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ARCHAEOLOGICAL FIELD WORKS IN ESTONIA

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Cover: strap-divider from Harmi grave in Harjumaa

Tagakaas: kaelavõru fragment Harjumaalt Harmi kalmest
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ARCHAEOLOGICAL FIELD WORKS ON THE ISLAND OF RUHNU

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The prehistory of Estonian small islands has been hitherto very scantily investigated. The same is valid about the island of Ruhnu, the farthest from the mainland in the Livonian Bay. Thus far our knowledge of the prehistory of Ruhnu is based upon some stray finds: a half of a stone axe, probably belonging to the Bronze Age, and an oval strike-a-light, dating from the period 100–700 AD (Kriiska & Tamla 1998, 196). Relying upon the information from Ferdinand Linnus (Leinbock), two stone axes were found during the building of a new church. One of them was sent to a museum in Tallinn, and the other was reburied at the church (Leinbock 1924). The Swedish researcher Ernst Klein (1924) mentions an axe found by Isak Bergs in Skaldebacken in the northern part of the island, in the 1st quarter of the 20th century. This axe was reported to have been given to a museum in Tallinn. According to him, only one axe was found by Johan Anders during the building of the church in 1912, but it has been described sometimes as an iron axe and sometimes as a stone axe; anyhow, it was buried in the foundation of the church. Klein was familiar with the local circumstances, and his detailed description was recorded earlier than the information by Linnus. Evidently the information that reached the latter was distorted, and the preserved half axe comes from Skaldebacken.

In 1997, archaeologist Ülle Tamla found quartz flakes on a sandy road near the church. These indicated the presence of a Stone Age settlement site on Ruhnu Island (Tamla 1997). During the inventory trip in 1998, more finds were gathered from several places (Tamla & Russow 1998), which prompted field works on Ruhnu as a training course for the students of archaeology at Tartu University in 1999. Two settlement sites were excavated and a thorough inventory was carried out. The work was financed by the Estonian Science Foundation (grant no. 2254), the Society of the People of Ruhnu in Sweden, the Board of Antiquities and Tartu University.

EXCAVATIONS OF THE SITE RUHNU I

The settlement site Ruhnu I (discovered in 1997) is situated about 150 m SE of Ruhnu church. The cultural layer occurs there in quite a limited area, about 100 m long, in a hollow between the high ridges of sand dunes, and is evidently mostly

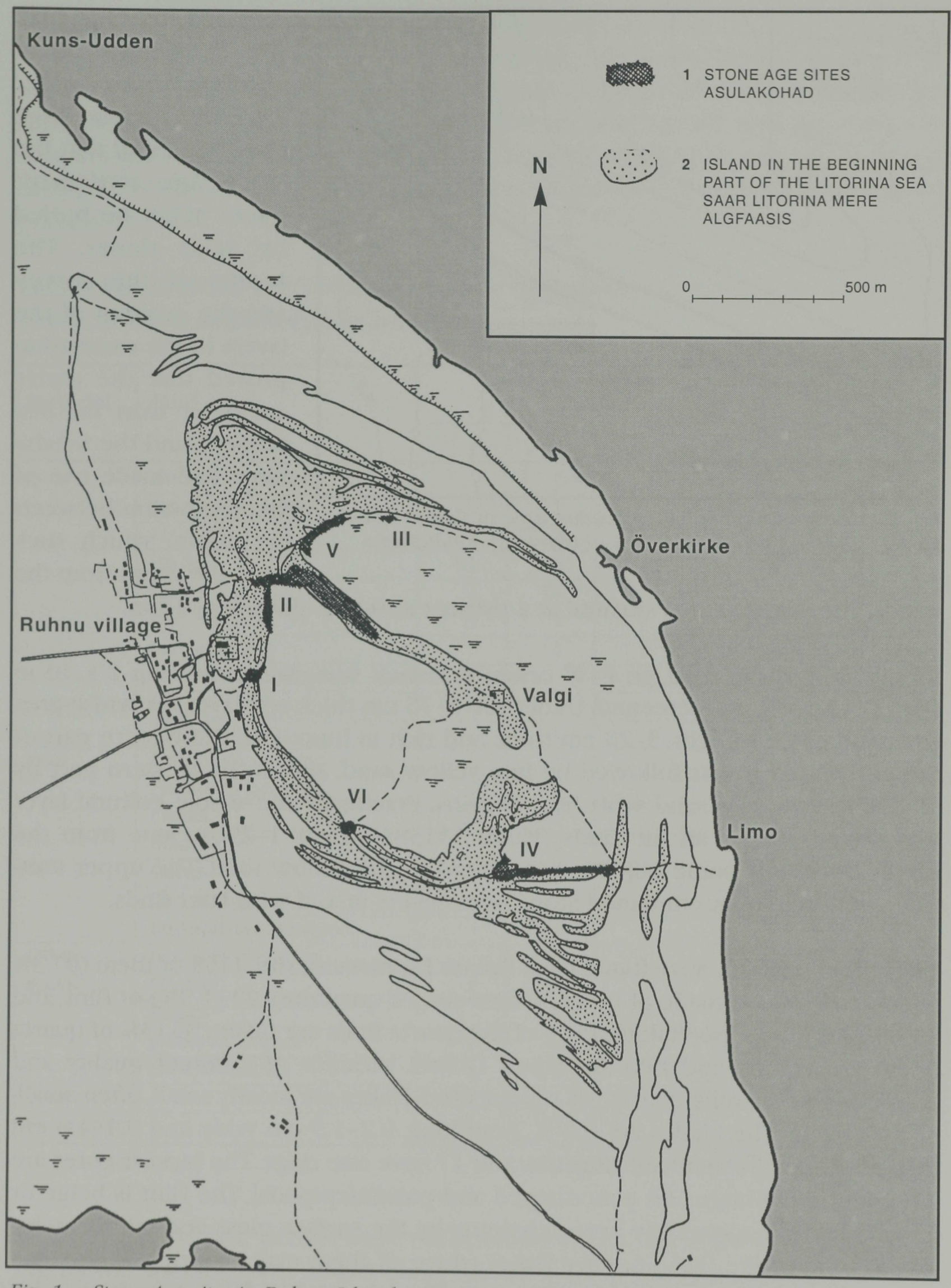

Fig. 1. Stone Age sites in Ruhnu Island.

Joon.1. Kiviaja asulakohad Ruhnu saarel.

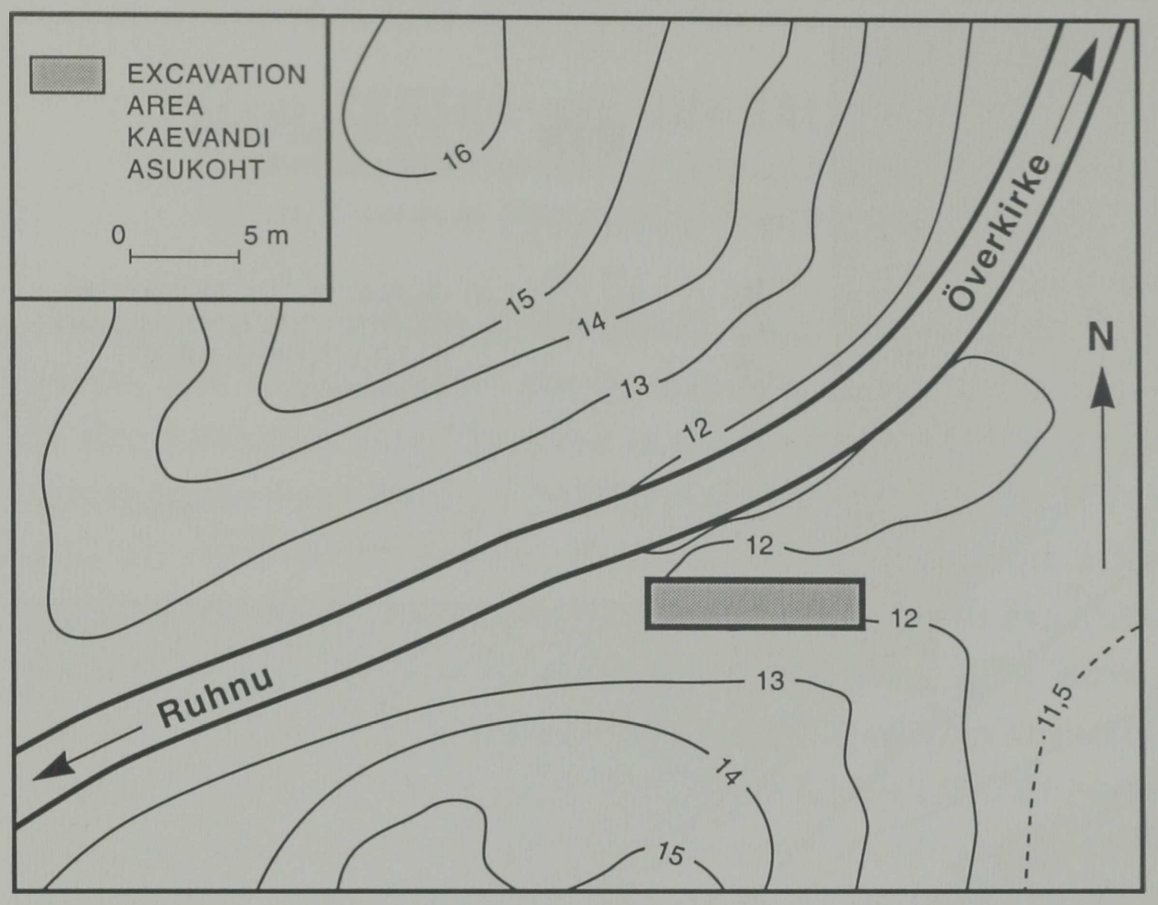

Fig. 2. Location plan of the excavation area in Ruhnu I site.
Joon.2. Ruhnu I asulakohta rajatud kaevandi asendiplaan.

damaged by the road (Fig. 1). Such a location, different from other Estonian Stone Age sites, suggested that the Stone Age settlement traces might be buried by sand dunes. The results of the survey and the position of the layers in the excavation proved that the dunes are older than the settlement, and the inhabitants had made use of the depression between the dunes, which sheltered the camp from the winds. The settlement is situated at a present absolute altitude of 12 m.

By the side of the road, an E–W oriented trench was dug, measuring 2 x 10 m (Fig. 2). The soil was screened. Under the 5–15 cm thick sod layer, brownish-grey fine sand came to light, 5–20 cm thick and rich in humus. In the eastern part of the excavation it was followed by fine yellow sand, and in the western part by whitish-yellow fine sand with brown veins. Practically the whole cultural layer was mixed. Nearly all the finds (PäMu 15138/A 2540: 1–296) came from the upper layer, only some objects were found in the yellow sand. The upper sand layer, rich in humus, contained Stone Age objects mixed with later finds.

1185 lithic artefacts were found from Ruhnu I settlement site, 1153 of them (97.3% of stone finds) are made of quartz (some also of quartzite), 22 (1.9%) of flint, and 10 of other rocks (see Table). 1103 of the quartz finds are flakes, 35 (3% of quartz finds) are blades, and two are cores. Quartz varieties of different quality and colour, including milk quartz, are represented. Flakes are mostly small, often smaller than 1 cm. The blades are 0.8–4.2 cm long, 0.2–1.9 cm wide and 0.1–1.0 cm thick. Eighteen of them are ridgeless and 17 have one ridge. The bipolar cores are 2.6 and 2.9 cm high, and cone-shaped and parallelepipedal. The flint is beige or grey, some of it apparently heated judging by the surface gloss and microcracks. Twenty-one of the flint finds are flakes (three of them may be strike-a-lights dating from historic times), and one is a core. The latter is bipolar, 3.2 cm high, with

an irregular shape. Eleven (0.9%) of the stone finds, all of quartz, were secondarily processed. Nine of them are scrapers and two are burins. The scrapers are triangular (2), oval (2), trapezoidal (2), polygonal (1), segmental (1) or rectangular (1), 1.9–3.7 cm long and 1.1–2.6 cm wide. Five of them are side scrapers, three end scrapers and one side-and-end scraper. The edges are straight (6), convex (2) or concave (1). The burins are both triangular dihedral burins, 2.6 cm long, produced by percussion.

Table. Finds from the settlement sites of Ruhnu
Tabel. Ruhnu asulakohtade leiuaines

Material	Find type	Ruhnu settlements					
		I	II	III	IV	V	VI
Quartz	Unbroken pebbles	-	7	-	-	-	-
	Fractured pebbles	-	17	-	-	-	-
	Flakes	1105	2758	15	94	23	20
	Blades	35	216	-	-	-	-
	Cores	2	14	-	-	-	1
	End scrapers	3	5	-	3	-	-
	Side scrapers	5	3	-	-	-	-
	End-and-side scrapers	1	-	-	-	-	-
	Dihedral burins	2	2	-	-	-	-
	Angle burins	-	1	-	-	-	-
Flint	Unbroken pebbles	-	1	-	-	-	-
	Fractured pebbles	-	7	-	-	-	-
	Flakes	21	192	-	21	-	-
	Blades	-	8	-	-	-	-
	Cores	1	1	-	-	-	-
	End scrapers	-	1	-	1	-	-
	End-and-side scrapers	-	1	-	-	-	-
Other rocks	Fractured pebbles	-	5	-	-	-	-
	Flakes	2	22*	-	4	-	-
	Blades	-	1	-	-	-	-
	Polishing stones	1	8	-	-	-	-
	Hammerstones	-	1	-	-	-	-
Pottery		-	1	-	24	-	-
Bone finds		15	47	-	-	-	-

* Two of the flakes are of Baltic red quartz-porphyry

Finds of the historic period were represented by numerous nails (which, deciding by the specific bent shape, come from a boat or a ship), a button, a bronze hook, a couple of bullets, and bronze, lead and slag fragments.

Excavations of the site Ruhnu II

The Ruhnu II settlement site (discovered in 1998) begins about 100 m north of Ruhnu I (Fig. 1). The field work of 1999 established the size of the settlement and the nature of the cultural layer, and small-scale trial excavations were carried out. Prospecting and the finds gathered from forest paths indicated a very wide cultural layer. Along the path from Ruhnu village to Valgi, finds were gathered from a 500 m section, and also about 150 m south, along the Överkirke road. The cultural layer seemed most intensive at the island end of a spit dividing the one-time lagoon, at the crossroads of Valgi and Överkirke roads, where the excavations were carried out. For the excavation, a coaly area containing stone rubble was selected. A trial pit was dug in an E–W direction, measuring 2 x 4 m (Fig. 3). Five fire-places were partly excavated. They are all sunk into the ground and filled with stone. The granite stones, mostly measuring up to 10 cm, were, severely cracked by fire.

From the Ruhnu II settlement site, 3271 stone artefacts, 47 bone finds, a potsherd, an iron nail and a couple of slag fragments were found during the inventories and excavations (PäMu 15137/A 2541: 1–411). 3023 (92.4%) of the lithic artefacts are made of quartz and a few of quartzite, 211 (6.5%) are of flint, and 37 (1.1%) of other rocks. Several varieties of quartz, including milk quartz and rock crystal, are represented. The flint is grey or beige. The quartz finds include seven unbroken and 17 fractured pebbles, 2758 flakes, 216 blades (7.1% of quartz finds) and 14 cores. 134 of the blades are ridgeless, and 82 have a single ridge. The blades are 0.7–7.0 cm long, 0.2–3.4 cm wide and 0.1–1.6 cm thick. The cores are 2.4–6.8 cm high, oval (7), parallelepipedal (5), round (1) or irregular (1). Use of bipolar technique can be observed on ten cores. The flint finds include one unbroken and seven fractured pebbles, 192 flakes, eight blades (3.8% of flint finds) and one core. Five of the flint flakes are of foreign origin and probably belong to the historic period. Half of the blades are ridgeless while others have a single ridge. The blades are 1.2–3.0 cm long, 0.4–1.5 cm wide and 0.1–0.7 cm thick. The bipolar flint core is 3.8 cm long, of irregular shape.

Thirteen of the lithic artefacts (0.4% of stone finds) are secondarily processed, 10 of them (76.92%) are scrapers and three are burins. The latter are all made of quartz. They are 3.4–4.4 cm long, 2.2–4.2 cm wide and 1.2–1.8 cm thick. The burins are trapezoidal, triangular or irregular; two of them are dihedral burins, one is an angle burin, and they were all made by percussion. Eight of the scrapers are also made of quartz. They are 1.95–4.4 cm long, 1.8–3.4 cm wide and 0.4–1.1 cm thick. Five of them are end scrapers and three are side scrapers. The edges are

mostly straight but in one case it is concave. The quartz scrapers are trapezoidal (4), rectangular (2) or polygonal (2). The two flint scrapers are 2.2 and 2.5 cm long, 1.6 and 2 cm wide, and 0.6 and 0.9 cm thick. They both have irregular shape, one of them has a straight edge at the end, the other has a convex edge at the end and a straight edge at the side.

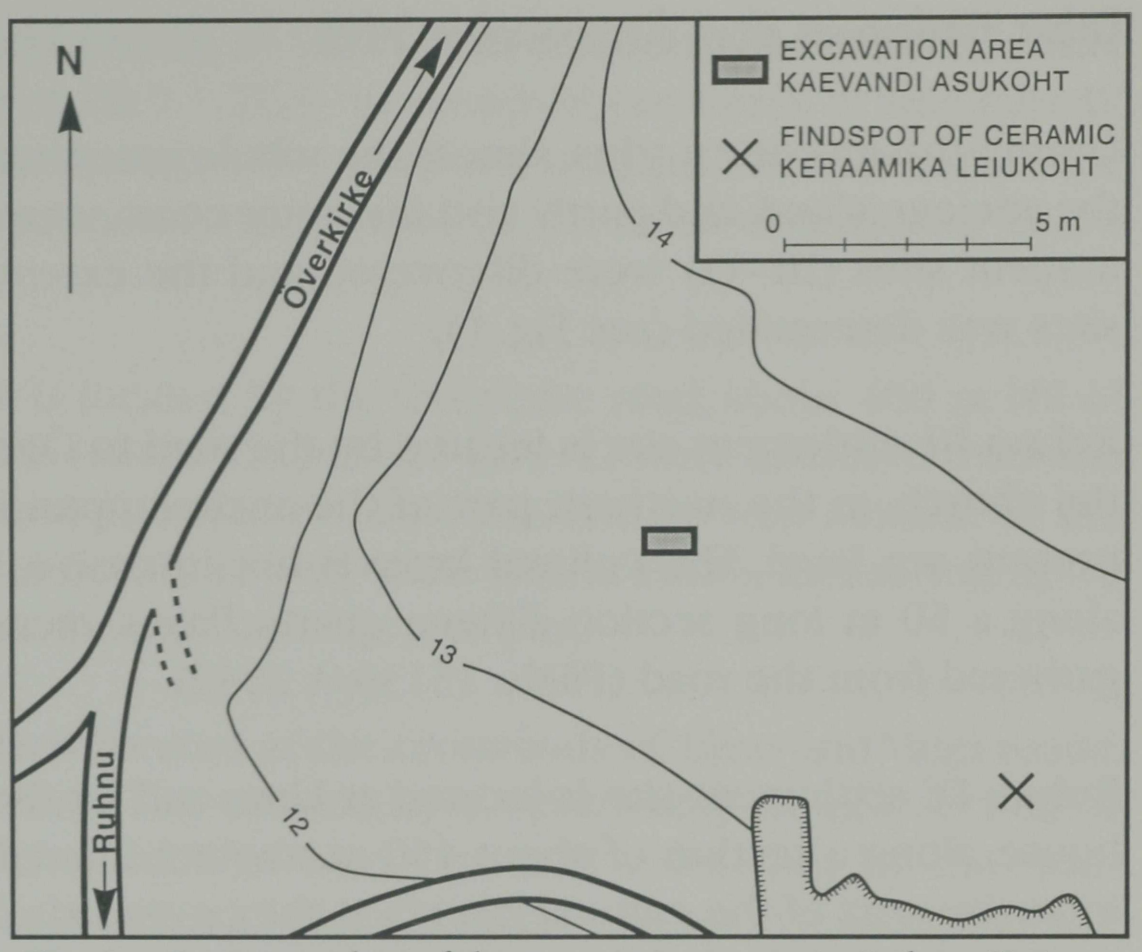

Fig. 3. Location plan of the excavation area in Ruhnu II site.
Joon. 3. Ruhnu II asulakoha kaevandi asendiplaan.

The finds of other rocks are mostly flakes (22), two of which are of Baltic red quartz-porphyry. The material contains five fractured pebbles, a single-ridged blade (4.6 x 1.5 x 0.5 cm), eight fragments of polishing stones, and one pebble with heavily damaged structures on the ends, which can be interpreted as a hammerstone for knapping.

During the inventory trip a potsherd (PäMu 15137/A 2541: 2) was found in a trial pit. The fragment comes from a large vessel with a tapering rim. Stone rubble was used for temper, and on the edge of the fragment a narrow band of U-type can be observed. Both surfaces are smoothed and unornamented. The wall is up to 12 mm thick. Most likely the potsherd belongs to the Narva type.

Several charcoal samples were gathered from the fire-places, which were dated 6400±170 (Le-5629), 6150±60 (Le-5627), 5400±150 (Le-5628) and 5400±100 (Ta-2716) C^{14} radiocarbon years. With a 95.4% probability these correspond to 5700–4850, 5290–4850, 4550–3800 and 4450–3980 cal BC, respectively (the bases of calibrating is CAL40.DTA OxCal v2. 18 cub r:4 sd:12 prob[chron]). The C^{14} dates indicate a multicomponent-site, with the oldest fire-places dating from the Late Mesolithic and the youngest from the Early Neolithic.

Other settlement sites discovered in 1999

During the inventory trips, almost the whole inner coastline of the horseshoe of the ancient island, and partly also the outer coast, were prospected. Four new settlement sites (III–VI) were discovered and the extent of the previously known sites was determined (see Fig. 1).

Ruhnu III settlement site is located by the road to Överkirke, about 700 m NE of the church, in the northern part of the ancient coast and about 12 m above the present sea level. The cultural layer is not intensive, with finds occurring only along a 50 m long section. Fifteen quartz flakes, measuring up to 2.3 cm, were gathered from the road (PäMu 15139/A 2542).

Ruhnu IV settlement site is located at Limo and by the road leading to the lighthouse, along a section of about 450 m, about 1.2 km SE of the church. The most intensive part of the cultural layer is at the crossroads of the lane to Limo and the road leading to the lighthouse. Elsewhere the layer is relatively thin and contains few finds (PäMu 15140/A 2543: 1–4). All the potsherds were found near the crossroads. The habitation had been concentrated on the coast ridge on the lagoon side of the ancient island. Its present altitude is 11–12 m (a.s.l.), deciding by the map. 123 stone finds came to light from the settlement site, 97 (78.9%) of them were of quartz and 22 (17.9%) were of flint. The finds were mostly large flakes, measuring up to 7.0 cm, but four objects, scrapers, were secondarily processed. Three of them are of quartz and one is of flint. The quartz specimens are straight-edged end scrapers, rectangular, trapezoidal and irregular by shape, and 2.1, 2.6 and 5.3 cm long. The flint scraper is a triangular straight-edged end scraper, 1.5 cm long. Twenty-four potsherds were also found. In all of them, stone rubble had been used as temper. The vessels were made of narrow clay coils, with U-shaped connecting surfaces. The connecting surfaces could be determined on 10 fragments, and in four cases it was also possible to measure their width. One of the bands was 1.3, two were 1.2 and one was 0.8 cm wide. The walls of the vessels were 8–12 mm thick, most of the fragments with both surfaces preserved were 11 mm thick. The surfaces were only smoothed, completely devoid of decoration. The potsherds strongly resemble the West Estonian islands' group of Narva pottery, characterized by narrow U-bands, mineral temper, the predominance of smoothed surfaces over striated ones, and scarcity of decoration (e.g. Kriiska 1995, 412). Previously, such pottery has been found from Kõnnu (Saaremaa) and Kõpu I (Hiiumaa) settlement sites (Kriiska 1997b, 17). A small number of potsherds among the finds from the settlement sites can also be regarded as a common feature. While at the coastal settlements the ratio of stone objects to pot-

sherds was 83.2 : 16.8, respectively, in Vihasoo III settlement of Narva Culture (Kriiska 1997a, 22), and even 22.7 : 77.3 in favour of potsherds in Riigiküla IV settlement (Kriiska 1996a), the respective numbers in Kõpu I settlement (in the find material of the excavations of 1994) were 89.7% stone objects and 10.3% potsherds (Kriiska 1995).

Ruhnu V settlement site is located by the Överkirke road, about 400 m NE of the church. Most of the finds (PäMu 15134/A 2544: 1–2) were gathered from the road, but a few from the trial pits (Tamm 1999, 20). The present altitude of the site, by the map, is 11–13 m (a.s.l.). Twenty-three quartz flakes, measuring up to 3.9 cm, were gathered from the road and the trial pits.

Ruhnu VI settlement site is located at the crossroads of Limo and Valgi roads, about 750 m SSE of the church. The cultural layer occurs only along a section of about 50 m, at the present altitude of 11–13 m (a.s.l.), deciding by the map. Twenty quartz flakes (PäMu 15135/A 2545: 1–2), measuring up to 4.6 cm, and one parallelepipedal quartz core, 4.8 cm long, were gathered from the road and the trial pits.

We also tried to discover later archaeological sites, including the traces of the chapel on the eastern coast of the island, which has been marked on the maps of the period of Swedish rule. The search resulted in single finds, no compact cultural layer was discovered. From Ruhnu village, archaeologist Andres Tvauri found a fragment of a kaolin pipe of modern times, a polished stone slab and a small stone netsinker. The latter is of a quite primitive type, with cord notches made on two sides of a stone slab. A couple of foreign flint flakes, one of them from Skaldebacken, were also found, evidently dating from historic times.

DISCUSSION

The island of Ruhnu was formed on a bedrock ridge, 20 km long, 10 km wide and 50 m high. Formerly Ruhnu was considered a relatively young island and its rise above water level was dated to about 4000 years BP (Puustusmaa 1971). The present opinion is different, presuming the formation of land here already in the final stage of the Baltic Ice Lake, when the connection between the lake and the ocean appeared at Central Sweden and the level of water subsided nearly 25 m in the Baltic basin. The latest estimations date the overflow at Billingen to about 11550 cal years ago (Andrén et al. 1999, 369). During the early phase of the Litorina Sea only a horseshoe-shaped ancient island of about a couple of sq. km, surrounding

a low cove, was formed in the eastern part of the present-day Ruhnu. In the SW part of the cove was a small lagoon, shielded at first by an oblong islet and later by a spit. At a minimum altitude of 12 m (a.s.l.), there are numerous coast ridges and dunes. Below that the landscape is considerably less jointed. This indicates that the areas of a low lagoon have emerged into the mainland in too short a period to form the coast ridges.

Deciding by the location of the traces of ancient settlements, clearly following the coastline of that period, settlement appeared on the above-mentioned small island. The discovered stone artefacts are analogous to the Late Mesolithic and Early Neolithic finds from Saaremaa, Hiiumaa and Coastal Estonia. The absence of potsherds at most of the sites, and the oldest radiocarbon analyses date the beginning of human settlement to the end of the Mesolithic.

In that period the mode of subsistence of the peoples around the Baltic became more maritime. In coastal areas, seal hunting gained importance. On seal-hunting trips, starting from the mainland, several islands were discovered. There, temporary hunting camps were established and soon permanent all-the-year-round settlements emerged on bigger islands (Kriiska 1996b). In present-day Estonia such an island is Saaremaa. Most likely Ruhnu was also discovered by seal hunters and first used for hunting camps. People lived there on flat and wind sheltered sites on the seashore. The island offered the possibility to procure firewood and leave some hunting equipment behind for subsequent trips.

As previously stated, six Stone Age settlement sites are hitherto known from Ruhnu. Naturally, this is only the number of cultural layers in the present-day landscape. Really it implies hundreds if not thousands of remains of small seasonal hunting camps and habitation sites. Most likely, only a small group of people lived on the island, but the dwelling places were shifted from time to time because of the shortage of firewood in the immediate area, or the regression of the waterfront, etc.

The potsherds found from Ruhnu IV settlement site help to cast light on the origin of the early settlers. This settlement, or at least a part of it, belongs to the Early Neolithic Narva Culture. The potsherds found from Ruhnu belong to the group of Narva pottery, hitherto known only from the islands of West Estonia: from Saaremaa Kõnnu settlement and Hiiumaa Kõpu I settlement (Kriiska 1997b, 17). Most likely, the base of the settlement of this place was Saaremaa. What was the reason for the inhabitants of Saaremaa to undertake such long seal hunting trips? On the basis of the available material it is not yet possible to determine whether

the growth of the population had caused the disappearance or drastic decrease of the local seal population, or was there any other reason. In any case, the finds from Ruhnu prove that the Stone Age seal hunters covered very long distances across the sea. Ruhnu lies at a distance of more than 50 km from Saaremaa.

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ARHEOLOOGILISED VÄLITÖÖD RUHNU SAAREL

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Ülikooli arheoloogiapraktika Ruhnu saarel. Kaevati kahte kiviaja asulakohta ja tehti põhjalik maastikuinspektsioon (joon. 1). **Ruhnu I asulakohale**, mis asub u. 150 m Ruhnu kirikust kagus, rajati 20 m² suurune kaevand. Asula kultuurkiht paikneb seal u. 100 m pikkusel alal luidetevahelises nõos ja on suures osas rikutud kohta läbiva teega (joon. 1 ja 2). Segatud kultuurkiht sisaldas kiviajast pärit esemeid läbisegi hilisemate leidudega. Ühtekokku saadi 1185 kivieset, millest 1153 on kvartsist (mõni ka kvartsiidist), 22 beežist või hallist tulekivist ja 10 teistest kivimitest (vt. tabel). Kvartsleidudest on 1103 killud, 35 laastud ja 2 bipolaarsed nukleused. Tulekivileidudest on üks ebakorrapärase kujuga bipolaarne nukleus ja 21 killud, millest kolme puhul ei saa välistada võimalus, et tegemist on ajaloolise aja tulelöömiseks kasutatud kividega. Teisese töötlusega esemeid saadi 11 (9 kõõvitsat ning 2 uuritsat) ja need on kvartsist. **Ruhnu II asulakoht** algab I asulast sadakond meetrit põhjasihis. Erinevalt esimesest, on selle asula kultuurkiht oluliselt laiema levikuga (joon. 1). Kultuurkiht on intensiivsem kunagist siselahte poolitava maasääre saarepoolses otsas Valgi ja Överkirke teede ristmiku lähedal, kus toimusid ka arheoloogilised kaevamised (joon. 3). 8 m² suuruses kaevandis puhastati osaliselt välja viis tuleaset. Kõik kolded olid tiheda, tules porsunud või murenenud kivistikuga ja maapinda süvendatud põhjaga. Leidudena saadi kokku 3271 kivieset, üks savinõukild, raudnael, paar šlakitükki ja 47 loomaluud või selle tükki (vt. tabel). Savinõukild esindab narva tüüpi keraamikat. Kiviesemetest on 3023 tehtud kvartsist ja üksikud kvartsiidist, 211 tulekivist ning 37 teistest kivimitest. Kvartsileidudest on 7 purustamata ja 17 purustatud kamakat, 2758 kildu, 216 laastu ning 14 nukleust. Kümne nukleuse juures täheldati bipolaarset kasutamist. Tulekivileidude hulgas on üks purustamata ja seitse purustatud kamakat, 192 kildu, kaheksa laastu ning üks nukleus. Otsustades tulekivikildude kvaliteedi põhjal, on neist viis võõramaist päritolu ja ei kuulu tõenäoliselt kiviaega. Teisese töötlusega esemeid on 13, millest kümme on kõõvitsad ning kolm uuritsad. Teistest kivimitest leiud on enamasti killud, neist kaks on valmistatud Läänemere punasest kvartsporfüürist. Leiumaterjali hulgas on veel 5 purustatud kivikamakat, üheharjaline kivilaast, 8 lihvimiskivi fragmenti ning üks otstelt tugevate struktuuririketega kamakas, mida võib pidada kiviesemete valmistamisel kasutatud löögikiviks. Koldeasemetelt kogutud söeproovid võimaldasid eristada kahte asustusperioodi. Vanimad kalibreeritud vanusemäärangud, mis jäävad ajavahemikku 5275–5070 eKr, kuuluvad ilmselt hilismesoliitikumi. Samal kohal on elatud ka varaneoliitikumi lõpus, ajavahemikus 4215–4175 eKr (kalibreeringute aluseks on arvutiprogramm CAL40 DTA OxCal v2. 18 cub r. 4 sd: 12 prob [chron]). Inspektsioonidel leiti neli uut asulakohta ja määrati kindlaks 1997–1998 avastatud muististe ulatus. Praeguseks teadaolevad Ruhnu kiviajast pärinevad asulakohad paiknevad 11–13 m kõrgusel tänapäevasest merepinnast ja kuuluvad tõenäoliselt mesoliitikumi lõppu. Vaid Ruhnu IV asulakohalt leitud narva tüüpi keraamika osutab koha varaneoliitilisele asustusele. Ruhnu keraamika savikoostise lisand ja pinnatöötlus on lähedane Saaremaa Kõnnu ja Hiiumaa Kõpu I asulate narva tüüpi keraamikale. See võimaldab pidada Ruhnu asustuse lähtealaks Saaremaad. Tõenäoliselt on tuhandete aastate jooksul peatunud saarel hooajaliselt korraga vaid väike rühm hülgekütte, kes vahetasid laagri asukohta vastavalt meretaseme muutumisele.