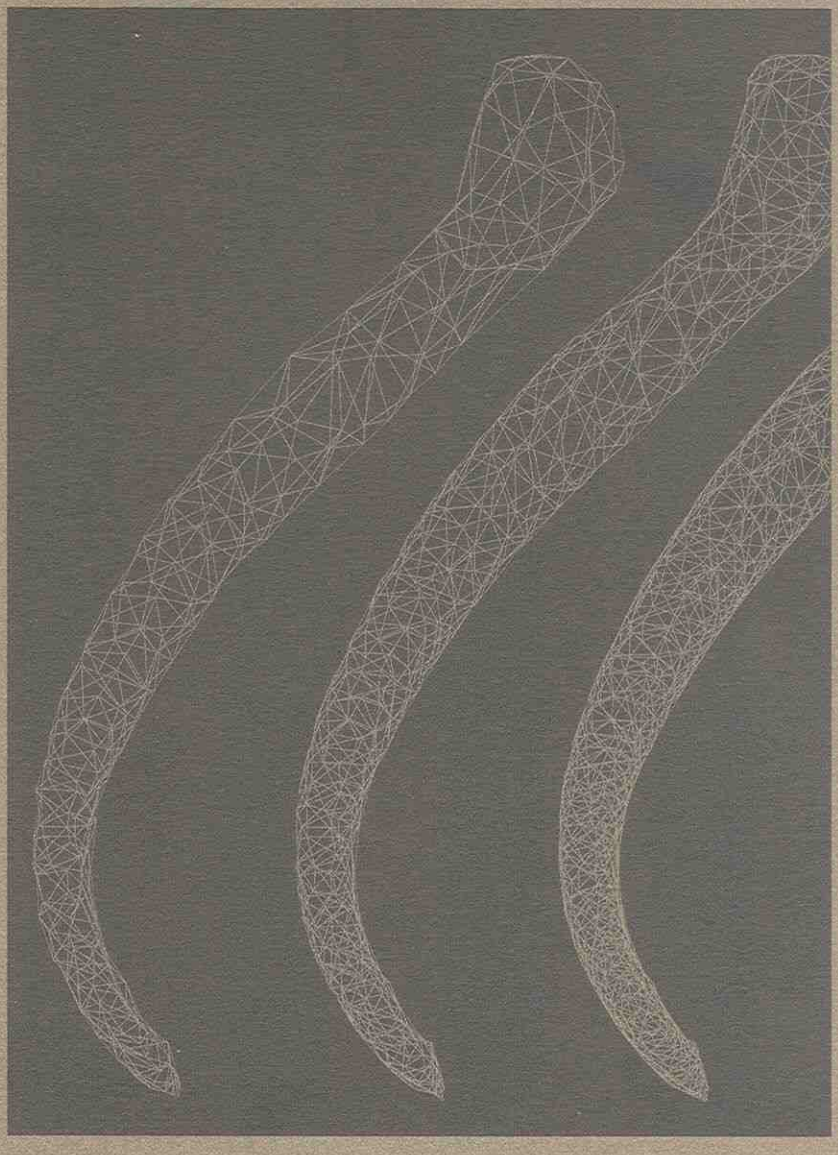
Published Quarterly by Boston University *Volume 30 Number 4 Winter 2005*

Journal of Field Archaeology



Coşkuntepe: An Early Neolithic Quern Production Site in NW Turkey

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Coşkuntepe, an Early Neolithic site in the coastal Troad region of NW Turkey, has evidence for quern making dating to around 6000 calibrated radiocarbon years B.C. The surface debris at the site consists largely of tested blocks of stone, discarded and broken rough-outs, percussion flakes, and used and broken hammerstones. The implications of this early production system are discussed within the broader framework of the Aegean Neolithic. The results of this analysis demonstrate that the Neolithic inhabitants of Coşkuntepe adapted themselves to a rugged, hilly coastal environment by including quern production in their domestic economy to supplement the subsistence base of the village. It seems that the abundance of geologic deposits suitable for making querns provided an opportunity for the inhabitants of this coastal site to pursue a productive non-agricultural strategy.

Introduction

Whether or not the economy of coastal village societies differed from that of the inland regions has been an issue for those archaeologists dealing with the development of the Neolithic of the Aegean. The common belief has been that inland villages often relied on farming for the requirements of their populations, whereas coastal communities, lacking suitable arable lands around their settlements, depended on agriculture only in a very limited way and included non-agricultural productive strategies in their economic systems. Recent archaeological evidence from the Troad in NW Turkey demonstrates one way that the inhabitants of coastal villages could have adapted themselves to environments lacking suitable lands for crop cultivation. Surface investigations carried out at Coşkuntepe (FIG. 1) have identified manufacturing debris for quern production at the site, supporting the notion that some coastal Neolithic societies developed alternative productive strategies. This approach contrasts with models that see arable land as the main requirement for Neolithic societies (with the exception that certain coastal societies benefited from sea trade by serving as nodes of exchange in the distribution of exotic goods). For instance, some sites oriented towards the sea (e.g., Franchthi Cave and Halai in Greece) are thought to have played important roles in the exploitation of obsidian in the Neolithic Aegean (Thissen 2005: 38). Quern making such as that identified at Coşkuntepe now shows that Neolithic coastal villages might have also pursued non-agricultural productive strategies rather than merely serving as nodes of exchange within a prehistoric trade system.

The Neolithic inhabitants of Coşkuntepe settled in a location that differed from contemporary communities that lived in ecological niches such as shallow water bays along the coast and alluvial plains facing the Aegean Sea. A surface survey was undertaken in 2004 to try to determine why the Neolithic inhabitants of Coşkuntepe chose to settle in rather rugged terrain near the coast (FIG. 2) in spite of the fact that there was no shortage of land either in the fertile plain of the Troad or around the shallow water bays along the Aegean coast. It seems that they were attracted to the volcanic rocks in the area that had potential for quern production. Study of the surface remains from the site allows reconstruction of most aspects of the quern production process including the choice of the stones to be utilized, extraction strategies, and the sequence of manufacture. The utilization of the local environment for non-agricultural purposes is an activity that has not previously been documented archaeologically in this part of the Aegean for the Neolithic.

Coşkuntepe within its Neolithic Setting

Coşkuntepe is the westernmost Neolithic site in Turkey, and overlooks the island of Lesbos (FIG. 2). The settlement consists of a very shallow layer of cultural deposits on virgin soil. It is located at 230 masl at the end of a high promontory with steep slopes on three sides, making the site accessible only from the north. A freshwater spring occurs next to the site, while perennial streams flow south-

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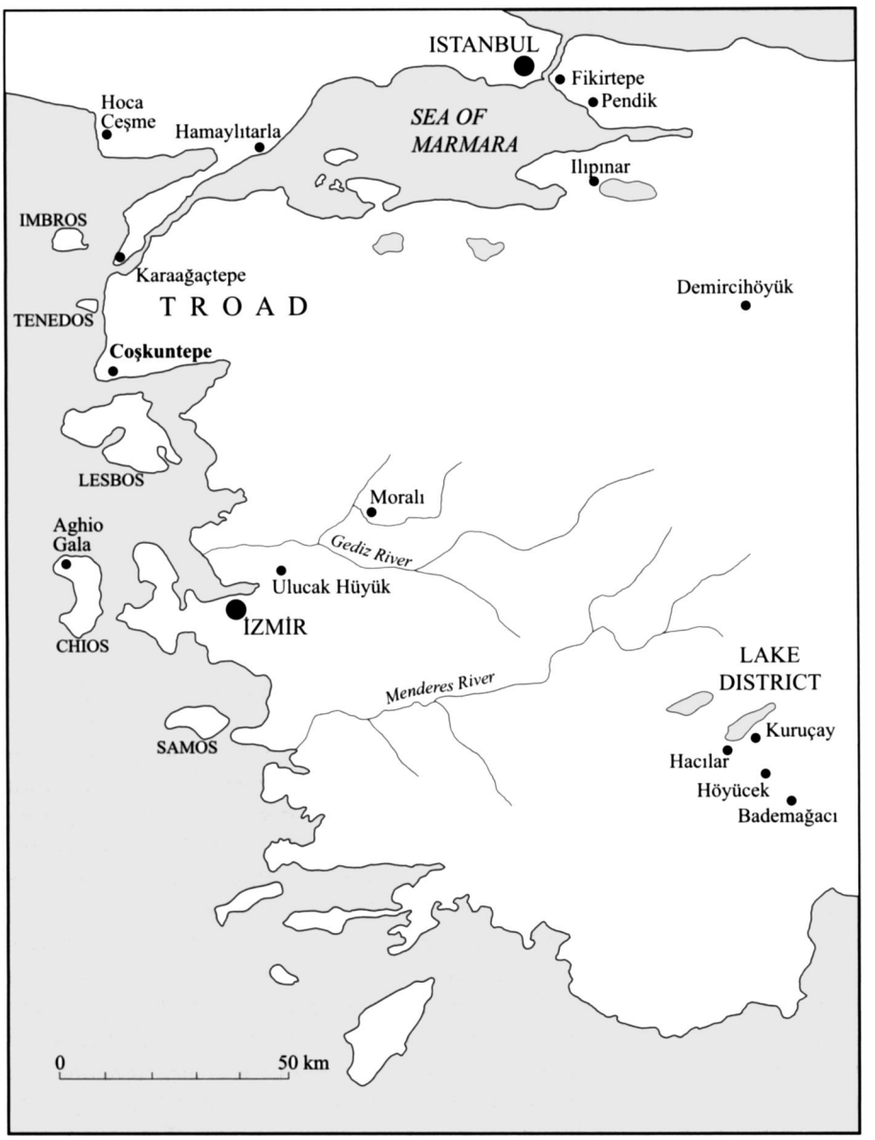


Figure 1. Map showing Coşkuntepe and other Neolithic sites in Turkey mentioned in the text.

wards to the Aegean Sea in the deep valleys flanking the promontory (FIG. 3). When one considers the distribution of potsherds, the areal extent of Coşkuntepe does not exceed 100 sq m. A total of 800 sherds are spread evenly across the site.

This rugged and hilly SW corner of the ancient Troad was long perceived as an area of little human activity; the discovery of Coşkuntepe in the 1980s proved that this area was not devoid of Neolithic habitation (Seeher 1990). Coşkuntepe has been utilized by archaeologists to explain how and when Neolithic populations reached the western coast of Turkey and beyond. Recent debate centers primarily on the issue of whether Neolithic culture was introduced fully developed into western Turkey as the result of demic diffusion or whether it was a local development stimulated by the arrival of domesticates and other elements from central and SW Turkey where there were already well-established Neolithic cultural traditions. Western Turkey was probably a link between the primary formation zone and SE Europe. The westward expansion of the Neolithic way of life was not a sudden and uniform event, but rather a stage that lasted nearly a millennium with multiple phases (Özdoğan 2005). The westward expansion of the Neolithic way of life from the primary for-

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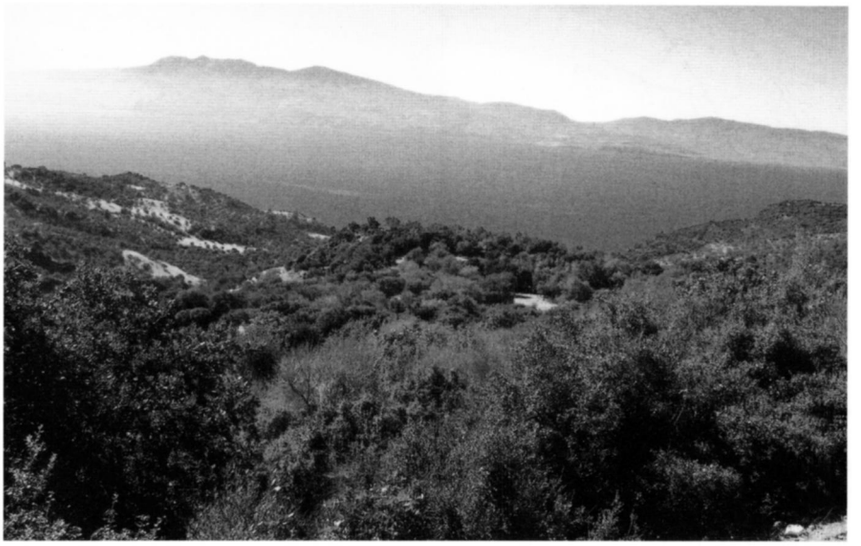


Figure 2. A view of Coşkuntepe (in the center) from the north with the island of Lesbos in the background.

mation zone towards the Aegean began during the Aceramic Neolithic period as a rather small and random movement that followed the highlands and continued until the earlier phases of the Pottery Neolithic (Özdoğan 2005: 21). The Aceramic Neolithic phase is poorly understood in western Turkey and archaeologists have difficulty in determining the extent of local contributions to the formation of the Neolithic cultural tradition there (Özdoğan and Gatsov 1998; Özdoğan 1999: 211; Duru 2001: 79). This vaguely known Aceramic Neolithic phase in western Turkey is used in a model to explain the Neolithic of the Thessalian Plain in Greece (Thissen 2000: 148). According to this model, coastal sites may have acquired their subsistence goods from inland agricultural communities in exchange for exotic artifacts or commodities obtained from overseas. In this system, coastal Aceramic Neolithic societies may have acted as nodes of exchange for Aegean seafarers and fishermen who in turn provided the necessary information about the new lands to future Greek mainland populations (Thissen 2000: 150, 2005: 30). Although this model requires a long-lasting Aceramic Neolithic phase in western Turkey, it is important because it emphasizes the role played by the coastal societies and seafarers in transmitting Neolithic culture westward.

The main Neolithic advance towards the northern Aegean was apparently a massive movement following alluvial plains and valleys (Özdoğan 2005: 21). Two different Neolithic traditions characterized by red-slipped pottery emerged sometime in the middle of the 7th millennium B.C.: one east of the Marmara Sea in NW Turkey and the other in the Lake District in SW Turkey (Lichter 2005: 67). Western Turkey and the eastern Aegean islands developed a third pottery tradition drawing on these two traditions at about the same time or a few centuries later as the result of demic diffusion, acculturation, and trade. Coşkuntepe is one of those sites having the red-slipped pottery tradition prevalent in western Turkey. Coşkuntepe derived much from the pot-making tradition of the Lake District, which included the sites of Hacılar, Bademağacı, Höyücek, and Kuruçay (FIG. 1). The effect of the Lake District Neolithic tradition was also felt beyond western Turkey in the adjacent eastern Aegean islands such as Chios and Imbros (Duru 2001; Hood 1981: 15; Harmankaya and Erdoğu 2003: 464) and in eastern Thracian sites such as Hoca Çeşme and Hamaylıtarla (Özdoğan 1999: 217; Erdoğu 2000: 162) (FIG. 1).

Links among the Lake District, sites of the Greek mainland, and the Aegean islands are based on pottery comparisons. Out of nearly 100 pot shapes in the repertoire of the Neolithic sites of the Lake District, 14 have close parallels at Greek Early Neolithic sites such as Achilleion, Nea Makri, Franchthi Cave, Sesklo, and Agios Petros (Umurtak 1999: 48). The high density of Neolithic mounds identified along the Gediz (Hermos) and Menderes (Meander) River basins in western Turkey (Meriç 1993; Günel 2003) shows that these sites played important roles in the spread of the Neolithic way of life westward from the Lake District. The recovery of material resembling that of the Lake District in the earliest levels at Hoça Çeşme on the mouth of the Meriç River (Maritsa/Evros) in eastern Thrace

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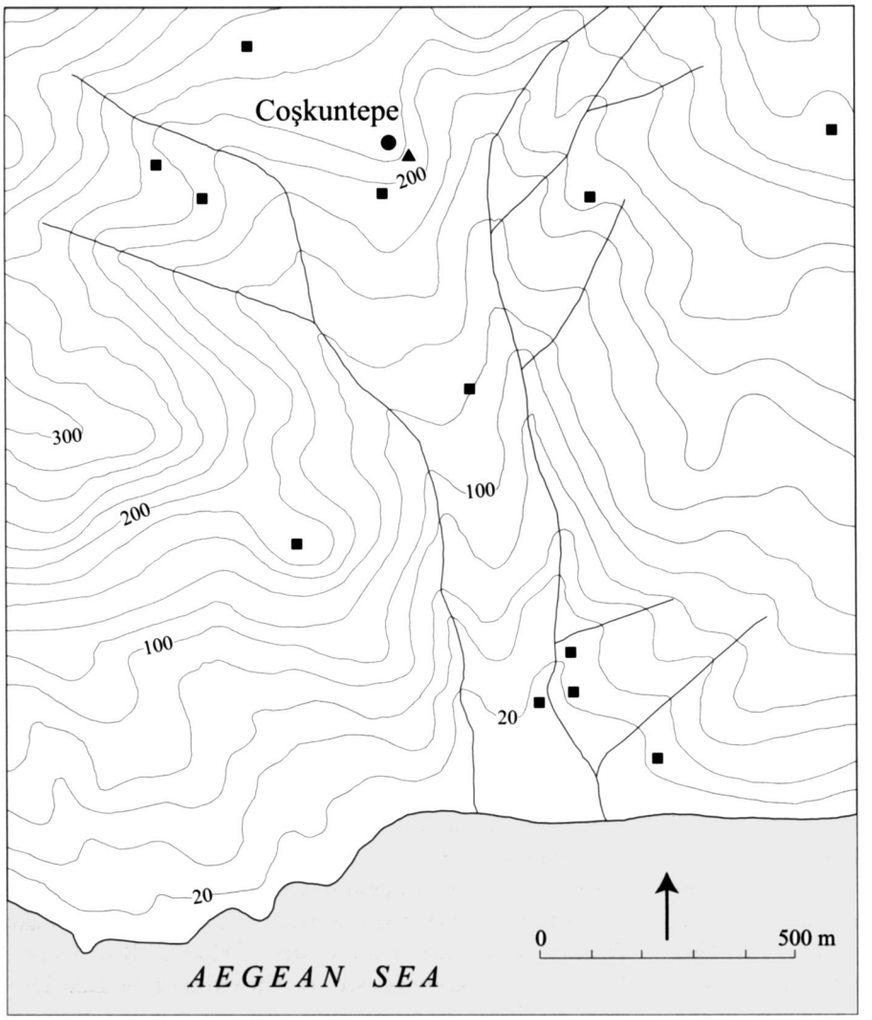


Figure 3. Contour map showing Coşkuntepe, a freshwater spring (triangle), and modern animal structures (squares).

shows that a true Anatolian community existed there (Özdoğan 1998). Recent evidence from Coşkuntepe allows a new look at the Neolithic tradition in western Turkey as a whole and highlights the geographical importance of NW Turkey in the westward expansion of the Neolithic way of life.

The Fikirtepe culture of the eastern Marmara region, which is characterized by sites such as Pendik, Fikirtepe, and Ilıpınar (FIG. 1), is also of considerable significance for understanding the nature of the Neolithic tradition in western Turkey. The effect of the Fikirtepe culture was felt over a large geographic area reaching as far as the Aegean and the Balkans. The Fikirtepe culture influenced the material culture of Coşkuntepe which had the Neolithic pottery tradition of western Turkey.

The surface pottery from Coşkuntepe helps to establish the chronology of the site and its links with the Lake District and Fikirtepe cultures. The pottery of Coşkuntepe is characterized by thin-walled monochrome red-slipped holemouth and S-shaped jars and bowls (FIG. 4: 1–10). The rims are often internally thickened and have flat tops. The most characteristic features of the pots are the vertical tubular lugs with sizes ranging from 4 to 8 cm. About 70 pot sherds with such tubular lugs were found at Coşkuntepe. Vertically-pierced small knob handles are also present at the site. Low ring bases outnumber flat bases with a ratio of 3:1. The gray-black fabric of the pots includes mineral tempering materials. The surfaces were lustrously burnished after being coated with reddish-brown or pale orange-red colored slip. Several of the jars and deep bowls

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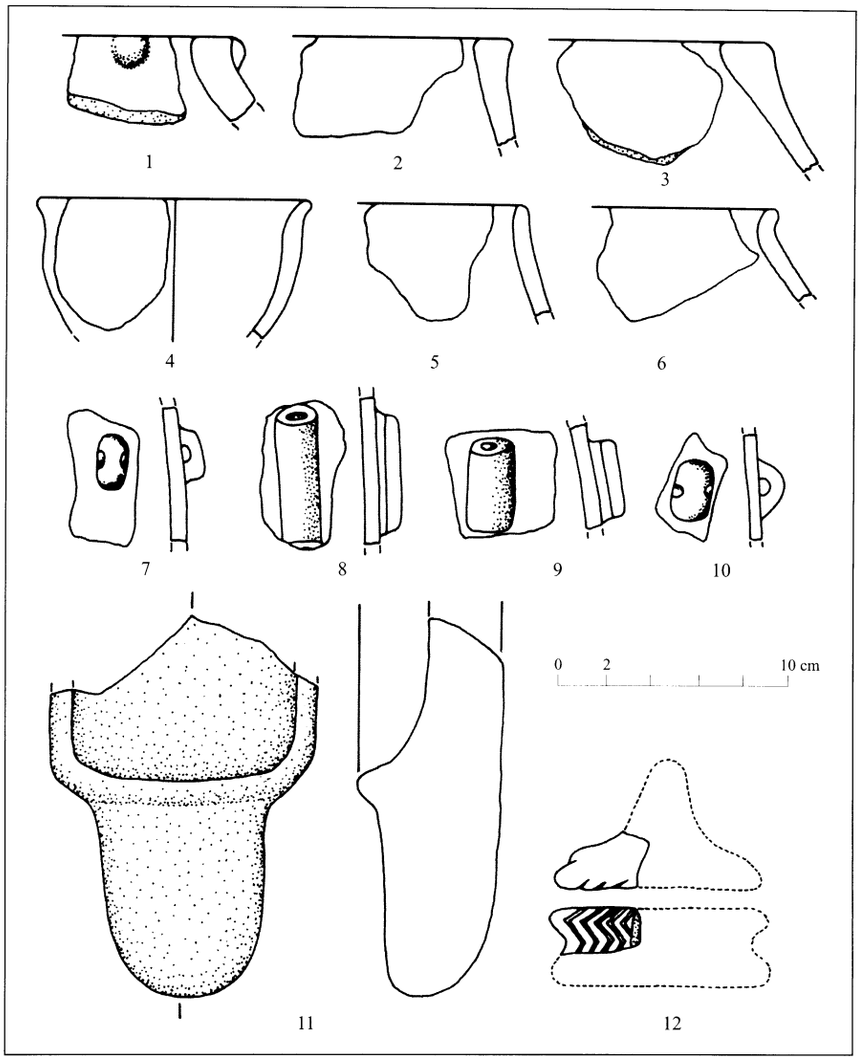


Figure 4. Artifacts from Coşkuntepe. 1–10) Neolithic pot sherds; 11) One-handled stone vessel; 12) Clay stamp seal.

have dark surfaces, while mottling occasionally appears on both sides of the pots because of uneven firing. Although many of the shapes at Coşkuntepe are consistent with the Neolithic pot-making tradition of the Lake District, a number of pottery traits can be seen only at the site, including knobs placed just below the rim, bands in relief, and three-footed bowls.

The Coşkuntepe pottery points to a date of ca. 6000 CAL. B.C. Coşkuntepe pottery is reminiscent of examples in Levels IX–VI at Hacılar and Levels 13–11 at Kuruçay in the Lake District; similar pottery is also found at Hoca Çeşme in eastern Thrace and Ulucak Höyük in the İzmir region in western Turkey. Levels III and IV at Hoca Çeşme have a date of about 6000 CAL B.C. (Özdoğan 1998: 71; Thissen 2005: 38), and Level V at Ulucak Höyük provids us with radiocarbon dates ranging from 6230 to 6055 CAL B.C. (Abay 2005: 77).

A fragment of a rectangular-shaped clay stamp seal recovered from Coşkuntepe is another piece of archaeological evidence which can help us to establish the chronological and cultural setting of the site (FIG. 4: 12). This seal, which has a geometric incised pattern consisting of transverse zig-zags and a nearly conical apex as a handle, points to the Lake District and areas to the east in central Turkey, where such seals are common from the earliest phases of the Pottery Neolithic period. Clay seals found at Bademağacı in the Lake District, as well as over 30 clay stamp seals reported from Neolithic Çatalhöyük in the

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Konya Plain in central Turkey (Umurtak 2000; Mellaart 1964: 96–98), are the earliest examples of such seals. Although recent investigations confirmed their presence in the central part of western Turkey, no stamp seals were previously known from NW Turkey (Lichter 2005: 67) until the discovery of the Coşkuntepe specimen. In terms of decorative pattern, the closest parallel for the clay stamp seal from Coşkuntepe comes from the Early Neolithic site of Körös-Starčevo in Hungary (Makkay 1984: fig. 7). This resemblance, and the geographic situation of Coşkuntepe, suggest that a route passing through NW Turkey was used to transmit Neolithic culture into SE Europe, since most clay stamp seals found there display direct Anatolian inspiration.

Surface-collected stone vessels from Coşkuntepe also show links with the Fikirtepe culture in the eastern Marmara region (Seeher 1990: fig. 1.22). The fragment of an andesite rectangular footed vessel from Coşkuntepe could have been inspired by the comparable clay ones widely found at the sites of the Fikirtepe culture. Although it is possible that the idea of making a rectangular footed vessel came from the Fikirtepe culture, such vessels are also known from the Lake District and the Konya Plain (Schwarzberg 2005). Likewise, a pan-shaped basalt vessel with a large flat bottom (FIG. 4: 11), at Coşkuntepe points to interactions with the sites of the Fikirtepe culture. The closest parallels to this stone vessel are from Karaağaçtepe located on the tip of the Gallipoli Peninsula in Thrace (Demangel 1926: figs. 62, 63). The two one-handled stone vessels from Karaağaçtepe may belong to the Neolithic phase recently identified at the base of the mound. Clay vessels in this form are known from Pendik, a site of the Fikirtepe culture (Özdoğan 1989).

The Coşkuntepe Economy

The inhabitants of Coşkuntepe had trade contacts with their Aegean neighbors. Several gray opaque obsidian bladelets identified among the 700 chipped stone artifacts at the site may have originated on the Greek island of Melos. (Central Turkey has been ruled out as an obsidian source, as the texture and color of the Coşkuntepe examples are entirely different from the black, transparent obsidian peculiar to central Anatolia). In terms of manufacturing technology, these obsidian tools differ from the rest of the chipped stone assemblage which consists largely of irregularly-shaped waste flakes, scrapers, points, blades, and cores. These chipped stone tools show no sign of standardization in manufacturing technique and display no homogeneity in their physical properties and colors. The blade and flake cores of flint point to on-site production. Given the small amount of obsidian, it is difficult to estimate the extent to which Coşkuntepe traded for volcanic glass.

It appears that Coşkuntepe was a domestic settlement occupied on a year-round basis. The recovery of grinding and pounding implements such as saddle querns, mortars, pestles, and handstones showing heavy use-wear are evidence for food processing at the site. Because the soil is poorly suited for farming and the rainfall is scant, it is unlikely that the Neolithic inhabitants of Coşkuntepe cultivated the open spaces in the forested environment around them. Several fragments of cooking pots and containers in the pottery assemblage also attest to the presence of domestic activities at the site. The area yielding scatters of pottery, stone vessels, chipped stone tools, and other objects associated with everyday life is separate from the quern manufacturing debris, which is found on the surrounding slopes as far as 200 m from the settlement. It is possible that Coşkuntepe was a seasonal special purpose production locality where Neolithic farmers of the Troad came to produce querns that they took back to their permanent villages, but the available evidence points instead to a small domestic village.

Coşkuntepe was probably occupied on a year-round basis with an economy that involved quern making and subsistence pursuits such as animal herding, hunting, and marine resource exploitation. One hundred sea shells found on the surface show that the inhabitants of Coşkuntepe exploited marine resources. The shallow waters located 1 km from the site were rich in various edible species of shellfish. The inhabitants of Coşkuntepe also collected spherical water-worn stones from the coast to use as sling bullets. These sling bullets, which could have been used in hunting, are a characteristic feature of many Pottery Neolithic sites. It is believed that a shift from the use of arrowheads to sling bullets took place sometime during the middle stages of the Pottery Neolithic (Özdoğan 2002: 442).

The present inhabitants of the Coşkuntepe area are animal herders. Their barns and folds hold 2 to 7 cows or 8 to 20 sheep and goats. These modern agrarian structures are located within a radius of 3 km from the site and provide us with a possible model of Neolithic animal husbandry. Herders from Bademli Village, a modern settlement located 3 km from Coşkuntepe, keep their livestock for much of the year in fields enclosed by fences constructed of stone with brush on top (FIG. 5). Features such as milking pens and stone feeding troughs are found within these enclosures. Interviews with the herders show that this pastoral economic activity is geared towards domestic consumption, a long-lived tradition in the area. In coastal environments like the one to which the inhabitants of Coşkuntepe adapted themselves, animal herding might have been prac-

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Figure 5. A typical modern animal structure.

ticed as part of the domestic economy. It may therefore be argued that the inhabitants of Coşkuntepe settled in this rugged terrain in order to have an economy that differed from that of inland farming communities.

Evidence for Quern Production

A largely disregarded class of implements associated with everyday life, querns probably accompanied the origins of agriculture. These stationary implements, often used with a handstone in grinding grain, were also used for other purposes such as sharpening stone celts, crushing clay and pigment in pot-making, grinding shell and bone in jewelry-making, and grinding non-agricultural commodities such as salt (Runnels and Murray 1983: 62). Microwear analyses and characterization of various residues left on the working surfaces of prehistoric querns confirm that they were used for these purposes (Procopiou and Treuil 2002), but it is doubtful that one rock type (e.g., andesite or vesicular basalt) was selected over any other for a given task (e.g., grinding grain or sharpening stone celts).

The economic importance of milling implements in the rise of village farming has become a focus of study in the Levant (Henry 1989; Wright 1992). The production and exchange of Neolithic and Early Bronze Age millstones in the Argolid in Greece has also been examined in detail, and the change in demand for these millstones is viewed as a causal factor in the rapid economic development seen in Early Bronze Age Greece (Runnels 1981). Other studies carried out in North and Central America provide us with information on the technological and organizational aspects of milling implements (Hayden 1987; Schneider 1996; Schneider, Lerch, and Smith 1995; Wilke and Quintero 1996). Central to these studies is the analysis of all aspects of quern making, which can include the patterns of raw material selection, the character of production localities and their associated features, debitage studies, reconstruction of the stages of manufacture, ethnographic analyses, and replication experiments. Evidence derived from the Aegean and the New World shows that most stages of millstone manufacture take place at sites where the suitable raw materials are found. In the Near East and the Aegean direct archaeological evidence for the manufacture of querns has been lacking, but the information derived from New World studies provides a conceptual basis for investi-

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gating the production of milling implements (Wilke and Quinterro 1996: 244).

At Coşkuntepe, archaeological evidence for quern production has been documented. The manufacturing debris is found on the slopes around the site and includes tested blocks of stone, discarded and broken preforms, used and broken hammerstones, and percussion flakes of various sizes. Owing to discard behavior, post-depositional processes, and dense vegetation, the reconstruction of the organization of quern production from surface data presents particular problems. At Coşkuntepe it is difficult to plot the distribution of pieces representing various stages of quern production with certainty as most unfinished or abandoned pieces have been built into modern walls around the site during the last several decades, when the terraces for olive groves and other walls were built. A group of unfinished querns was removed from modern terrace walls in the NW portion of the site. The finished saddle querns are ovate in outline and average roughly 0.25 to 0.35 m in overall length and 0.06 to 0.12 m in thickness. The settlement area is tilled once a year for olive cultivation, and although the immediate area has not been tilled for cereal agriculture in recent times, few pieces representing quern manufacturing errors occur on the surface. Nevertheless, 70 quern blanks broken through the mid-section, over 100 preforms broken through the mid- and end-sections, 40 pieces belonging to different parts of querns broken during final shaping, and hundreds of fragments have been recorded. Similar quern production errors in the settlement area mixed with the scatters of pottery and other artifacts are the principal evidence for viewing quern production as part of the domestic Coşkuntepe economy. Although based on surface data alone, analysis of manufacturing debris allows us to understand where the stones were acquired, how the querns were manufactured, and what kind of stone tools were used in quern-making.

Stone Sources

The querns at Coşkuntepe are made of igneous rocks from the volcanic deposits of the SW corner of the ancient Troad. This volcanic area, which is known as the Behram Caldera, witnessed intensive volcanic eruptions during the Lower and Middle Miocene (Borsi et al. 1972). According to a series of radiometric datings, the area was covered by lava, tufa, and ignimbrite formations during a period between 21.5 and 16.8 million years ago. As a consequence of its complex geologic history, the area around Coşkuntepe is rich in igneous rocks such as andesite, trachyte-andesite, basalt, dacite, and latite. Among these rocks outcropping at the surface, quern makers at Coşkuntepe preferred to work andesite and trachyte-andesite; these rocks constitute nearly 80% of the manufacturing debris for querns. Basalt is the second most preferred raw material, constituting 15% of the manufacturing debris. Since the igneous rocks used at Coşkuntepe are found as angular blocks at outcrops, it can be assumed that the relative cost involved in extraction of materials was an important consideration in raw material selection. The andesite and trachyte-andesite outcrops are found within a short walking distance from the site and would have been easily exploited without quarrying. The use of various kinds of igneous rocks and the variability in the physical properties of the raw materials used to make querns indicate that quern makers did not depend on a single stone source.

Hammerstones Used in Quern Making

Nearly 50 hammerstones utilized in the flaking process have been found either at the site in association with pottery or with the querns discarded during manufacturing and built into modern walls (FIG. 5). These percussive tools were fashioned from cobbles of fine-grained basalt found in abundance both in streambeds and as angular blocks on the slopes within walking distance of the site. These stone tools were suitable for reduction of the stone blocks to shape preforms for querns. Among the basalt tools, grooved hammerstones constitute the most distinct group; such tools are not a common artifact type found in the Neolithic Aegean and Turkey (FIG. 6). Grooved hammerstones are functionally efficient percussors with a beveled cutting edge opposite a rounded peen. The most characteristic feature of this type of tool is the groove that encircles the body close to its distal end. This groove was evidently intended for hafting the tool on a wooden handle in order to increase its effectiveness, since hammerstones intended for heavy action such as coarse flaking, quarrying, or cutting wood would benefit from the leverage provided by a handle. Although details of the prehistoric hafting method remain unknown, it can be assumed that a strip of wood was bent around the groove and then reinforced with leather thongs or rawhide coverings. The chief drawback in the use of the grooved hammerstones is that they become loose in the haft after being used in heavy work. Grooved hammerstones at Coşkuntepe have lengths between 11 and 25 cm and do not display standardization in size or shape. The typical hammerstone at Coşkuntepe is ovate in outline with a cross section varying from elliptical to ovoid. The size of the cobbles collected determined the shape of these tools. The grooved hammerstones with roughly ovoid sections display heavy percussive use-wear on the beveled edges, implying that they were used for delivering heavy blows. The impact scars observed on the proximal ends of these hammerstones indicate that they

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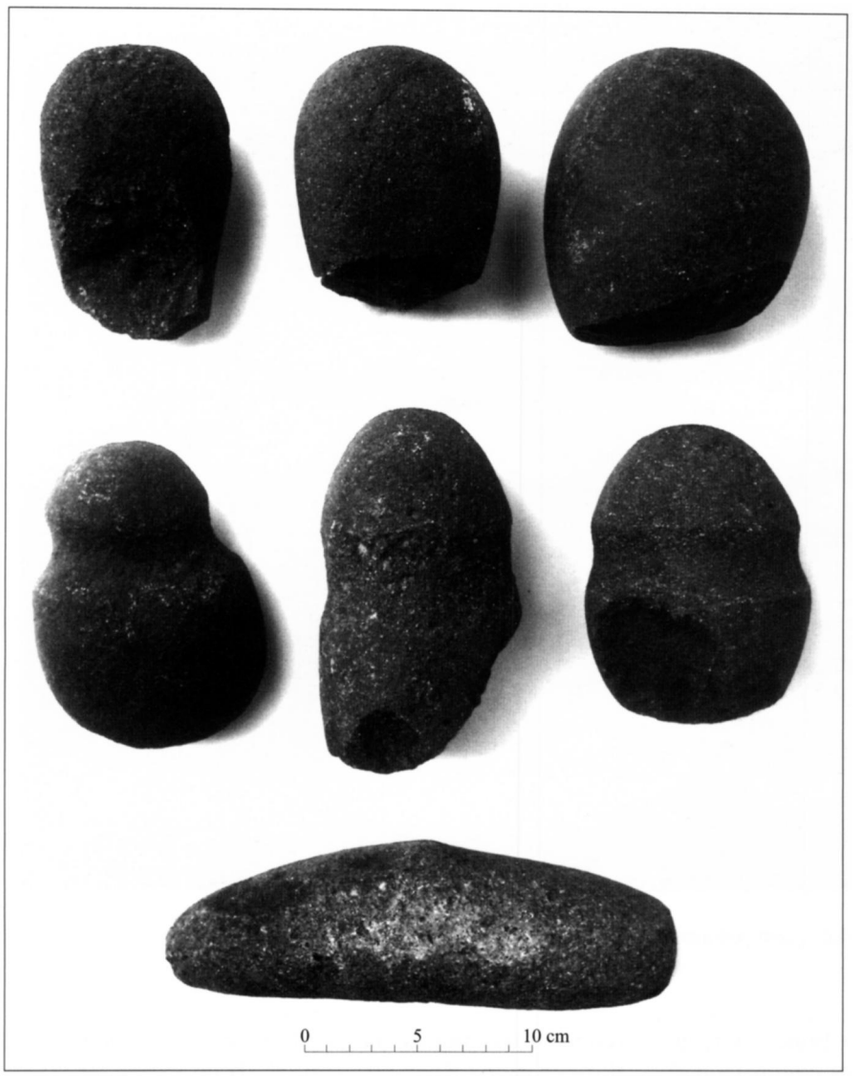


Figure 6. Basalt hammerstones. Note impact scars. Top) Elongated hammerstones with beveled ends; Middle) Grooved hammerstones; Bottom) Elongated hammerstone with pointed end used in shaping quern preforms.

were used for breaking off large flakes from blocks of raw material as they were reduced to quern preforms. The percussive use-wear observed on the blunt or rounded edges of the grooved hammerstones confirms the use of their distal ends as well.

A review of the published reports from archaeological excavations and surface surveys reveals that examples of grooved hammerstones are not common in Turkey and the Aegean during the Neolithic period. The closest parallels for Coşkuntepe specimens come from the 4th and 3rd millennia B.C., from sites such as Kültepe and Arukhlo of the Kura-Araxes culture in the Caucasus region where these distinctive tools were used in ore extraction in the copper mines (Lordkipanidze 1989: 104; Chubinishvili 1971: 30; Kushnareva and Chubinishvili 1970: 113, figs. 5.19, 34.27). Archaeological evidence from Moravia in central Europe points to a similar use of such tools in prehistoric ore extraction technology (Marková 2002). Additional archaeological and ethnographic evidence from North America, Britain, and Australia (McGuire 1891; Smith 1971; Hranicky 1995; Fenton 1983) illustrates that grooved hammerstones were used in tasks other than ore extraction, including the removal of large flakes on large, thick nodules of flint, chopping down trees, splitting wood, clearing

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Figure 7. Manufacturing errors and roughed-out saddle quern preforms.

shrubbery for farming, and breaking up bones of large game animals. The Coşkuntepe specimens may have had multiple functions, including woodworking, in addition to quern-making.

The stone tool assemblage at Coşkuntepe includes plain (i.e., not grooved), spherical, and elongated hammerstones with bevelled ends. Some of these hammerstones might have been used for finer working such as removing the flake scars and refining the outlines of the intended shapes through pecking. These tools vary in size and form, with lengths ranging from 0.10 m to 0.25 m. Sometimes grooved hammerstones that were no longer suitable for hafting were reused as handheld percussors. Two such hammerstones were found that were used until the groove near the distal end was partially obliterated.

Stages of Quern Making

Examination of the archaeological remains representing quern making at Coşkuntepe suggests four major stages: reducing the angular block of stone into a quern blank through coarse flaking; shaping the blank into a quern preform by pecking; dressing the peck marks; and smoothing the surface by grinding. In the first stage of quern making, large, unmodified, subrectangular blocks were tested for quality in areas where they were found as isolates near the rock outcrops on the surrounding slopes. Craftsmen apparently retained one naturally flat surface (for the later milling surface) before removing large flakes from the side and bottom surfaces of the selected blank. The fact that artisans sometimes preferred to work naturally flat stones on both sides occasionally resulted in thin quern blanks. The corners of the quern blanks were rounded by detachment of flakes to give them a roughly ovate form (FIG. 7). Over 80 such quern blanks broken through the midsection (FIG. 8) were found. Hammerstones with bevelled ends might have been employed for this initial rough shaping process. Both grooved and plain hammerstones, and the large flakes removed from them by use, were found with the discard-

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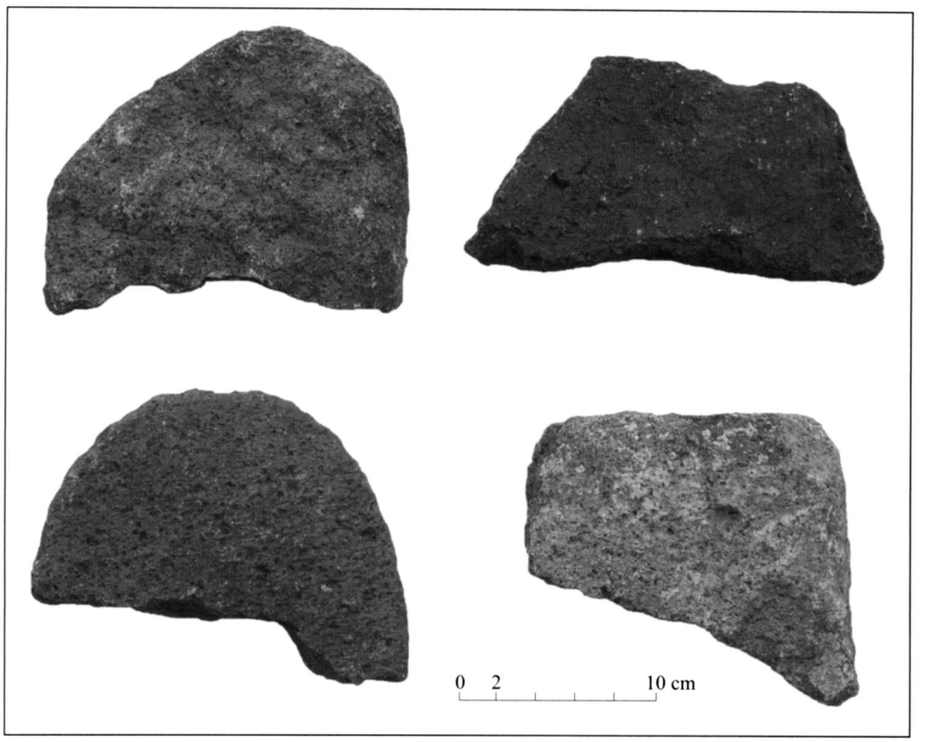


Figure. 8. Quern preforms broken through the midsection during the pecking process.

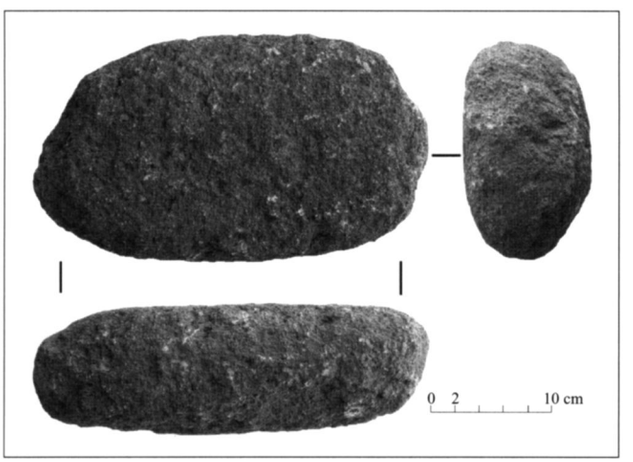


Figure 9. Saddle quern preform (top surface with end and side views) showing peck marks.

ed roughly-shaped blank fragments, suggesting that the coarse flaking stage might have taken place on the nearby slopes where the raw materials occur. The pieces broken during this stage of coarse flaking and rough shaping were occasionally transformed into smaller, roughly ovoid, querns or handstones.

The second stage in quern making involved pecking to remove the large flake scars on the roughly-shaped blanks. Figure 9 shows how quern preforms looked after the flake scars were removed through careful pecking. Hammerstones with sharp or pointed edges were probably preferred for this preforming process. Nearly 100 examples of unfinished querns have been found among the discarded errors, suggesting that querns were often broken at this stage by a misplaced blow in the middle or near the end. The recovery of several quern blanks in the settlement area demonstrates that blanks were occasionally transported to the site for the further work of reducing the pieces to preforms.

The third stage in quern making involved the dressing of the pecked surface to remove the sharp edges around the pecking pits. The hammerstones used to accomplish this task may have had pointed ends since hammerstones with rounded edges are less effective. Figure 10 shows a preform broken at the end during the dressing of the peck marks on the surface.

The last stage in quern production was the grinding away of the tool marks with the use of small abrasive handstones. Nearly 60 unifacial and bifacial handstones found in the settlement may have been employed to remove peck marks. It seems that the smoothing was accomplished at

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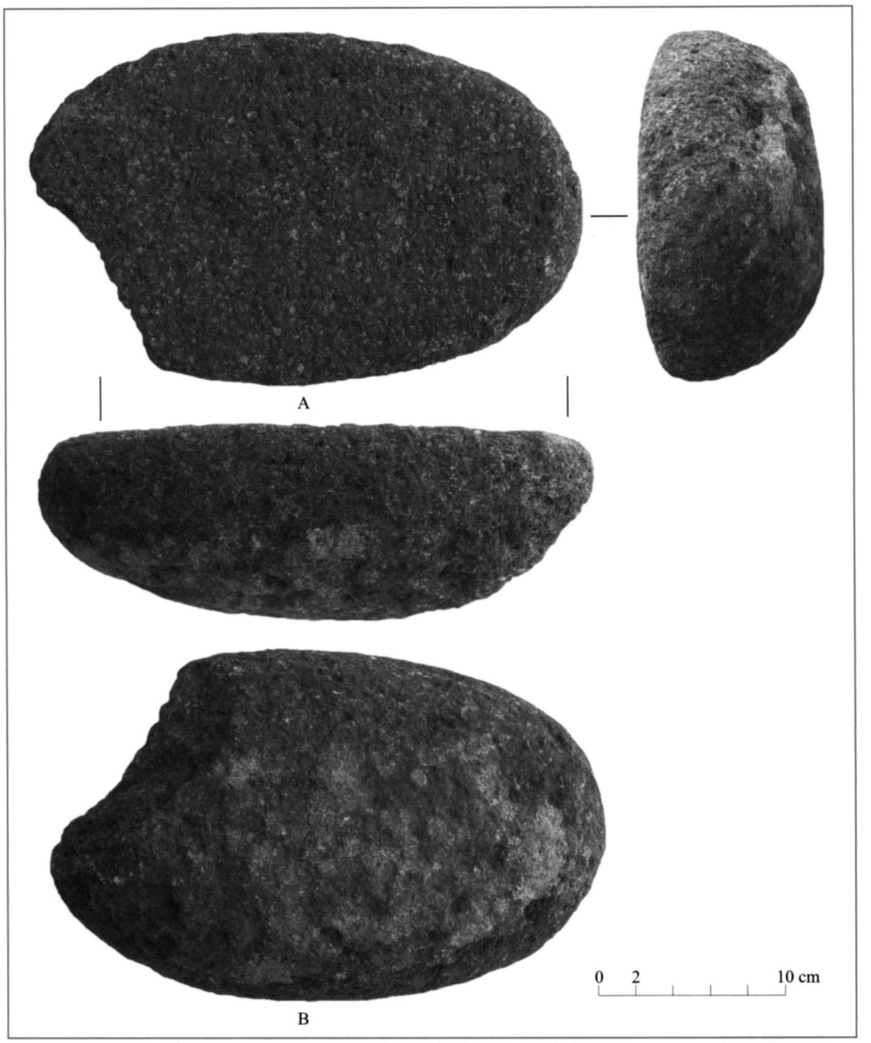


Figure 10. Quern preform broken at one end. A) Top with end and side views; B) Bottom.

the settlement rather than at the locations where the earlier stages of reduction were carried out. Because percussive flaking was important in the production of querns, the evidence from Coşkuntepe supports the view that the process of grinding was a secondary, finishing aspect of quern production. The questionable placement of querns into the category of ground stone artifacts has already been pointed out elsewhere (Runnels 1981: 218; Wright 1992: 53; Wilke and Quintero 1996: 258).

Whether the quern making evidence at Coşkuntepe represents an example of production for exchange is hard to estimate. There are only two complete and 12 fragments of finished querns from the settlement area showing extensive use-wear on their ventral surfaces. They were evidently used in everyday tasks during the site's occupation. Although querns were manufactured from igneous rocks easy to trace to their geological sources (Williams-Thorpe and Thorpe 1993), the lack of Neolithic sites in the Troad and neighboring areas prevents us from demonstrating the presence or absence of exchange involving Coşkuntepe products. Querns have been found at sites from subsequent periods in the Troad, including Chalcolithic Gülpınar and Kumtepe, and almost every cultural level at Troy from the Early Bronze I period onwards. The dearth of information on the Neolithic of the Troad, as well as that of the nearby islands of Lesbos, Tenedos, and Imbros remains a serious impediment to establishing the role of exchange at Coşkuntepe. Pottery evidence, the stamp seal, and stone vessels suggest links with the sites of the Lake District and Fikirtepe culture, but there is no evidence to

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show that the querns were being exported to these regions. A sourcing study involving querns in western Turkey and beyond will be necessary to show the role of trade in coastal societies during this period. Trade was surely an important factor in obtaining knowledge of new lands prior to population movements during the spread of Neolithic culture. Guides for future study of the Neolithic trade in querns in NW Turkey are few. One is the study carried out in the Argolid region in Greece which showed the production of querns for regional exchange. Runnels (1981, 1985) examined Neolithic and Bronze Age Aegean millstones and identified the island of Aegina as a major source of andesite for their production and exchange in the Saronic Gulf area. These products were moved both in finished forms and as unworked nodules throughout the region, perhaps via distribution points along their routes. The island of Evraionisos in the Saronic Gulf was evidently one stop where the millstones and unworked nodules were collected before being moved to their nearest neighbors on the mainland (Kardulias, Gregory, and Sawmiller 1995: 17). One might expect a similar network of trade involving the Coşkuntepe products, albeit on a smaller scale than the one we observe in Greece. Although it is archaeologically unproven, trade might have been an important reason for the presence of quern making at Coşkuntepe since it is unlikely that manufacturing debris for quern production resulted merely from filling the needs of the Coşkuntepe village community. If we can demonstrate the role of quern trade as part of the process of becoming Neolithic, it will be a valuable contribution.

Conclusions

Archaeological evidence from surface investigations at Coşkuntepe and its vicinity indicates that some Aegean Neolithic coastal societies could have supplemented their subsistence base with non-agricultural productive strategies. Quern production at Coşkuntepe is an example of productive utilization of the local environment by a small village community adapted to a rugged coastal environment poor in agricultural potential but rich in outcrops of stone suitable for millstones. Quern production at Coşkuntepe might have been a small-scale craft activity carried out to support this coastal site's domestic economy, which probably also included other subsistence pursuits such as exploitation of marine resources, hunting, and herding. That quern making at Coşkuntepe is an example of production for regional exchange is hard to evaluate in light of the small number of Neolithic settlements with querns in the Troad and neighboring areas.

Coşkuntepe is a site belonging to the Pottery Neolithic cultural zone of western Turkey. The geographical situation of Coşkuntepe in a liminal zone between the interaction spheres of the Lake District in SW Turkey and the Fikirtepe culture of the eastern Marmara region apparently played an important role in the shaping of Neolithic culture at the site. It is hoped that ongoing research at Coşkuntepe will provide a better understanding of the role of quern trade within the process of the Neolithization of the Aegean world.

Acknowledgments

I am deeply grateful to Coşkun Özgünel, the excavator of the Sanctuary of Apollo Smintheus at Chrysa/Gülpınar, for encouraging me to further investigate the site which he first discovered in 1980s. I thank Musa Tombul, the representative of the Department of Antiquities and Museums of Turkey, for accompanying me during the field study. The Institute for Aegean Prehistory supported prehistoric investigations at Chrysa/Gülpınar in the Troad; conclusions here were derived in part from that project. I am also thankful to Didier Binder, Richard Yerkes, and Thomas Strasser for viewing the earlier draft of this essay and providing me with constructive comments on the subject.

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