

Architectural Recasting of Neolithic Vinča and Adjacent Cultures Based on an Original Method of Three Structures Foeni Site, in the Romanian Banat

MIHAI-CORNELIU POPOVICI-DONICI

Introduction

ART AND architecture histories barely cover prehistoric and Neolithic periods, probably due to the lack of data and studies that look upon local, zonal and general typologies. The Neolithic era is an essential stage in the history of humanity, as the evolution of tools generates the passing from the hunter-gatherer nomadic condition to the sedentary state brought by agriculture, often associated with animal breeding. Gradually, as this process takes place, the housing paradigm suffers a fundamental change. Around 2000 years after the sedentary state has settled in, that is 8000 years ago, come the first rectangular buildings in the Jericho, Jerf el-Ahmar, East from the Mediterranean Sea.

Exploring the Neolithic architecture, I have come upon a discrepancy between the recasting and representation of small artifacts: tools, pots, jewelry, ceremonial objects which are generally rendered through two faces and a distinctive section on a scale of 1:1–1:5, and the approximate way of the recasting the shelters through axonometric or decomposed perspectives, dimensionally imprecise. The archaeological data are unsystematically transmitted to a draftsman with no qualification in construction. This method has come with a simpler spatial perception, but scientific rigor commits us to a systematic approach and a thorough, geometrically-correct representation. I have therefore initiated the study of Neolithic architecture by devising a new, original method of architectural recasting of archaeological structures, a study which includes two phases. After more than 25 years of academic activity, I have gone beyond the reductionist function-structure-form triad which blends together partial, social and technical elements and aesthetical concepts and I put in order the architectural form determinants in three complementary environments: geo-climatic, techno-economical and socio-cultural. In the first stage I made a brief of the known archaeological data, in six files: geographic, climatic, technical, economic, social, and cultural.

After a detailed analysis led by an inter-disciplinary team of architect-archaeologist-structural engineers, a stable structural system and complete architectural recasting can be put together, with an accurate geometrical representation with plans, distinctive section, structural system, 4 faces on a scale of 1:50, and an axonometry of 1:100.

This method has been previously published and tested, and once these stages were completed, the files and board set received a textual description and a typological briefing board.

In order to establish local typologies, we used this new method on three structures of Neolithic Vinča and adjacent cultures that were chosen on the archaeological site of Foeni, in the Romanian Banat.

The 6 files have common data, as these castings belong to the same site and age. A textual description file has been drafted for each structure, together with board sets that include: a plan of the foundation digging, a plan of the ground floor, a plan, plan of the roof, distinctive section—structural system, 4 faces and an axonometric representation.

Finally, a board of typological conclusions was drawn and a local typology has been synthesized.

On the Foeni site, the study reveals inhabiting mono-block structures, with several rooms and bent roofs. The research includes the first total or partial porticoes, placed along the short side, which anticipates the *megatron* plan that would later develop in various cultures.

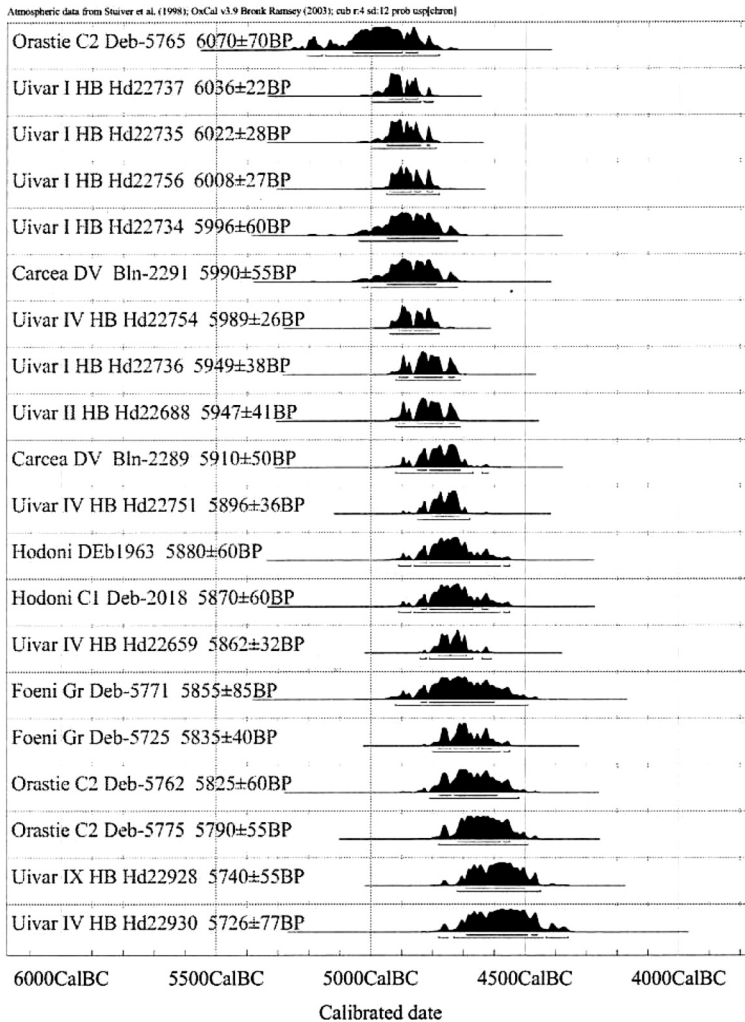
1. The Neolithic Era in the Danube-Carpathian Region

IN THE Danube-Carpathian region, the Neo-Eneolithic is associated with the civilizations occupying the Balkans, Anatolia and the Aegean Islands. For Banat and Transylvania, the Neolithic cannot be separated from the Eneolithic due to a strong local background. There are two major opinions that archaeologists follow on the genesis of the Early Neolithic in the area. One advocates a local, sometimes linear development of certain Neo-Eneolithic civilizations, while the other holds that the genesis and continuations are determined by migratory processes and diffusion, there being two ways of accessing Transylvania—via Wallachia and via Banat.

The Danubian Neo-Eneolithic, in comparison to its neighboring areas, was divided into a few important stages: the Early Neolithic, when the “neolithization” is completed; the Developed Neolithic, for the provinces of the Vinča culture, from its A-phases and until the Eneolithic; the Middle Neolithic, applicable to the areas indirectly influenced by the Vinča culture; the Late Neolithic, after the first Vinča C migrations. The Early Eneolithic includes the Vinča C migrations in their C2 and C3 phases; the Developed Eneolithic—the early Copper Age, post-Vinča C civilizations; the Late Eneolithic—the late Copper Age, with the Cucuteni A-B and B, and Tiszapolgár civilizations.

In terms of date determination, we took a table with C14 data from the Early Neolithic, studied for various archaeological sites:

FIG. 1.1. C14 DATING FOR THE NEOLITHIC, VINČA CULTURE



SOURCE: Cornelia Magda Lazarovici and Gheorghe Lazarovici, *Arhitectura neoliticului și epocii cuprului din România*, vol. 1, *Neoliticul*, Bibliotheca Archaeologica Moldaviae IV (Iași: Trinitas, 2006), 478.

1.1. The Vinča Culture. Late Vinča

THE NORTHERN area of the Vinča culture—thus named after a town in Serbia where important research has been conducted and discoveries have been made—overlaps the historical Banat, on the plain situated at the confluence between the Timiș and the Danube, as Neolithic migration often followed the course of a river.

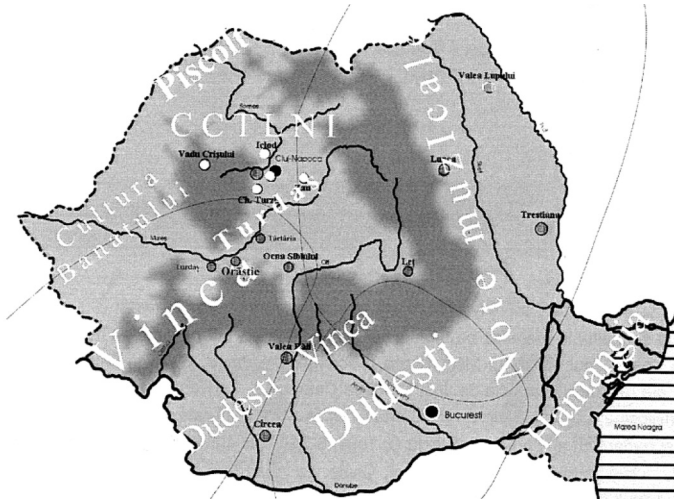
FIG. 1.1.1. SITUATION OF THE VINČA CULTURE IN THE BALKANS



SOURCE: Marija Gimbutas, *Civilizație și cultură: Vestigii preistorice în sud-estul european (Civilizația Europei străvechi)*, transl. Sorin Paliga, foreword and notes by Radu Florescu, Biblioteca de Artă (Bucharest: Meridiane, 1989), 15.

A separation from the Early Vinča was necessary, as changes occur now that generate new civilizations. There are also numerous migrations with a strong impact. These changes were discussed by Gheorghe Lazarovici in 1994, and he used the term “the Vinča C site,” marking three groups of elements.

FIG. 1.1.2. THE DISTRIBUTION OF MIDDLE AND DEVELOPED NEOLITHIC IN ROMANIA



SOURCE: C. M. Lazarovici and G. Lazarovici, 119.

For the current region of the Romanian Banat, studies have been carried out at Foeni (1991–2013), Hodoni (1985–1991) and Uivar under the coordination of Florin Draşovean, together with Wolfram Schier (1999–2009). For Uivar, carbon dating was carried out, which resulted in an age of 6800 years. For Foeni, the certified period is 6700 years ago.

The research carried out on compact settlements revealed that they were placed in areas not affected by floods, yet in the proximity of lakes or rivers, as well as forests—the size of which we cannot know for those times. The research is, clearly, only partial—some areas are still being researched, the analysis of well-documented cases allowing for the understanding of the evolution of the Late Neolithic and Eneolithic.

2. Foeni Datasheets

2.1. Geographical Information

Location

Currently Foeni Commune, Timiș County, Romania, 4600–4500 BCE.

Location within the continent

North of the Balkan Peninsula, Europe

Relief

Continental plains

Water bodies

Bega River—allochthonous, transversal, springing from the Carpathians—100 m³/s

Bega Mică River—allochthonous, 5–10 m³/s

Flora

The Bega River everglades: willow, acacia, reed

Broadleaf forests: beech, oak

Local construction materials

Broadleaf wood: beech, oak, hazel, willow, acacia, reed

Soil: clay, river stone

Additional information

Bega River is a tributary of the Danube.

The Banat Mountains protect the area from north-eastern climate influences.

2.2. Climate Information

Assumed climate

Temperate-continental, with Mediterranean influences, similar to the present day.

Seasons

Spring—cold, wet

Summer—hot, excessive

Fall—warm, long

Winter—temperate

Temperatures

Annual average values: 10–12°C

Maximum: +42,5°C (Jimbolia)

Minimum: –30,9°C (Lugoj)

Rainfall: 550–600 mm

Spring—normal

Summer—dry: 80–100 mm

Fall—normal

Winter—low: 40 mm; 20 days of snow

Additional information

Temperate-continental climate, with Adriatic Sea influences, the excesses of the Danube Plain being mitigated by the Banat Mountains.

Dominant winds from the west—average speed 3m/s, maximum 27m/s.

2.3. Technical Information

Processed construction materials

Beech wood, peeled oak, perhaps split in two

Clay mixed with sand; other plant and animal-based materials

Willow or hazel rods, linen rope, hemp

Reed, cane, bulrush

Existing tools

Hammer made of polished stone with a hole for the wooden handle

Sliver rabble, made of stone

Wooden cleats

Wooden stakes

Wooden mallets

Hacks made of animal horns

Building systems (plus attached sheets)

Wooden frame structure with embedded pillars

Joints tied with rope and willow rods

Walls—interlacing of willow rods, plastered with clay, covered in reed or cane

Available techniques and technologies

Cutting by hitting with stone hammers

Peeling by using rabbles on green wood

Splitting by using wooden cleats in dry cracks

Binding with willow rods or flax and hemp rope

Additional information

Painting in geometric patterns, earthy colors, techniques borrowed from pottery.

2.4. Economic Information

Economic system (hunting, fishing, gathering, extensive/intensive agriculture, crafts, industrialism, post-industrialism)

Extensive agriculture, animal husbandry, supplemented by gathering, hunting, fishing

Available resources

Primitive cereals, river fowl, domesticated animals, game, fish, edible roots

Workforce

Families with several generations

The community survived for approximately 200 years.

Additional information

Agricultural economy supplemented by hunting, gathering and fishing

Materials from the everglades of the Bega River and broadleaf forests, significant in those times.

2.5. Social Information

Ergonomic data on population

	Men	Women
Average height	165 cm	150 cm
Average weight	80 kg	80 kg
Life expectancy	45 years	50 years
Infant mortality	high	high

Social organization

Multiple families, three generations

Rural communities of approximately 500 individuals

Family system

Three generations at the same time

Matriarchal system, the totem being passed on to the mother

Religious system

Household deities—animistic beliefs

The cult of fertility, of the bison

Dietary customs

Indoor and outdoor cooking stoves

Cooked food—omnivorous

Additional information

Community collaboration

Tribal home

Sanctuaries.

2.6. Cultural Information

Philosophical systems

Animistic religions

Fertility cult

Animal sacrifices

Artistic manifestations (plus attached sheets)

Painting: geometric models on clay pots

Earthy colors, 3-4 shades of umber

Sculpture: clay idols, animal horns, bone, stone

Architecture: structural systems in wooden frames filled with clay, with first and second floor

Music: mostly rhythm

Dance: ritualistic

Decorative arts: geometric motifs

Schematic, anthropomorphic, zoomorphic and floral motifs given a geometric interpretation

Additional information

Customs at the change of seasons, the fertility cult, the animal force cult—the bison.

3. Construction S-8

TEXTUAL DESCRIPTION SHEET:

Title: Construction P S-8

Location: currently, Foeni Commune, Timiș County

Time estimate: 4600–4500 BCE

Data author: Prof. Florin Drașovean, Ph.D.

Recast by: Architect Mihai-Corneliu Popovici-Donici

Digging plan: the field research includes the construction plan without the north part, which can be estimated and can be considered a properly researched foundations plan.

FIG. 3.1. FOENI HOUSING S-8, DIGGING IMAGE



Layout plan: starting with the digging plan and the location of the pillars, a layout plan was recreated, showcasing two rooms: to the west, a room that we estimate to measure on average approximately 4.2×3 m, and to the east, a large room, 4.2×4.2 m. On the eastern side we can see the outline of a portico, approximately 4.4×2.5 m on average, with a two-stage development.

Roof plan: shows the longitudinal coverage with two escarpments at an angle of approximately 90%, which is characteristic for houses covered with reeds. Due to the small width, it is possible that the coverage was carried out with two reed mattresses on each escarpment.

The characteristic section, transversal, is very important as it is the only one that showcases the structural system and the correct ergonomic capacities for the occupants' sizes. The structural system is similar to the one based on wooden frames, with pillars embedded approximately every 1.5 m, with average diameters of 25–30 cm. In order to join the main round beams with diameters of approximately 30 cm, we chose the most plausible option, namely reclining them on “V” ramifications, tied with vines or rope. On the longitudinal perimeter beams—ribbing—on the central longitudinal cleat, 1.75 m higher, round rafters are reclined, at a 90 degree angle, of approximately 10 cm in diameter, 1 m apart; longitudinally, round slats were placed on top, approximately 5 cm in diameter and 40 cm apart, tied with vines or rope, and representing a structure for coverage with bundles of reed, approximately 20 cm thick and 2 m long. Reed mattresses overlapping in lines could be secured by the pointed tip of the rafter in the upper part and “stitched” with ropes or weights. The end walls on the short sides were dead walls. The non-structural closing walls were built on a canvas of small pillars 20 cm apart and woven canes, as a support for the clay added to the walls, approximately 20 cm thick, which most likely meant that the main pillars were visible, since clay does not adhere well to peeled tree trunks and wood behaves better in time if it breathes and eliminates the excess humidity.

The ground flooring was made of a netting of canes, 36 cm in diameter, covered with clay.

North façade: showcases the coverage system and any small orifices (20 × 40 cm, approximately) for light and ventilation, plus one potential secondary access, 70 × 1.80 m. The western side of the front is estimated, due to insufficient site data.

South façade: two approximated apertures can be placed here, for light and ventilation in the two interior rooms. Here too, the western side is estimated.

East façade: here we can see the shape of the roof, in two escarpments at an approximately 90 degree angle; the covered area of the portico is also very well represented, its purpose possibly being the protection of the main access to the house, with lines of independent pillars, in two planes.

West façade: showcases the dead wall and the shape of the roof—estimated, since site data for this side is absent. Here we can also see the structure of the roof, coming out in the console, all around, approximately 50 cm, protecting the walls.

Axometric projection: from the southeast, the specific portico of this housing facility, with successive lines of pillars. The western side was also represented, estimated with a dotted line.

Graphic representation of the reconstructed volume

FIG. 3.2. S-8 FOUNDATION DIGGING PLAN

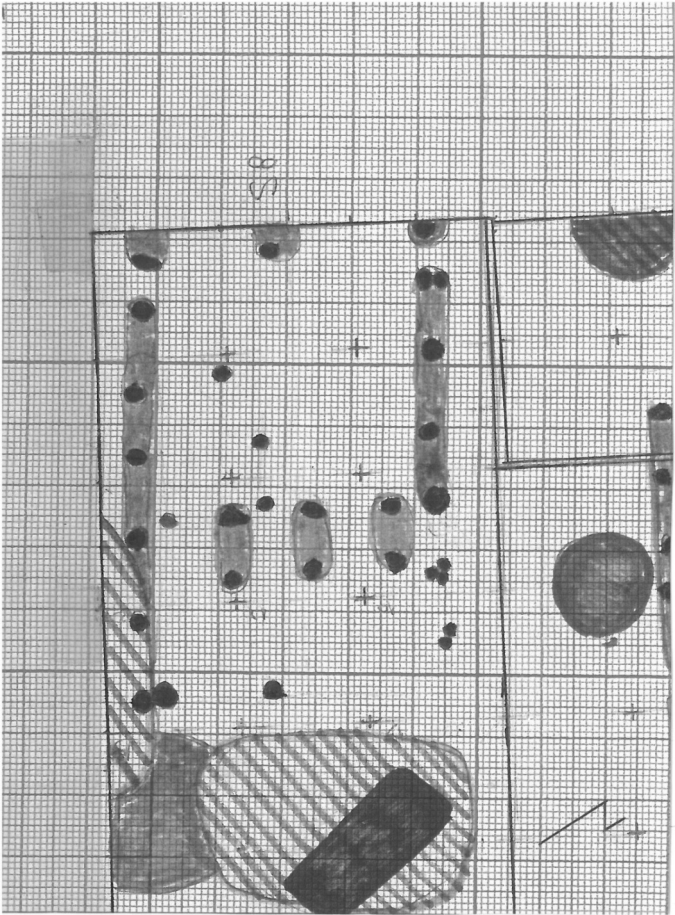
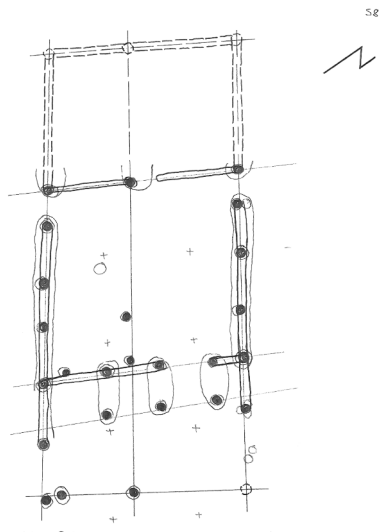
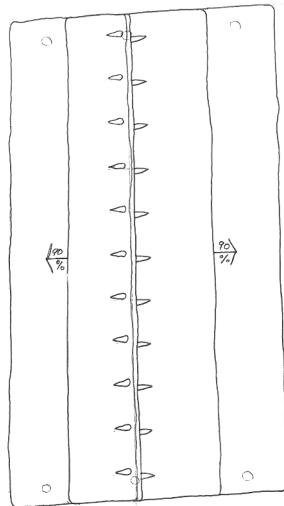


FIG. 3.3. S-8 LAYOUT PLAN



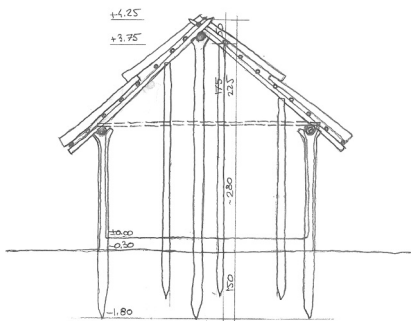
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RECONSTITUIRE CONSTRUCȚIE S-8	ARHEOLOG - F. DRĂGOVEAN
PERIODA - 4600-4500 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL FORUM IULIUS-RO	PLANȘA - PLAN
FUNCTIUNE - LOCUINȚA P.	SC. - 1:50

FIG. 3.4. S-8 ROOF PLAN



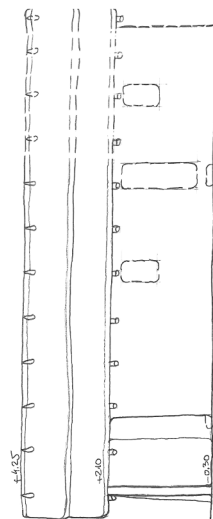
INFORMAȚII CERCETE	INFORMAȚII ESTIMATE
RECONSTITUIRE CONSTRUCȚIE S-8	ARHEOLOG - F. DRĂGOVEAN
PERIODA - 4600-4500 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL FORUM IULIUS-RO	PLANȘA - PLAN ACCESIIS
FUNCTIUNE - LOCUINȚA P.	SC. - 1:50

FIG. 3.5. S-8 CHARACTERISTIC SECTION



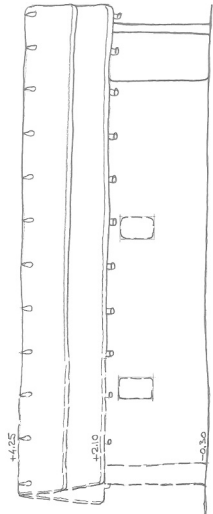
INFORMAȚII CERCETE	INFORMAȚII ESTIMATE
RECONSTITUIRE CONSTRUCȚIE S-8	ARHEOLOG - F. DRĂGOVEAN
PERIODA - 4600-4500 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL FORUM IULIUS-RO	PLANȘA - SECȚIUNE CARACTERISTICĂ
FUNCTIUNE - LOCUINȚA P.	SC. - 1:50

FIG. 3.6. S-8 NORTH FAÇADE



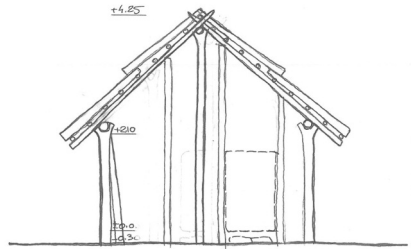
INFORMAȚII CERCETE	INFORMAȚII ESTIMATE
RECONSTITUIRE CONSTRUCȚIE S-8	ARHEOLOG - F. DRĂGOVEAN
PERIODA - 4600-4500 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL FORUM IULIUS-RO	PLANȘA - FAȚADĂ NORD
FUNCTIUNE - LOCUINȚA P.	SC. - 1:50

FIG. 3.7. S-8 SOUTH FAÇADE



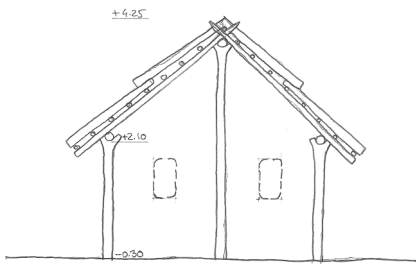
INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTITUIRE CONSTRUCTIE S-8	ARHEDLOS - F. DRAGONEAN
PERIODA - 400-450 a. Chr.	ARHITECT - M. C. BONICI
LOCALITATE - ACTUAL FOEHII, TIMIS-RO	PLANSA - FATADA SUD
FUNCTIUNE - LOCUINTA P.	SC. - 1:50

FIG. 3.8. S-8 EAST FAÇADE



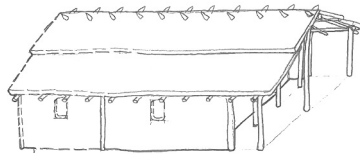
INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTITUIRE CONSTRUCTIE S-8	ARHEDLOS - F. DRAGONEAN
PERIODA - 400-450 a. Chr.	ARHITECT - M. C. BONICI
LOCALITATE - ACTUAL FOEHII, TIMIS-RO	PLANSA - FATADA EST
FUNCTIUNE - LOCUINTA P.	SC. - 1:50

FIG. 3.9. S-8 WEST FAÇADE



INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTITUIRE CONSTRUCTIE S-8	ARHEDLOS - F. DRAGONEAN
PERIODA - 400-450 a. Chr.	ARHITECT - M. C. BONICI
LOCALITATE - ACTUAL FOEHII, TIMIS-RO	PLANSA - FATADA VEST
FUNCTIUNE - LOCUINTA P.	SC. - 1:50

FIG. 3.10. S-8 AXONOMETRIC PROJECTION



INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTITUIRE CONSTRUCTIE S-8	ARHEDLOS - F. DRAGONEAN
PERIODA - 400-450 a. Chr.	ARHITECT - M. C. BONICI
LOCALITATE - ACTUAL FOEHII, TIMIS-RO	PLANSA - AXONOMETRIE
FUNCTIUNE - LOCUINTA P.	SCARA - 1:100

4. Building S-9

TEXTUAL DESCRIPTION SHEET:

Title: Construction P S-9

Location: currently, Foeni Commune, Timiș County

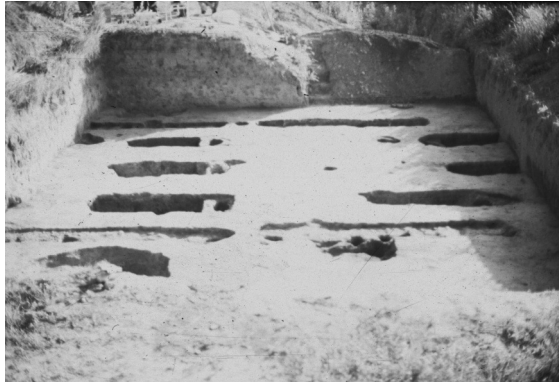
Time estimate: 4600–4500 BCE

Data author: Prof. Florin Drașovean, Ph.D.

Recast by: Architect Mihai-Corneliu Popovici-Donici

Digging plan: the field research includes the construction plan in its entirety and can be considered a fully researched foundations plan.

FIG. 4.1. FOENI HOUSING S-9, DIGGING IMAGE



Layout plan: starting from the digging plan and the position of the pillars, a 2-room area was reconstructed. To the west, a 6×3.7 m room, and to the east, a 6×3.8 m room. The eastern side shows a portico, 6×1.2 m average, probably protecting the main access.

Roof plan: longitudinal coverage in two escarpments, at an angle of approximately 90%, with three reed mattresses on each side, due to the large width of the construction.

Characteristic section, transversal, showcases the structural system and the correct ergonomic dimensions. The structural system is based on wooden frames, with pillars embedded approximately every 1.5 m, with average diameters of 25-30 cm. In order to join the main round beams with diameters of approximately 30 cm, we chose the most plausible option, namely reclining them on “V” ramifications, tied with vines or rope. On the longitudinal perimeter beams—ribbing—on the central longitudinal cleat, 2.4 m higher, round rafters are reclined, of approximately 10 cm in diameter, 1 m apart; longitudinally, round slats were placed on top, approximately 5 cm in diameter and 40 cm apart, tied with vines or rope, and representing a structure for coverage with bundles of reed, approximately 20 cm thick and 2 m long. Reed mattresses overlapping in lines could be secured by the pointed tip of the rafter in the upper part and “stitched” with ropes or weights. The walls on the short sides were dead walls. The non-structural closing walls were built on a netting of small pillars 20 cm apart and interwoven

rods, as a support for the clay added later, building up to a wall thickness of approximately 20 cm, which meant that the main pillars were visible.

The floors were made of interwoven rods, 3–6 cm in diameter, covered in clay, raised approximately 30 cm above the ground.

North façade: showcases the coverage system and possibly small orifices/holes (20 × 40 cm). Possibly, a secondary access, 0.70 × 1.80 m, was located on this side.

South façade: probably two orifices are placed here, for light and ventilation. To the east we can see the portico, independent from the structure of the walls.

East façade: showcases the shape of the roof, in two 90 degree escarpments. Also showcases the covered area of the portico, protecting the main access to the house, with a line of independent pillars.

West façade: showcases the dead wall, the roof shape and possibly two small orifices as windows. We can also see the console structure of the roof.

Axonometric projection: represented from the southeast, in order to showcase the characteristic portico, with the line of independent pillars. The main access to the house was probably located here.

Graphic representation of the reconstructed volume

FIG. 4.2. S-9 FOUNDATION DIGGING PLAN

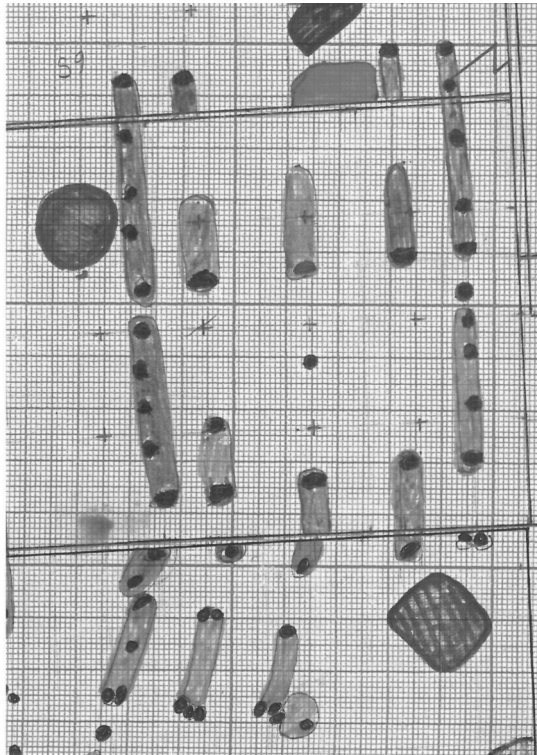
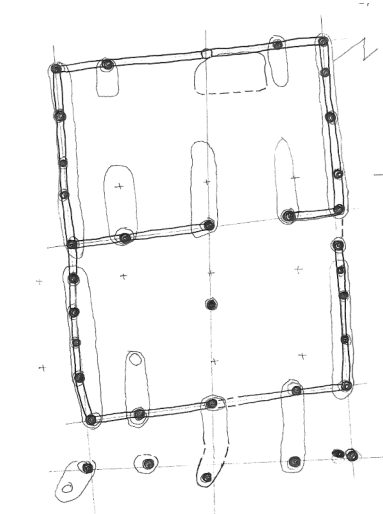
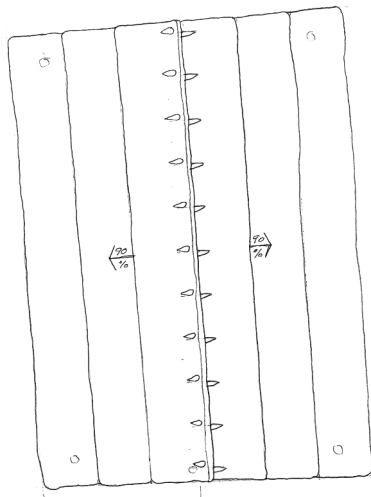


FIG. 4.3. S-9 LAYOUT PLAN



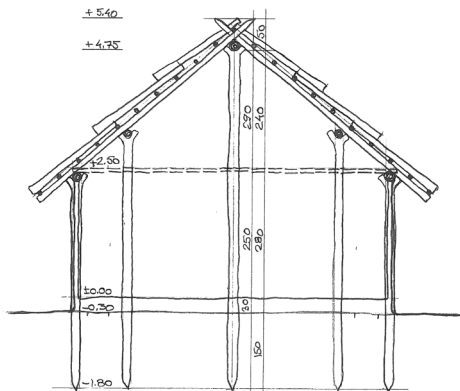
INFORMAȚII CERTE	INFORMAȚII ESTIMATE
RECONȘTITURE CONSTRUCȚIE S-9	ARHEOLOG - F. DRĂȘĂNEAN
PERIOADĂ - 4600-4500 a. Chr.	ARHITECT - M.C. DONICI
LOCALIZARE - ACTUAL FOȘENI, JUDEȚUL TULCEA - ROMANIA	PLANȘA - PLAN
FUNCȚIUNE - LOCUINȚĂ P.	SCALĂ - 1:50

FIG. 4.4. S-9 ROOF PLAN



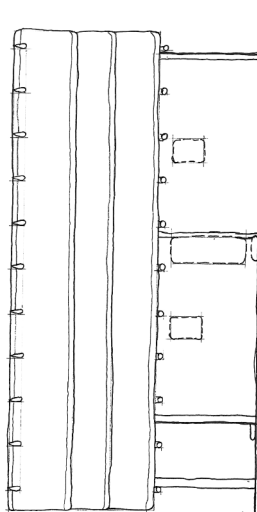
INFORMAȚII CERTE	INFORMAȚII ESTIMATE
RECONȘTITURE CONSTRUCȚIE S-9	ARHEOLOG - F. DRĂȘĂNEAN
PERIOADĂ - 4600-4500 a. Chr.	ARHITECT - M.C. DONICI
LOCALIZARE - ACTUAL FOȘENI, JUDEȚUL TULCEA - ROMANIA	PLANȘA - PLAN ACOPERȘIS
FUNCȚIUNE - LOCUINȚĂ P.	SCALĂ - 1:50

FIG. 4.5. S-9 CHARACTERISTIC SECTION



INFORMAȚII CERTE	INFORMAȚII ESTIMATE
RECONȘTITURE CONSTRUCȚIE S-9	ARHEOLOG - F. DRĂȘĂNEAN
PERIOADĂ - 4600-4500 a. Chr.	ARHITECT - M.C. DONICI
LOCALIZARE - ACTUAL FOȘENI, JUDEȚUL TULCEA - ROMANIA	PLANȘA - SECȚIUNE CARACTERISTICĂ
FUNCȚIUNE - LOCUINȚĂ P.	SCALĂ - 1:50

FIG. 4.6. S-9 NORTH FAÇADE



INFORMAȚII CERTE	INFORMAȚII ESTIMATE
RECONȘTITURE CONSTRUCȚIE S-9	ARHEOLOG - F. DRĂȘĂNEAN
PERIOADĂ - 4600-4500 a. Chr.	ARHITECT - M.C. DONICI
LOCALIZARE - ACTUAL FOȘENI, JUDEȚUL TULCEA - ROMANIA	PLANȘA - FAȚADĂ NORD
FUNCȚIUNE - LOCUINȚĂ P.	SCALĂ - 1:50

FIG. 4.7. S-9 SOUTH FAÇADE

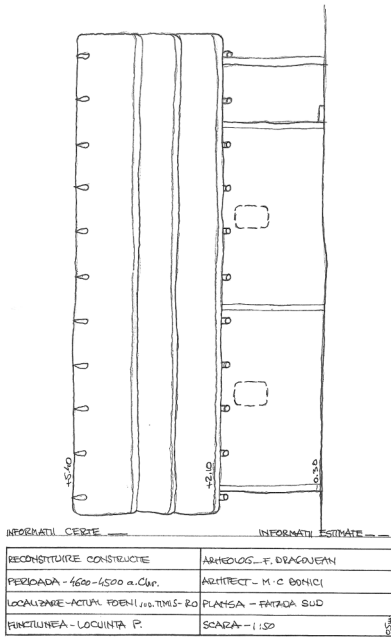


FIG. 4.8. S-9 EAST FAÇADE

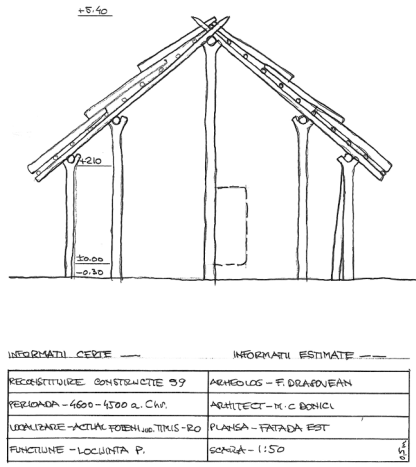


FIG. 4.9. S-9 WEST FAÇADE

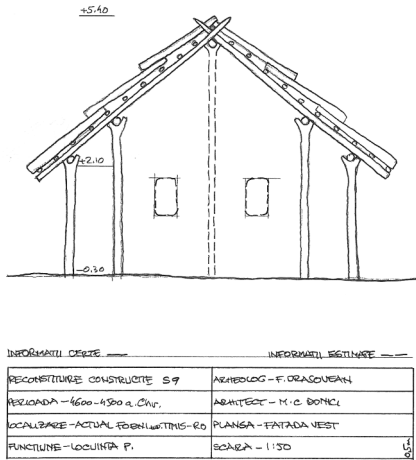
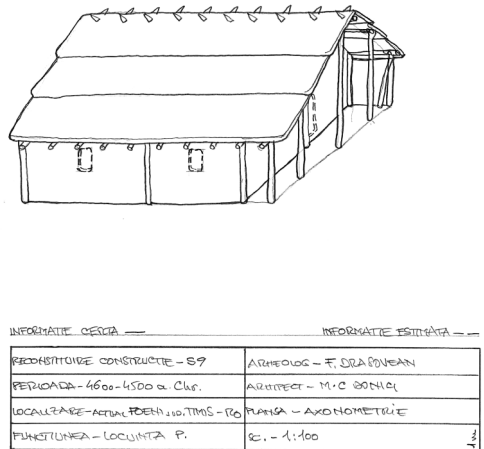


FIG. 4.10. S-9 AXONOMETRIC PROJECTION



5. Construction S-12

TEXTUAL DESCRIPTION SHEET:

Title: Construction P S-12

Location: currently, Foeni Commune, Timiș County

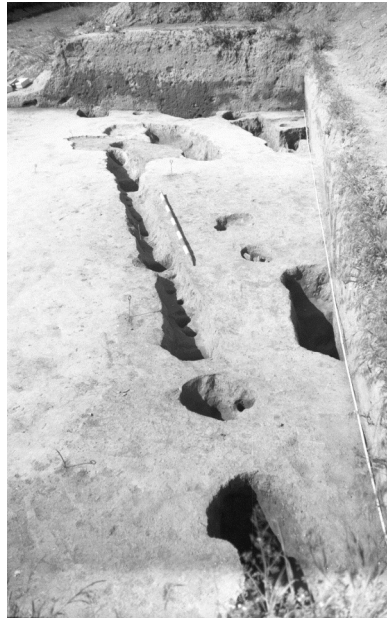
Time estimate: 4600–4500 BCE

Data author: Prof. Florin Drașovean, Ph.D.

Recast by: Architect Mihai-Corneliu Popovici-Donici

Digging plan: the field research includes the construction plan without the southwestern part, which can be estimated and can be considered a relevant foundations plan.

FIG. 5.1. FOENI HOUSING S-12, DIGGING IMAGE



Layout plan: starting from the digging plan and the position of the pillars, a 2-room area was reconstructed. To the west, a 5.4×3 m room, and to the east, a 5.4×6 m room. On the eastern side, to the north, we can see a partial portico, 2.5×2 m.

Roof plan: shows the longitudinal coverage with two escarpments at an angle of approximately 90%. Due to the partial portico, the northern coverage of the construction is approximately 2 m longer to the east.

The characteristic section, transversal, showcases the structural system similar to the one based on wooden frames, with pillars embedded every 1.5 m approximately, with average diameters of 25–30 cm. In order to join the main round beams with diameters of approximately 30 cm, we chose the most plausible option, namely reclining them on “V” ramifications, tied with vines or rope. On the longitudinal perimeter beams—ribbing—on the central longitudinal cleat, 2.10 m higher, round rafters are reclined, at a 90 degree angle,

of approximately 10 cm in diameter, 1 m apart; longitudinally, round slats were placed on top, approximately 5 cm in diameter and 40 cm apart, tied with vines or rope, and representing a structure for coverage with bundles of reed, approximately 20 cm thick and 2 m long. The short sides were closed up with dead walls. The non-structural closing walls were built on a canvas of small pillars 20 cm apart and woven canes, as a support for the clay added to the walls, approximately 20 cm thick, which meant most likely that the main pillars were visible, since clay does not adhere well to peeled tree trunks.

The flooring was made of a netting of canes, 3–6 cm in diameter, covered with clay.

North façade: due to its orientation, on the north façade there is a dead wall, showcasing the shape of the roof and two potential small orifices for light and ventilation. We can see the roof coming out in a console by over 50 cm, protecting the clay walls from weather.

South façade: is the side with main access to the house, protected by the partial gazebo on the north side, with 3 pillars, of which 2 are estimated. The partial portico is an atypical presence in comparison to the other 2 constructions in Foeni, which have full porticos on the short side.

East façade: due to the orientation of the construction, this longitudinal façade is the largest; it includes the main portico. Two potential orifices for light and ventilation are located here.

West façade: illustrates the longitudinal façade on the segment without a portico. It is possible that two orifices for light and ventilation existed here.

Axonometric projection: the south-west angle was chosen in this case in order to represent the potentially atypical portico of the construction.

Graphic representation of the reconstructed volume

FIG. 5.2. S-12 FOUNDATION DIGGING PLAN

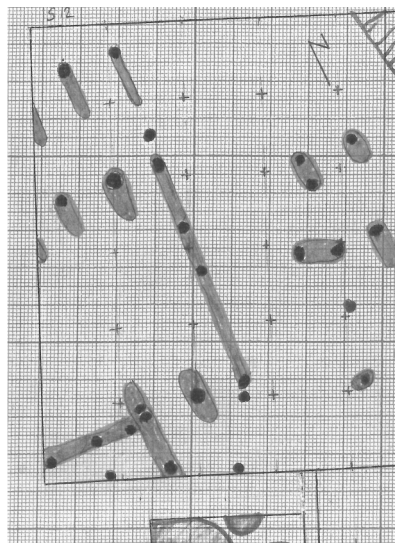


FIG. 5.3. S-12 LAYOUT PLAN

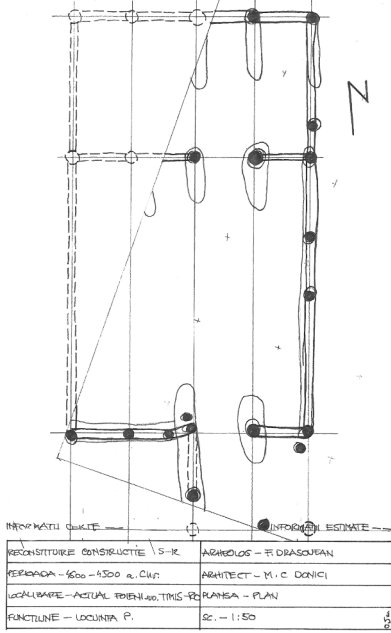


FIG. 5.4. S-12 ROOF PLAN

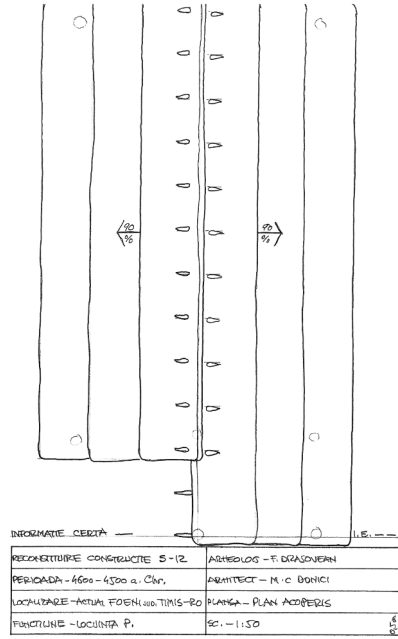


FIG. 5.5. S-12 CHARACTERISTIC SECTION

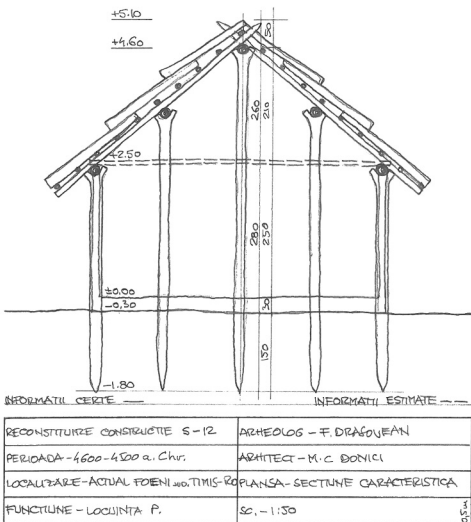


FIG. 5.6. S-12 NORTH FAÇADE

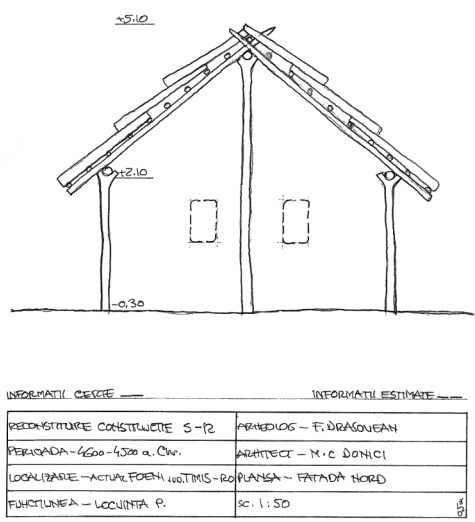
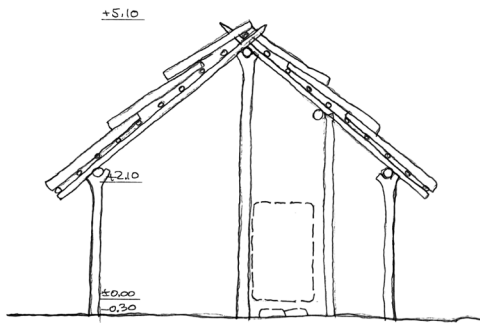
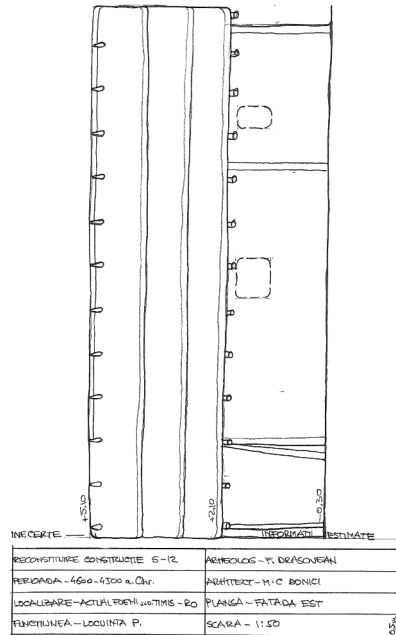


FIG. 5.7. S-12 SOUTH FAÇADE



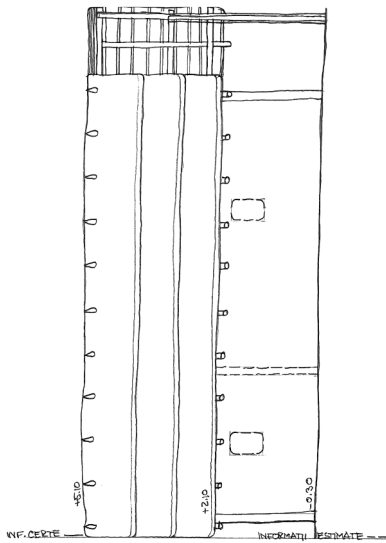
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RECONSTRUCIRE CONSTRUCȚIE S-12	ARHITECT - F. DRĂGOVEAN
PERIOADA - 4600-4300 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL PENTRU TIMIS - RO	PLANȘA - FAȚADA SUD
FUNCȚIUNEA - LOCUINȚA P.	SCALA - 1:50

FIG. 5.8. S-12 EAST FAÇADE



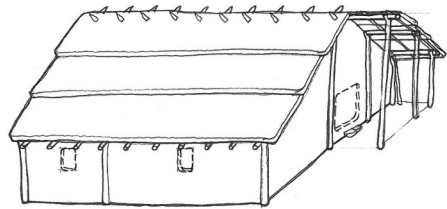
INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTRUCIRE CONSTRUCȚIE S-12	ARHITECT - F. DRĂGOVEAN
PERIOADA - 4600-4300 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL PENTRU TIMIS - RO	PLANȘA - FAȚADA EST
FUNCȚIUNEA - LOCUINȚA P.	SCALA - 1:50

FIG. 5.9. S-12 WEST FAÇADE



INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTRUCIRE CONSTRUCȚIE S-12	ARHITECT - F. DRĂGOVEAN
PERIOADA - 4600-4300 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL PENTRU TIMIS - RO	PLANȘA - FAȚADA VEST
FUNCȚIUNEA - LOCUINȚA P.	SCALA - 1:50

FIG. 5.10. S-12 AXONOMETRIC PROJECTION



INFORMATIILE CERTE	INFORMATIILE ESTIMATE
RECONSTRUCIRE CONSTRUCȚIE S-12	ARHITECT - F. DRĂGOVEAN
PERIOADA - 4600-4300 a. Chr.	ARHITECT - M. C. DONICI
LOCALIZARE - ACTUAL PENTRU TIMIS - RO	PLANȘA - AXONOMETRIE
FUNCȚIUNEA - LOCUINȚA P.	SC. 1:100

6. Local Typological Conclusions

AFTER RECASTING the three housing facilities, a series of stylistic specificities became evident:

- wooden frames, embedded pillars approximately 1.5 m apart, giving stability to the structure even in the absence of cross-bars;
- beams reclined on natural ramifications of pillars, secured with rope;
- ridges in two escarpments of variable inclinations in accordance to the width of the constructions, made up of rafters approximately 1 m apart, reclining on the beams of the long sides (ribs), and the central beam of the roof (hip jack rafter). Longitudinal cleats tied to rafters 50 cm apart, supporting the plant-based cover—probably reed, placed in 2–3 layers;
- the closures of non-structural walls were made of pillars situated at close distances from each other, woven with reeds, covered with clay;
- on the short sides, the walls were erected as per the shape of the roof, obtaining dead walls with porticos.

In the case of ground-level houses with multiple rooms, there could be no ceiling, but directly the attic; thus, the vertical volume allowed for good ventilation during summer. The setting is presumed; we do not exclude the possibility of a platform closing the first floor, offering a better thermal insulation and allowing for the use of the bridge solely for storage.

In certain cases, the platforms were raised a few dozens of centimeters above ground.

The access, light and ventilation apertures were minimal-ergonomic. In the 3 examples documented and recast in Foení, approximately 500 years later than the housing facilities in Uivar, we can see the apparition of porticos on the shorter sides, protecting the main access to the dwelling, and providing a special and distinct typology to these constructions.

As internal division, the researched examples only show the existence of 2 large rooms inside, with successive access from one to the other.

The overall shape is a massive parallelepipedic mono-volume, with 2 interior compartments and a general or partial portico on the short side, with small access and lighting orifices; the roof is in the shape of 2 longitudinal escarpments.

The typology for the Foeni area is unitary; we can still find the massive mono-volume from the Uivar area, but here porticos are added in order to protect the main access and provide a covered passage from the inside to the outside, which could be used in various situations. The situation can be explained by the use of the same local materials and resources, as well as the same construction tools and techniques.

This system requires seasonal repair works in the spring and whenever there is heavy rainfall, because these materials are not weatherproof.

The apparition of porticos seems to indicate an evolution of the basic typology, which will be continued in the following cultures, similar stylistic elements being detectable in the traditional cultures of the recent era in the temperate area.



Bibliography

- Drașovean, Florin. *Cultura Vinča târzie (faza C) în Banat*. Bibliotheca Historica et Archaeologica Banatica. Timișoara: Mirton, 1996.
- Lazarovici, Cornelia Magda and Gheorghe Lazarovici. *Arhitectura neoliticului și epocii cuprului din România*. Vol. 1, *Neoliticul*. Bibliotheca Archaeologica Moldaviae IV. Iași: Trinitas, 2006.
- Popovici-Donici, Mihai-Corneliu. "Metodă de reconstituire a construcțiilor, D-1, pe baza datelor arheologice." *Analele Banatului* (Timișoara). New ser. 22 (2014): 521–528.
- . "Aesthetics of the Main Types of Structures." *Journal of Art and Architecture Studies* 5, 1 (2016): 13–16.

Abstract

Architectural Recasting of Neolithic Vinča and Adjacent Cultures Based on an Original Method of Three Structures. Foeni Site, in the Romanian Banat

The Neolithic era is an essential stage in the history of humanity, as the evolution of tools generates the transition from the hunter-gatherer nomadic condition to the sedentary state brought by agriculture. As this process takes place, the housing paradigm suffers a fundamental change. Our investigation of Neolithic architecture begins with devising a new, original method of architectural recasting of archaeological structures. After a detailed analysis led by an inter-disciplinary team of architect-archaeologist-structural engineers, a stable structural system and complete architectural recasting can be put together, with an accurate geometrical representation with plans, distinctive section, structural system, 4 faces on a scale of 1:50, and an axonometry of 1:100. In order to establish local typologies, we used this new method on three structures of Neolithic Vinča and adjacent cultures that were chosen on the archaeological site of Foeni, in the Romanian Banat. The study has revealed inhabiting mono-block structures, with several rooms and bent roofs. The research includes the first total or partial porticoes, set along the short side, which anticipates the *megatron* plan that would later develop in various cultures.

Keywords

architecture, archaeology, Neolithic, Vinča culture, recasting