

THE MESOLITHIC COMBWARE CULTURE OF FINLAND (1)

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The mesolithic settlement of northern Europe has received a great deal of attention in the archaeological literature of the last few decades. The work of Scandinavian and German archaeologists, as well as the writings of V. G. Childe and J. G. D. Clark have aided in making this a relatively well-known segment of European prehistory.

Adjacent to the Scandinavian area, and offering some interesting contrasts with it in archaeological material, is the lake-studded, pine- and birch-forested environment of Finland. Our main concern here will be to examine this archaeological material from Finland, particularly the so-called Combware culture which dominated Finland and the adjacent Russian and East Baltic areas for an apparently long time during the Mesolithic period.

The "Mesolithic" culture of northern Europe indicates here those Stone Age traditions during the geologically Recent (Holocene) period that preceded agricultural and herding practices in the area being considered, were characterized by extensive use of axes, adzes, and chisels for woodworking, and were supported by an economy based on hunting, fishing, fowling, and gathering of food. This cultural tradition in northern Europe was apparently carried on for a long time after domestication of plants and animals had revolutionized the economies of people in the Mediterranean and Near Eastern areas.

The term "Neolithic" we are using to designate cultures based on domestication of plants and/or food-producing animals; however, it should be mentioned that Finnish archaeologists use the older terminology, calling the Combware culture "Neolithic" on the grounds that it has pottery and represents a sharp break from pre-ceramic culture in the area.

Finnish Archaeologists. The beginnings of systematization of the Stone Age materials of Finland go back to the publication in 1909 by Julius Ailio (2) of a survey of Finnish Stone Ages sites. Ailio mentions earlier publications, including a description of 632 artifacts published by H. J. Holmberg in 1863 (3); other nineteenth and early twentieth century archaeologists in Finland include J. R. Aspelin, H. J. Appelgren-Kivalo, and A. Hackman (4). Publication of archaeological materials in the Finnish National Museum series began in 1894. Finnish archaeologists whose main work has been done since World War I include A. M. Tallgren, Ella Kivikoski (now Professor of Archaeology at the University of Helsinki), and Aarne Äyräpää, but dating has also depended on the geology of M. Sauramo, who has devoted great energy to the study of the history of forestation and shorelines of Post-glacial Finland. Sauramo has also participated in many archaeological investigations, in which his pollen analysis, examination of marine deposits, and explanation of shoreline changes have been applied to particular archaeological finds.

Besides these archaeologists and geologists already mentioned, the National Museum staff at Helsinki currently includes several men who have studied under Äyräpää, among them V. Luho, C. F. Meinander, and J. Leppäaho. Mention should also be made of the ethnologist T. I. Itkonen, who has specialized in the analysis of skis and sled-runners from Finnish bogs.

Archaeological finds. Finnish Stone Age finds can be roughly divided into three groups: individual finds, generally in bogs; hunter-fisher sites, which are usually associated with extinct shorelines; and Neolithic sites, found on slightly elevated ridges near bottom-lands.

The bog finds include the Antrea fish-net (5), the Oulu and Närpiö seals (6), and a number of wooden skis and sled-runners. These bog-finds have been the focus of palynological dating.

Hunter-fisher campsites are scattered over most of Finland, and are the main source of archaeological materials. Listing the "most important" of these sites, V. Luho (7) gives the names of 14 Pre-ceramic sites, 14 Early Combware sites, 47 "Classic" Combware sites, and 14 Late Combware sites. Äyräpää and Luho (8) describe these campsites as (a) situated on extinct shorelines, (b) sheltered from cold north winds, (c) chosen for the hunting and/or fishing possibilities in the vicinity, and (d) now often situated far from bodies of water, due to the rising of the land. The list of "most important" sites makes up only a small percentage of the total known sites.

The camps are usually found by accident in the course of plowing fields or digging for gravel. As an example, we may examine the site of Askola, Honkaniemi, in southwest Finland (see Plate 2 for sites mentioned in text). Äyräpää, who excavated this site, describes it (9) as 20-21 meters above the present sea level, located on a plowed hillside. Occupation extended over an area about 140 meters long and 45 meters wide. Thicker concentration of cultural materials was mapped in an area of about 40 meters by 30 meters, in which area at least three hearths were also found. The depth disturbed by plowing was about 30-40 centimeters, and the total depth of the site in the deepest portions appears to have been about 60 centimeters (10). The description makes no mention of stratigraphic variations appearing in the site.

The cultural materials from Askola include the following:

- 8 axes and adzes (one of Olonetz green slate)
- 5 "chisels"
- 2 "holed stones"
- 1 plummet line-sinker
- 6 flint projectile points (mostly fragments)
- 8 flint scrapers
- 1 flint hammerstone
- 28 worked flakes of flint
- 135 flint flakes
- 3 "large rubbing stones"
- 10 fragments of stone tools (indeterminate)

3 scrapers of hard local stone material
 171 flakes of hard local stone material
 3 quartz scrapers
 10 worked flakes of quartz
 218 quartz flakes
 1 tool "blank"
 2 quartz hammerstones
 42 rubbing stones and fragments
 9 "polished pieces of stone"
 6 fragments of "clay objects"
 1 clay figure
 2138 fragments of pottery
 pieces of burned clay
 pieces of burned bone
 1 "stone saw"

Äyräpää dates this site to the younger phase of the Classic Combware period on the basis of the pottery style, while geological analysis of the shorelines places the occupation at a height of 68% of the Litorina Maximum above current sea level (11). (Finnish geologists assign shoreline percentages using present sea level as 0% and Litorina Maximum at 100% when discussing shorelines of late post-glacial age; see Plate 1). According to Äyräpää, pottery of the younger phase of the Classic Combware period is regularly associated with shorelines that are 70% of the Litorina Maximum (12).

The third type of find belongs to what the Finns call "Hammer-axe," "Cordware," or "Boat-axe" culture, and differs markedly in several ways from the hunter-fisher sites. Its distribution is narrowly restricted to the southwest corner of Finland, which corresponds with the area offering the most temperate climate as well as the best alluvial soils. These sites include burials as well as habitations, unlike the Combware sites in which burials are not known. No sure indications of domestic plants or animals are known from these sites, but circumstantial evidence points strongly to a Neolithic economy. The Boat-axe Culture is clearly intrusive in Finland, and corresponds in pottery style, tool types, and burial techniques with Neolithic cultures in Sweden and south of the Baltic Sea (13). Also, the restriction of finds to the narrow coastal strip of southwest Finland argues for an economic basis different from that of the hunter-fishers (14).

Chronological Methods. Finland's Stone Age cultural materials are organized into a chronological framework by the use of geological and palaeobotanical evidence. The geological evidence is based on observation of eustatic and isostatic changes in the Finnish shorelines. The geologist M. Sauramo has identified a series of old Finnish shorelines which he correlates with the Yoldia Sea, Echineis Sea, Ancylus Lake, Mastogloia Sea, and Litorina Sea phases of the post-glacial Baltic (see Plate 1). A large number of Mesolithic sites are located along these ancient beach-lines, apparently reflecting the importance of fishing in the economic pattern. Examination of the Combware pottery styles in terms of their relationships to these shorelines has led the Finnish archaeologists to discard their older, purely typological

pottery sequences in favor of a chronology in which cultural materials from higher (hence older) shorelines are assumed to precede material from sites nearer the present sea level. Thus, V. Luho affirms; "By comparing among themselves pottery fragments found from zones of different elevation it can be affirmed that pots decorated in certain ways appear only at certain elevations; in other words, decoration of pottery changes in direct relationship to (shoreline) elevations" (translation by this writer) (15). Luho also believes that this geological evidence shows that "the so-called Suomusjärvi culture habitation sites, from which pottery is not known, are older than the early Combware sites" (16).

Palaeontological evidence for dating is used, as already mentioned, in connection with bog finds. Assigning relative ages for these bog finds depends on both pollen analysis and examination of deposits of marine life.

The relative sequences in Finnish archaeology built up from the above methods are given absolute dates in several ways by the Finnish archaeologists. Sauramo assigns absolute dates to his postulated Baltic Sea sequences and vegetation periods by the technique of varve-counting. Certain points in the Finnish chronology have also been cross-dated with materials from other countries in northern Europe. The most important example of cross-dating is the fixing of the termination of the Combware period at the time of the incursion of Boat-axe culture, which apparently spread very rapidly into many areas of northern Europe about 1800 B. C. (17).

Finland in Early Post-Glacial Time. The geological developments of northern Europe from the terminal Pleistocene to the present have been extensively studied by Baron de Geer, M. Sauramo, and several other geologists. From their studies it appears that the major part of Finland was freed of ice during the Finiglacial Retreat, which ended when the Scandinavian ice-mass split in two (18). This Jantland Bi-Partition, which is dated at 8700 B. P., is used by Finnish geologists to mark the beginning of post-glacial time (19).

Human occupation in Finland may possibly have occurred before the beginning of post-glacial time. High beach-lines in the northernmost parts of Finland and Norway have yielded roughly flaked tools of dolomite flint, quartz, and quartzite, which are variously dated at 10,000 to 5,000 B. C. (20). These interesting cultural remains show no apparent connection with the culture of mesolithic Finland, so no further discussion of them is warranted here.

The first traces of human activity in south Finland have been dated to what Sauramo calls the Ancylus Lake-Mastogloia Sea periods, or about 6500-5000 B. C. (21). These beginnings of Finnish mesolithic activity are evidenced by three important bog-finds: the Antrea fish-net, the Heinola sled-runner, and a bone "ice-pick" from Kirkkonummi. S. Pälsi excavated the first of these finds at Antrea, Korpilahti, near Lake Ladoga, in 1914, uncovering a series of 17 pine bark floats, some stone net-weights, fragments of the willow-bast net material, and several stone and bone implements (22). The stone axes and chisels associated with the net materials are core tools

of slate, slightly polished at the cutting edge. Implements made of organic materials included an axe of elk antler, a dagger or spearpoint of elk bone, and a chisel of elk bone. The pollen analysis of the Antrea excavation was re-examined by E. Hyyppä (23) in 1933 with the result that the find was dated to the Ancylus Lake stage, or about 6500-6200 B. C.

The Heinola sled-runner is 3.8 meters long, carved from pine, and notched for supports in such a way that T. I. Itkonen believes the runner to belong to a two-runner type of sled. Dating of this find to the Ancylus period also depends on pollen analysis (24).

The Kirkkonurmi bog find was associated with and dated by Ancylus-age marine clays at a point 34 meters above the present sea level (25). The object, described as an "ice-pick" by the Finnish archaeologists, is shaped from the fore-leg of an elk, sharpened to a point, and measures a shade over 11 inches in length.

These three early Finnish finds have been compared with the well-known materials from Kunda in Esthonia. Äyräpää says that the early Finnish mesolithic material is related to the Kunda culture because of the similarity in tool types, similar reliance on bone as raw material, and similar reliance on fishing in the economy (26).

The Pre-Ceramic Cultures. The earliest occupation sites in Finland are grouped together by Finnish archaeologists as "Pro-Ceramic cultures," the most important of which is called the Suomensjärvi culture, after the parish from which the largest amount of material has been collected. This culture has tool types that do not depart a great deal from the chisels and axes of the Antrea find mentioned above. Axes are bifacially flaked with slight polishing of the cutting edge, and the stone material is from local deposits of poor quality (see Plate 4a). "Spearpoints" are wide, leaf-shaped, serrate-edged, and made of slate (27). The most prevalent form in the cultural inventory is the bifaced axe described above. The Suomensjärvi occupation sites are located along strand-lines that are identified by geologists as coincident with the first Litorina Sea Transgression (ca. 4000 B. C.), although a few sites appear to be on slightly earlier beaches, according to Äyräpää (29).

A younger phase of the pre-ceramic period is given the designation of Kisko culture. New items appearing in this phase include the "banana-shaped rubbing stone," four-sided chisels, "rubbing stones on which implements were polished with a circular motion" (30), and a new kind of extra-hard slate as raw material for adzes, axes, chisels, and "spearpoints."

Separate from the south Finnish Suomensjärvi and Kisko traditions, the Finns identify an eastern Finnish culture of pre-ceramic age, the Ilomantsi culture, that is distinguished by its preference for Olonetz green slate as raw material. The Ilomantsi axe is round or ovoid in cross-section, pointed at the butt, polished to a sharp edge, and was fashioned by the peck-and-polish technique (31) (see Plate 4b). Associated with this axe type is the so-called hump-backed, curve-edged chisel.

Archaeological excavations by V. Luho in 1946-47 at a site in Kurojoki, Alajärvi in west central Finland brought the question of microlithic projectile points into focus (32). This site produced 38 quartz projectile points which Luho identifies as rhomboid, trapezoid, triangular, and transverse microliths. The geological dating of the site tentatively places it in the same period as the Suomusjärvi and Kisko cultures, which is supported by the fact that no pottery appears in the site. Luho mentions a total of one certain and seven "indefinite" microliths from other sites in Finland, of which the one certain microlith was in a site with Early Combware pottery, while the others all come from Pre-ceramic sites (33). Both Äyräpää and Luho note the strong resemblances between these Finnish microliths and what they refer to as "Late Tardenoisian influenced" microliths widespread in northern Europe in Mesolithic times (34).

The Finnish archaeologists believe that the above pre-ceramic cultures correspond to the Campigny culture of continental Europe, and the Ertebølle, Lihult, Linnhan, and Nøstvet traditions of Mesolithic Scandinavia.

The Combware Culture. The Combware culture of Finland shows a fairly sharp departure from the previous tradition. The most notable innovation, pottery-making, diffused into Finland as part of a widespread culture sphere that covered most of northeastern Europe, from the Vistula river in Poland clear across to the Ural mountains (see Plate 3, Inset).

The Combware pots are large, poorly fired, and tempered with sand, crushed-rock, bone-fragments, or occasionally asbestos; the decorative style consists of scratches and pits that appear to have been made with small sticks, twisted cord, fish vertebrae, and notched or toothed "combs." These pointed-base or ovoid pots were predominantly large, some having capacities of over 30 quarts. The stone tools of the Combware people appear to follow the basic patterns of the pre-ceramic cultures, although adzes apparently become much predominant over axes in wood-working equipment. Plummet fish-line sinkers, shanks of composite fish-hooks, projectile points, and "spearpoints" in these campsites attest to the hunting-fishing nature of the economy, although a significant reduction in the appearance of the slate "spearpoints" takes place (35).

Early Combware (ca. 3000-2250 B. C.) (36). The earliest pottery in mesolithic Finland, called Early Combware (Combware I), is associated with shorelines that are judged by the geologists to be 10-20% lower than the Litorina Maximum Transgression in the "Maximum-to-modern sea level continuum" (37). This pottery is coarse-tempered and decorated with various imprints such as "E," "I," and "II"-shaped marks, wavy lines, and "fish-vertebrae" designs; these decorations almost always extend over the entire surface of the vessel. Early Combware is sub-divided into two phases, designated I:1 and I:2 (see Plate 4c, d), on the basis of style differences associated with slight differences in shoreline elevations. Besides clay vessels, these Combware sites sometimes contain small clay figurines (see Plate 6c), which continue to appear throughout the entire Combware period. These figurines will be discussed in more detail below.

Classic Combware (ca. 2250-2000 B. C.). Whereas the Early Combware pottery in Finland appears to be only a peripheral reflection of a more southerly cultural tradition, the Classic Combware development is believed by Finnish archaeologists to be focussed in south Finland, with close similarities of decoration style in nearby areas of Karelia and the East Baltic provinces. The decoration of pottery takes on an appearance of greater care in artistic design, and shows "more active creative imagination," according to Luho (38). Rows of carefully spaced pits alternate with rows of "comb-scratchings" or "dotted-lines" (see Plates 4e, f; 5a, b). Bird figures, usually swans with excessively long necks, appear on some of the pots. Classic Combware pots are well-fired, and fine-tempered, of predominantly reddish and yellow hues.

Now imports of raw materials into Finland during this period include flint from the Valdai area in western Russia and amber for ornaments from East Prussia. The clay figurines of this period take on a phallic form, which Äyräpää and Luho believe is also a diffusion from the outside because it departs considerably from the earlier anthropomorphic form (see Plate 6c, d). The Classic period is the shortest of the three postulated phases of the Combware culture, the abundance and relative richness of sites supports the argument that this phase was an "exuberant" development in the history of the Combware tradition. The Classic pottery style is sub-divided into several variants, including Classic II:1 and II:2 (style variation associated with slightly different shoreline levels), Jäkärälä style (a regional variant), "pitted" and "rhombic-pitted" styles which spread into the southeastern Finnish area from the south and east, according to Luho (39).

Late or Decadent Combware (2000-1700 B. C.). This final period of Combware culture is also called the Uskela culture by the Finns, after the parish in which the pottery was first identified in quantity. The distinguishing feature of the Uskela style is the concentration on pitted decoration. Rows of large pits alternate with smaller depressions, possibly as a development from the "pitted pottery" of the late Classic tradition. "Comb-scratched" decorations persist to a slight degree in Uskela III:1, marking the separation between it and III:2, which is called Sipilänhaa pottery after a site in southwest Finland. Another short period has now been distinguished in the stylistic sequence, making Pyheensilta style (from the site of Mynämäki, Pyheensilta) the final pottery style of the Combware period (40) (see Plate 5c, d, e).

The Late Combware sites, like the sites of the preceding period, show evidence of continued receipt of amber from East Prussia. Luho points out that sites with Uskela type pottery are also found in the East Baltic countries, especially Latvia, along the postulated route by which amber was carried to Finland (41). The importation of Russian flint, however, stops completely with the end of the Classic Combware period.

The end of the Late Combware period is signalled by the arrival of the Boat-axe culture, which spread rapidly over large areas of northern Europe in the first centuries after 2000 B. C. As mentioned earlier, this culture was restricted to the southwest corner of Finland where climate is mildest and the most fertile alluvial bottomlands are found (42).

Boat-axe sites and the distribution of stray boat-shaped axes stay within fairly close bounds, and presumably the hunter-fisher economy continued in some form over the rest of north and east Finland. Some of the Uskola and Pyheensilta Combware sites are apparently contemporary with the Boat-axe settlement, but little is yet known about the successors to these cultures. The Boat-axe period in Finland is fairly short, (ca. 200 years), however, and the final phases of the Stone Age (the Kiukais culture) clearly show a mixture of Boat-axe and Combware traditions (see Plate 5f). Combware tool types and pottery styles again predominate, but Finnish archaeologists believe that the Neolithic economy of herding and agriculture brought by the Boat-axe people continued, as evidenced by the choice of living sites and the appearance of large "grinding-stones" (43).

The Hunter-Fisher Way of Life. Combware sites are nearly always found on sea, lake, and river shores, and this choice of settlement location supports the conclusion that a considerable portion of the diet of Combware people depended on fish and other water-dwelling life.

Seal hunting was practiced at least along the Gulf of Bothnia, for skeletons of seals with harpoons in their ribs have been found at Närpiö and Oulu along the west coast. These seals probably sank into the clay of the Litorina Sea floor during the Classic Combware period, according to Sauramo, who dated the finds by pollen analysis and examination of associated marine deposits (44). The seals were shot several kilometers from shore, but due to the rising of the land-mass were now located well above the present sea level.—the Oulu seal 15 meters and the Närpiö find 17 meters above sea level. Harpoons associated with the finds are made of elk bone, notched along one side only, and measure 8.25 and 9.5 inches respectively (45) (see Plate 5g). The Närpiö seal was of the species Phoca grönlandia, which has become extinct in the Gulf of Bothnia, possibly because of Stone Age hunting. This species of seal makes up a large proportion of the bone fragments found in Stone Age sites in the adjacent Åland islands, where seal-hunting was apparently one of the mainstays of a culture that had traits of both Finnish Combware and Mesolithic Swedish traditions (46).

Fishing during the Finnish Mesolithic period was carried on by nets, hook-and-line, and (possibly) weirs. Besides the Antrea net find, evidence for net-fishing includes the occurrence of "holed stones" at such sites as Askola, Honkaniemi, and collections of fist-sized stones from several sites. A campsite at Ilmajoki, Koskenkorva contained 20 "holed stones" and Ilmajoki, Piirtola had 18 of those objects (47), which supports the theory that they were used as net-sinkers since that kind of utilization would require the considerable quantity of "holed stones" that has been found. Occurrence of fist-sized pebbles in sites recalls the collection of such stones found in association with the Antrea fish-net.

Hook-and-line fishing was carried on by use of composite hooks with shanks often made of slate. Plummet-type sinkers with grooves or holes for line have been found in several sites, including Askola, Honkaniemi.

The Finnish archaeologists believe that weir fishing was practiced during

Stone Age times, and they cite numerous campsites which were located beside narrow straits which would be ideal for the use of a weir. However, the only possibly direct evidence for such a practice is from a site in Nyland, where a series of vertical aspen stakes extending a distance of 13.5 meters was found in 1911. However, the dating of this find is uncertain, which leaves the real evidence for weir-fishing largely in the realm of conjecture (48).

The hunting of land animals was also an important part of the economy of mesolithic Finland. Except for the one site in Alajärvi, the Pre-ceramic sites show a predominance of "leaf-shaped" slate "spearpoints" over the small projectile points which the Finnish archaeologists term "arrowpoints." During the Combware period, however, small points of flint, quartz, quartzite, and slate dominate over the large "spearpoints" (49). Several varieties of "holed stones" are identified as "club-heads" by the Finns, ranging all the way from simple ovoid forms to complex rhombic, cruciform, and animal-head implements. While the simple "holed stones" may have served just as well as net-sinkers, the more carefully prepared "holed stones" may well have been hafted weapons.

Preservation conditions for organic materials are extremely poor in most of the Finnish hunter-fisher sites, but small fragments of burned bone are usually found in and around campsite hearths. The site of Alavus, Ojalankangas yielded considerable amounts of bone fragments which were identified as the remains of "large land mammals" by Professor Winge of Denmark (50). The Mesolithic sites in the adjacent Åland Islands contemporary to the Finnish Combware sites are in calciferous soil favorable to preservation of bone, and they have yielded remains of birds, fish (mostly cod), and particularly seals in large amounts (51).

Mesolithic man in northern Europe was a woodworker. In Finland he had good material available—pine, silver fir, spruce, as well as certain deciduous trees. Tools of quartz, quartzite, flint, slate, bone, and antler were used to make things out of this wood. Axes, adzes, and chisels are abundant in hunter-fisher sites, although the finished products made with these implements are not frequently found. In pre-Combware times, axes such as the Suonusjärvi type were prepared by flaking and finished by application of a slight polish to the cutting edge. Äyräpää believes that the polishing techniques were first applied to bone tools, and later adapted to the harder stone materials (52). The peck-and-polish technique was widely used during the Mesolithic period, particularly in the working of Olonetz green slate. Polishing of these implements was done by use of sandstone rubbing stones, such as were found in the Askola, Honkaniemi site in large numbers; and flint saws were used to produce the four-sided adzes and chisels that became popular during the Combware period.

Among the products of wood-working, items of travel equipment were undoubtedly of first importance. The Heinola sled-runner of the Ancylus Lake period has already been mentioned, but this is only the oldest of a series of 21 sled-runners that have been dated to the Stone Age (53). This quantity of sled-runners is sufficient to show some of the stylistic and technical changes that occurred in the Stone Age, according to Luho, and also some hypotheses

about important travel routes can be made from this evidence. Luho believes that these sleds were powered by dog-teams during at least part of the Mesolithic period. Remains of dogs are known from at least six sites in the Combware area, five of them being in Russia. The Finnish site containing remains of a dog is at Pihtipudas, Rönni, which is of Pre-ceramic and Early Combware age. Luho notes that one of the types of canine found in these sites—the "large, wolf-like" Canis familiaris inostranzewi—is particularly adaptable to the harness.

Of other means of travel that might have been used in Mesolithic Finland there is no reliable evidence. Remains of both skis and dugout boats abound in the Finnish bogs, but the oldest of these are from the Bronze Age.

The Mesolithic peoples of Finland also used their wood-working tools to solve the housing problem. Finnish archaeologists report several sites with traces of house posts. Most of these "huts" were small in floor space, but floor areas of about 20 square meters are reported from Maaria, Säkki-järvi, and Värtsilä (56). A particularly unusual find was made at the Combware site of Räisälä, Pitkäjärvi, where a hut was equipped with an ante-room. Possibly it was the dwelling of some Mesolithic notable, for among the finds in the floor area were three amber ornaments—rare items in Finnish Mesolithic inventories (57). A second type of dwelling found in the Finnish Mesolithic is the semi-subterranean pit-dwelling, which occurs in several Pre-ceramic and Early Combware sites; for example Lapinjärvi, Malnbacken, in which were found two pits, one 3.5 meters by 2 meters and 1.8 meters deep (58).

Of the artistic proclivities of these Mesolithic peoples we have already hinted, especially in connection with the decorative motifs of the pottery and the humanoid representations in the form of clay figurines. The early Combware figures, such as a series of at least ten figures from Painio, Toispuolajannurmi, are generally 2-3 inches high, and often represented in a sitting position (59) (see Plate 6c). Some of them have a faint suggestion of a beard, possibly indicating a male figure. Decoration of the figures is similar over a wide area in Finland—incised markings suggesting clothing, shoulder straps, and belts. Traces of red ochre suggest that some of the figures were painted. As mentioned above, the Classic Combware period is marked by the appearance of more clearly phallic representations. Clay figures and fragments of clay figures are known from Painio, Askola, Espoo, Porvoo, Liljendal, Lapinjärvi, Gammelby, Pihtipudas, Kaukola, Räisälä, Johannes, and several other Combware Sites. The Åland Islands also contain clay figures in Mesolithic sites (60) (see Plate 6d, e).

In 1897 a carved wooden image about 9 inches high representing a human face and shoulders was found during railroad excavations at Pohjankuru between Helsinki and Turku in southwest Finland (61). It speaks fairly well for the sophistication of early Finnish archaeology that the site of the find (at a depth of 8 meters) was examined in considerable detail by the archaeologist Hj. Appelgren-Kivalo, who also took extensive soil samples. However, 19th century geologists were unable to give any kind of date to the find. Dating of the Pohjankuru "Wooden God" (which resembles clay images from Painio) waited nearly

40 years, until 1936 when E. Hyyppä examined the find and associated soil samples. Both pollen analysis and marine-life remains pointed to a date from the middle of the Litorina Sea period, thus contemporary with the Combware culture. Particularly convincing evidence for this date were the remains of Litorina-type marine organisms imbedded in the wooden figure itself (62).

Both the clay figures and the wood image appear to have their closest cognates in regions south and east of Finland. Wooden figures similar to the Pohjankuru find are known from East Karelia, North Russia, and Siberia (63). As for the clay figures, Äyräpää believes that both comb-marked pottery and clay figures were diffused to Finland from the Balkan-South Russian area (64). These forms are different than any from western European traditions, but resemble pottery styles and figurines from Russia and the East Baltic states; Combware pottery does not extend into south Russia, but clay figures appear in Rumania and Odessa (see Plate 3). V. G. Childe writes of similarities between central Russian and Finnish Combware pottery; comparing sherds from Yasikovo near Kalinin with Finnish Early Combware, and seeing a connection between Finnish Classic Combware and pottery from Lyalovo near Moscow (65).

Artistic achievement also appears in the Finnish Stone Age in the form of animal-head implements, chiefly bear-head and elk-head axes. The figures are made in a naturalistic style, resembling the elk, reindeer, and other animal figures engraved on rocks in northern Scandinavia. The "animals" often have raised dots for eyes, drilled holes for mouths, no nostrils, and little or no ears. This naturalistic art is assigned to the closing phases of the Combware period by Äyräpää and Nordman, but dating is uncertain because the animal-heads are stray finds, unassociated with any clearly datable sites. Animal-head axes are found in widely scattered points in northeastern Europe, including two places in Sweden, but appear to be most closely associated with the Lake Onega area with its nearby source of Olonetz green slate, from which several of the objects are made. Nordman lists eleven animal head objects from this East Karelian area, including an elk-head dagger of horn from an undated burial ground on Olenii Ostrov (Deer Island) in Lake Onega (66).

The animal-head axes in both finished and unfinished form appear to have been traded over a wide area, as were other artifacts made of the prized green slate. This variety of slate is found in northeastern Europe only in a very small area near Petrosavodsk in East Karelia, but items made from this material are found over most of Finland and Esthonia. Äyräpää notes that evidence for the working of green slate articles is lacking in most Finnish sites, and believes that the material was traded in the form of finished articles and "blanks" from "factories" such as the site of Suoja in East Karelia, where extremely active production of green slate implements appears to have been carried on for the "export market" (67).

Other stone materials were also involved in some kind of trading activity, including red slate from northern Scandinavia which occasionally appears as "arctic-type" knives and spearpoints in South Finland (68). As mentioned above, the importation of low-grade flint from the Valdai region of western Russia was carried on in considerable quantities, but restricted mainly to the Classic Combware period. Later, during the final periods of the Stone

Age, flint was obtained that closely resembles the flint found in south Sweden (69).

Mention has already been made also of the occurrence of amber ornaments in Finnish sites, showing connections with East Prussia. This material was expensive, judging from its economic importance in other trade areas of Stone Age Europe, and very few hunter-fishers in Finland were able to afford this luxury.

This wide diffusion of certain stone materials, coupled with stylistic similarities in pottery decoration over a fairly large area in northeastern Europe, shows that considerable traveling and inter-group contact were prevalent in this coniferous forest area from early Mesolithic times.

Conclusion. During most of the Stone Age, Finland played the role of recipient to culture diffused from neighboring areas. Almost all of present-day Finland was buried under glacial ice during that earliest phase of the post-Pleistocene when the Mesolithic way of life was developing farther to the south in Europe (70). When the land area of Finland began to open up for habitation, the earliest culture traits—bone implements and stone axes—bore resemblance to the Kunda culture of Estonia, which in turn appears to have been an eastern variant of the Maglemose culture of northern Europe (71). The few microliths found in Finnish sites also show connection with Scandinavian and north-central European cultural developments.

However, the advent of the Combware culture in Finland brought traits, such as pottery styles and clay figures, that have their closest affinities to traditions directly to the south in the East Baltic states and Russia, as well as east into northern Russia extending into Siberia. Early Finnish archaeologists were tempted to equate this Combware culture with the Finnic-speaking peoples, on the strength of continuities of tradition apparently from the Stone Age down to historic times in East Baltic and northeastern Russian areas where Finnic-speakers are still found today (72). The archaeological evidence for this hypothesis is far from complete, however, and in Finland, where the most complete archaeological record is found, there is no continuous cultural tradition that ties the Stone Age population to the people who were occupying the region when Swedish "Crusaders" began to "open up" Finland early in this millennium.

Cultural similarities between Finland and Scandinavia occurred again during the relatively brief occupation of southwest Finland by the Boat-axe people who ranged widely into north Germany, Poland, the East Baltic area, as well as Sweden and Denmark. These food-producing intruders mark the end of the Mesolithic period in Finland as we have used it here, but the hunter-fisher way of life may have continued for more than a thousand years longer in the forests of north and east Finland as well as adjacent territories in northern Russia. The archaeological material from this terminal Stone Age is particularly slim, however.

The time lag in diffusion of cultural elements into the Finnish area illustrates its peripheral position in relation to so-called cultural centers

such as Denmark and the Near East. The Combware culture of hunter-fishers flourished in Finland at a time when complex urban, bronze-using cultures were well-developed in Mesopotamia and Egypt. Contemporaneous cultures in Denmark appear to have been well along in developing a Neolithic economy, judging from pollen analysis of forestation changes, and traces of barley and wheat grains in shell-mounds that date back to late Atlantic times (73). These beginnings of agriculture in Denmark occur at least a thousand years before the first evidence of a Neolithic economy in Finland, according to chronological information from Finnish archaeologists. Pottery, which is so important in most Combware sites in Finland, appears at about 3000 B. C., also several hundred years later than in Denmark (74).

It is interesting to note that this pattern of time-lag in diffusion of traits to the north holds also for later historical developments. For example, the introduction of Christianity into Finland occurred a full thousand years after the Near East had given birth to this movement; it was not until 1154-1155 A. D. that Swedish knights carried out the "First Crusade" into southwest Finland (75).

Also significant in the pattern of Stone Age developments in Finland is the fact that cultural influences from two quite widely separated traditions met in the Finnish area. We noted the importance of Western traditions in the earliest Mesolithic finds, which however became heavily influenced by culture traits more nearly related to eastern traditions found in Russia, and extending into Siberia. This mixing of Eastern and Western traditions is still in evidence in Finland, for example in the meeting of Lutheran with Greek Orthodox Christianity.

The product of this hybridization of Eastern and Western traditions during the Mesolithic was a tenacious culture successfully adapted to the demanding environment of the northern coniferous forests. The Combware culture persisted in Finland for a period of more than 1200 years, and stone tools of the Combware tradition were an important part of the Neolithic culture that carried on after the brief dominance of the Boat-axe tradition came to an end.

This picture of prehistory is far from complete, for further research can add much to the current knowledge of the Finnish area, and key problems, especially in chronology, are yet to be solved for the northern Russian region. As future archaeological investigations add to our knowledge of the prehistory of northeastern Europe, we may expect that these discoveries will also have important implications for the rest of the Circumpolar area stretching across Siberia to the New World.

NOTES

- (1) For instruction in Finnish archaeology as well as aid in gathering source material I am indebted to Dr. Aarne Äyräpää, Dr. Ella Kivikoski, and Dr. C. F. Meinander, all of the University of Helsinki, Finland.
- (2) Ailio, 1909.
- (3) Holmberg, 1863.
- (4) Appelgren-Kivalo, 1894; Aspelin, 1899; Hackman, 1909.
- (5) Äyräpää, 1937, p. 106.
- (6) Äyräpää, 1937, p. 114; Loppäaho, 1936, pp. 1-9.
- (7) Luho, 1948, pp. 35, 41, 49-50, 56-57.
- (8) Luho, 1948, p. 58.
- (9) Äyräpää, 1929a, pp. 15-32.
- (10) Äyräpää, 1929a, p. 19.
- (11) Äyräpää, 1929a, p. 31.
- (12) Äyräpää, 1929a, p. 31.
- (13) Childe, 1950, pp. 134-138; Shetelig et al., 1937, pp. 68-70; Äyräpää, 1937, pp. 120-121.
- (14) Äyräpää, 1937, pp. 120-121.
- (15) Luho, 1948, p. 161.
- (16) Luho, 1948, p. 161.
- (17) Luho, 1948, p. 57.
- (18) Clark, 1936, pp. 5, 6; Sauramo, 1954, p. 231.
- (19) Sauramo, 1954, p. 231.
- (20) Luho, 1948, pp. 22-25; Äyräpää, 1937, pp. 102-104.
- (21) Luho, 1948, p. 25; Sauramo, 1954, p. 231.
- (22) Luho, 1948, pp. 25-29.
- (23) Hyyppä, 1933, pp. 9-14.

- (24) Aario, 1934, pp. 22-27.
- (25) Äyräpää, 1937, p. 106.
- (26) Äyräpää, 1937, p. 107.
- (27) Äyräpää, 1937, p. 110; Luho, 1948, p. 31.
- (28) Sauramo, 1954, p. 231.
- (29) Äyräpää, 1937, p. 110.
- (30) Luho, 1948, p. 32.
- (31) Äyräpää, 1937, p. 111; Luho, 1948, pp. 34, 91.
- (32) Luho, 1947-48, pp. 5-23.
- (33) Luho, 1947-48, p. 5.
- (34) Luho, 1947-48, p. 5.
- (35) Luho, 1948, p. 38.
- (36) Luho, 1948, p. 38.
- (37) Äyräpää, 1937, p. 116.
- (38) Luho, 1948, p. 44.
- (39) Luho, 1948, p. 48.
- (40) Luho, 1948, p. 54.
- (41) Luho, 1948, p. 56.
- (42) Äyräpää, 1937, p. 120; Luho, 1948, p. 57.
- (43) Moinander, 1954, p. 113.
- (44) Sauramo, 1936, pp. 9-15.
- (45) Leppäaho, 1936, pp. 1, 3.
- (46) Luho, 1948, p. 72.
- (47) Moinander, 1950, p. 166.
- (48) Clark, 1952, pp. 44-45.
- (49) Luho, 1948, pp. 114-115.

- (50) Meinander, 1950, p. 164.
- (51) Meinander, 1950, p. 29.
- (52) Äyräpää, 1937, p. 110.
- (53) Luho, 1949, p. 2.
- (54) Luho, 1949, pp. 14-18, including maps of postulated travel routes.
- (55) Luho, 1949, p. 20.
- (56) Luho, 1948, p. 140.
- (57) Luho, 1948, p. 140.
- (58) Luho, 1948, p. 143.
- (59) Äyräpää, 1929a, pp. 28-32.
- (60) Äyräpää, 1941, pp. 82-119.
- (61) Leppäaho, 1936b, pp. 38-42; Hyypä, 1936, 43-52.
- (62) Hyypä, 1936, p. 46.
- (63) Leppäaho, 1936b, p. 40.
- (64) Äyräpää, 1941, p. 115.
- (65) Child, 1947, p. 205.
- (66) Nordman, 1944, p. 75.
- (67) Äyräpää, 1944, p. 70.
- (68) Luho, 1948, pp. 120-128.
- (69) Luho, 1948, p. 120.
- (70) Platt, 1955, p. 434, including map of Finland during the period of the Baltic Ice Lake.
- (71) Indreko, 1954, p. 144.
- (72) Pälsi, 1916, p. 176.
- (73) Child, 1953, p. 193.
- (74) Child, 1950, p. 33.
- (75) Platt, 1955, p. 7.

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PLATES I—VI

I. Chart of Post-glacial Developments in Finland.

II. Map of Finland Showing Major Archaeological Sites.

- | | |
|-----------------------------|----------------------------|
| 1. Kittilä | 15. Siuntio (Sjundeå) |
| 2. Oulujoki | 16. Espoo (Esbo) |
| 3. Ninisjärvi | 17. Suonusjärvi |
| 4. Pihtipudas | 18. Heinola |
| 5. Alajärvi | 19. Porvoo (Borga) |
| 6. Kuortane | 20. Askola |
| 7. Ilmajoki | 21. Liljendal |
| 8. Närpiö (Närpes) | 22. Lapinjärvi (Lappträsk) |
| 9. Kiukainen | 23. Viipuri (Viborg) |
| 10. Mynämäki | 24. Antrea |
| 11. Painio | 25. Sääninki |
| 12. Uskela | 26. Kaukola |
| 13. Kisko | 27. Värtsilä |
| 14. Kirkkonurmi (Kyrkslätt) | 28. Ilomantsi |

III. Map Showing Distribution of Clay Figures in Northern Europe.

- | | |
|---------------------------|-----------------|
| 1. Painio | 12. Sääninki |
| 2. Siuntio (Sjundeå) | 13. Pihtipudas |
| 3. Espoo (Esbo) | 14. Säräisniemi |
| 4. Porvoo (Borga) | 15. Kubenino |
| 5. Askola | 16. Purciens |
| 6. Liljendal | 17. Koloncy |
| 7. Lapinjärvi (Lappträsk) | 18. Stanok |
| 8. Viipuri (Viborg) | 19. Balachna |
| 9. Johannes | 20. Åland |
| 10. Räisälä | 21. Toroslunda |
| 11. Kaukola | |

Inset Showing Combware Culture Area in Northeastern Europe.
(Dotted line marks western and southern boundaries).

IV. Finnish Mesolithic Artifacts.

- (a) Suonusjärvi Stone Axe
 - (b) Ilomantsi Stone Axes
 - (c) Early Combware Pottery (I:1)
 - (d) Early Combware Pottery (I:2)
 - (e) Classic Combware Pottery (II:1)
 - (f) Classic Combware Pottery (II:1)
- (after Luho, 1948).

V. Finnish Mesolithic Artifacts.

- (a) Classic Combware Pottery (II:2)
 - (b) Classic Combware Pottery (II:3)
 - (c) Late Combware Pottery (Uskela; III:1)
 - (d) Late Combware Pottery (Sipilänhaa; III:2)
 - (e) Late Combware Pottery (Pyheensilta; III:3)
 - (f) Kiukais Pottery
 - (g) Oulu and Närpiö Seal Harpoons
- (after Luho, 1948).

VI. Finnish Mesolithic Artifacts.

- (a) Mesolithic Spearpoints
 - (b) Mesolithic Rhombic and Cruciform Stone Artifacts
 - (c) Early Combware Clay Figures
 - (d) Classic Combware Clay Figure
 - (e) Åland Island Figure
- (after Luho, 1948; Åyräpää, 1941).

Climate	Culture		Land/Sea	Time (B.C.)
	SW.	Cent. -E.		
Sub-Atlantic	Iron Age		Linnea Sea	0
ca. 1000 BC	Bronze Age	??		500
Sub-Boreal	Kiukais Boat-axe Culture	Culture III II	L i t o r i n a S e a Trans. IV Trans. III	1000
ca. 2800 BC			Trans. II	2000
Atlantic	Kisko Culture	Ilomantsi Culture	Trans. I (Maximum)	3000
ca. 5800 BC	Suomus-järvi Culture		Mastoglia Sea	4000
Boreal	(Antrea fishnet)		Ancylus Lake	5000
ca. 6800 BC			Echinois Sea	6000
Pre-Boreal			Yoldia Sea	7000
ca. 8000 BC				8000

after Sauramo, 1954

Plate 1

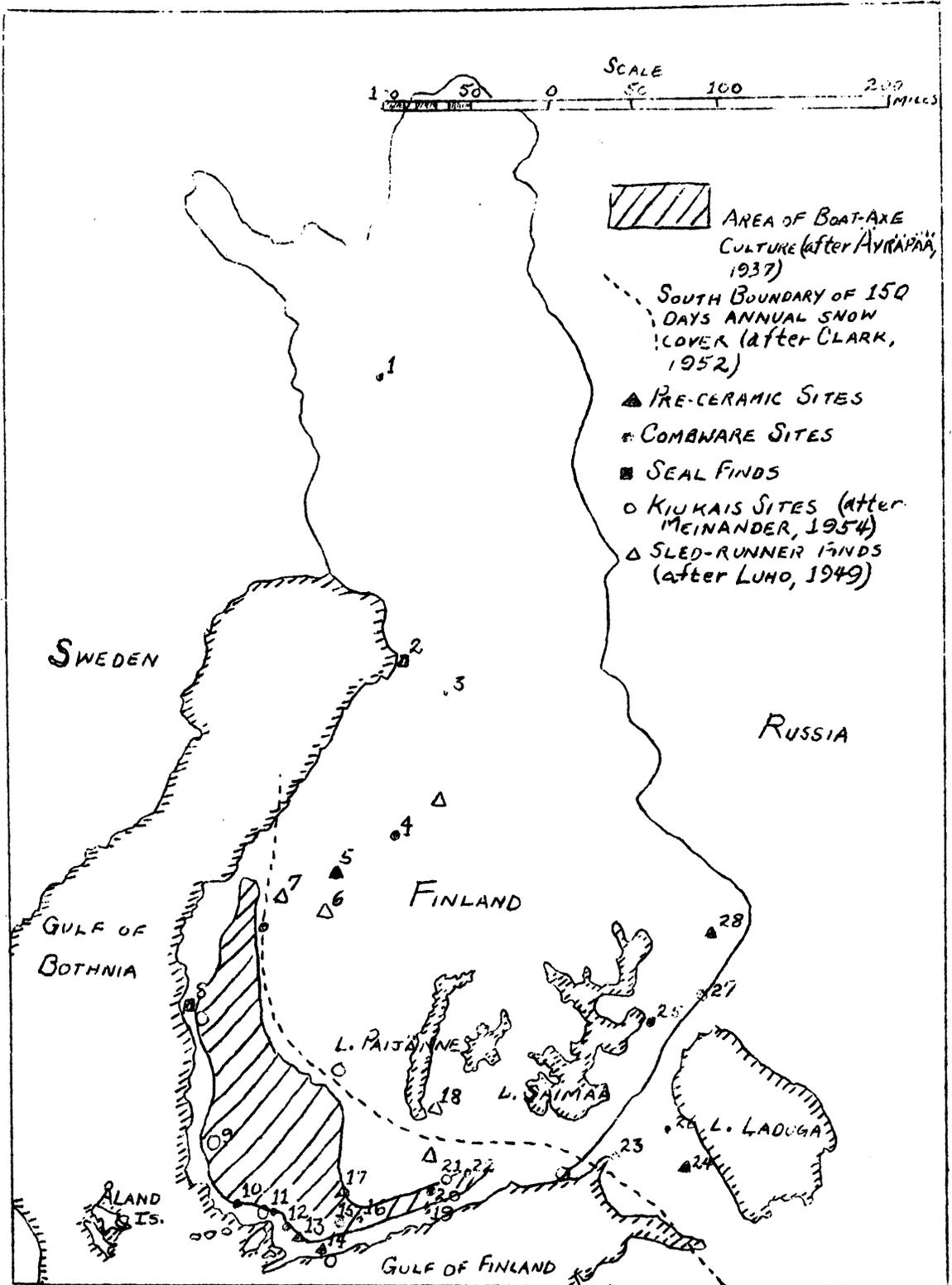
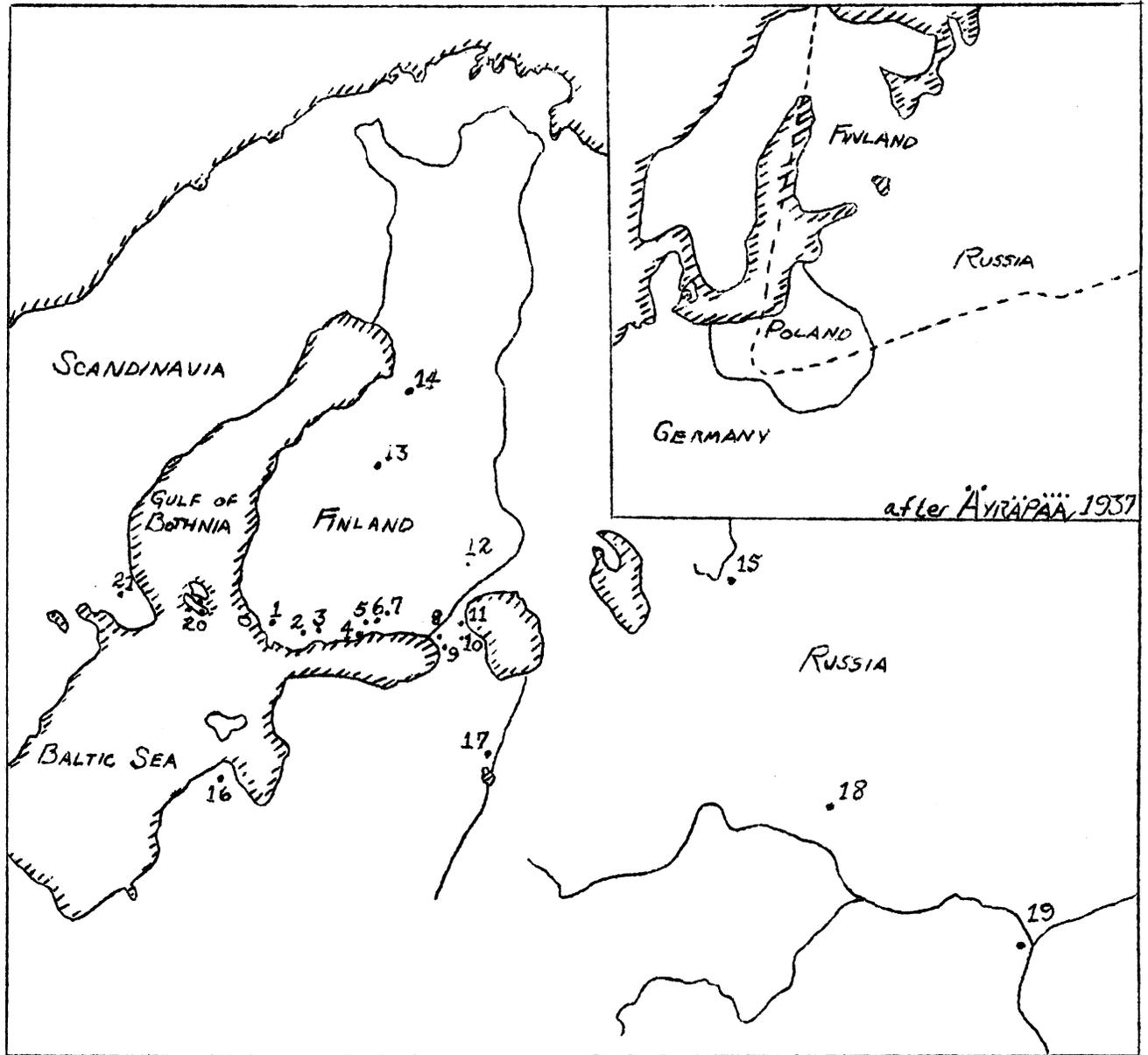


Plate 2



after ÄYRÄPÄÄ, 1941

Plate 3

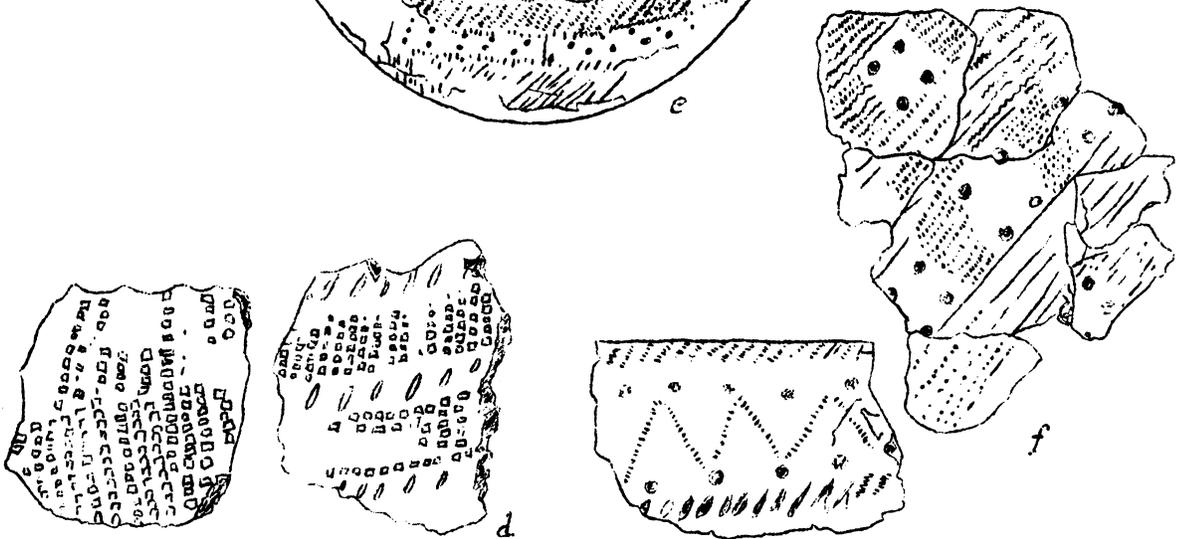
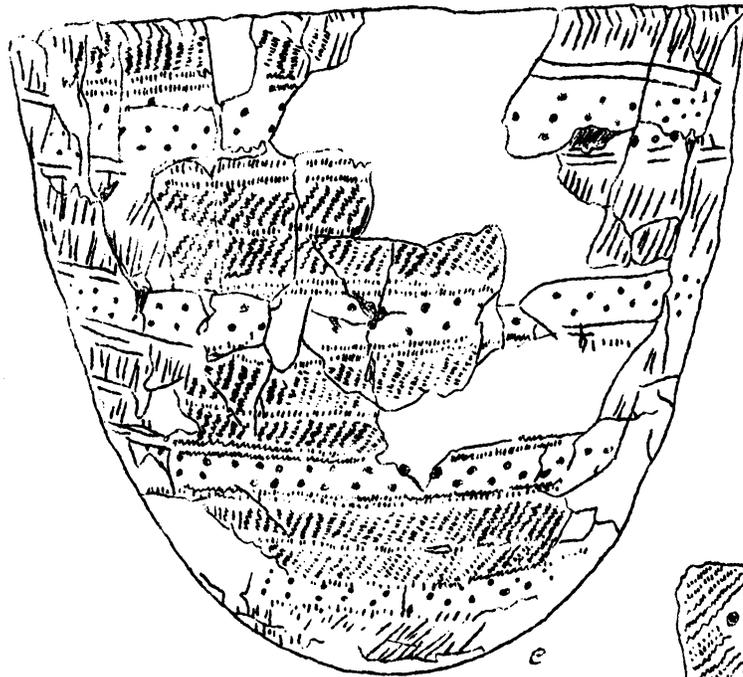
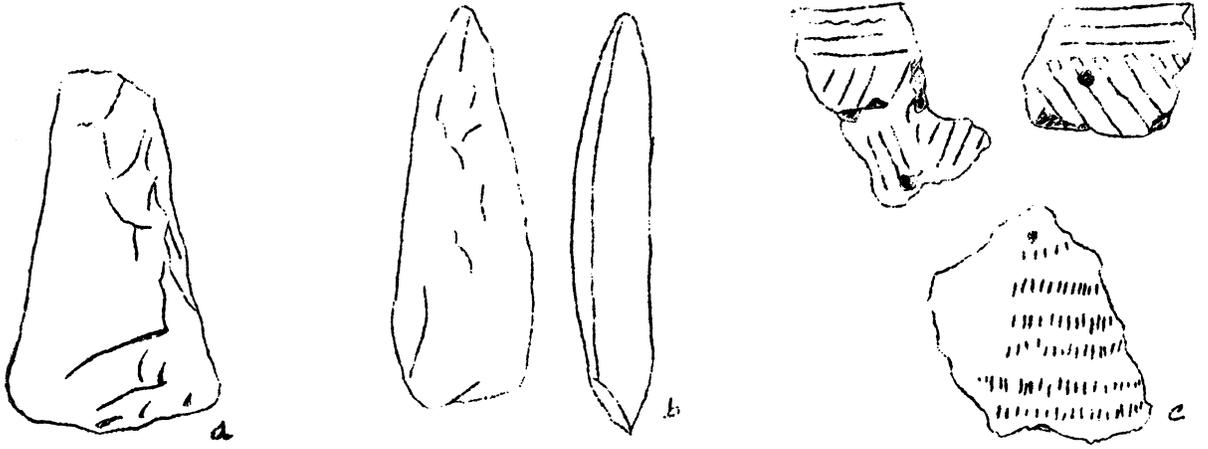
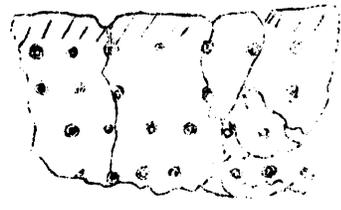
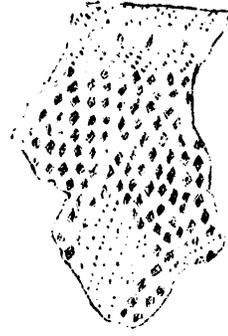


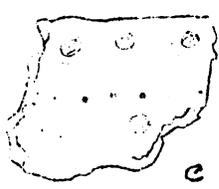
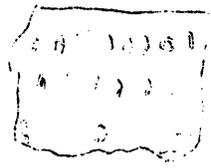
Plate 4



d



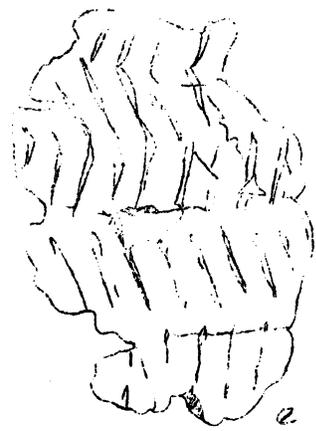
b



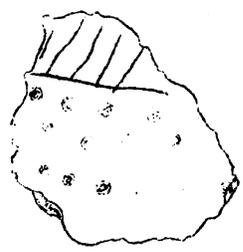
c



d



e



f



g

Plate 5

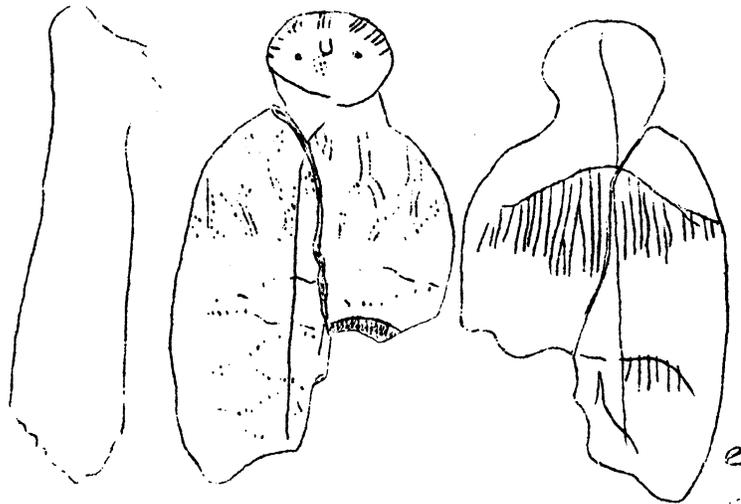
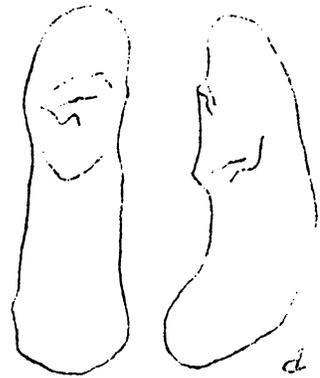
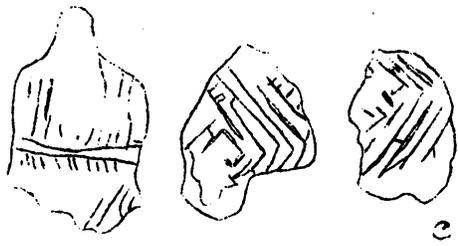
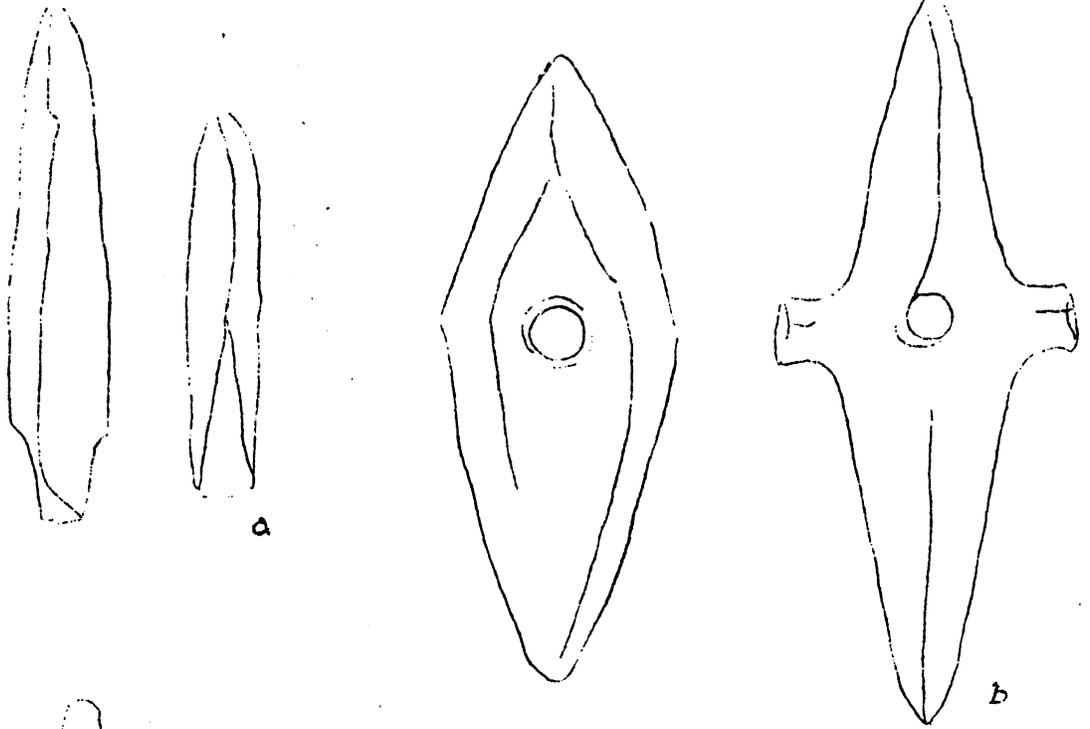


Plate 6