developed and was passed on to Neolithic societies. And again, as I have argued, the skills

of Native American Indians around 1900 can be seen as similar to those of the Upper Paleolithic and Mesolithic in Europe.

“While it is now certain, that perishable fibre industries were part of the first Americans, [ED: Native American Indians] they also seem to have been part of Upper Palaeolithic techno-economic suite for much longer than we have imaged.” (Soffer "Recovering Perishable Technologies")



"Wichita Indian group building a lodge," 1904

LEFT: https://commons.wikimedia.org/wiki/File:Wichita_Indian_group_building_a_lodge_in_the_Department_of_Anthropology_at_the_1904_World%27s_Fair.jpg

RIGHT: https://commons.wikimedia.org/wiki/File:Wichita_Indian_group_building_their_lodge_for_the_Department_of_Anthropology_exhibit_at_the_1904_World%27s_Fair.jpg

Later homes looked more like modern houses but still had thatched roofs. And thatching has continued to this day.



LEFT: "The Stone Age Horton House reconstructed at Butser Ancient Farm open-air archeological museum in Hampshire, England, UK." Quoted from: <https://www.alamy.com/the-stone-age-horton-house-reconstructed-at-butser-ancient-farm-open-air-archeological-museum-in-hampshire-england-uk-image435529225.html>

Picture credit: https://commons.wikimedia.org/wiki/File:Butser_Ancient_Farm_Horton_House.jpg

RIGHT: Roofer covering a modern thatched roof house in Escheburg, Schleswig-Holstein, Germany https://commons.wikimedia.org/wiki/File:Reetdach_P7040055.JPG

CONCLUSION

It is clear from the fact that pottery had not been invented until late in the Neolithic era that other tools and implements must have been fabricated during the Pre-Pottery Neolithic (PPN). As Serge Svizzero points out in his quoted article, agriculture would have required a necessary set of support tools and containers to be successful. From direct and indirect evidence I have presented in this article, it seems likely that many of these could have been made using woven-fiber technology or basket weaving skills, a technology that may have been passed down from Upper Paleolithic societies. And I suggest these skills continued to be employed all during the Neolithic time period. Furthermore, I suggest they were passed on to the emerging civilizations in Mesopotamia and Egypt who made full use of these skills when needed.

ENDNOTES

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