WOMEN'S WORK:

THE FIRST 20,000 YEARS

Women, Cloth, and Society in Early Times

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Europe seem to have been. For that reason the Pueblo Indians have sometimes been used as a model for trying to understand the archaeological record in Neolithic Europe.

Thus textiles flourished in the early horticultural economies of southeastern Europe between 6000 and 2000 B.C., when the women could handle the subsistence farming and the crafts while the men could go out of the community to hunt, fish, tend flocks, and barter for luxuries such as shell beads and obsidian blades. Obsidian, or volcanic glass, is much sharper than flint but is found in only a very few places. Settlers wanted it particularly for scything grain, and men had to establish huge trade networks to obtain it, as the planting of domestic grain spread.

In the Near East, although we have little information on textiles during this period, we have data on food. They suggest that the style of life may have paralleled that in Europe, since at first the fields of grain that provided the central food were hand-tended. If anything, however, life in parts of the Near East must have been harder, for the women spent so many hours of their lives at hard labor over heavy stone grain grinders that the work permanently deformed their bones. Archaeologists have found the toe, knee, and shoulder bones of the women in the early farming villages of northern Mesopotamia to be squashed and deformed in ways caused by pressure from kneeling and pushing heavy objects with the arm and shoulder—clearly the metate-like stone grinders that we find on the sites (cf. fig. 8.7). Nor were the men always out hunting, for their bones often reveal the same deformities.

The picture conjured up by these and other excavation details is not such a pleasant one. Southern Europe provided a fair number of "orchard crops," such as nuts, olives, and edible fruits (fig. 4.1), which require relatively little work for a fair return of food. The forests, moreover, although making the clearing of fields for grain difficult, abounded in game. In Syria and Iraq, on the other hand, we find an abundance of sickles and stone grinders for cutting and grinding cereals but much less evidence for most other types of

food, although people herded sheep and goats where suitable grazing existed. Wheat and barley grew copiously in wet years and stored well, but converting them into the major food supply was punishingly hard work. The second most common food came from the legume family, including peas, lentils, and chickpeas, which we associate with Near Eastern cuisine even today. Eaten regularly together, the cereals and legumes provide the body with complete proteins and thus with a viable diet, even without the addition of meat.

Developing a diet not dependent upon meat was fortunate, because around 4000 B.C. came a meat-related discovery that soon brought the Neolithic to a close. People in Mesopotamia began to realize that their primary domestic animals—sheep, goats, and cattle—could be exploited in a far more efficient way than by killing them for their meat and hides (the sole use for which they had been domesticated). Kept alive and used efficiently, they could provide a constant supply of "secondary" products: of milk foods, wool, and muscle power. The old strategy allowed only one chance at food and clothing from each animal—one feast, one hide—and you got the maximum of meat for the minimum of care by slaughtering when the creature had barely reached adulthood. But now people saw that if you kept at least the females alive, you could milk them for years and could eat the meat in the end anyway, although it wouldn't be so tender.

If cattle were central to this change, so were sheep. The inbreeding of domestic sheep over thousands of years had led to some varieties that had a fair amount of wool, which molted every year in the spring. Wild sheep, and thus the early domestic sheep, had coats that were predominantly hairy—technically, kempy—with some underwool. The coarse kemps are rather stiff and simply shatter like dry crackers if you try to twist them, whereas the underwool is so short and downy fine that it wads up and doesn't spin either. So sheep had to change a lot before they had usable wool. It seems to have been about 4000 B.C. that people realized they could get a steady supply of clothing from the live sheep.

Around that time we see a shift to killing the animals at a ripe old age. Older ewes alone might mean purely a milk flock, but old males, and castrated at that, can only be exploited for wool. These *wethers*, in fact, produce the best fleeces of all. Wool, for its part, is a wonderful fiber: warmer and more resilient than linen (although scratchier), and far easier to dye. A new phase in textiles and the work associated with them was about to begin.

The third benefit of keeping the animals alive was to exploit them for their strength, in particular to help with the heavy jobs of plowing the fields, threshing the grain, and transporting seed, harvest, and equipment. (The wheel, too, was invented about this time.) By using a team of oxen to pull the weight, the farmer could use a heavier plow to dig a much deeper furrow and produce a better crop.

This above all—the use of huge draft animals in large fields to grow the basic food—permanently removed the food-producing portion of the economy from the women's domain. Why? Because such activity was no longer compatible with child raising. Thus the allotment of tasks shifted once again, first in Mesopotamia and gradually in a widening circle beyond.

Another radical change in the organization of human life began soon after, marking the start of the Bronze Age. People living in metal-rich regions had long known the usefulness of metals, starting with the soft ones that happen to occur in pure form, like copper and gold.[2] But such soft metals are more suitable for ornaments than for tools. It took the discovery that metals can be alloyed into new and harder materials by mixing them while molten to open a way finally to vastly improved tools: metal axes, cauldrons, chisels, knives, and—a metal-dependent invention—the sword. The problem for most people at that time was that,

[2] At Çayönü Tepesi, in eastern Turkey, not far from a rare source of pure copper, excavators found little copper tools, such as hooks, made by hammering and abrading. The site is an early farming village of about 7000 B.C. It was in just such ore-rich areas as eastern Turkey and the Caucasus that metalworking gradually developed during the course of the Neolithic.

although copper is rather commonly found in Europe and the Near East, the hardening metals aren't.

The most widely useful alloy of soft metals is copper mixed with tin, giving the alloy we know as bronze. Tin, however, occurs mostly only in a few places far away from the early centers of civilization, like eastern Iran, Spain, and Cornwall (in Britain). Another effective hardener is arsenic, and it was used briefly in the steppes north of the Caucasus at the beginning of the Bronze Age, but arsenic bronze soon died out—perhaps because people noticed that families using cookware of arsenic bronze soon died out. Unfortunately the arsenic will dissolve out of the bronze into the acid of the food. Probably the smiths working with the arsenic died, too. Obtaining tin, even if it required great trouble, was worth the effort.

This need for tin steadily increased trade in goods and ideas, for people all over the Near East and soon Europe began to want these newfangled tools. But bronze won't grow in gardens. That was a new problem. Somebody had to go out and find the ores from which it could be made—or find someone else who had ore and was willing to trade. So the great metal search began, and it became men's work, if only because the distances were far too great for the toddlers to travel. Mines, too, once you find them, are no place to have little children under foot, nor is the smithy—too many hammers and hot sparks flying about. Thus metalworking became men's work as well.

So much trade and exploration, so much movement of people and new ideas began to alter society dramatically. At the same time, the ever more efficient production of food supported ever larger congregations of people, until the once-tiny villages and towns had become immense cities. For it was about this same time, toward the end of the fourth millennium B.C., that truly urban civilization sprang up in Mesopotamia, a civilization that included writing, laws, contracts, tax records, and much else that literacy enables. It took almost a millennium for the principal changes to reach southeastern Europe, but by 2500 B.C. the sedentary vase

painters and weavers were gone, abruptly swept away by warlike swarms of new people hunting for ores from the Caucasus to the Carpathians to the Alps. The old days of simple Neolithic courtyards were gone. Ahead lay the heady chemistry of new and far-ranging human contacts, catalysts for yet other developments in women's contribution to society through their textile arts.

Introduction

"Four, three, two, one—good. One more bunch to go; then we've got to get dinner on."

I yanked the loose knot out of the last bundle of pea green warp threads and began passing the ends through the rows of tiny loops in the middle of the loom to my sister to tie up on the far side. The threads of the warp are those lying lengthwise in the finished cloth, and the most tedious part of making a new cloth comes in stringing these onto the loom, one at a time. Once you begin to weave in the cross-threads—the weft—you can see the new cloth forming inch by inch under your fingers, and you feel a sense of accomplishment. But the warp just looks like thread, thread, and more thread. At this moment I was balancing the pattern diagram on my knee, counting out which little loop each thread had to pass through on its way from my side of the loom to hers.

For nearly eight hours we had been working on the warp, between and around the interruptions. In the morning we had wound off the requisite number of green and chocolate brown threads of fine worsted wool, stripe by color stripe, onto the great frame of warping pegs—pegs that hold the threads in order while measuring them all to the same length. By lunchtime we were ready to transfer the warp to the loom, tying one end of the long,

thick bundle of yarn to the beam on one side. Then began the tedious task of threading the ends through the control loops (heddles) in the middle on their way to the far beam. It would have been simpler if we had intended to use the plainest sort of weave. But because we were setting up to weave a pattern—the fine diagonal pattern called twill that is used typically today in men's suit material (see fig. 0.2)—it was taking far longer.

"Why am I doing this?" I thought ruefully, glancing at the time. "We've spent the entire day and aren't even ready to start weaving yet! If I spent this much time every day writing, my book would be finished in no time." One forgets that laying in the weft—the actual "weaving"—is only half the job of making a cloth, the second half. First comes the equally lengthy task of making, organizing, and mounting onto the loom the foundation set of threads, the warp. And that is where a helper really speeds the work: a friend to receive and fasten the other end of each long warp thread, saving all the time and energy of walking back and forth, back and forth, from one end of the loom to the other. It is also much more entertaining to have a friend to chat with while the handwork proceeds.

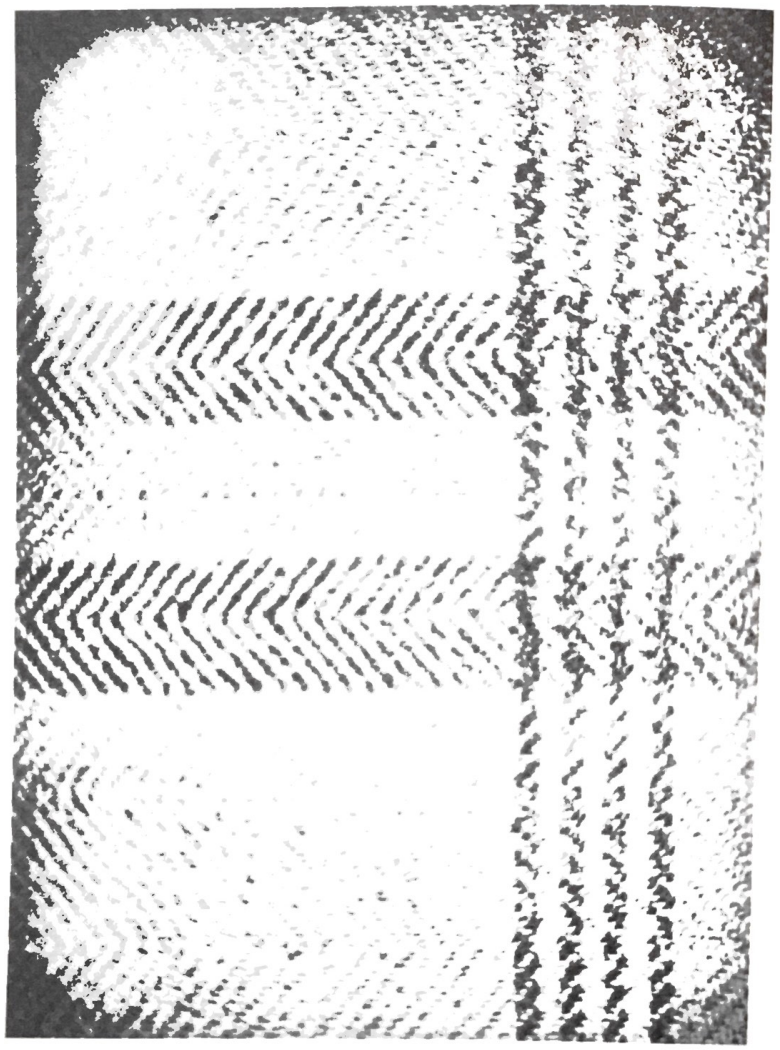
In fact, my sister and I were actors in a scene that, with only minor differences, has been repeated for millennia: two women helping each other set up a weaving project. The looms, the fibers, the patterns may differ, but the relation of the women to their work and to each other is much the same.

Unlike women of past ages, however, we were not making cloth for our households. (When our mother entered a weaving school in Denmark fifty years ago, she was told to begin with a dozen plain dish towels—a useful way to gain skill on the loom and start one's trousseau all at once.) Nor were we weaving for sale, for piety, or for artistry—the other common reasons. We were weaving a thread-for-thread replica of a piece of plaid cloth lost in a salt mine in the Austrian Alps some three thousand years ago (figs. 0.1 and 0.2).

It was the salt that had preserved the handsome green and

Figure 0.1. Plaid woolen cloth and fur "tam-o'-shanters" from ca. 800 B.C., found in the salt mines at Hallstatt, Austria (see map, fig. 3.1) and displayed in the Natural History Museum, Vienna. The makers of these objects were the ancestors of the Celts, now living in such places as Scotland and still famous for plaid twills and tams. (The original scrap of cloth is lying at lower left on a replica.)

Figure 0.2. Detail of author's replica of the Hallstatt twill in fig. 0.1, showing the offset pairing of threads typical of twill pattern. The original warp ran vertically, constructed in groups of four threads of green and brown. The weft ran horizontally, and the weaver judged the width of those stripes by eye as she wove.



brown colors as well as the cloth itself, and it was the color that caught my eye in the Natural History Museum in Vienna—that and the particular objects surrounding the piece (fig. 0.1). The torn fragment of cloth, about the size of one's hand laid flat, nestled on a newly rewoven strip of identical cloth in such a way that the plaid stripes matched. Thus the visitor's eye could follow the pattern outward in both directions and comprehend what this ancient cloth must have looked like when it was new. And it looked for all the world like a simple plaid twill from some Scottish kilt. Furthermore, above and beside it were hung two furry leather caps, also from prehistoric shafts in the Hallstatt salt mines, of the exact same shape as a Scottish tam-o'-shanter or a beret from Brittany in western France, another outpost of Celtic culture.

Between 1200 and 600 B.C., the era when this cloth was apparently woven, the ancestors of the Celts were living in what is now Austria, Hungary, and southern Germany. Many of these people were miners, digging out of the mountains both metal ores and salt. (Salt was very precious for preserving food before the days of refrigerators. Those who could supply it grew rich.) By 400 B.C. the early Celts were beginning to fan out westward across Europe into France, Britain, and Spain, where they live today, carrying a culture directly descended from that of the Hallstatt miners. In a very real sense I *was* looking at the original tam and at the ancestor of the Scottish plaid tweed or twill, all produced by the immediate ancestors of the Celts. (*Twill,* like *tweed,* comes from the word *two* and refers to a distinctive method of pattern weaving in which the threads are paired [fig. 0.2].) These habits of cloth and clothing that we associate today with Celts began in prehistoric times and traveled with them through space and time. I had been studying the scant remains of ancient cloth for almost a decade, and if one thing had become clear, it was that the traditions of cloth and clothing in most parts of the world were remarkably ancient. This display case eloquently said it all.

"I'd love to have a scarf like that," I announced on the spot. So

here I was, two months later, sitting at home, trying to reproduce it from the diagrams in the scholarly publication. It had taken much hunting through weaver supply catalogs to find wool yarn of precisely the right colors and thickness, yarn that had also been combed and not carded. (Combing the unspun fibers to lie parallel results in a strong, hard thread. Carding, on the other hand, makes the fiber lie all which way—just like teasing one's hair—and gives a soft, fluffy thread like our knitting yarn. Most wool yarn now available is of this latter sort, but the process wasn't invented till the Middle Ages.) If I was going to go to all this trouble, I wanted the replica to be as near exact as I could make it. Of course, if I had begun by raising and shearing a sheep, cleaning and dyeing the wool, then combing, spinning, and plying it, the long day spent warping would seem quite a small expenditure!

After dinner I began to weave, while my family sat nearby chatting. It took me half an hour to weave the wide swatch of plain green that preceded the first brown stripe. Having put all the intricacies of the twill patterning into the warp, by the way in which we had tied it onto the loom, the weaving was now straightforward, and it went fast. I reached the first color stripes and added a shuttle of brown thread: four brown rows, four green, four brown, four green . . . I was eager to see what the plaid would look like, and I cursed gently as first one shuttle, then the other fell to the floor while I worked. The stripes were so narrow that it didn't seem worth tying off the finished color each time, so I put up with the nuisance. Another four brown, four green—another shuttle hit the floor.

Suddenly light dawned on me.

It had taken us so long to put the warp through the tiny control loops on the loom because the pattern, simple as it looked, had actually been quite complicated. That was because both the color stripes and woven pattern stripes were so uneven in width: sixteen, nineteen, twenty, eighteen. No two stripes that direction had exactly the same number of threads, and getting them all exactly correct had required great care. Now I was cursing at the stripes

running crosswise—the weft stripes—because they were in little tiny sets of four, an even number.

I had done the replica backward! If my weft had been warp, its sets of four threads would correspond to what I knew to be the structure of the warp on the ancient loom, as well as to the twill pattern. Thus the cloth would have been *easy* to warp up. Conversely, if my warp had been weft, the slight differences in the number of threads per stripe would make perfect sense; the weaver had not been counting but judging by eye how far to weave before changing to the next stripe.

Far from being unhappy at my mistake, I was delighted. Most fragments of prehistoric cloth from the Hallstatt salt mines—and there are more than a hundred extant—are torn on all four edges, so it is not possible to tell which direction they were woven the way one usually does, simply by looking for the type of closed edges found only at the sides. But by trying to imitate the product, I discovered not only which way *this* shred was woven and some criteria for analyzing other pieces but also several interesting details about how Hallstatt weavers worked. The cloth ends up looking much the same either way, and the time had been doubly well spent. It was another lesson to me that the process of re-creating ancient artifacts step by step can shed light on the lives and habits of the original craftworkers that no amount of armchair theorizing can give.

It is no longer possible to know most of the details of prehistoric women's lives. Far too much has been lost with the passage of time. Even in early historical times—in Egypt, Mesopotamia, Greece—very little of the ancient literary record was devoted to women, so we have few sources to consult. Indeed, the lack of clear sources has led to a good deal of guessing, even wishful thinking, in books about how women lived in early times (when the topic has not been omitted altogether). Here among the textiles, on the other hand, we can find some of the hard evidence we need, since textiles were one of women's primary concerns. We know, for example, that women sometimes helped each other with

their weaving projects, exactly as in the modern scene above, because we sometimes find the wefts in ancient cloth crossed in the middle of the textile. This can only have been caused by two people handing spools of weft back and forth to each other as they wove simultaneously on different parts of the same cloth. It is a tiny detail, but interesting precisely because of its realness. We also know, now, that prehistoric women sometimes wove their patterns by eye rather than strictly counting.

Of course, being perishable, the textiles themselves are not easy to learn about—just like most of the rest of women's products (such as food and the recipes for preparing it). Therefore, to recover the reality of women's history, we must develop excellent techniques (see Chapter 12), using not just the obvious data but learning to ferret out every helpful detail. Practical experiments like reweaving some of the surviving ancient cloths are a case in point. Among the thousands of archaeologists who have written about pottery or architecture, how many have actually tried to make a pot or build a building? Precious few; but with so much data available for study in these fields, scholars felt flooded with information already, and such radical steps hardly seemed necessary. Our case is different; we must use every discoverable clue.

The available material is most revealing when treated chronologically, starting with the Stone Age and moving through the Bronze Age into the Iron Age. We can watch how the craft of clothmaking develops and how women's roles change with the change of technology and its relation to society. But when I say "chronologically," I mean in a conceptual way rather than strictly in terms of years. It could hardly be otherwise. At 3400 B.C., as the Near East was edging into the Bronze Age, central Europe remained at a Neolithic stage of economy, while the Arctic north was Mesolithic and many other parts of the world still lay deep in the Palaeolithic (fig. 0.3). To chart technological stages so heavily skewed from place to place against a scale of absolute time is difficult. Understanding the basis of the categorization is perhaps of

greater help to a reader not acquainted with the system.

When systematic archaeology began to emerge in the nineteenth century, long before modern methods of absolute dating were available, Danish scholars suggested dividing the pre-Roman artifacts into three successive groups, based on the dominant material for tools: stone only (oldest), bronze (in the middle), and iron (youngest). This system worked pretty well, but it soon became clear that the Stone Age was enormously long and needed a further division based on whether the stone tools were always chipped *(Old Stone Age,* or *Palaeolithic)* or sometimes ground down to a smooth finish *(New Stone Age,* or *Neolithic).* As methods of recovering ancient remains became more refined, scholars noticed that polished stone tools correlated with the advent of agriculture. The grinding of tools was not unrelated to the grinding of grain. And gradually, as more and more material accrued, finer divisions were installed as needed. The simplest system was to divide into Early, Middle, and Late; Late into I, II, and III; Late III into A, B, and C; and so on. (A pot might thus be assigned to Early Bronze IIA.) But sometimes other terms fell to hand.

Thus the last levels of the Palaeolithic era are those uppermost at Palaeolithic sites (which themselves go back over a million years), and these uppermost layers correspond to a sudden blossoming of all sorts of arts and crafts in Europe after about 40,000 B.C. The era thus represented came to be known as the *Upper Palaeolithic* and was found to extend to at least 10,000 B.C.—later in some places. Its cutoff point is taken to be the advent of domestic plants and animals, which mark the beginning of the *Neolithic.* In Europe the domesticated stocks were imported from the Near East in an ever-widening circle. Because the far northern climate was too harsh for easy agriculture, however, people there continued to live a Palaeolithic life-style for millennia, augmented with a few handy Neolithic ideas borrowed from the south (such as actively herding the wild reindeer, rather than just hunting them). This intermediate type of culture soon got nicknamed the *Mesolithic.* I have chosen to treat the Upper Palaeolithic and Mesolithic

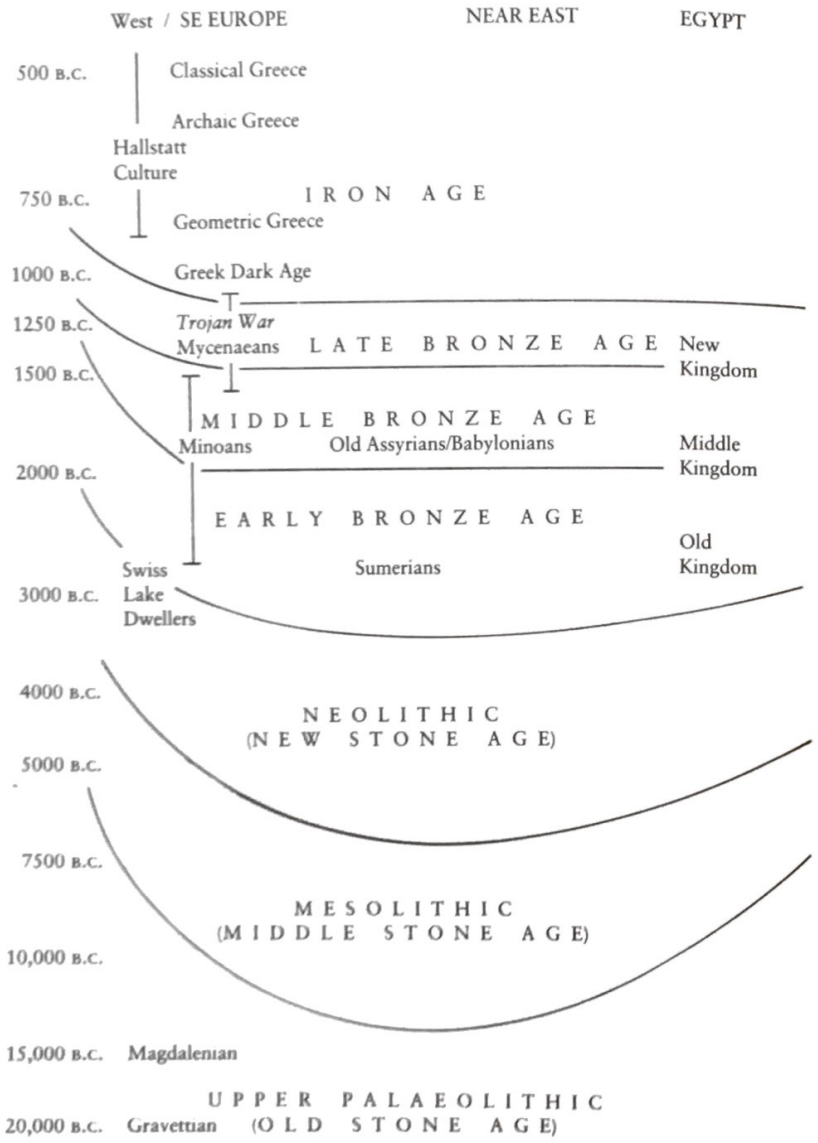


Figure 0.3. Chart of the main chronological periods covered in this book. The scale is logarithmic.

together (in Chapter 2), followed by the Neolithic (Chapter 3). The development of metalworking and of efficient metal tools marks the start of the *Bronze Age* (although again in the seminal areas there are transitional phases with various names: Copper Age, Chalcolithic, Aeneolithic). In the Near East the beginning of the Bronze Age shortly before 3000 B.C. is accompanied (or triggered) by radical changes in living conditions: Cities spring up everywhere and writing is invented. Again, the innovations are not unrelated to each other.

Bronze Age technology and urbanization quickly spread to southeastern Europe, but some aspects of life there continued with one foot in the Neolithic, an interesting hybridization that allowed textiles to flourish (Chapter 4). The mainstream of Bronze Age life developed full speed ahead in Mesopotamia (Chapter 7) and Egypt (Chapter 8), eventually reaching Greece in its full form in the Late Bronze Age, midway through the second millennium B.C. (Chapter 9), only to be cut off around 1200 B.C. by waves of destructive migrations emanating ultimately from the steppes of central Asia. After the dust settles and the smoke clears away, we find the Mediterranean countries in possession of some new ways of living and of a new and much harder metal, iron—in an era suitably called the *Iron Age* (Chapter 11). It takes another two to four hundred years, however, for the complex technology of ironworking to make its way all the way across Europe, during which time "Bronze Age" labels in some parts of Europe correspond in absolute years to "Iron Age" labels in other parts.

By the mid-first millennium B.C., when iron was reaching the far west and when this book ends, southern Europe and the Near East had already experienced vast cultural developments and redevelopments, whereas most other areas had not yet gotten on their feet (China, northern India, and Central America excepted). The chapters that follow concentrate on this geographical area of early development and for the most part omit the rest. Of course, the same methods developed here can be applied to those other times and places to recover more of their histories.

3

Courtyard Sisterhood

Men may work from sun to sun,
But women's work is never done.

Welsh rabbit: oddments of cheese melted with leftover ale and served over toast for supper when the hunters fail to come home with a rabbit.

Toward the end of the Palaeolithic era, some ten thousand years ago, the way women in particular lived their lives began to change dramatically, as the result of a seemingly small but new idea. Heretofore families had always been on the move, shifting from one temporary abode to another as sources of ready food came and went with the seasons. Now, as the great ice sheets and the vast herds of tundra animals retreated northward across Europe, some humans in the rapidly warming south stopped following the animals and began to settle down, obtaining their food locally. The era that followed, with its multitude of cultural changes, we call the Neolithic, or New Stone Age.

These settlers didn't know it—they would not have possessed such a concept yet—but this life of permanent abodes started the greatest pyramid scheme of all time. A pyramid scheme starts

small and gets bigger and bigger, leaving the last people to pay for all. (Chain letters are often of this sort.) When you settle down, you begin to acquire things to make your survival and that of your children easier; soon you need more tools and helpers—offspring—to care for the ever-increasing number of things and surviving children. At the end of the Palaeolithic, around 8000 B.C., the entire continent of Europe contained scarcely five hundred thousand people—roughly today's population of Florence, Italy, or Denver, Colorado. Population experts estimate that Earth as a whole had five million humans then, less than half of what greater Los Angeles alone has today. It took the next fifteen hundred years for that number to double to ten million. Today, by contrast, we are doubling our billions of world inhabitants in a mere twenty-five years and have nearly reached what will be the ultimate layer of this pyramid, one way or another, as we run out of fresh water and breathable oxygen, not to mention wood and metals. We find ourselves stuck with the final bill for some five hundred generations of uncontrolled acquisition and child producing begun in the Neolithic.

In sum, settling down changed radically the relationship of people to one another and to the environment, as it altered how people now came to behave. To understand the relations between women and their new work in a sedentary world, we must therefore first understand what made settled life such a novel project.

Why did people stop being nomadic? Archaeologists used to debate the question in chicken-or-egg form: whether people first discovered how to domesticate plants and animals, then settled down to tend the fields they had planted, or whether they settled first, then began taming what they found in the vicinity. It was even argued for a while that people stopped moving around because they had invented pottery, a commodity too heavy and breakable to carry about. But we now know that true pottery was invented several thousand years after permanent settlements began.

Evidence from recent excavations in Turkey, Syria, and Israel

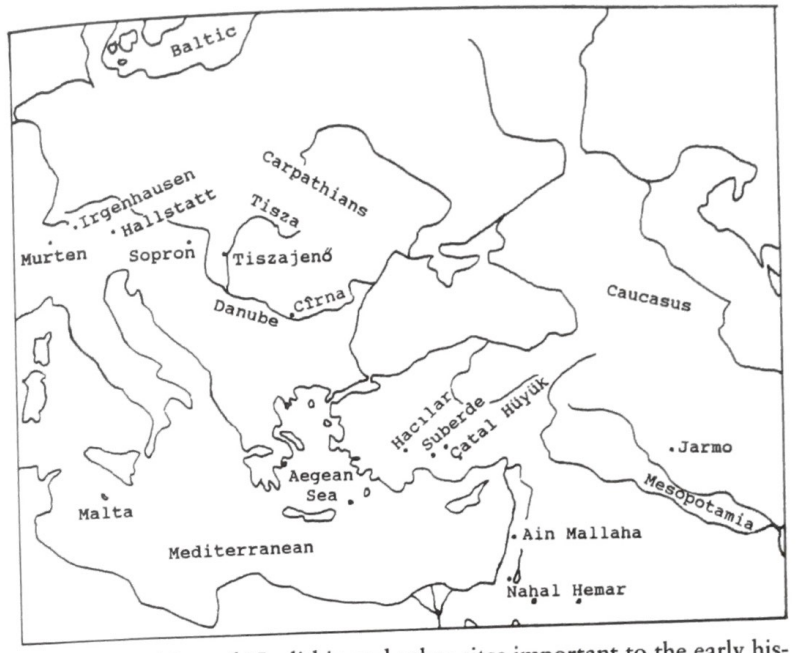


Figure 3.1. Map of Neolithic and other sites important to the early history of textiles.

shows that at least in some cases people settled first, then domesticated their food supply. Huge stands of wild grain began to flourish in that area, as a result of the warming postglacial climate, from about 10,000 B.C. on, and people apparently began to find it possible to live off this wild grain and the animals it supported. Thus early settlement sites like Ain Mallaha in Syria and Suberde in Turkey (fig. 3.1) give evidence of permanent dwellings and storage pits, but only wild food. Furthermore, the first sign of domestication that we have, present at some of the earliest settlements, is not something that was eaten: It is the dog. This creature, which willingly chooses a human as the leader of its lifelong pack, was humankind's first friend, it seems, as well as its best.

The very act of stockpiling ripe grain for winter in the new village could well have led people to the idea of helping nature out by planting seed themselves. A woman going to the family storage

bin during the early spring rains might find that the last of the winter store was already sprouting into new plants. Or perhaps some grain, dropped on the way home from the harvest, had sprung up just outside the doorstep. A little water during dry spells and a little weeding during wet ones ensures the crop—in a most convenient place.

But soon an interesting symbiosis develops between the humans and their favorite plants. When it ripens, wild grain breaks off very easily from the stalk it grew on (as anyone knows who has gotten a sock full of seeds just by walking through a field of tall, dry grass). That is how the plant spreads its seeds to propagate. In the wild a seed that does not fall off the stalk easily is less likely than its more readily dehiscent neighbors to settle into a good spot to germinate, but conversely it is *more* likely to be sitting there waiting to be found when the human collector comes by. The varieties of grain thus select rapidly toward kinds that cling firmly to the stem, once people gathering and sowing seed come into the equation. In fact, the plant becomes dependent upon the humans to wrestle its seeds free and plant them. Such changes in seed form constitute some of the clues we have that purposeful planting began between 10,000 and 7000 B.C.

Animals, too, change under domestic conditions. With the old-style Palaeolithic kills (the only alternative to daily foraging), it tended to be feast or famine: Everyone got together and rounded up a herd of something tasty, slaughtered the lot, gorged, and then went hungry again. Dry-curing a stock of meat could help even things out, but then you had to haul it about, and meat, even dried, is heavy. Once you settle in one place, however, different problems and solutions arise. If you kill a big animal far from your permanent residence, you must somehow convey the meat back home. You can no longer bring home to it. (The remains of animal bones at the early village of Suberde show how the hunters there solved this problem. Instead of carrying the largest and heaviest bones all the way home, the villagers cut them out at the kill site and used the hide as a bag in which to drag home by the shanks

the rest of the carcass, now considerably lightened. This causes a peculiarly skewed distribution of bones at the dwelling site that archaeologists have nicknamed the schlepp effect.)

But what if you rounded up some middle-size animals, not too big to handle and not too small for the bother, walked them home on their own four legs, and stored them *alive,* in a pen full of fodder, until you needed them one by one for food? Refrigeration on the hoof, as it were. True, the jumpy ones will probably break loose or get killed first for their trouble, but the more docile ones might last till spring and, like the grain, might then be found quietly reproducing. Thus selection in captivity tends toward docility and smaller biting equipment—shorter muzzle, less prominent incisors, weaker neck muscles—and less of a premium on invisibility to predators. (Protection from predators over more than one generation allows variations in hair growth and color that would otherwise make the animal nonviable.) These traits, too, show up in the archaeological record from the early Neolithic on.

To the hothead, being "kept" is exploitation; to the docile, symbiosis. It's partly in how you look at it. Individuals that could not have survived "in the wild" can live out their lives under protection. (Ants grow great flocks of aphids by protecting them, then "milk" them for their sugar. Exploitation or symbiosis?) Humans themselves, compared with other primates, show the typical signs of domestication in their reduced jaws, claws, neck muscles, and hair—women even more than men. We partially domesticated ourselves first. In any case, many other species thrived under human care, and the humans rearranged their lives to care for the plants and animals that now came to depend on them.

These new labor arrangements differed from one region to another as a function of just which domestic animals, if any, became critical to the local food supply. Plants in themselves are compatible with child raising, but some animals are not—especially the large draft animals used for plowing. Thus farming societies tend to divide into types depending on whether the plants are grown using a plow (*agriculture,* meaning "field culture") or by

hand-tending alone (*horticulture*, "garden culture").

But it was not until some four thousand years after people had begun domesticating animals that they started to harness creatures to pull plows. So our next tale is of horticultural settlements, where the women were usually in charge of the kitchen-gardens and thus of the main food supply, along with the young children and the burgeoning fiber-crafts.

Permanent abodes changed women's lives dramatically. Not least, it allowed women to stop carrying their children around. Women today who belong to hunter-gatherer societies, such as the !Kung in southwestern Africa, space their children three to four years apart. They can't physically handle more than that, and that number of children (considering that they don't all survive) is quite sufficient to keep the population going without overloading the resources of food and water. But once the family settles down, carrying the small children constantly is no longer necessary, so the babies *may* come oftener, and there is always need for more hands on a farm, so more babies come to be *wanted*. Furthermore, the risk of disease and epidemic is far greater where larger numbers of people live in close quarters and among their own refuse. Cholera, typhoid, plague, and diphtheria all were diseases spread by such conditions, terrifying in their speed, devastating in their toll, and checked only recently by modern sanitation, immunization, and antibiotics. Babies are the most vulnerable to such attacks; thus, under those conditions, babies soon *needed* to come more often to balance out the higher death toll.

This new Neolithic ethic of bearing large numbers of children (still practiced by many today, even where modern medicine now keeps most of these children alive) is evident both in the increasingly rapid rise of population during the Neolithic and in the representations of people: almost always women, and usually—unlike the few male figures—fat. These numerous figurines seem to be continuations of the Palaeolithic Venus figures, but with some marked differences.

At Jarmo, a Neolithic village that flourished around 7000 B.C. in Iraqi Kurdistan, plump women are modeled sitting down instead of standing—perhaps a more characteristic pose in a stationary life. Jarmo is one of the earliest villages we know with firm evidence of both plants and animals being domestic. By 6000 B.C. at Çatal Hüyük, in south-central Turkey, we see a strong and overt preoccupation with fertility and childbirth. Amid a frightening array of bulls' heads (plaster over actual skulls, with enormous horns), we see a no less scary plaster wall relief of a pregnant woman with her legs spread and her arms raised, concentric circles like a bull's-eye on her stomach (fig. 3.2). In another case a sculpted man and woman lie in close frontal embrace, and still another statuette shows an enormously plump woman sitting as she begins to deliver (fig. 3.3). But this is no ordinary scene of birthing: The lady's hands rest on a pair of formidable felines, perhaps lionesses, suggesting that she is in supernatural control of life.[1] Many other figurines of plump women, mostly either sitting or lying, often with children clambering on them, come from the slightly later site of Hacılar nearby. The height of this reverence for obese women, however, comes with the reclining sculptures from early Malta (fig. 3.4). Such females—special priestesses? queens?—may remind the modern observer of nothing so much as a termite queen, whose only job is to lie quietly all her life, eating food and bearing young—plump, pampered, pale and immobile. Or they may remind one of Odysseus' description of his men arriving at the palace of the king of Laistrygonia (possibly in the vicinity of Malta):

> And when they entered the famed halls, they came upon his wife,
> who was big as a mountain peak; and they were appalled at her.

Settling down and being able to grow as much of something as one wanted not only changed the patterns of childbearing but also

[1] A not unsimilar cult of the dread goddess Kybele and her wild animals persisted in western Turkey in Classical times.

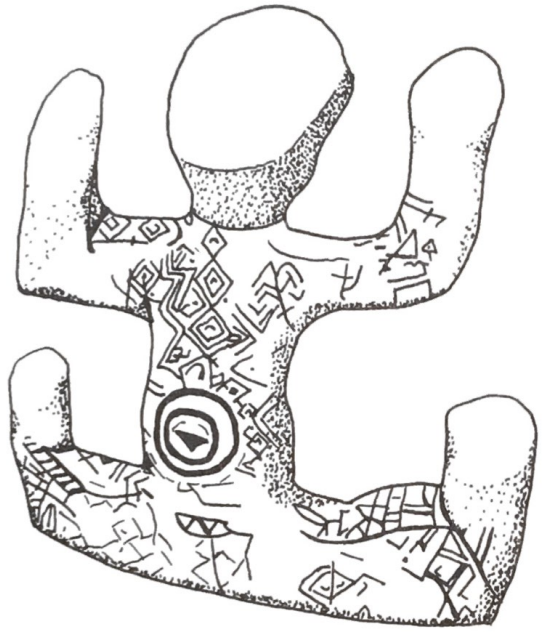


Figure 3.2. Relief sculpture of a pregnant woman, from the wall of a shrine at the early Neolithic town of Çatal Hüyük, in Turkey. The hands, feet, and face are mostly gone now, but the preserved parts of the skin are covered with tiny red-painted designs, mostly forms of lozenges but here and there resembling plants. They probably imitate body paint used magically to help a woman through the dangerous and painful ordeal of childbirth.

inevitably changed the types of tasks to be parceled out. In the fiber crafts, vast new supplies made it now possible to consider making big pieces of cloth rather than just narrow bands and belts. But to do that, the craftswoman first had to redesign her loom.

Our earliest clear proof of woven cloth comes once again from Jarmo, Iraq, in the form of two little clay balls with textile impressions on them. The cloths are fine and neatly woven in not one but two different weaves, details demonstrating clearly that people had been weaving long enough to have become highly skilled at it. Unfortunately no vestiges of weaving equipment or work spaces

Figure 3.3. Clay statuette of an obese woman giving birth while seated with her hands on a pair of wild animals; found at the early Neolithic town of Çatal Hüyük, in Turkey, ca. 6000 B.C.

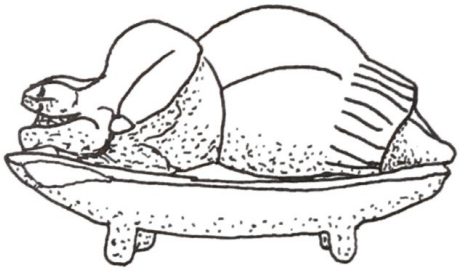


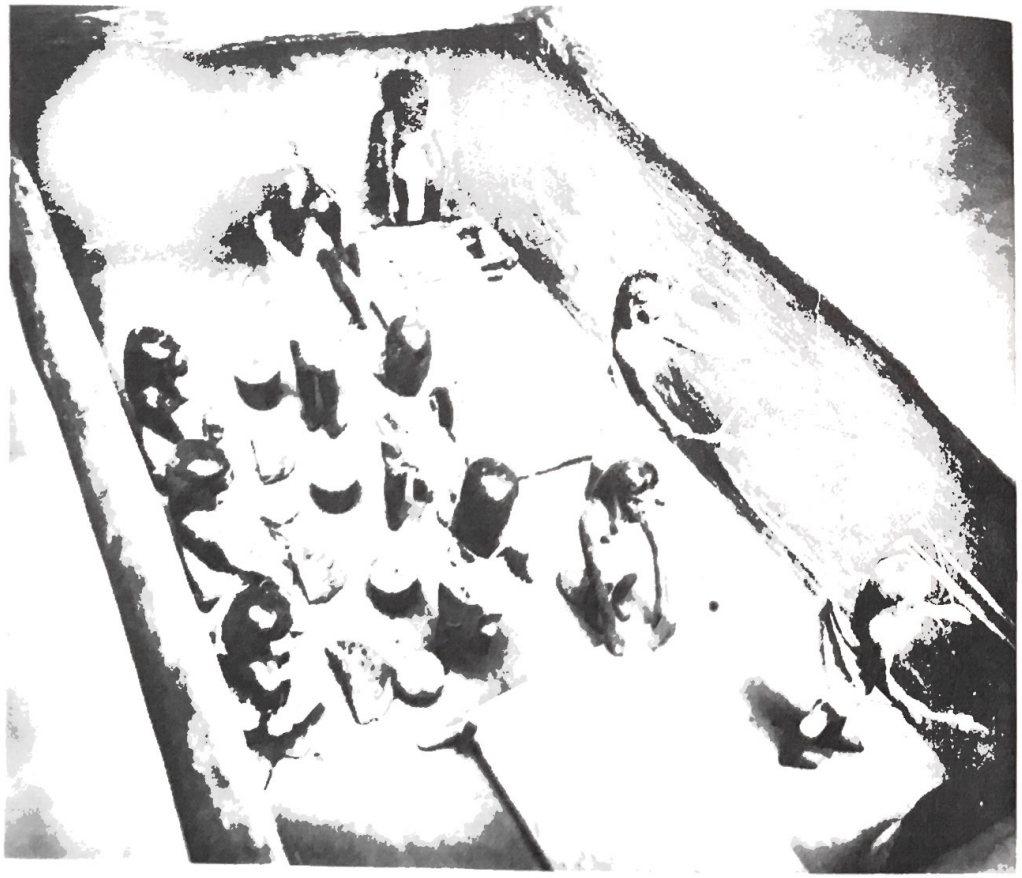
Figure 3.4. Neolithic figurine of a reclining woman, from the Mediterranean island of Malta. All the early female sculptures from Malta show great obesity.

turned up at this site, so we can't say whether the Jarmo weavers had solved the problems of large looms yet. A look at all the Neolithic evidence for textiles together yields more data, however.

By plotting this evidence in both time and space, we can discern traces of at least two large Neolithic looms of quite different

design, and we see, furthermore, that the loom types spread in roughly opposite directions across the landscape from the innovative area where Jarmo and Çatal Hüyük lie. One of these is the horizontal ground loom (fig. 3.5), still used today by Bedouin

Figure 3.5. Wooden model of a Middle Kingdom Egyptian weaving shop, showing two horizontal ground looms pegged out for use. Two weavers squat beside the warp to help each other with the weaving. This type of loom has been used in the Near East from sometime in the Neolithic until the present day. Other women are shown processing flax, spinning, and measuring warp thread on pegs on the wall. Eleventh Dynasty, ca. 2000 B.C.



women in the Near East. This device migrated mainly south and southeast: through Mesopotamia and the Levant, down into Egypt, and apparently eventually all the way to India. Since this loom is made entirely of wooden sticks (seldom preserved and hard to recognize), most of our evidence for it comes from representations of its use. In these depictions, incidentally, wherever one can tell the gender of the weavers, they are women (cf. fig. 7.5).

The other type is the warp-weighted loom (fig. 3.6), set nearly vertical, which was still being used twenty-five years ago by women in rural Scandinavia. This loom, by contrast, can be traced spreading largely north and west across Europe from a focal center in Hungary. It is much easier to trace than the ground loom because, although most of this loom, too, was composed of wood, the warp was kept tight by a series of weights, which were generally made of baked clay and hence are much less perishable. Although representations of this loom are far fewer and later, those we have show women once again as the weavers.

What I find most fascinating about these two early looms is that neither is logically derivable from the other, but both are easily derived from the simple band loom. With a band loom, the weaver normally ties the near end of the warp in a single bunch to a post or her own waist and the far end to something else, like a tree or another post or her big toe. If the weaving is tied to the weaver, the tension on the warp that is necessary for weaving is provided by simply leaning back. It couldn't be simpler. As one wishes to make a wider and wider fabric, it is possible to spread out the near end of the warp on a bar, rather than attach it all in a single bunch. But as the spread increases, if the far end is still tied in a single group, the warp threads develop a steep angle that makes the weaving difficult. That end needs to be spread, too. If, then, you take the bar at the weaver's end (called the cloth beam) and hang it up, tying stones on to the bottom of the warp in little bunches to provide the necessary tension, you have the makings of the warp-weighted loom. But if you stake the cloth beam to the ground, and

Figure 3.6. Women weaving together on a warp-weighted loom, as depicted on a Greek vase of about 560 B.C. (See fig. 9.4 for the entire scene.) On this loom the warp hangs down from a beam supported over the weaver's head.

stake an identical bar some yards away to which you can tie the other end of the warp, thread by thread, to keep the tension, you produce the ground loom.

Thus the two types of loom appear to have been independent ways of solving the problem of how to make wider cloth. Once invented, they spread outward, meeting and competing with each other in Turkey, it seems, but otherwise creeping slowly for thousands of miles in opposite directions. It is interesting, too, that the seminal zones for these large looms are the areas in which flax first became domesticated, the stretch from northern Iraq to southern Europe. Such deductions strengthen my hunch that the Palaeolithic women of southern Europe had already invented belt weaving (as part of their concern with symbolic belt-based clothing like the string skirt) and that knowledge of this useful craft had spread southeast by early Neolithic times to the areas where domestication was invented.

Consider, too, the geographical areas where each loom came to be used. Egypt and Mesopotamia are hot, dry regions where it seldom rains. A woman can go outdoors and stake out her loom as big as she pleases for days, weeks, or even months without fear of disaster. Not so in Europe, where snow covers the ground half the winter and rain is frequent all summer. Outdoors is no place for a loom, but neither can the family afford to have the weaving all over the floor of the living space. So hang it from the rafters, or prop it on the wall! It takes almost no floor space that way and is protected from the elements.

In the Tisza Valley in Hungary, excavators have dug up the remains of several Neolithic huts from around 5500 B.C., some equipped with sets of clay loom weights along with the cooking pots and other simple gear. In one cottage (fig. 3.7) the weights sat in a heap beside a pair of stout postholes near one wall. Since these posts have no discoverable function in holding up roof or walls, they almost certainly formed the supports for a vertical warp-weighted loom—a loom measuring 185 centimeters wide and thus accommodating a cloth 4 to 5 feet in width. Furthermore, we see

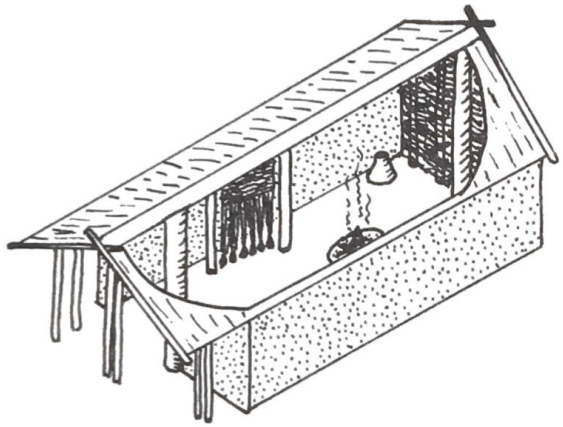


Figure 3.7. Cutaway reconstruction (from the floor plan) of a sixth-millennium-B.C. Neolithic house at Tiszajenő, Hungary. In addition to the hearth and a storage jar set into the floor, one can see the reconstruction of a warp-weighted loom, set up at a slight angle to the wall so that it could receive light from the doorway in daytime as well as from the hearth fire at night.

that the woman of the house had cleverly set up her loom so she would get the best light on it during the day, since it faces the doorway, and also set it near the hearth as well, so as to get light from the fire at night and during the long, dark winters. Apparently women already expected to work long hours.

In Europe conditions in the Neolithic and Early Bronze ages fostered a "courtyard and outrider" economy. There were no draft animals, so the women with their children underfoot could take responsibility for the entire basic food supply: cereals, legumes, and such other fruits and nuts as might be available, plus eggs and an occasional lamb or mutton stew. That freed the men to go outside the community (outriders) for other resources entirely, if needed, returning at intervals with their contributions. Since war did not yet constitute significantly more of a problem than it had in the Palaeolithic, the men did not have to stay home all the time simply for defense. (The rarity of warfare had to do with both the

sparseness of the population and the lack of great difference between haves and have-nots.) We see families clustering their houses together into little villages for mutual aid and support, but fences, when present, seem to be designed more to keep sheep and children in than enemies—other than wolves—out.

In such a world the women could bring their smaller crafts out into the communal yard in good weather, to chat together and help one another as they worked and watched the children play. The children, in turn, could play at helping, pretending to do what the big folks do, as children will. Such play can function as a sort of vocational kindergarten, teaching the children the basic steps in processes that they will have to master in earnest later. For textile work alone, in addition to spinning the thread and using it to sew, make nets, and mend, these activities included the many steps of preparing the dried flax or hemp for spinning. First the women place the dried plants in a stream or in the dew long enough to rot the unwanted parts of the stem away from the tough fibers—a process called *retting*. Then they beat and twist loose the woody parts of the stem (called *breaking* or *braking*) and comb the fibers until they are free and clean (called *hackling;* a dog's hackles, when raised, look like the coarse teeth of a hackling comb). Archaeologists have found tools for breaking and hackling flax in the muddy lake beds that surrounded some of the Neolithic villages in Switzerland, along with hanks of flax in all stages of preparation. Unfortunately they were not found in such a way as to give us further clues to how the inhabitants organized their work.

In tending their garden plots, once again the women could work together while the children played or slept nearby, as we can see from the many ethnographic studies of horticultural societies. In Europe well into this century the women often sang or chanted ritual songs to set the rhythm of the endless repetitive motions of handwork in the fields. The slow, droning chant also has the interesting cognitive effect of blunting one's awareness of the pain of aching muscles and of the length of time spent. Here, too, the children could learn their future tasks bit by bit, in the process

becoming participating members of the social community. I remember how proud I was as a child of four to be sent to the top of the apricot tree to pick the last of the fruit. It was wartime, food was scarce, and I was the best and lightest climber. I could contribute something no one else could.

If the summers encouraged this sort of sisterhood, European winters invited communal work even more. When the farm is covered in snow and modern electronic entertainments are millennia into the future, how do you while away the time? You carry on what small and useful crafts you can, giving you a sense of bettering your life, and you make it more fun by having a party at the same time. Just as the pioneer women in rural America got together for sewing, quilting, and husking bees, just as Hungarian farm women still have regular "work parties," so the women of prehistoric Europe gathered at one another's houses to spin, sew, weave, and have fellowship. How do we know this? From the cloth itself.

All over Denmark, preserved by the boggy groundwater, lie treasures of Bronze Age information in the form of wonderfully preserved burials. Bog water is highly acid, and acid preserves skin and leather, hair and wool, horn and fingernails almost perfectly. Many times it has happened that a peasant cutting peat for fuel out in the bogs has come upon a well-preserved dead body and called in the police to see who had recently been murdered. Fingerprinting the perfect swirls on the victim's hands yields nothing in the police files, but archaeological sleuthing soon shows that despite the perfectly preserved face, hairdo, and woolen clothing, the deceased died some two to four thousand years ago.

At the site of Trindhøj, straight west of Copenhagen on the Danish mainland of Jutland, a man went to his grave around 1300 B.C. wearing a patchwork tunic, a white fringed shawl, and a huge brown cloak woven of coarse wool. Two Danish archaeologists, Margrethe Hald and H. C. Broholm, analyzed the weave of the cloak and discovered that the weft threads in this enormous cloth often cross each other, shifting from one row to the next right in

the middle of the textile. The only possible explanation is that several weft bobbins were in use at once. That is, three women had to have been weaving on this cloth simultaneously, passing the bobbins to each other as they met in the middle somewhere and then changing the shed. Other cloths show similar telltale signs.

We have more evidence of women working together. A famous Classical Greek representation of the warp-weighted loom (figs. 3.6 and 9.4) shows two women working beside each other at their loom (while others help prepare the wool and fold the finished cloth) in exactly the way that the ethnographer Marta Hoffmann found Norwegian and Finnish women still doing twenty-five years ago (see above). The loom is often so wide that this must have been fairly common practice, although it was not absolutely necessary. Homer, for example, depicts the lady Calypso working alone on her desert island:

> And she, singing indoors with a beautiful voice,
> wove at her loom, walking up and down with the golden bobbin.

Being alone, Calypso had to provide her own entertainment, too.

Prehistoric women in Hungary already provided entertainment for each other. In a charming scene from a Hallstatt urn (fig. 3.8), we see one woman spinning, another weaving at a great warp-weighted loom, two others with their hands above their heads as though they were dancing, and a fifth, shorter figure (male or female?) holding a stringed instrument that is either a lyre or a frame for making the kind of plaiting called *sprang*.

In this same part of Europe, well into this century, women wearing clothes remarkably similar to the Hallstatt ones (fig. 3.9) still met at one another's houses for working bees. The continuity is remarkable. Perhaps the most common activity before "modernization" was spinning, since it took so much longer to spin than to weave a given amount of fiber; estimates put it at seven to ten times as long, using a hand spindle. (How much time it took to

Figure 3.8. Women spinning, weaving (on a warp-weighted loom), and entertaining one another with music and dance. The scene is incised on a vase of the Hallstatt culture (mid-first millennium B.C.), from Sopron, Hungary. Compare the triangular-looking costumes with modern Hungarian folk costumes (fig. 3.9).

spin the yarn for a given area of cloth depended, of course, upon how thick the yarn was, exactly as in knitting. Fine yarn takes longer per unit of weight to work up.) Girls were taught to spin when they were ten or twelve, and they looked forward to that time, since spinning is a pleasant task. It is also an activity easily dropped and easily resumed in the excitement of courting. For the men came to these workplaces, too, whether indoors or out, bringing their small crafts of leather and wood—but they came primar-

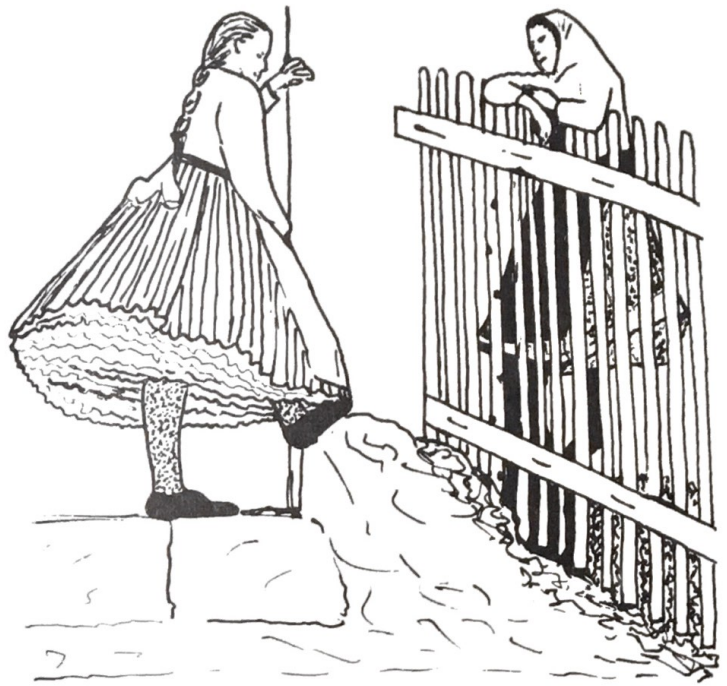


Figure 3.9. Hungarian village girls wearing costumes similar in their peculiar shape to those depicted in the area twenty-five hundred years earlier: see fig. 3.8. (From a photograph taken ca. 1950.)

ily to entertain the women and keep them company. Tales were told, songs sung, and music and games played, especially those games we would call dances. The same word serves for both "dance" and "game" in many languages—for example, *igra* in Serbo-Croatian.

When one is having so much fun, it is hard to stop, and that may in part explain a peculiar anomaly in the Neolithic evidence from central Europe. Archaeologists would peg these Stone Age people as living in a subsistence-level economy—forced to work fairly hard just to feed themselves and to stay warm and dry. By this model, little time and energy would remain for fun and frolic. Cloth survives poorly in most of Europe, subject to the destructive effects of alternating wet and dry weather; yet our surviving tex-

tiles from the Neolithic are astonishingly ornate. Clearly these Neolithic women were investing large amounts of extra time into their textile work, far beyond pure utility, far beyond our concept of "subsistence level."

Life remains hard in these same parts of rural central Europe today, yet the tradition of making fancy cloth persists there. During the long, boring winters not much useful outdoor work is possible, so the energy overflows into indoor crafts. Furthermore, one finds the attitude that if you have to make a bedspread or a cushion anyway and will have to use it for the rest of your life, you may as well make it pretty and be able to enjoy both the making and the using.

How do we see this love of embellishment in the Neolithic? Take, for example, the linens of Switzerland, dating from 3000 B.C., from such sites as Robenhausen, Irgenhausen, Schaffis, and Murten, which lie clustered around the lakes in the center of the country. The women who made them lived in a swamp, squashed between forest and lake, far from the centers of European culture downstream on the middle reaches of the Danube. To stay above the lakeshore mud, the inhabitants drove hundreds of wooden pilings into the soft ground to stabilize it before laying their clay hearths and building their wooden houses on top. Little corduroy pathways of logs joined the houses to one another and to the higher ground where the forests began, helping the villagers stay dry-shod as they moved about. The frequency with which they added piling shows the constant urgency of keeping ahead of wet and rot. Whatever fell into the muck below was lost for good—to them, but preserved for us, since the perpetually soggy, airless, alkaline lake mud happens to preserve plant material quite well. (Note that alkali, which destroys animal remains, has exactly the opposite effect from acid bog water, which destroys plants but preserves animal skin and hair.)

Thus we find quantities of wooden tools—a rarity on most archaeological sites—from bowls, ladles, pounders, and tilling sticks to the panoply of utensils needed to prepare flax: breaks,

hackling boards with little thorns set into them in neat rows, and spindles with clay whorls. We find hanks of spun thread ready for use (all that labor, only to be dropped into the mire!) and clay loom weights—sometimes in a row across the floor, showing that the loom was in use when the particular village was eventually destroyed. The trail of loom weights indicates that the warp-weighted loom and its associated weaving technology had spread here during the fourth millennium B.C., moving up the Danube from its home in central Hungary. We find baskets and bags of all sorts, and textiles—fancy ones.

Stripes, checkers, triangles; braided fringes, knotted fringes, beadwork, and fancy edges. Weaving stripes into the cloth with an extra pattern weft was the most common, but sometimes the weavers put in triangles or squares, which is not a simple task like stripes. An especially elaborate piece (fig. 3.10) from the site of Irgenhausen, near Zurich, has triangles within a complicated pattern of checkers-within-checkers-within-checkers , formed by lacing in a whole handful of pattern wefts. Emil Vogt, who painstakingly analyzed all the blackened remains of this large cloth, concluded that there would have been no point in weaving the pattern in that particular way unless the weaver had been using at least three hues so the patterns would stand out. Would that we knew what these colors were! When workers at the National Museum in Zurich wove a replica (fig. 3.10), they used conservative brown and beige on white, but we know that plants and other substances producing reds, blues, and yellows grew in the area, too, and that some of these dyes were already in use elsewhere in Europe.

The Stone Age clothmakers of the Swiss lakeshores did not stop with adding color, however. The creator of another textile, found at Murten, pierced groups of little fruit pits and sewed them carefully onto the cloth on either side of some woven stripes. Someone also attached this piece to a second cloth by means of half a dozen rows of knotted netting, thus giving elasticity to the join. For clothing?

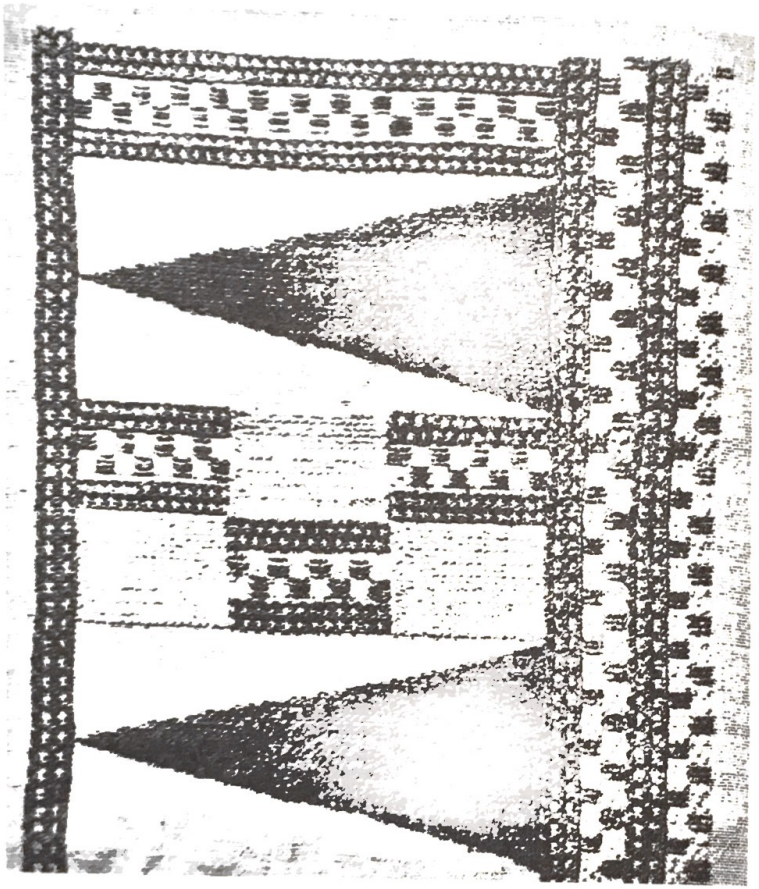


Figure 3.10. Modern replica of a Neolithic linen cloth found in a lake bed at Irgenhausen, Switzerland, dating to 3000 B.C. or a little after. The original fragments are so blackened that we can no longer determine the original colors, but careful analysis of the weave structure (which made it possible to weave this replica) shows that at least three colors must have been employed. (Swiss National Museum, Zurich.)

Above all else, these weavers loved fancy borders. The ribbed side borders were not difficult, but the unique problems of setting up a warp-weighted loom meant that the cloth had to begin with a special edging at the top to secure the warp threads. Then, having neatly framed the cloth on three sides, these weavers threw all their ingenuity into devising a bottom border. One can imagine the women working together and egging each other on as they finished off the bottom edges of their cloths. The fanciest involved weaving a ravelproof band right across the warp ends with its own decorative pattern of ribs and triangles, while any ends left after all that were braided and knotted into a fringe for good measure.

The inhabitants of Neolithic Switzerland were not the only Europeans making fancy fabrics. We catch more glimpses in central Germany, where the dead were laid to rest in great ossuaries, their oak rafters apparently draped with patterned textiles. (We see from this that cloth already served other purposes than just clothing people.) Periodic firing of the ossuaries from the outside, probably to keep down the odor and contagion, preserved bits of the fabric where insufficient oxygen made the cloth char rather than burn. Although most of the actual scraps of cloth were lost again during recent wars, we can see stripes, checkers, and lots of little chevron patterns as we peruse the sketches made at the time of discovery in the late nineteenth century.

Neither Germany nor Switzerland stood at the center of this European weaving culture, however, but in its backwaters. Its "frontwaters" lay in Hungary and along the lower Danube, where the warp-weighted loom first developed. With the textiles in the backwaters so ornate, what then must they have been like at the center of the tradition? Back in 5000 B.C., along the Tisza River, nearly every house had the weights for a loom already, while later on, the figurines from Hungary sport fancy patterns on their persons, sometimes apparently as body paint (still found in remote parts of the Balkans today) but sometimes also on clothing.

All over central Europe women were inventing more and more elaborate textiles, regardless of modern economists' models. One of the key issues to understanding this "extravagance" is time. Not only were there infinitely fewer entertainments tugging at one's attention in a preindustrial rural setting, but expenditure of time was viewed very differently from the way it is within an industrial

economy. To us, time is money—to be "saved," "spent," "budgeted," "invested," or (horrors!) "squandered." For them, money was irrelevant because it hadn't been invented yet, nor would it be for another twenty-five hundred years. So there was nothing to weigh time *against;* it simply was what it was. Furthermore, it was an *automatic* resource, unlike food or material goods (including money). Time was thus constantly available for use to promote survival, whether directly (e.g., by preparing food and building shelter) or indirectly—that is, by trying to elicit symbolically what was wanted. The latter is a use that many of us have forgotten. Ethnographic parallels worldwide show that enormous time is often put into "simply" decorating people and things with efficacious symbols believed to promote life, prosperity, and safety (cf. fig. 3.2). For example, many a Slavic folk costume is decorated with red embroidery at neck, sleeve, and hem. Both the designs and the bloodred color carry symbolic life powers, while the potent signs are carefully located to ward off sickness demons that are looking for openings through which to attack. Thus "art" is at once pleasing and thoroughly functional—a double winner.

Weaving was not the only craft into which artistic time and energy were being poured in the Neolithic. From Hungary on south through the eastern Balkans, all the way to Thessaly in Greece, we find a profusion of astonishingly elegant pottery covered with sophisticated swirling designs. The idea of baking a container molded of clay in order to make it hard and waterproof had developed in the Near East around 6000 B.C. and soon spread to southeastern Europe. There is no direct evidence of whether men or women were making the pottery, even when we see the baking of the clay moving soon from low-temperature firing in the family hearth to much hotter firing in courtyard ovens. But a case has been made that the elaborate painted designs that soon developed in southeastern Europe represented a variety of fertility symbols, core among which are eggs. The painting of the eggs themselves at Easter, the time of renewed growth, is still an important annual ritual in the Balkans and Ukraine, and the designs painted on them

are replete with ancient symbolism. In the United States, on the contrary, the meaning is so far weakened that painting Easter eggs is now viewed as a children's pastime while the highly fertile rabbits associated with them have devolved into commercialized cuteness. Once again, female fertility was a dominant theme among the cultures of the Neolithic, and the women may have been in charge of this new craft, too, with its cargo of fertility symbols. To these arguments we can add that vase making was certainly another courtyard art and would combine well with child rearing. The resulting pottery, moreover, was used chiefly for the women's daily chores of storing, cooking, and serving the food.

Strong parallels to many of these archaeological details can be found in another culture overflowing with women's courtyard arts, the Hopi of the American Southwest. There the potting, vase painting, basket making, and weaving all are women's work, and although the weaving of patterned rugs is recent, the elaborate no-two-pieces-alike painting of pots is not. (I have often been struck, in fact, by the similarities between the Hopi-Papago designs and those of Neolithic Anatolia and southeastern Europe.) Certain aspects of the Hopi designs are traditional to the culture, but other features have typically been handed down from mother to daughter within the family, for the women worked together constantly and learned principally from one another. Indeed, a woman lived her whole life in the dwellings owned by her mother and her mother's clan, whereas the man divided his time and allegiance between his wife's household (to which he contributed the food he produced) and that of his own mother, where he had many ritual duties. As for property, the matrilineal clan owned the plots of land in which the main food supplies of corn and squash were grown. The men did some of the crop tending but also spent much of their time out pasturing the flocks, which they passed down from father to son. Thus the women remained permanently settled in a single place while the men spent a great deal of their time moving around. In short, Hopi society was horticultural in much the same way as the Neolithic and Early Bronze Age societies of

Europe seem to have been. For that reason the Pueblo Indians have sometimes been used as a model for trying to understand the archaeological record in Neolithic Europe.

Thus textiles flourished in the early horticultural economies of southeastern Europe between 6000 and 2000 B.C., when the women could handle the subsistence farming and the crafts while the men could go out of the community to hunt, fish, tend flocks, and barter for luxuries such as shell beads and obsidian blades. Obsidian, or volcanic glass, is much sharper than flint but is found in only a very few places. Settlers wanted it particularly for scything grain, and men had to establish huge trade networks to obtain it, as the planting of domestic grain spread.

In the Near East, although we have little information on textiles during this period, we have data on food. They suggest that the style of life may have paralleled that in Europe, since at first the fields of grain that provided the central food were hand-tended. If anything, however, life in parts of the Near East must have been harder, for the women spent so many hours of their lives at hard labor over heavy stone grain grinders that the work permanently deformed their bones. Archaeologists have found the toe, knee, and shoulder bones of the women in the early farming villages of northern Mesopotamia to be squashed and deformed in ways caused by pressure from kneeling and pushing heavy objects with the arm and shoulder—clearly the metate-like stone grinders that we find on the sites (cf. fig. 8.7). Nor were the men always out hunting, for their bones often reveal the same deformities.

The picture conjured up by these and other excavation details is not such a pleasant one. Southern Europe provided a fair number of "orchard crops," such as nuts, olives, and edible fruits (fig. 4.1), which require relatively little work for a fair return of food. The forests, moreover, although making the clearing of fields for grain difficult, abounded in game. In Syria and Iraq, on the other hand, we find an abundance of sickles and stone grinders for cutting and grinding cereals but much less evidence for most other types of

food, although people herded sheep and goats where suitable grazing existed. Wheat and barley grew copiously in wet years and stored well, but converting them into the major food supply was punishingly hard work. The second most common food came from the legume family, including peas, lentils, and chickpeas, which we associate with Near Eastern cuisine even today. Eaten regularly together, the cereals and legumes provide the body with complete proteins and thus with a viable diet, even without the addition of meat.

Developing a diet not dependent upon meat was fortunate, because around 4000 B.C. came a meat-related discovery that soon brought the Neolithic to a close. People in Mesopotamia began to realize that their primary domestic animals—sheep, goats, and cattle—could be exploited in a far more efficient way than by killing them for their meat and hides (the sole use for which they had been domesticated). Kept alive and used efficiently, they could provide a constant supply of "secondary" products: of milk foods, wool, and muscle power. The old strategy allowed only one chance at food and clothing from each animal—one feast, one hide—and you got the maximum of meat for the minimum of care by slaughtering when the creature had barely reached adulthood. But now people saw that if you kept at least the females alive, you could milk them for years and could eat the meat in the end anyway, although it wouldn't be so tender.

If cattle were central to this change, so were sheep. The inbreeding of domestic sheep over thousands of years had led to some varieties that had a fair amount of wool, which molted every year in the spring. Wild sheep, and thus the early domestic sheep, had coats that were predominantly hairy—technically, kempy—with some underwool. The coarse kemps are rather stiff and simply shatter like dry crackers if you try to twist them, whereas the underwool is so short and downy fine that it wads up and doesn't spin either. So sheep had to change a lot before they had usable wool. It seems to have been about 4000 B.C. that people realized they could get a steady supply of clothing from the live sheep.

Around that time we see a shift to killing the animals at a ripe old age. Older ewes alone might mean purely a milk flock, but old males, and castrated at that, can only be exploited for wool. These *wethers*, in fact, produce the best fleeces of all. Wool, for its part, is a wonderful fiber: warmer and more resilient than linen (although scratchier), and far easier to dye. A new phase in textiles and the work associated with them was about to begin.

The third benefit of keeping the animals alive was to exploit them for their strength, in particular to help with the heavy jobs of plowing the fields, threshing the grain, and transporting seed, harvest, and equipment. (The wheel, too, was invented about this time.) By using a team of oxen to pull the weight, the farmer could use a heavier plow to dig a much deeper furrow and produce a better crop.

This above all—the use of huge draft animals in large fields to grow the basic food—permanently removed the food-producing portion of the economy from the women's domain. Why? Because such activity was no longer compatible with child raising. Thus the allotment of tasks shifted once again, first in Mesopotamia and gradually in a widening circle beyond.

Another radical change in the organization of human life began soon after, marking the start of the Bronze Age. People living in metal-rich regions had long known the usefulness of metals, starting with the soft ones that happen to occur in pure form, like copper and gold.[2] But such soft metals are more suitable for ornaments than for tools. It took the discovery that metals can be alloyed into new and harder materials by mixing them while molten to open a way finally to vastly improved tools: metal axes, cauldrons, chisels, knives, and—a metal-dependent invention—the sword. The problem for most people at that time was that,

[2] At Çayönü Tepesi, in eastern Turkey, not far from a rare source of pure copper, excavators found little copper tools, such as hooks, made by hammering and abrading. The site is an early farming village of about 7000 B.C. It was in just such ore-rich areas as eastern Turkey and the Caucasus that metalworking gradually developed during the course of the Neolithic.

although copper is rather commonly found in Europe and the Near East, the hardening metals aren't.

The most widely useful alloy of soft metals is copper mixed with tin, giving the alloy we know as bronze. Tin, however, occurs mostly only in a few places far away from the early centers of civilization, like eastern Iran, Spain, and Cornwall (in Britain). Another effective hardener is arsenic, and it was used briefly in the steppes north of the Caucasus at the beginning of the Bronze Age, but arsenic bronze soon died out—perhaps because people noticed that families using cookware of arsenic bronze soon died out. Unfortunately the arsenic will dissolve out of the bronze into the acid of the food. Probably the smiths working with the arsenic died, too. Obtaining tin, even if it required great trouble, was worth the effort.

This need for tin steadily increased trade in goods and ideas, for people all over the Near East and soon Europe began to want these newfangled tools. But bronze won't grow in gardens. That was a new problem. Somebody had to go out and find the ores from which it could be made—or find someone else who had ore and was willing to trade. So the great metal search began, and it became men's work, if only because the distances were far too great for the toddlers to travel. Mines, too, once you find them, are no place to have little children under foot, nor is the smithy—too many hammers and hot sparks flying about. Thus metalworking became men's work as well.

So much trade and exploration, so much movement of people and new ideas began to alter society dramatically. At the same time, the ever more efficient production of food supported ever larger congregations of people, until the once-tiny villages and towns had become immense cities. For it was about this same time, toward the end of the fourth millennium B.C., that truly urban civilization sprang up in Mesopotamia, a civilization that included writing, laws, contracts, tax records, and much else that literacy enables. It took almost a millennium for the principal changes to reach southeastern Europe, but by 2500 B.C. the sedentary vase

painters and weavers were gone, abruptly swept away by warlike swarms of new people hunting for ores from the Caucasus to the Carpathians to the Alps. The old days of simple Neolithic courtyards were gone. Ahead lay the heady chemistry of new and far-ranging human contacts, catalysts for yet other developments in women's contribution to society through their textile arts.