

## The architecture of Early and Middle Neolithic settlements of the Starčevo culture in Northern Croatia

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**ABSTRACT** – *In southeastern Europe, in the region of northern Croatia (between the Drava, Sava, and Danube Rivers), which geographically belongs to southern Pannonia, the first Neolithic settlements developed during the early and middle Neolithic, ca. 6000–4800 BC. Numerous archaeological excavations in the last 25 years have enabled an overview of the development of Starčevo Culture settlements (the earliest Neolithic culture in this region), from the first phases to the end of its development.*

**IZVLEČEK** – *V jugovzhodni Evropi na severnem Hrvaškem (med Dravo, Savo in Donavo), ki geografsko pripada južni Panoniji, so prve neolitske naselbine nastale v zgodnjem in srednjem neolitiku okoli 6000 do 4800 BC. Številna arheološka izkopavanja v zadnjih 25-ih letih nam omogočajo pregled razvoja naselbin kulture Starčevo (najzgodnejša neolitska kultura v regiji) od prvih faz do konca njenega razvoja.*

**KEY WORDS** – *southeastern Europe; southern Pannonia; Croatia; early and middle Neolithic; Starčevo Culture; settlements; architecture*

### INTRODUCTION

The first agricultural and pottery-using cultures developed during the early and middle Neolithic in the southeastern European region as parts of the common Starčevo Cultural complex, basically related in terms of material and spiritual culture, but nonetheless different in the cultural and territorial senses. The Starčevo Culture received its name from the village of Starčevo, on the left bank of the Danube, near Pančevo in Vojvodina (Yugoslavia), where the first major excavations were undertaken in 1931/1932. Settlements of the Starčevo Culture have been discovered in southern Hungary, northern Croatia, Vojvodina, Serbia proper, Kosovo, eastern Bosnia and northern Macedonia. The Starčevo cultural complex also includes the Körös Culture in eastern Hungary, the Cris Culture in Romania, the Čavdar-Kremikovci-Karanovo Culture in Bulgaria, and Anzabegovo-Vršnik in Macedonia. It extends throughout the early and middle Neolithic during the early Stone Age (Fig. 1).

In terms of its geographical position, Croatia is culturally oriented and attached to various regions. This was reflected as a major advantage in the luxuriant development of prehistoric cultures and their connections to the surrounding European regions. The region of northern Croatia was permanently integrated into the life and culture of the Pannonian plain and the southeastern Alpine region. Its northern and eastern part, Slavonia, Sylvania, and Baranja, is an area through which influences were spread from southeastern Europe and further from the region of Asia Minor, but also from the east, from the Trans-Caucasus and the Russian-Ukrainian steppe. Along with all these varied cultural connections, each of the cited Croatian regions was to retain its own autochthonous line of cultural development, ideas, and artistic expression.

To the present, 66 sites of the Starčevo Culture, belonging to the early and middle Neolithic, have been

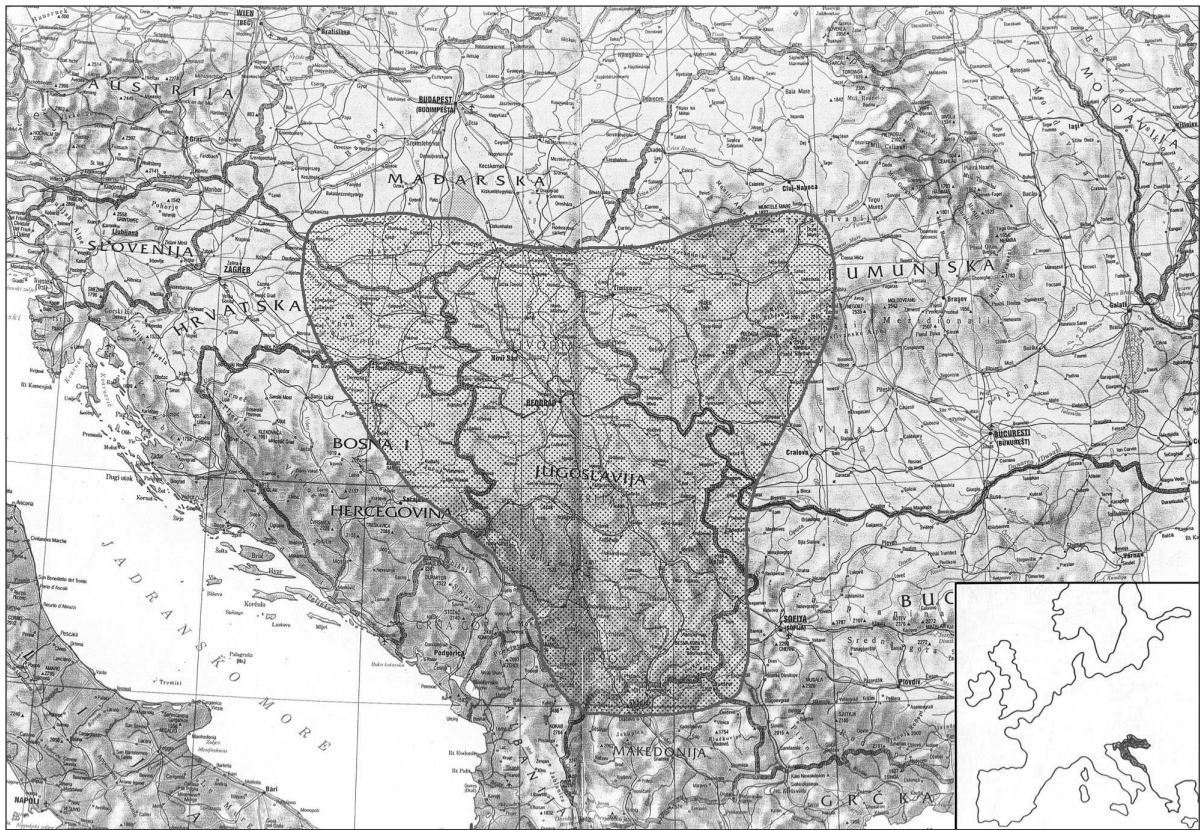


Fig. 1. Distribution map of Starčevo Culture in Southeast Europe.

documented in northern Croatia (Minichreiter 1997), and they are dated from the Linear A phase to the end of Spiraloid B (Fig. 2).

### THE CHRONOLOGICAL DIVISION OF THE STARČEVO CULTURE

The problems of a unified chronological system for the Starčevo Culture have still not been solved. The broad distribution and, primarily, single layered settlements, mean that 4 chronological systems are currently in use (Milojčić Garašanin, Dimitrijević, and Srejović), each of which can be applied to a certain geographical region. Of the above authors, S. Dimitrijević was most involved with the Starčevo Culture and its relations to neighboring cultures (Dimitrijević 1969; 1974; 1979), and he divided it (according to the stylistic traits of finds in southern Pannonia) into 7 phases: monochrome, Linear A, Linear B, Garlandoid, Spiraloid A, Spiraloid B, and a final phase.

Through a comparison of these four chronological systems, a division of the Starčevo Culture can be coordinated in the following manner (Fig. 3): the beginning developmental phases were named by the authors as Starčevo I (Milojčić 1950.109–111), Star-

čevo I and IIa (Arandelović-Garašanin 1954.131–141), the Monochrome and Linear A phases (Dimitrijević 1970.237–252), and Proto-Starčevo I and II (Srejović 1969.173–178).

The two beginning developmental phases were designated by S. Dimitrijević as the pre-classic Starčevo Culture, which differs from the classic developmental stages in that the vessels lack decoration with channeled barbotine. The decoration of coarse ware with channeled barbotine begins only in the following Linear B phase, denoting the beginning of the classic Starčevo Culture and the period of the middle Neolithic (Dimitrijević 1979.242–243). The characteristics of the Linear A phase of the early Neolithic have been confirmed entirely by the numerous examples of pottery discovered in 1989–1990 in the rescue excavations of the Starčevo settlement at Zadbavrlje (Minichreiter 1992.29, 37, 41–43), and the systematic excavations of the Starčevo settlement with a ritual-burial area at Slavonski Brod (Minichreiter 1998; 1999; 2000), which do not contain a single example of decoration with channeled barbotine. The painted motifs are linear, and the vessel shapes rounded, with no bi-conical forms. The classic developmental phase of the Starčevo Culture begins in the period of the middle Neolithic (the Linear

B according to S. Dimitrijević, with the widespread use of barbotine decoration on pottery vessels, which remains to the end of this culture, to the end of the Spiraloid B phase. The classic Starčevo Culture, in addition to linear painting, also contains painting of garlands (the Garlandoid phase), and in the final stages of Spiraloid A and B, spiral decorations also appear on the painted pottery.

Archaeological excavation in northern Croatia after 1985 has confirmed the chronological system of S. Dimitrijević for this region. Settlements of the Linear A stage were discovered at Zadubravlje and Slavonski Brod (Fig. 2), and 20 years earlier S. Dimitrijević had only hypothetically suggested the existence of a Linear A phase within his chronological division. A supplement and minor correction to the chronological system of S. Minichreiter was published in 1985, after the excavations at Pelana, whose archaeological material was placed by K. Minichreiter into a newly defined Linear C phase (Minichreiter 1990; 1992). Additionally, we consider that the other sites in western Slavonia (Stara Rača, Cernička Šagovina, and Ždralovi) can be placed in the Linear C stage, and not the final phase of the Starčevo Culture as defined by S. Dimitrijević.

### THE TOPOGRAPHICAL CHARACTERISTICS OF THE SETTLEMENTS – THE EARLIEST WATER-BASED ROUTES OF THE NEOLITHIC

The topographical traits of the 66 documented settlements of the Starčevo Culture in northern Croatia indicate certain regularities in the choice of sites for settlements (Minichreiter 1997). The main conditions were the possibilities for sustenance: the cultivation of land, hunting areas, gathering fruits and nuts, and stock raising. Other fundamental conditions for life, because of which all Starčevo settlements were built along major or minor bodies of water, were drinkable water, irrigation, fishing, a large choice of river stones for making stone tools, and the possibility of trade connections along navigable routes. As a rule, one of three possibilities depending on terrain was chosen during the construction of a settlement along a water course:

- the high terraces along the banks of the Sava, Dra, and Danube Rivers;
- low, sunny hills that gradually descend into small river valleys (for example, western Slavonia: a series of 5 settlements were discovered along with Pelana in the Breznica River valley);

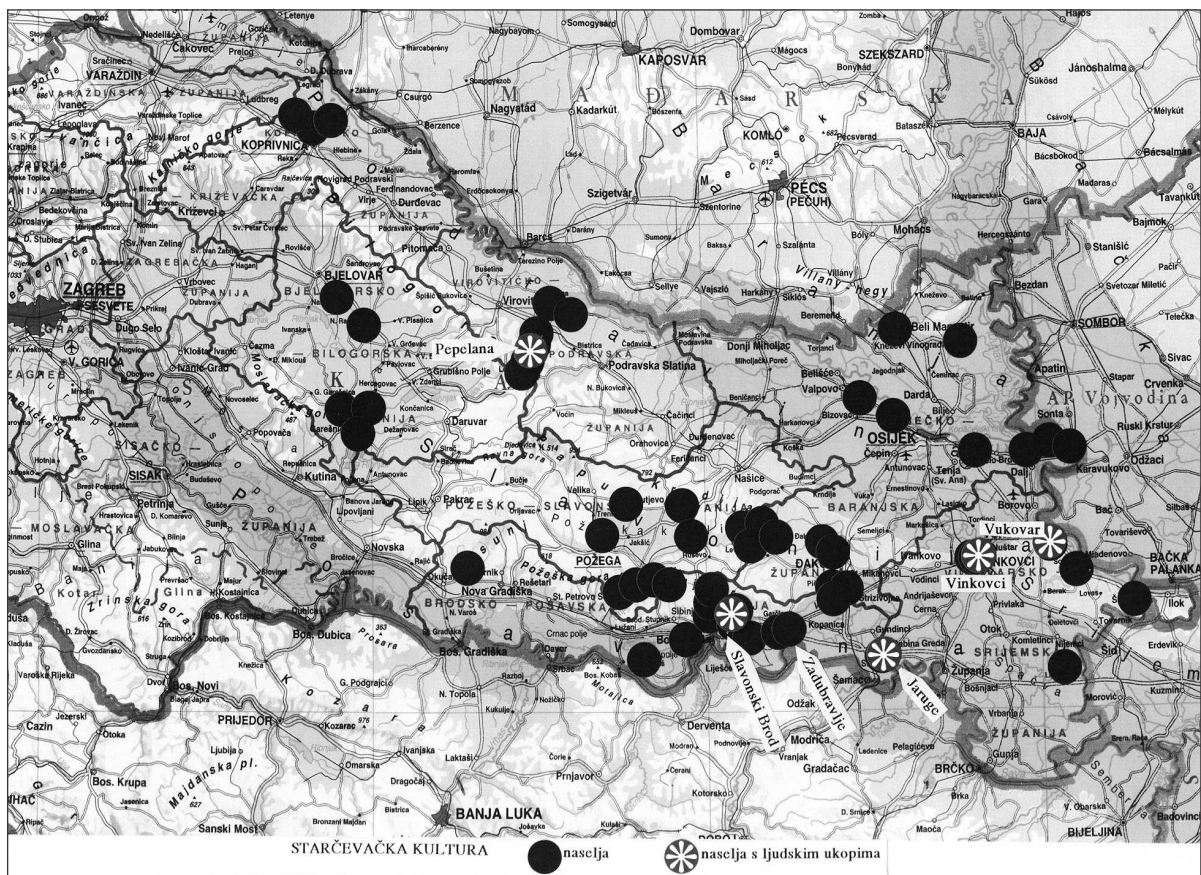


Fig. 2. Map of Starčevo sites in Northern Croatia.

- gently raised, well-drained land; a crest or extension of a hill into a plain along former water courses.

The Starčevo settlements were never isolated and far from one another (a distance of 3–5 km), but were grouped in a row, in broad stream or river valleys, along water routes. More than half of the documented settlements were discovered in the past 10 years, and only now can they be mapped so as to enable the tracing of the earliest natural routes in northern Croatia. The wide rivers of the Danube, Sava, and Drava, characterized by their slow passage through plains, connected northern Croatia with the other Pannonian regions of this part of Europe. Their tributaries are equally important, which as the only possible natural routes, enabled the Neolithic population to penetrate deeply into the interior of the Slavonian highlands. The waters had a much greater volume of water during the Neolithic, and were navigable, while today, these are small rivers, streams, or even dry beds. The find of two canoes dated to the Neolithic (each made from a single piece of wood) in the BidRiver, into which the Brezna Stream flows (running by the settlement at Zadubravlje), confirms the use of water courses for communication by the Neolithic inhabitants (*Minichreiter 1997a*).

### THE ARCHITECTURE: TYPES OF PIT STRUCTURE IN STARČEVO CULTURE SETTLEMENTS

The archaeological excavation of large surface areas of Starčevo Culture settlements at Vinkovci, Pepelana, Zadubravlje, and Slavonski Brod have enabled us to distinguish four basic types of pit structure (*Minichreiter 1992b; 1993*): small pits (working pits or storage pits), medium sized structures (working pits with hearths or kilns, pit-dwellings with one or more rooms), and large pit-dwellings (residential and ritual-burial), and deep pits (wells).

- Small structures: working pits (pit-dwellings) or storage pits; circular, ellipsoid, or kidney-shaped in section, 2–3 m in diameter, 50–70 cm in depth, served as working pits, while pits of the same form, but dug deeper, 1–1.5 m) were very probably storage pits.

At Zadubravlje, pits 19, 20, 21 (Fig. 4) were located in a workshop for producing stone tools. Pit 19 (an

Milojčić	Garašanin	Dimitrijević	Srejović	Neolithic
Starčevo I	Starčevo I	monohrom	Protostarčevo I	rani
	Starčevo IIa	Linear A	Protostarčevo II	
Starčevo II		Lin. B/Girlandoid	Starčevo I	srednji
Starčevo III	Starčevo IIb	Spiraloid A	Starčevo II	
Starčevo IV	Starčevo III	Spiraloid B	Starčevo III	

Fig. 3. *The chronological division of the Starčevo Culture.*

irregular rectangular form: 5 x 3.5 m, depth 50 cm) contained around 2000 artifacts: microliths, cores, flakes, chips, whetstones, and unfinished tools, and it is presumed that this was a workshop for the production of stone tools. Pit 20 (an irregular circular form, 2 x 2.5 m, depth 20 cm) and pit 21 (an elongated trefoil form, 3 x 1.2 m, depth 50 cm), not far from pit 19, were probably auxiliary working areas.

At Pepelana, pits 22 and 23 (Fig. 16, upper right corner) were shallow-dug into a plateau northeast of a large pit-dwelling. Given their kidney-shaped forms (2.2 x 1 m, depth 40 cm, and 1.5 x .70, depth 40 cm), they could have served as working pits. Similar pits, only somewhat later in dating, were discovered at the Sopot Culture site of Gornji Brezovljani, cited by S. Dimitrijević as working areas (*Dimitrijević 1978.81–83*, Fig. 16). Deep pits (Fig. 15) were dug into the edge sections of pit-dwellings, such as pit 10 (of ellipsoid form, 1.7 x 0.90 m, depth 1.2 m), which served as storage and refuse pits.

At the “Cibalae Banka” site in Vinkovci, a group of pits (Fig. 18) were discovered (mostly circular, 3–5 m in diameter, depth 50–70 cm), which most probably served as working areas (*Iskra-Janošić 1984. 143*).

- Medium sized structures (4–8 m in diameter with a base dug to 1 m in depth) were working pits with kilns (pottery workshops), and pit-dwellings with one or more rooms, with the rooms arranged according to purpose. The entrance in almost all pit-dwellings was over one or two steps on the eastern, sheltered side, as during the Neolithic period in these regions there were strong prevailing westerly winds (as a rule, drifts of loose prehistoric humus were found on the western side inside the pit-dwellings, indicating strong westerly winds). The edges of the pit-dwellings were formed into so-called “banks” or benches (Vinkovci), which served to support the roof structure, as seating, or for storing household items. The somewhat wider benches on the edges of the pit-dwellings could also have been used for everyday tasks, and they probably also served for sleeping.

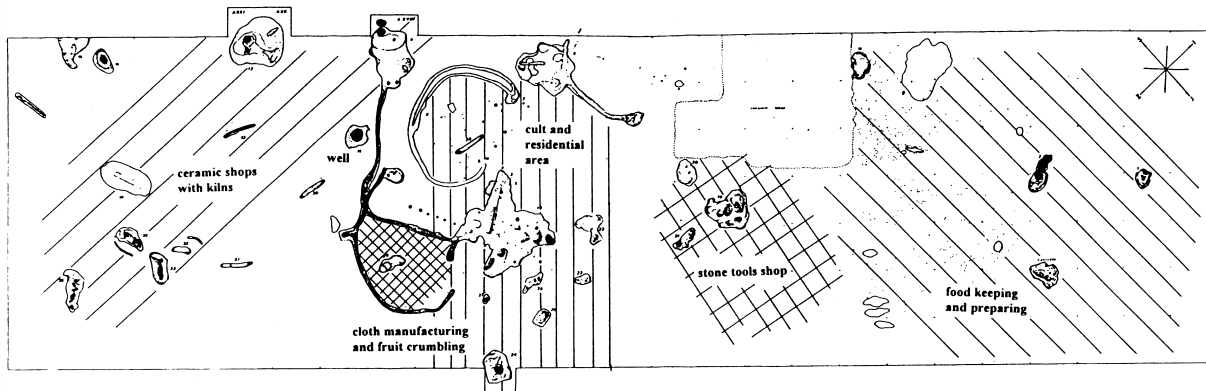


Fig. 4. Zadubravljje, plan of the Starčevo settlement.

Working pits with hearths, ovens, and kilns for various purposes (pits 9 and 12 with an oven for bread and a kiln for pottery) were discovered in the settlement at Zadubravljje (Minichreiter 1992c). In the western part of the settlement, where the pottery workshops were located, working pit 9 was built, in an ellipsoid form, 4.5 x 6.5 m, dug to a depth of ca. 60 cm from the surface of the settlement (Fig. 5). The base of the pit was almost flat over the entire area, and the sides were perpendicular except on the northeast, where there was a small entrance or access platform. A pothole from a perpendicular wooden beam (30 x 30 cm, depth 10 cm) was found in the northern part of the pit, probably serving as support for the roof structure. The pit was dug so

that it had an undivided large working area in the central and northern area, while there were two ovens for baking bread (with hemispherical domes), and two (cylindrical) kilns for firing large pottery vessels in the southern part along the edge of the pit (Minichreiter 1992c:40–41). A shallow pit (50 cm x 60 cm, depth 20 cm) was dug into the floor in the northern part of the working pit, and opposite it, outside the working pit, was an identical small pit (80 x 70 cm, depth 40 cm). These small pits were probably used during the production process, or served for setting aside clay vessels. The western part of the working pit was full of a loose prehistoric humus that had accumulated because of the prevailing westerly winds, and a deposit of greasy gray ashy soil

was found in the north-western section, probably remnants of ash from the ovens and kilns temporarily deposited here. The settlement also contained several small pits in which only ashes from the ovens and kilns were placed (Minichreiter 1992:31, 32). Charcoal samples from the southwestern part of the working pit were dated by  $^{14}\text{C}$  analysis to the period from 5720–5530 BC ( $6705 \pm 95$  BP).

To the west of working pit no. 9, another working pit (no. 12) was discovered, with kilns for firing pottery (Fig. 6). The working pit had an irregular circular shape, with dimensions of 5 x 5.5 m, with a

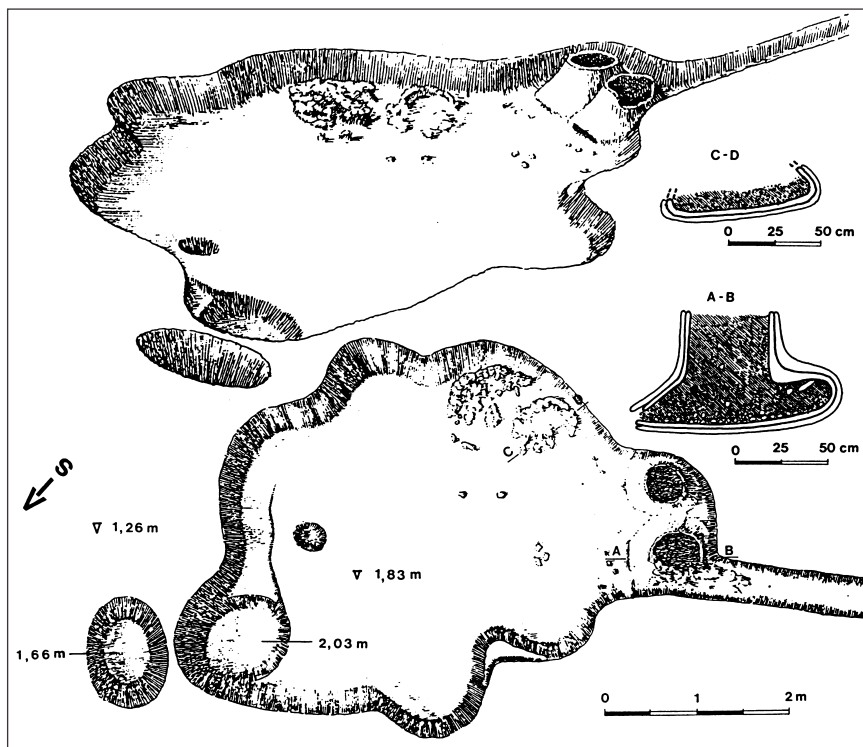
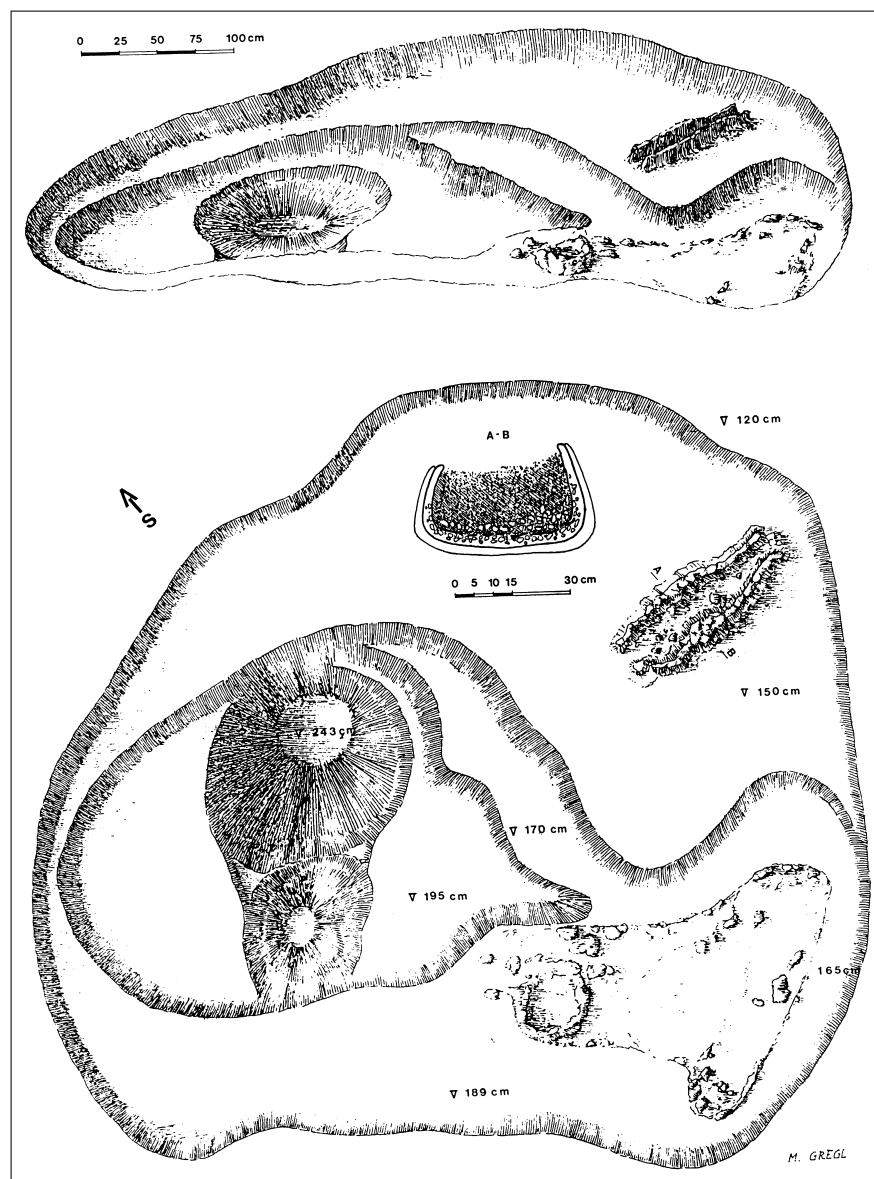


Fig. 5. Zadubravljje, working pit 9, pottery workshop with kilns, plan and perspective (drawing: Miljenko Gregl).

dug out floor on two levels: the northern part was dug 30 cm from the edge of the pit, and the southern part was 30 cm deeper, i.e. 60 cm from the edge of the pit. The entrance to the working pit was probably on the eastern side in the upper (northern) part of the pit, where on the flat floor there was a cigar-shaped kiln for firing small fine vessels and small vessels with painted decoration (*Minichreiter 1992c: 42*). The even southern surface of the working pit had a domed kiln with a horseshoe shaped foundation, which probably also served for firing clay objects. This kiln was badly damaged, and its form could not be reconstructed with certainty. The western part of the working pit contained two smaller pits (dug to a depth of 50 cm), on whose edges the potters could sit and control the vents and fuel during the firing period, and vessels could be set aside on the flat surfaces around both kilns during the production process. Charcoal samples from the southern section of the working pit were dated by  $^{14}\text{C}$  analysis to the period 5370–5040 BC ( $6260 \pm 130$  BP).

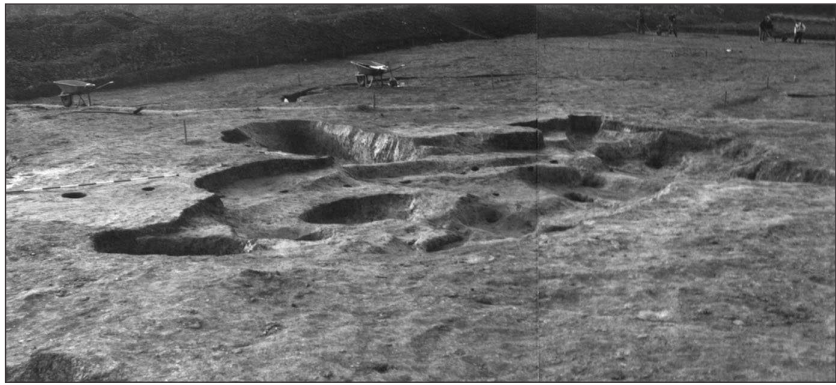
One of the most attractive examples of a dwelling structure is pit-dwelling 10 at Zadubravljje (Fig. 7). It was built in the central part of the settlement, southeast of the entrance to the central enclosed area (*Minichreiter 1992: 29–35*). It was shaped like a quatrefoil with a fourth narrower side (6 x 8 m, dug in from 0.20 to 1.00 m), and was the largest structure in the settlement in terms of dimensions. Because of its size, it had both a main and secondary entrance. The main entrance was on the eastern side, with one step and a row of perpendicular pots 3 m in length, which held up the beam over the entrance (Fig. 8). The secondary entrance was in the southwestern

part of the structure, in fact a passage from the structure into a large courtyard (11 x 8 m), which was enclosed by a wooden fence. The northern part of the fence was straight in plan, while the southern part of the fence was semicircular, with an entrance from the settlement on the southeastern side. The courtyard was used for producing fabric (a find of 37 clay weights from a vertical loom) and for crushing grain and other foods (20 fragments of stone querns). On the northwestern side of pit-dwelling 10, a row extended of 6 regularly arranged vertical wooden beams (postholes 25 cm in diameter), which were placed parallel to the northern fence of the courtyard. These wooden beams probably supported a slanted roof – an overhanging eave, the southern side of which leant on the courtyard fence. The open



**Fig. 6. Zadubravljje, working pit 12, pottery workshop with kilns, plan and perspective (drawing: Miljenko Gregl).**

side of the 'eave-arcade' looked to the north, into the central, circular fenced area. Food for animals could have been kept, or everyday tasks could have been performed under this eave. The interior of pit-dwelling 10 (Fig. 8) was divided into 4 rooms: eastern, southern, western, and northern, the eastern (the first beyond the main entrance) being the largest, measuring 6 x 4 m. Numerous pottery fragments and pieces of bone were found in this room, and cult objects were prominent (*Minichreiter 1992a.7-10*), which is logical, given its size and the possibility of gathering a large number of the inhabitants inside. A narrow pit was found between the eastern and western rooms (an identical area in pit-dwelling 6), which contained traces of densely arranged vertical posts, supported at the base with packed clay extending to a height of 45 cm. The purpose of these structures remain merely conjecture, that is, that this could have been a household shrine. Pits of identical shape in plan, empty or with animal sacrifices, were found in Neolithic settlements at Branč (*Vladar-Lichardus 1968.273-283*) and at Endröd (*Makkay 1992.131-132, Pl. 37/1,2; 39/1-4; 40/1-4*), but those at Zadubravljje are the oldest among them according to the chronological sequence. Pits of similar form have been found at Starčevo settlements in Croatia at Pepelana (*Minichreiter 1990.18*), Čeranička Šagovina (*Minichreiter 1992.12*), Vinkovci "Tržnica" (*Dimitrijević 1966.39-42*), and Kneževi Vinogradi, in Baranja (*Šimić 1989.40*), but we still lack sufficient elements for a definite evaluation of their purpose. Complete pots and the remains of animal bones were found in the western room, and a cattle horn was found buried in the floor below them. A similar example was found in the center of a large pit-dwelling with human burial at Slavonski Brod (*Minichreiter 1999.12*), and at the Obre I site in Bosnia and Herzegovina, where the bones of cattle and sheep were found under house K-1, which were suggested by A. Benac to have been the remains of animal sacrifices made during the construction of this dwelling structure (*Benac 1973.16*). An analysis of a charcoal sample using the  $^{14}\text{C}$  method has dated the southeastern part of the pit-dwelling to 5990-5740 BC ( $6995 \pm 115$  BP).



**Fig. 7. Zadubravljje, residential pit-dwelling 10, during archaeological excavations (photo: K. Minichreiter).**

poses (15 x 7 m, 12.5 x 6.5 m, and 11 x 4 m) discovered at Vinkovci, Pepelana, and Slavonski Brod. At the Starčevo settlement at Pepelana, at site IIA (*Minichreiter 1990.18*), part of a large multi-roomed pit-dwelling was excavated to a length of 25 m and a width of 10 m (Fig. 17). The pit-dwelling could not be excavated entirely (because of the limited possibilities of excavating along the gas-pipeline), so the actual dimensions could not be established. The pit-dwelling was in the shape of a cross or inverted letter "T", with a wide southern and central area, and eastern, northern and western arms. A passageway, 5 m in length and 1.5 m in width, was formed in the eastern part of the central area. The passageway connected the southern, lower part of the pit-dwelling like a ground-floor level to the northern higher section of the "first floor" (with a height difference of around 1 m because of the inclination of the land). The eastern arm of the pit-dwelling was entered from the central part of the passageway over one step, while three steps at the end of the passageway (Fig. 7) led to the northern arm, which again, via a platform in the central section, was connected to the western arm of the pit-dwelling. The exterior edge of the large pit-dwelling was straight, while the edges of the smaller rooms had a step-like form ("bench"). Refuse pits were not found in the central section and its arms, while part of pit 10 (Fig. 15) in the southern section most probably served this purpose. In the "ground floor" of the pit-dwelling, its southern area, a large hearth was uncovered, with a circular plan, 1.5m in diameter, and 30 cm thick, formed in a special niche along the eastern edge of the pit-dwelling. Very poorly preserved remains of human bones, i.e. the lower part of a leg in a contracted position, were discovered in a small niche opposite the hearth. In several places in the northern and central parts of the pit-dwelling (the "first floor"), postholes of perpendicular wooden beams were discovered which held up

- The third type of structures were large pit-dwellings used both for habitation and ritual-burial pur-

the over-ground roof structure. The western arm of the large pit-dwelling contained an elongated narrow pit (3.1 m in length, 25 cm in width, and 20 cm in depth), with no pottery finds. An identical pit was discovered west of this, but its purpose remains unknown.

An elongated pit-dwelling with several rooms (12.5 x 6.5 m) was discovered in the northern zone of excavation at the Starčevo settlement at the "NAMA" site in Vinkovci (*Dimitrijević 1979,240*).

Two large pit-dwellings (15 m in length, 7 and 5 m in width, dug to a depth of 1 m) were discovered at Slavonski Brod during excavations of the Starčevo

settlement, one of which was for habitation within the settlement, and the other with human burials in a separate and enclosed ritual-burial area (*Minichreiter 1998; 1999; 2000*). The pit-dwelling was damaged on the northeastern side by uncontrolled excavation on the part of a brickworks (by extracting soil from this land to make bricks), so it is only hypothesized that the pit-dwelling had an entrance section on the eastern side. The pit-dwelling contained rows of postholes from perpendicular wooden beams and posts that supported the roof construction (Fig. 11). The usual household belongings were found within the pit-dwelling: numerous pottery vessels, parts of querns, stone tools, and the remains of animal bones. To the south, alongside the large pit-dwelling, two small refuse pits (2 m in diameter) had been dug.

Another large pit structure, which was similar in form and dimensions to the pit-dwelling, was discovered at the same site within the separated and enclosed ritual-burial area (Fig. 12). The entrance to the large pit-dwelling was via two steps on the eastern side into the central section. Two "cigar" shaped ovens were discovered in the northern room along the outside edge, and it is hypothesized that they served only for ritual purposes (no remains of pottery vessels were found in them as at Zabubravlje, where the kilns, additionally, had fuel sources from a semi-subterranean structure). Between these two sources, in the inner part of the pit-dwelling, the remains of two human skeletons in a contracted position were discovered (one missing the skull). The central part of the pit-dwelling (the geometrical center of the structure), not far from the entrance stairs, contained a group of pottery vessels, fragments of animal bones, and stone tools, including pieces of burnt earth with a smooth



Fig. 8. Zadubravlje, residential pit-dwelling 10 with fenced courtyard, plan and perspective (drawing: Miljenko Gregl).





Fig. 9. Zadubravljje, the well during the excavations (photo: K. Minichreiter).

surface on one side, considered to have been parts of “altar tables”. Below all this, a large cattle horn (Fig. 13) was buried in a cult manner in the subsoil, for which analogies exist at Zadubravljje in pit-dwelling 10 (Minichreiter 1992b.19), and Obre in Bosnia (Benac 1973.16). The southern section of the pit-dwelling contained three groups (each group contained pottery vessels, stone tools, and animal bones), which were arranged in equally spaced intervals. Between them were buried the remains of headless human skeletons, on whose northern side were placed a miniature altar in the form of an animal with a pack on its back and a lump of ocher (Minichreiter 1998). This large pit structure did not have the usual roof construction of a pit-dwelling, as postholes were not found from vertical beams. It is hypothesized that only those sections of pit structure with buried human skeletons were covered with horizontally placed wooden logs. The northern and southern sections of the pit structure had edges shaped like a giant step (“bench”), where horizontal or slightly angled wooden logs could be rested. The central part of the pit structure could have been uncovered, as the inhabitants were probably present in this structure only under certain circumstances during special ceremonies, or while offering sacrifices in honor of the deceased who had been buried here. A charcoal sample from the northern part of the pit structure was dated by  $^{14}\text{C}$  analysis to 5810–5620 BC ( $6835 \pm 110$  BP).

● The fourth type of structure in settlements was deep pits – wells – discovered in the Starčevo settlement at Zadubravljje (Minichreiter 1992.35; 1993.

101–102; 1998a.25–31). A well was discovered in the western part of the settlement, west of the wooden fence connecting northern working pit no. 9 and southern dwelling pit no. 10, and which protected the central part of the settlement on the western side. The well in its uppermost section had a widened plateau (2.5 m in diameter), with thin posts lined up as a protective fence on the western side, which is logical, as only from this side could people or animals fall into the well. No enclosure was necessary on the eastern side, as the main central area of the settlement, fenced off in a large circle, was not far from the well. In the eastern part of the well plateau, a dug out step was found, on which a thick wooden beam was probably placed to aid in drawing water (Fig. 9). The southern side of the platform had a small access plateau, and only from this side could one stand next to the well. The well had a diameter of 1.5 m, and at a depth of 4.9 meter water appeared during investigations. The well was probably even deeper when it was in use. Several pottery fragments and stone tools were found inside, the finest find being a jug with four lugs and a high cylindrical neck, used for drawing water. Charcoal samples from the bottom of the well have been dated by  $^{14}\text{C}$  analysis to 6610–6340 BC ( $7620 \pm 140$  BP).

#### URBANISM: THE ARRANGEMENT AND PURPOSE OF PIT STRUCTURES IN STARČEVO SETTLEMENT STRUCTURES

Archaeological excavations undertaken during the last 30 years in northern Croatia have led to new

knowledge about the “urbanism” (the arrangement and purpose of pit structures) of the earliest Neolithic settlements in southern Pannonia through all the developmental phases of the Starčevo Culture.

### Zadubravljje: “The Craft Settlement” – The Linear A Phase (Fig. 10)

An early Neolithic “craft settlement” of one tribal community was discovered at Zadubravljje during 1989–1990, with an excavated surface area of 6200 m<sup>2</sup> (Minichreiter 1992; 1992b; 1992c; 1993; 1997a). Certain sections of the settlement had strictly determined purposes: an area for storing and preparing food, a workshop for producing stone tools, cult and dwelling areas, courtyards for weaving fabric and grinding grain, pottery workshops with pits for extracting clay, and kilns for firing small and large pottery vessels and clay objects (Fig. 5, 6).

In the easternmost part of the settlement, postholes were uncovered of perpendicular beams probably used to support an above ground storage area for food, with a large open hearth next to it, where food was prepared for the population of the entire settlement (hearths were not found in the pit-dwellings, making this the only hearth in the settlement). Further towards the center of the settlement was a group of working pits: workshops for the production



Fig. 10. Zadubravljje, the probable appearance of settlement of Early Starčevo Culture reconstructed on the basis of finds from Zadubravljje by K. Minichreiter (drawing: Miljenko Gregl).

of stone tools and weapons. The central area of the settlement contained two pit-dwellings (northern no. 6 and southern no. 10) with sacrificial pits, with a circular enclosed area of unknown purpose between them. It probably served as a gathering point for the population during certain rites, or perhaps was used for penning stock. The southern pit-dwelling had a semicircular, enclosed courtyard where fabric was produced (weights from a vertical loom were found along the southern fence, where the loom was probably supported), and numerous remains of stone querns indicate the grinding of grain and other foodstuffs and food preparation for the entire community. The central area of the settlement was protected on the western side from animal intrusion by a wooden fence, which also connected

the northwestern working pit with the kilns and ovens and the southern pit-dwelling. Beyond the fence, on the western side, a well was dug (depth ca. 5 m), with a system for extracting water (a horizontally placed wooden log), and a small protective fence on the western side. The western part of the settlement contained pottery workshops with kilns (working pits no. 9, 12, 14) and working pits for the extraction and treatment of clay (pits 32, 33, 34, 35). Working pit 9 contained a double kiln (cylindrical) for firing large



Fig. 11. Slavonski Brod, residential pit-dwelling of the Starčevo settlement (photo: K. Minichreiter).



**Fig. 12. Slavonski Brod, pit-dwelling in the Starčevo ceremonial and burial area site (photo: K. Minichreiter).**

vessels, and two bread ovens (hemispherical forms). Working pit no. 12 contained two kilns: one quite damaged (horseshoe-shaped in plan), and another, of “cigar” shape, for firing fine and painted pottery. Working pit no. 14 contained another “cigar” kiln, of somewhat greater dimensions than the kiln in pit 12. This part of the settlement also had pits for the extraction and working of clay, as semicircular wooden fences were found next to the pits that contained packed clay used in the preparations for making pottery vessels. On the basis of material found during excavations, a reconstruction (on paper) was carried out for the first time in this part of Europe of an early Neolithic “craft” settlement of the Starčevo Culture, as discovered in northern Croatia.

### **Slavonski Brod: The Settlement and the Ritual-Burial Area – The Linear A Phase**

From 1997, systematic archaeological excavation was undertaken in Slavonski Brod at a large settlement of the Starčevo Culture, where a specially separated ritual-burial area was discovered with the buried remains of selected members of this tribal community (Minichreiter 1998; 1999; 2000). A surface area of 1500 m<sup>2</sup> has been excavated, and excavations still continue. A cult-burial area was separated and enclosed by a

semicircular wooden fence, in which one large and one small pit were found (Fig. 14). The large pit-dwelling (15 x 7 m) had an entrance on the eastern side, and a clump of pottery in its center, beneath which a cattle horn had been ceremonially buried. The northern part of the pit-dwelling contained two “cigar” shaped kilns, which had fuel sources on the exterior side of the pit structure, and which probably served only for ritual purposes. Two human skeletons (one headless) were buried near the kilns in the pit-dwelling, in a

contracted position, covered with soil mixed with pieces of pottery and stone tools. Three groups of pottery vessels were discovered in the southern section of the pit-dwelling (special rites probably took place here in honor of the deceased), as well as one human burial, in a contracted position, and lacking a head. The pit-dwelling did not have a large roof construction, and it was probably only partly covered by a low cover of horizontally placed wooden logs. To the west of the large pit-dwelling, a small pit-dwelling was discovered (5 x 5 m, dug to a depth of 1 m), with an entrance stair on the northern side. To the east of the entrance, a large group stone axes and minor tools was discovered, while in the western section, human skeletons having only the rear portion of the skull buried in a contracted position.



**Fig. 13. Slavonski Brod, a group of ceramic pottery above the cattle horn in the middle of the pit-dwelling in the Starčevo ceremonial and burial area site (photo: K. Minichreiter).**

The skeleton was buried under soil mixed with pottery fragments, tiny stone tools, clay discs, and parts of zoomorphic religious sculptures (duck heads). Postholes from small poles were found on the edges of the pit-dwelling, and around the pit-dwelling there were holes of perpendicular wooden beams (30–40 cm in diameter) arranged in rows, so that a wide arcade existed above the entrance section of the dwelling, indicating the special formal character of this pit-dwelling, where, probably, a prominent member of the tribal community was buried. On the northwestern side, the ritual-burial area was enclosed by a semicircular wooden fence, and on the southwestern side by a free-standing double semicircular fence, whose purpose is not entirely clear at present. The western section contained rows of postholes from large wooden columns that could have held up an eave above the “western gates” –

the passage from the settlement into the ritual-burial area. Beyond the fence and further to the west, the settlement continued, where to date two pit-dwellings and several refuse pits in their vicinity have been excavated. One pit-dwelling was large (15 x 5 m), in form, size, and orientation very similar to the one in the ritual-burial area, except this pit-dwelling had rows of postholes from wooden beams that supported a roof above it. The entrance to this pit-dwelling was most probably on the eastern side, but this could not be confirmed, as this part of the structure was destroyed by extraction for the brickworks. Archaeological excavations will continue at this site, which will enable an overview of the arrangement of structures at what is so far the largest settlement from the early phases of development of the Starčevo Culture not merely in Croatia, but also in the broader region of southern Pannonia.

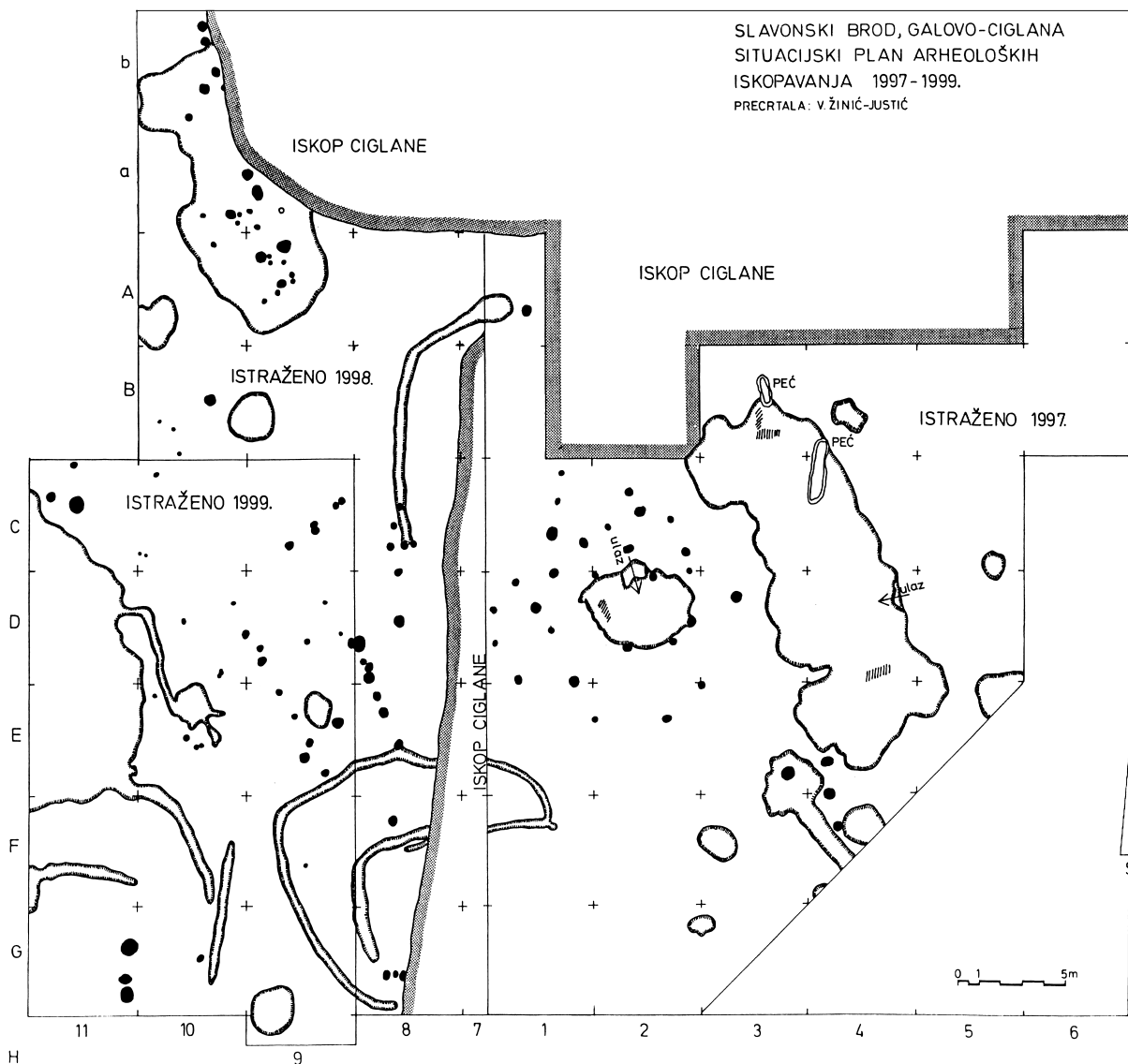


Fig. 14. Slavonski Brod, the situational scheme of archaeological field research in 1997, 1998 and 1999.

**Pepelana: The Neolithic and Eneolithic Settlement – The Linear C Phase**

A rescue excavation was carried out in 1985 on the route of the gas pipeline from Pepelana to Suhopolje, where a surface area of 400 m<sup>2</sup> was investigated to an average depth of 1 m. The site extends over an area of 800 x 1000 m. The archaeological complex is composed of a large tell, 90 x 90 m, by 4 m in height, and two elongated hills that gently descend to the banks of the Brežnica River (*Minichreiter 1992.17–20*). As the extent of the excavation was limited, only one large pit-dwelling on a hill was investigated, with a length of 25 m and width of 10 m (Fig. 17). The pit-dwelling was shaped like a reversed letter “T” with a wide southern and central area, and eastern, northern, and western arms. The eastern section of the central area contained a passageway 5 m long and 1.5 m wide that connected the southern, lower part of the “ground floor” of the pit-dwelling, and the upper “first floor”. From the central part of the passageway, one step led to the eastern arm of the pit-dwelling, while across three steps the northern arm was reached, which was connected to the western arm of the pit-dwelling across a platform in the central section. The southern section of the pit-dwelling had a deeper dug pit for refuse, which contained discarded pottery fragments. A large hearth was also discovered in the southern area, 1.5 m in diameter and 30 cm thick, and opposite this, the remains of a human skeleton in a contracted position were buried. The northern and central part of the pit-dwelling contained postholes from large perpendicular columns that held up the above-ground roof construction. Two small working pits were discovered northeast of the pit-dwelling. The relatively limited area excavated at Pepelana meant that the arrangement of the structures in the settlement could not be determined, but the excavated pit-dwelling showed a previously unknown form of construction on two levels (“ground floor and first floor”).



*Fig. 15. Pepelana, refuse – pit 10 (photo: K. Minichreiter).*

**Vinkovci: a multi-strata settlement of the Starčevo Culture – Linear B to Spiraloid B Phase (Fig. 18)**

In the southern part of the town of Vinkovci, on the elevated bank of the Bosut River, a multi-strata settlement from the late developmental phases of the Starčevo Culture was found at several scattered sites in rescue excavations (*Dimitrijević 1979.238–240; Iskra-Janošić 1984.143–151; Minichreiter 1992.24–28*). At the “Tržnice” (Market) site, a micro-unit of the Starčevo settlement was found, and this in the northern and southern zones, while the empty central area contained only several fragments of pot-



*Fig. 16. Pepelana, working pit 22 and 23 (photo: K. Minichreiter).*

tery. Subterranean dwellings with several rooms were discovered in the southern zone of “Tržnice”. One of the pit-dwellings had a trefoil shape, and another trapezoidal. The pit-dwellings had an entranceway, and on its edges on the exterior and interior sides, postholes were found from the wooden beams that supported the roof. Along the steep sides of the pit-dwelling, support posts were inserted (oblique or horizontal), which strengthened the interior row of bearing beams. An oven of some type, with an arched covering, most probably a kiln used for firing pottery, was discovered north of

the pit-dwelling. Shallow excavated pits, which were probably working areas, were discovered in the northern zone of the “Tržnice” site. At the site of “Cibala Banka” (Jugobanka), part of the Starčevo settlement was discovered with densely dug, small working and refuse pits (Fig. 18), and two groups of structures were discovered at the “Nama” department store site. The northern zone contained two pit-dwellings of medium size (12.5 x 6.5 and 9.7 x 5.5), and seven smaller pits (probably for refuse) that surrounded it in a horseshoe shape. One of



**Fig. 17. *Pepelana, residential pit-dwelling with a passage in upper level, the Classical phases – Linear C of the Starčevo Culture (photo: K. Minichreiter).***

these pit-dwellings contained the buried remains of 7 human skeletons in a contracted position. Six pit structures were found in the southern part of the “Nama” site: one large pit-dwelling (11 x 4 m) and three medium ones (5 x 4 m, 6 x 4 m, and 6 x 4.5 m), and two small refuse pits. A grouping of dwelling structures with empty areas between them, was noted at all the Vinkovci sites.

The numerous archaeological excavations in the past 25 years in northern Croatia have enabled a

review of the development of Starčevo Culture settlement (the earliest Neolithic culture in this region) from its beginnings to the final stage of its development. The results of research up to the present have enabled us to identify the basic elements of the “urban” growth of these settlements, and the arrangement, form, and purpose of the pit structures in them; this will serve as fundamental material for the further investigation of the very first cultures in these areas, and the process of the spread of the Neolithic throughout southern Europe.



**Fig. 18. *Vinkovci, Cibala banka (Jugobanka), Starčevo horizon of production and refuse pits – the Classical phases Linear B and Spiral B (photo: K. Minichreiter).***

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