NOVENSIA 33

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Studia i materiały
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Piotra Dyczka

NOVENSIA 33

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BRONZE NAILS FROM RISAN (MONTENEGRO)

Abstract: In the course of almost twenty years of regular archaeological excavations in Risan, many different categories of finds have been unearthed, including bronze nails. This article aims to update a previously-proposed bronze nails typology, published already in 2010, by supplementing it with later finds, along with their physical description, distribution among the known ancient architecture, and illustrative material. The final caesura of this study is the pandemic break in the excavations that fostered the undertaking of this arduous task.

Keywords: nails, Risan, Montenegro

Modern Risan is one of the small towns located in the Bay of Kotor, Montenegro. It is bounded on the west by the coastline, surrounded on the other three sides by hills reaching above 900 meters above sea level. Settlement at the site dates back probably to the seventh century BC[1] and has continued uninterrupted to the present times, which brought about rapid development of tourist infrastructure. Ancient Risan developed most significantly in the Hellenistic Period and during the struggle between the Romans and Illyrians. After the final victory of Rome, local social structures were Romanised.

Regular archaeological work at the site has been conducted by the Antiquity of Southeastern Europe Research Centre (University of Warsaw) continuously since 2001. This investigation produced amazing results, including not only preserved architecture but also a unique discovery of a hoard of coins consisting of more than 4,500 pieces — enough to reconstruct the monetary system of a local ruler.[2] Risan has also yielded a large number of less spectacular finds, objects of daily or practical use, such as bronze nails.

Nails belong to the so-called 'mass material' found at archaeological sites and, as such, do not spark much excitement in their discoverers. Consequently, they are extremely rarely subjected to in-depth studies or featured in dedicated publications. Being metal artefacts, they were made by hand and are, therefore, far less standardised than today's mass-produced goods. In effect, it is difficult to typologise them on the basis of their physical dimensions.

Archaeological reports are often limited to giving only the number of nails discovered, provided they mention them at all. Another practice is to publish a catalogue of these artefacts, with a proposed typology and illustrations showing at least one specimen of each type.[3]

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[1] DRONJAKOVIĆ 2003, pp. 10–16.
[2] CIOŁEK 2021.
[3] CLARKE 1979; SHAW, SHAW 2000.

Ancient nails have also been analysed as a basic category of artefacts, which has resulted in two distinct typological approaches — one based on the physical properties of nails, such as the size of the specimens or the shape of the heads, and the other focused on their context of discovery.[4]

Any of the existing typological categorisations of nails, owing to the reasons mentioned above, applies primarily to finds from a particular archaeological site. Therefore, nail typologies cannot be easily generalised, since they differ both in terms of the number of distinguished types and the criteria adopted to characterise them.

An appropriate typological classification of bronze nails from Risan was first proposed by Przemysław Litwinowicz in his master's thesis[5] and later published, in a heavily-abridged version, as an article.[6] Both of these works included all specimens unearthed between 2001 and 2008. The thesis presented a more complicated typology, which included subtypes in addition to the main types.[7] In the article, on the other hand, the author introduced a somewhat simplified and, thus, more comprehensible typological classification of the bronze nails from Risan.[8] It was in the latter form that the classification entered scientific circulation.

The present article draws from P. Litwinowicz's abridged typology, aiming to supplement it with items discovered between 2009 and 2019. Other goals are to present, when possible, photographs of the artefacts and places of discovery of individual specimens plotted on a plan of the known architecture of ancient Risan. The task was very demanding, especially for older finds, because early documentation did not contain GPS coordinates, making it impossible to determine spatial relations between the architecture and some of the nails.

The proposed typology is based on physical characteristics, with the shape of a nail, and especially the head, as primary distinguishing feature. The size also played a role in these considerations, albeit a secondary one — nail sizes were manipulated for utilitarian reasons, dictated by the size of the components to be joined. For undisclosed reasons, P. Litwinowicz had omitted Type I from his published abridged list, so the same procedure was consistently applied below. Assigning certain specimens to specific types was sometimes difficult due to their state of preservation, limited accessibility (especially to older finds), and the form of available documentation.

Abbreviations: circ. – circular; con. – conical; conv. – convex; fig. – figure; h. – head; jun. – junction between head and shaft; l. – length; pol. – polygonal; rect. – rectangular; s. – shaft.

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[4] Allison 2006, p. 3.
[5] Litwinowicz 2010a.
[6] Litwinowicz 2010b.
[7] Litwinowicz 2010a, pp. 76–82.
[8] Litwinowicz 2010a, pp. 30–31, presented the results of chemical analysis of three nails. The items analysed consisted of copper (respectively 99.713%, 99.746%, and 99.852%). Other metals, including tin, were present in marginal proportions as natural impurities. The small number of nails analysed, as the author noted, precluded drawing any reliable conclusions.

Type A

A group of nails with the simplest design. No distinct head, but its function is fulfilled by the thickened end of the shank. The shaft is straight with a rectangular cross-section. Only one specimen was discovered in the years 2009–2019.

No.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	17	3x3	x	flat	rect.	x	1
2	19	3x3	x	flat	rect.	x	
3	25	3x3	x	flat	rect.	x	
4	27	4x4	x	flat	rect.	x	
5	16	3x3	x	flat	rect.	x	
6	25	3x3	x	flat	rect.	x	
7	20	3x3	x	flat	rect.	x	

Type B

A group of nails with the simplest design. Construction very similar to Type A, but with an identifiable head. Five specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	49	4x4	10	thick; conv.	rect.	rect.	
2	49	4x4	12	thick; conv.; circ.	rect.	circ.; thick	1
3	59	4x4	14	conv.; circ.	rect.	rect.; thick	2
4	43	3x3	12	conv.; circ.	rect.	circ.; thick	3
5	37	6x6	8	thick; flat	rect.	circ. (?); thick	4
6	71	4x4	14	thick; flat; circ.	rect.	rect., thick	5
7	41	5x4	12	conv.; circ.	rect.	rect.; thick	6
8	27	3x3	7	flat; circ.	rect.	rect., thick	7
9	36	4	7	conv.; circ.	circ. (?)	circ. (?); thick	
10	36	3x4	10	flat; circ.	rect.	rect.; thick	8
11	59	4x4	6	conv.; circ.	rect.	rect.; thick	9
12	35	4x4	9	conv.; circ.	rect.	rect.; thick	10

TYPE A

TYPE B

Fig. 1. Nails of types A and B (compiled by A. Miernik and J. Recław)

Type C
A characteristic feature of this type is the relatively thin and flat head. Its joint with the shaft is curved and usually round. The shaft may be either rectangular or oval in cross-section. Twenty specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	45	3x3	13	thin; flat; circ.	rect.	circ.; thick	1
2	55	3x3	12	flat; circ.	rect.	circ.; thick	
3	33	3	12	thin; flat; circ.	circ.	circ.	2
4	35	5x4	14	thin; flat; circ.	rect.	circ.; thick	
5	65	3x3	13	thin; flat; circ.	rect.	rect.	3
6	35	3x3	9	thin; flat; circ.	rect.	rect.	4
7	54	4	13	thin; flat; circ.	rect.	circ.; thick	5
8	69	3	9	thin; flat; circ.	circ.	circ.; thick	
9	32	3	12	thin; flat; circ.	circ.	circ.; thick	
10	41	4	11	thin; flat; circ.	circ.	circ.; thick	6
11	37	3	12	thin; flat; circ.	circ.	circ.; thick	7
12	39	3x3	9	thin; flat; circ.	rect.	rect.; thick	8
13	47	3	11	thin; flat; circ.	circ.	circ.; thick	9
14	132	4x4	19	thin; flat; circ.	rect.	rect.; thick	10
15	38	3	12	thin; flat; circ.	circ.	circ.; thick	11
16	63	4	13	thin; flat; circ.	circ.	circ.; thick	
17	23	2x2	15	thin; flat; circ.	rect.	rect.; thick	
18	64	3x3	11	thin; flat; circ.	rect.	rect.; thick	12
19	143	5	16	thin; flat; circ.	circ.	circ.; thick	13
20	33	3x3	8	thin; flat; circ.	rect.	rect.; thick	14
21	43	3x3	17	thin: flat; circ.	rect.	rect.; thick	15
22	34	3x3	17	thin; flat; circ.	rect.	rect.: thick	
23	29	2x2	13	thin; flat; circ.	rect.	rect.; thick	
24	42	6x6	20	thin; flat; circ.	rect.	rect.; thick	16
25	48	4	10	thin; flat; circ.	circ.	circ.; thick	17
26	61	5	14	thin; flat; circ.	circ.	circ.; thick	18
27	44	4x4	12	thin; flat; circ.	rect.	rect.; thick	19

TYPE C
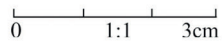

Fig. 2. Nails of Type C (compiled by A. Miernik and J. Recław)

Type D

A characteristic feature of this type is the thin and convex head. The shaft may be either rectangular or oval in cross-section. Twelve specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	35	4x4	13	thin; conv.; circ.	rect.	rect.	1
2	58	4x4	13	thin; conv.	rect.	circ.	2
3	37	3x3	12	conv.; circ.	circ.	circ.	3
4	42	4x4	14	thin; conv.; circ.	rect.	rect.	4
5	43	4	14	conv.; circ.	rect.	rect. (?)	
6	64	5x5	15	conv.; circ.	rect.	rect.	
7	80	4x4	15	thin; conv.	rect.	rect.	5
8	121	3	13	conv.; circ.	circ.	circ.	6
9	155	4	18	conv.; circ.	circ.	circ.	7
10	74	3x4	13	thin; flat; circ.	rect.	circ.; thick	8
11	51	3x4	15	thin; conv.; circ.	rect.	rect.	9
12	98	3	17	thin; flat; circ.	circ.	circ.	10
13	42	3	9	thin; conv.; circ.	circ.	circ.	11
14	67	3	13	thin; conv.; circ.	circ.	circ.	12
15	61	3	9	thin; conv.; circ.	circ.	circ.	
16	90	5x5	13	thin; conv.; circ.	rect.	rect.	
17	93	4x4	12	thin; conv.; circ.	rect.	rect.	
18	94	3	12	conv.; circ.	circ.	circ.	
19	43	4x4	19	thin; conv.; circ.	rect.	rect.	13
20	38	5x5	14	thin; conv.; circ.	rect.	rect.	14
21	102	5x5	14	thin; conv.; circ.	rect.	rect.	15
22	25	3x3	15	conv.; circ.	rect.	rect.	
23	62	4x4	14	conv.; circ.	rect.	rect.	16
24	76	5x5	15	conv.; circ.	rect.	rect.	17
25	142	6x6	29	conv.; circ.	rect.	rect.	18
26	61	4x4	12	conv.; circ.	rect.	rect.	19

TYPE D

Fig. 3. Nails of Type D (compiled by A. Miernik and J. Recław)

Type E
A characteristic feature of this type is the flat or slightly convex head. The shaft may be either rectangular or oval in cross-section, mostly long with a pointed tip. Seventy-seven specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	90	6x6	16	thick; flat; circ.	rect.	circ.	1
2	68	4x4	10	thick; flat; circ.	rect.	circ.	2
3	79	5x5	16	thick; conv.; circ.	rect.	circ.	3
4	73	5x5	12	thick; flat; circ.	rect.	rect.; thick	4
5	94	3	15	thin; flat; circ.	circ.	circ.	
6	92	4	11	thin; flat; circ.	circ.	circ.	5
7	82	3x3	18	thick; conv.; circ.	rect.	circ.	6
8	98	4x4	15	thick; conv.; circ.	rect.	circ.	7
9	38	3	10	thick; flat; circ.	circ.	circ.; thick	8
10	49	3x4	13	thin; flat; circ.	rect.	circ.; thick	
11	70	4	13	thick; flat; circ.	circ.	circ.	9
12	48	3	11	thick; flat; circ.	circ.	circ.	10
13	63	4	13	thick; flat; circ.	circ.	circ.	11
14	61	4x4	15	thick; flat; circ.	rect.	rect.	12
15	61	6	15	thick; flat; circ.	circ.	circ.	
16	34	3	12	thick; flat; circ.	circ.	circ.	13
17	32	5x5	14	thick; flat; rect.	rect.	circ.	14
18	44	3x4	12	thick; flat; circ.	circ.	rect.	
19	80	6	15	thick; flat; circ.	circ.	circ.	
20	51	5x5	14	thick; flat; circ.	rect.	circ.	
21	50	3x3	12	flat; thin; circ.	rect.	rect.	15
22	37	6x6	11	thick; flat; circ.	rect.	circ.	16
23	38	4	12	thick; flat; circ.	circ.	circ.	17
24	38	5x5	15	thick; flat; circ.	rect.	rect.	18
25	71	5x5	17	thick; flat; circ.	rect.	rect.	19
26	31	5x5	13	thick; flat; circ.	rect.	rect.	20
27	92	6x6	17	conv; thick; circ.	rect.	circ.	21

28	57	2	7	conv; thick; circ.	circ.	circ.	22
29	64	4x4	12	thick; flat; circ.	rect.	rect.	23
30	81	4x4	10	thick; flat; circ.	rect.	rect.	
31	43	4	9	thick; flat; circ.	circ.	circ.	24
32	47	4	10	thick; flat; circ.	circ.	circ.; thick	25
33	54	4x4	11	thick; flat; circ.	rect.	rect.	
34	39	4x4	8	thick; flat; circ.	rect.	rect.	
35	99	3	13	thick; flat; circ.	rect.	rect.	
36	23	5	11	thick; flat; circ.	circ.	circ.	
37	61	3	12	thick; flat; circ.	circ.	circ.	26
38	30	4	12	thick; flat; circ.	circ.	circ.	27
39	83	3	13	flat; circ., thick	circ.	circ.	28
40	57	6x6	14	thick; flat; circ.	rect.	rect.	29
41	37	4x4	12	thick; flat; circ.	rect.	rect.	30
42	90	4x4	12	thick; flat; circ.	rect.	rect.	31
43	125	4	13	thick; flat; circ.	circ.	circ.	32
44	32	4	15	thick; flat; circ.	circ.	circ.	
45	41	4x4	10	thick; flat; circ.	rect.	rect.	
46	35	3	10	thick; flat; circ.	circ.	circ.	33
47	45	4x4	12	thick; flat; circ.	circ.	circ.	34
48	98	4	14	thick; flat; circ.	circ.	circ.	
49	21	3	12	thick; flat; circ.	circ.	circ.	
50	67	4x4	15	thick; flat; circ.	circ.	circ.	
51	120	4x4	16	thick; flat; circ.	rect.	rect.	
52	29	3x3	14	thick; flat; circ.	rect.	rect.	
53	25	3	16	thick; flat; circ.	circ.	circ.	
54	215	6	15	thick; flat; circ.	circ.	circ.	
56	71	4x4	13	thick; flat; circ.	rect.	rect.	
57	36	3x3	18	thick; flat; circ.	rect.	rect.	
58	90	4x4	16	thick; flat; circ.	rect.	rect.	
59	78	4x4	17	thick; flat; circ.	rect.	rect.	
60	143	5x5	16	thick; flat; circ.	rect.	rect.	

61	77	4x4	14	thick; flat; circ.	rect.	rect.	
62	82	3x3	14	thick; flat; circ.	rect.	rect.	
63	38	4x4	12	thick; flat; circ.	rect.	rect.	
64	58	4x4	13	thick; flat; circ.	rect.	rect.	
65	78	5	17	thick; flat; circ.	circ.	circ.	35
66	37	4x4	12	thick; flat; circ.	rect.	rect.	
67	36	3	12	flat; circ.	circ.	circ.	36
68	16	3x3	8	thick; flat; circ.	rect.	rect.	37
69	61	4x4	14	thick; flat; circ.	rect.	rect.	
70	37	5	14	thick; flat; circ.	circ.	circ.	
71	54	4x4	14	thick; flat; circ.	rect.	rect.	38
72	43	5	16	thick; flat; circ.	circ.	circ.	39
73	92	5x5	19	thick; flat; circ.	rect.	rect.	40
74	63	4	12	flat; circ.	circ.	circ.	41
75	68	3x4	11	thick; flat; circ.	rect.	rect.	42
76	47	5	13	flat; circ.	circ.	circ.	43
77	59	3	9	flat; circ.	circ.	circ.	44
78	35	4	14	flat; circ.	circ.	circ.	45
79	56	4x4	13	thick; flat; circ.	rect.	rect.	46
80	74	5x5	20	thick; flat; circ.	rect.	rect.	47
81	97	5x5	15	thick; flat; circ.	rect.	rect.	48
82	30	5x5	15	thick; flat; circ.	rect.	rect.	
83	25	4x4	15	thick; flat; circ.	rect.	rect.	
84	75	5x5	17	thick; flat; circ.	rect.	rect.	
85	56	4x4	14	thick; flat; circ.	rect.	rect.	49
86	13	4x4	13	thick; flat; circ.	rect.	rect.	
87	33	4x4	17	thick; flat; circ.	rect.	rect.	
88	48	5x5	14	thick; flat; circ.	rect.	rect.	
89	118	4	14	flat; circ.	circ.	circ.	50
90	31	3x3	12	thick; flat; circ.	rect.	rect.	
91	78	4x4	13	thick; flat; circ.	rect.	rect.	51
92	44	3x3	18	thick; flat; circ.	rect.	rect.	

93	50	4x4	10	thick; flat; circ.	rect.	rect.	52
94	38	4x4	13	thick; flat; circ.	rect.	rect.	
95	98	4x4	16	thick; flat; circ.	rect.	rect.	53
96	46	5x5	14	thick; flat; circ.	rect.	rect.	54
97	102	4x4	13	thick; flat; circ.	rect.	rect.	55
98	24	5x5	14	thick; flat; circ.	rect.	rect.	
99	44	4x4	12	thick; flat; circ.	rect.	rect.	
100	92	4x4	13	thick; flat; circ.	rect.	rect.	
101	30	4x4	15	thick; flat; circ.	rect.	rect.	
102	104	4x4	13	thick; flat; circ.	rect.	rect.	
103	75	4x4	14	thick; flat; circ.	rect.	rect.	
104	41	4x4	11	thick; flat; circ.	rect.	rect.	56
105	51	5x5	14	thick; flat; circ.	rect.	rect.	
106	64	4x4	13	thick; flat; circ.	rect.	rect.	

Type F

A characteristic feature of this type is the convex head and the proportionally thick section connecting the shaft to the head. The shaft may be either rectangular or oval in cross-section. Nails of this type are the most heterogeneous group discovered at Risan. Eight specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	58	4	8	conv.; thick; circ.	circ.	circ.; thick	
2	73	3x3	13	conv.; thin; circ.	rect.	circ.; thick	1
3	90	4	14	conv.; thick; circ.	circ.	circ.; thick.	2
4	62	4x3	12	conv.; circ.	rect.	circ.; thick.	3
5	63	4	12	conv.; thick; circ.	circ.	circ.; thick	4
6	50	4x4	11	conv.; thin; circ.	rect.	circ.; thick	5
7	75	4x4	12	conv.; thick; circ.	rect.	circ.; thick	
8	46	3	15	conv.; thin; circ.	circ.	circ.; thick.	
9	103	4	12	conv.; thin; circ.	circ.	circ.; thick	6
10	47	3	12	conv.; thick; circ.	circ.	circ.; thick	
11	49	4	10	conv.; thick; circ.	circ.	circ.; thick	7

TYPE E

Fig. 4. Nails of Type E (compiled by A. Miernik and J. Recław)

12	111	4	12	conv.; thick; circ.	circ.	circ.; thick	8
13	56	5x5	15	conv.; thick; circ.	rect.	rect.; thick	
14	52	4x4	12	conv.; thick; circ.	rect.	rect.; thick	9
15	54	6x6	20	conv.; thick; circ.	rect.	rect.; thick	10
16	28	4x4	11	conv.; thick; circ.	rect.	rect.; thick	
17	59	4x4	12	conv.; thick; circ.	rect.	rect.; thick	11

TYPE E

TYPE F

Fig. 5. Nails of types E and F (compiled by A. Miernik and J. Recław)

Type G

This type is characterised by a small size, large flat and mostly round head, and a short tapering shaft of either rectangular or oval cross-section. It is the most common nail type registered at Risan. Eighty specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	26	3x3	13	thin; flat; circ.	rect.	circ.	1
2	21	3x3	17	thin; flat; circ.	rect.	rect.	2
3	15	2	9	thin; flat; circ.	circ.	circ.	3
4	21	3	10	thin; flat; circ.	circ.	circ.	4
5	23	2	9	thin; flat; circ.	circ.	circ.; thick	5
6	17	2	9	thin; flat; circ.	circ.	circ.	6
7	18	3x3	18	thin; flat; circ.	rect.	rect.	7
8	19	2x2	15	thin; flat; circ.	rect.	rect.	8
9	16	3x3	13	thin; flat; circ.	rect.	rect.	9
10	16	2x3	17	thin; flat; circ.	rect.	rect.	10
11	23	3	11	thin; flat; circ.	circ.	circ.	11
12	17	3x3	15	thin; flat; circ.	rect.	rect.	12
13	24	3x3	13	thin; flat; circ.	rect.	rect.; thick	13
14	19	2x2	13	thin; conv.; circ.	rect.	circ.	14
15	18	3x3	14	thin; flat; circ.	rect.	rect.	15
16	23	3	16	thin; conv.; circ.	circ.	circ.; thick	16
17	25	2	17	thin; flat; circ.	circ.	circ.	17
18	20	3x3	15	thin; flat; circ.	rect.	rect.	18
19	18	4x4	14	thin; flat; circ.	rect.	rect.	
20	22	3	16	thin; flat; circ.	circ.	circ.	
21	11	2x3	13	thin; flat; circ.	rect.	rect.	19
22	10	3x3	15	thin; flat; circ.	rect.	rect.	20
23	11	3x2	14	thin; flat; circ.	rect.	rect.	21
24	15	3x3	17	thin; flat; circ.	rect.	rect.	22
25	14	3x3	16	thin; flat; circ.	rect.	rect.	23
26	13	3x3	17	thin; flat; circ.	rect.	rect.	
27	12	2x3	18	thin; flat; circ.	rect.	rect.	24

28	13	2x2	10	thin; flat; circ.	rect.	rect.	25
29	9	2x2	11	thin; flat; circ.	rect.	rect.	26
30	16	2x3	13	thin; flat; circ.	rect.	circ.	27
31	13	3	19	thin; flat; circ.	circ.	circ.	28
32	15	3	18	thin; flat; circ.	circ.	circ.	29
33	12	2x2	14	thin; flat; circ.	rect.	rect.	
34	13	2	16	thin; flat; circ.	circ.	circ.	30
35	9	2	15	thin; flat; circ.	circ.	circ.	31
36	16	3x3	15	thin; flat; circ.	rect.	rect.	32
37	8	2x2	10	thin; flat; circ.	rect.	rect.	33
38	10	3x3	18	thin; flat; circ.	rect.	rect.	34
39	10	3x3	13	thin; flat; circ.	rect.	rect.	
40	12	3	19	thin; flat; circ.	circ.	circ.	
41	10	3	12	thin; flat; circ.	circ.	circ.	35
42	11	5	15	thin; flat; circ.	circ.	circ.	
43	10	3	15	thin; flat; circ.	circ.	circ.	36
44	12	3x2	12	thin; flat; circ.	rect.	rect.	37
45	10	3	16	thin; flat; circ.	circ.	circ.	38
46	13	3x3	18	thin; flat; circ.	rect.	rect.; thick	39
47	21	2	16	thin; flat; circ.	circ.	circ.	40
48	17	3x3	17	thin; flat; circ.	rect.	rect.	41
49	18	3x2	15	thin; flat; circ.	rect.	rect.	42
50	24	3x3	22	thin; flat; circ.	rect.	rect.	43
51	17	2x2	17	thin; flat; circ.	rect.	rect.	44
52	8	3x2	19	thin; flat; circ.	rect.	rect.	45
53	16	3x3	12	thin; flat; circ.	rect.	rect.	
54	19	2x2	15	thin; flat; circ.	rect.	rect.	46
55	16	2	14	thin; flat; circ.	circ.	circ.	47
56	15	2x2	12	thin; flat; circ.	rect.	rect.	48
57	14	1x2	16	thin; flat; circ.	rect.	rect.	49
58	15	2	14	thin; flat; circ.	circ.	circ.	50
59	15	3x3	13	thin; flat; circ.	rect.	rect.	51

60	16	3x3	22	thin; flat; rect.	rect.	rect.	52
61	14	3	12	thin; flat; circ.	circ.	circ.; thick	53
62	11	3x3	12	thin; circ.	rect.	?	54
63	17	2	17	thin; flat; circ.	circ.	circ.; thick	55
64	16	3	18	thin; flat; circ.	circ.	circ.	56
65	15	2x2	14	thin; flat; circ.	rect.	?	
66	16	3	13	thin; flat; circ.	circ.	circ.	57
67	16	3	16	thin; flat; circ.	circ.	circ.	
68	14	3	12	thin; flat; circ.	circ.	circ.	
69	9	3x1	9	thin; flat; circ.	rect.	rect.; thick	58
70	36	4x4	15	thin; flat; circ.	rect.	rect.; thick	59
71	18	2x2	17	thin; flat; circ.	rect.	rect.	60
72	14	3	13	thin; flat; rect.	circ.	circ.	62
73	11	2x3	15	thin; flat; rect.	rect.	rect.	63
74	11	2x3	13	thin; flat; rect.	rect.	rect.	64
75	17	3x3	13	thin; flat; circ.	rect.	?	65
76	4	3	17	thin; flat; rect.	circ.	circ.	
77	14	2x2	13	thin; flat; circ.	rect.	rect.; thick	66
78	15	2	14	thin; flat; circ.	circ.	circ.; thick	
79	24	2	18	thin; flat; circ.	circ.	circ.; thick	67
80	48	2	14	thin; flat; circ.	circ.	circ.; thick	68
81	10	2	18	thin; flat; circ.	circ.	circ.	
82	16	2	13	thin; flat; circ.	circ.	circ.	69
83	10	3	11	thin; flat; circ.	circ.	circ.	70
84	24	2	13	thin; flat; circ.	circ.	circ.	
85	25	3	11	thin; flat; circ.	circ.	circ.	
86	15	3x3	10	thin; flat; circ.	rect.	rect.	71
87	15	2x2	13	thin; flat; circ.	rect.	rect.	72
88	19	3	15	thin; flat; circ.	circ.	circ.	73
89	10	3	15	thin; flat; circ.	circ.	circ.	74
90	21	3x3	14	thin; flat; circ.	rect.	rect.	75
91	19	3x3	14	thin; flat; circ.	rect.	rect.	76

92	21	3	16	thin; flat; circ.	circ.	circ.	77
93	24	4	18	thin; flat; circ.	circ.	circ.	78
94	17	3x3	14	thin; flat; circ.	circ.	circ.	79
95	22	3x3	18	thin; flat; circ.	rect.	rect.	80
96	13	2	12	thin; flat; circ.	circ.	circ.	81
97	22	3x3	17	thin; flat; circ.	circ.	circ.	82
98	16	2	13	thin; flat; circ.	circ.	circ.	
99	14	3	15	thin; flat; circ.	circ.	circ.	
100	23	2x2	16	thin; flat; circ.	rect.	rect.	83
101	16	2x2	15	thin; flat; circ.	rect.,	rect.	84
102	13	2x2	8	thin; flat; circ.	rect.	rect.	85
103	20	2x2	20	thin; flat; circ.	rect.	rect.	
104	21	2x2	15	thin; flat; circ.	rect.	rect.	
105	16	2x2	14	thin; flat; circ.	rect.	rect.	
106	16	2x2	17	thin; flat; circ.	rect.	rect.	
107	15	3x3	11	thin; flat; circ.	rect.	rect.	
108	20	2x2	14	thin; flat; circ.	rect.	rect.	
109	9	2x2	13	thin; flat; circ.	rect.	rect.	
110	11	2x2	17	thin; flat; circ.	rect.	rect.	
111	15	2x2	17	thin; flat; circ.	rect.	rect.	
112	10	2x2	12	thin; flat; circ.	rect.	rect.	
113	12	2x2	14	thin; flat; circ.	rect.	rect.	
114	20	3x3	20	thin; flat; circ.	rect.	rect.	86
115	15	3x3	16	thin; flat; circ.	rect.	rect.	
116	17	2x2	14	thin; flat; circ.	rect.	rect.	
117	17	3	14	thin; flat; circ.	circ.	circ.	87
118	9	2	16	thin; flat; circ.	circ.	circ.	
119	16	2x2	12	thin; flat; circ.	rect.	rect.	88
120	12	2x2	12	thin; flat; circ.	rect.	rect.	89
121	16	2	18	thin; flat; circ.	circ.	circ.	90
122	5	2	16	thin; flat; circ.	circ.	circ.	
123	7	2	15	thin; flat; circ.	circ.	circ.	

124	14	2x2	16	thin; flat; circ.	rect.	rect.	
125	25	2x2	17	thin; flat; circ.	rect.	rect.	
126	18	2x2	15	thin; flat; circ.	rect.	rect.	91
127	21	2x2	15	thin; flat; circ.	rect.	rect.	92
128	25	2x2	15	thin; flat; circ.	rect.	rect.	93
129	13	2x2	12	thin; flat; circ.	rect.	rect.	94
130	13	2x2	8	thin; flat; circ.	rect.	rect.	95
131	21	3x3	13	thin; flat; circ.	rect.	rect.	96
132	19	2x2	15	thin; flat; circ.	rect.	rect.	97
133	15	3x3	12	thin; flat; circ.	rect.	rect.	98
134	20	2x2	19	thin; flat; circ.	rect.	rect.	
135	13	2	9	thin; flat; circ.	circ.	circ.	
136	10	2x2	17	thin; flat; circ.	rect.	rect.	
137	10	2x2	14	thin; flat; circ.	rect.	rect.	
138	20	2x2	12	thin; flat; circ.	rect.	rect.	99
139	21	2x2	13	thin; flat; circ.	rect.	rect.	
140	18	2	11	thin; flat; circ.	rect.	rect.	
141	18	2x2	15	thin; flat; circ.	rect.	rect.	
142	16	2x2	14	thin; flat; circ.	rect.	rect.	
143	19	2x2	17	thin; flat; circ.	rect.	rect.	100
144	19	2x2	12	thin; flat; circ.	rect.	rect.	
145	11	2x2	20	thin; flat; circ.	rect.	rect.	
146	24	2x2	13	thin; flat; circ.	rect.	rect.	
147	12	2x2	15	thin; flat; circ.	rect.	rect.	
148	11	2x2	8	thin; flat; circ.	rect.	rect.	101
149	15	2x2	10	thin; flat; circ.	rect.	rect.	102
150	19	2x2	23	thin; flat; circ.	rect.	rect.	103
151	23	3x3	17	thin; flat; circ.	rect.	rect.	
152	26	2x2	14	thin; flat; circ.	rect.	rect.	
153	17	2x2	11	thin; flat; circ.	rect.	rect.	
154	13	3x3	11	thin; flat; circ.	rect.	rect.	104
155	46	2x2	13	thin; flat; circ.	rect.	rect.	105

| 156 | 15 | 2x2 | 14 | thin; flat; circ. | rect. | rect. | |
| 157 | 15 | 2x2 | 12 | thin; flat; circ. | rect. | rect. | |

TYPE G

Fig. 6. Nails of Type G (compiled by A. Miernik and J. Recław)

Type H
A characteristic feature of this type is the large convex and thickened head, often conical in shape, which shows both practical and decorative qualities. Its shape is usually circular. The shaft is either rectangular or oval in cross-section. Twenty-eight specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	38	4x4	11	conv.; thick; pol.	rect.	rect.	1
2	48	4x4	14	conv.; thick; circ.	rect.	rect.	2
3	80	4x4	16	conv.; thick; circ.	rect.	circ.	
4	86	5x5	18	con.; thick, pol.	rect.	rect.	3
5	56	5x4	16	conv.; thick; pol.	rect.	rect.	4
6	11	5x5	16	conv.; thick; circ.	rect.	rect.	5
7	42	3x4	13	conv.; thick; circ.	rect.	rect.	6
8	95	4x4	12	conv.; thick; circ.	rect.	rect.	7
9	46	3x3	11	conv.; thick; circ.	rect.	rect.	8
10	49	4	13	conv.; thick; circ.	circ.	circ.	9
11	90	3x5	13	con.; thick; circ.	rect.	circ.	10
12	48	4x5	14	conv.; thick; pol.	rect.	rect.	11
13	52	4x4	11	con.; thick; circ.	rect.	rect.	12
14	27	6x6	16	con.; thick; circ.	rect.	rect.	13
15	50	5x6	15	con.; thick; pol.	rect.	rect.	14
16	46	5x5	16	conv.; thick; circ.	rect.	rect.	15
17	65	8x8	21	conv.; thick; circ.	rect.	rect.	16
18	51	7x7	17	conv.; thick; circ.	rect.	rect.	17
19	50	8x4	16	conv.; thick; circ.	rect.	circ.	
20	43	4x4	15	conv.; thick; circ.	rect.	circ.	18
21	35	5	15	conv.; thick; circ.	circ.	circ.	19
22	43	5	15	conv.; con.; pol.	circ.	circ.	
23	54	4x4	11	conv.; con.; circ.	rect.	rect.	
24	26	5x5	11	conv.; thick; circ.	rect.	rect.	20
25	25	5x5	10	con.; thick; circ.	rect.	rect.	21
26	54	4x4	12	conv.; thick; circ.	rect.	rect.	22

27	57	5	12	conv, circ.	circ.	circ.	23
28	56	4	11	conv.; thick; circ.	circ.	circ.	
29	63	4x4	14	conv.; thick; circ.	rect.	rect.	24
30	31	3	13	conv.; thick; circ.	circ.	circ.	25
31	32	4	16	conv.; thick; circ.	circ.	circ.	26
32	90	4	15	conv.; thick; circ.	circ.	circ.	27
33	109	4x4	16	conv.; thick; circ.	rect.	rect.	
34	43	5x5	14	conv.; thick; circ.	rect.	rect.	28
35	104	4x4	16	conv.; thick; circ.	rect.	rect.	
36	30	5	18	conv.; thick; circ.	circ.	circ.	29
37	41	6x6	17	con.; thick; circ.	rect.	rect.	30
38	37	4x4	19	con.; thick; circ.	rect.	rect.	31
39	17	5x5	13	con.; thick; circ.	rect.	rect.	
40	35	6x6	14	conv.; thick; circ.	rect.	rect.	32
41	35	4x4	20	con.; thick; circ.	rect.	rect.	33
42	47	5x5	15	conv.; thick; circ.	rect.	rect.	34
43	56	4x6	15	conv.; thick; circ.	rect.	rect.	
44	57	6x6	16	conv.; thick; circ.	rect.	rect.	35
45	51	4x4	12	conv.; thick; circ.	rect.	rect.	
46	15	4x4	13	con.; thick; circ.	rect.	rect.	
47	93	5x5	15	conv.; thick; circ.	rect.	rect.	36
48	70	5x5	13	conv.; thick; circ.	rect.	rect.	37
49	62	4x4	17	conv.; thick; circ.	rect.	rect.	38

TYPE G

TYPE H

Fig. 7. Nails of types G and H (compiled by A. Miernik and J. Recław)

Type J
A characteristic feature of this type is the flat or slightly convex head, the edges of which are rolled up around its entire circumference. The shaft is either rectangular or oval in cross-section, straight and long. Thirty-two specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	size	h.				
1	52	4x4	15	conv.; thick; circ.	rect.	circ.	1
2	61	4x4	16	conv.; thick; circ.	rect.	circ.	2
3	39	2x3	12	conv.; thick; circ.	rect.	circ.	3
4	82	3x3	14	conv.; thick; circ.	rect.	circ.; thick	4
5	71	4	14	conv.; thick; circ.	circ.	circ.	5
6	72	5	15	conv.; thick; circ.	circ.	circ.	6
7	102	5	17	conv.; thick; circ.	circ.	circ.	7
8	112	4x5	17	flat; thick; circ.	circ. beneath the head; rect. from 1/3 length	circ.	8
9	112	5	14	conv.; thick; circ.	circ.	circ.	
10	94	4	15	flat; thick; circ.	circ.	circ.	9
11	65	4	12	conv.; thick; circ.	circ.	circ.	10
12	78	4	13	conv.; thick; circ.	circ.	circ.	11
13	45	4	17	conv.; thick; circ.	circ.	circ.	12
14	34	5x5	15	conv.; thick; circ.	rect.	circ.	13
15	37	5x5	15	conv.; thick; circ.	rect.	circ.	14
16	46	4x4	14	conv.; thick; circ.	rect.	rect.	15
17	30	4	11	conv.; thick; circ.	circ.	circ.	16
18	49	4	15	conv.; thick; circ.	circ.	circ.	17
19	53	4x4	14	conv.; thick; circ.	rect.	rect.	18
20	87	4x4	11	conv.; thick; circ.	rect.	rect.	19
21	82	3	12	conv.; thick; circ.	circ.	circ.	
22	84	4x4	13	conv.; thick; circ.	rect.	rect.	20
23	8	6	17	conv.; thick; circ.	circ.	circ.	21
24	56	4x4	11	conv.; thick; circ.	rect.	rect.	22

25	61	6	18	flat; thick; circ.	circ.	circ.	23
26	98	4	13	flat; thick; circ.	circ.	circ.	24
27	160	4	14	flat; thick; circ.	circ.	circ.	25
28	174	4	14	flat; thick; circ.	circ.	circ.	26
29	89	4	15	flat; thick; circ.	circ.	circ.	27
30	64	4x4	15	flat; thick; circ.	rect.	rect.	28
31	76	5	13	flat; thick; circ.	circ.	circ.	
32	142	5x5	14	conv.; thick; circ.	rect.	rect.	
33	35	4x4	13	flat; thick; circ.	rect.	rect.	
34	89	4x4	16	flat; thick; circ.	rect.	rect.	
35	81	5x5	15	conv.; thick; circ.	rect.	rect.	
36	35	6x6	18	conv.; thick; circ.	rect.	rect.	
37	50	6x6	15	conv.; thick; circ.	rect.	rect.	
38	96	6x6	19	conv.; thick; circ.	rect.	rect.	
39	183	5x5	17	conv.; thick; circ.	rect.	rect.	
40	75	5x5	18	conv.; thick; circ.	rect.	rect.	
41	38	5x5	16	conv.; thick; circ.	rect.	rect.	
42	97	4x4	19	flat; thick; circ.	rect.	rect.	
43	96	4x4	13	flat; thick; circ.	rect.	rect.	
44	97	5x5	16	flat; thick; circ.	rect.	rect.	
45	79	4	14	flat; thick; circ.	circ.	circ.	29
46	51	3	14	flat; thick; circ.	circ.	circ.	30
47	178	5	15	conv.; thick; circ.	circ.	circ.	31
48	193	3	14	conv.; thick; circ.	circ.	circ.	32
49	173	4	15	conv.; thick; circ.	circ.	circ.	33
50	180	5	14	conv.; thick; circ.	circ.	circ.	34
51	62	5	15	conv.; thick; circ.	circ.	circ.	

TYPE H

TYPE J

Fig. 8. Nails of types H and J (compiled by A. Miernik and J. Recław)

TYPE J

Fig. 9. Nails of Type J (compiled by A. Miernik and J. Recław)

Type K

A characteristic feature of this type is the U-shaped form. The unearthed specimens do not have heads. All of them were forged. Three specimens were discovered in the years 2009–2019.

no.	dimensions (mm)			head	s.	jun.	fig.
	l.	s.	h.				
1	50	2	x	x	circ.	x	1
2	62	4x4	x	x	rect.	x	2
3	61	4x4	x	x	rect.	x	3
4	52	3x3	x	x	rect.	x	4
5	47	3x3	x	x	rect.	x	5
6	57	4x4	x	x	rect.	x	6

TYPE K

Fig. 10. Nails of Type K (compiled by A. Miernik and J. Recław)

Due to the lack of preserved characteristic elements, such as the head or upper fragment of the shaft, as well as heavy corrosion, ninety specimens in total have not been classified in any type, forty-two of which were discovered in the years 2009–2019.

The following are plans of the ancient Risan architecture discovered to date, with highlighted findspots of the nails. Due to the large number of finds, and to make individual figures more readable, the visualisations of spatial distribution of nails have been based on the presented types and sectors of the site.
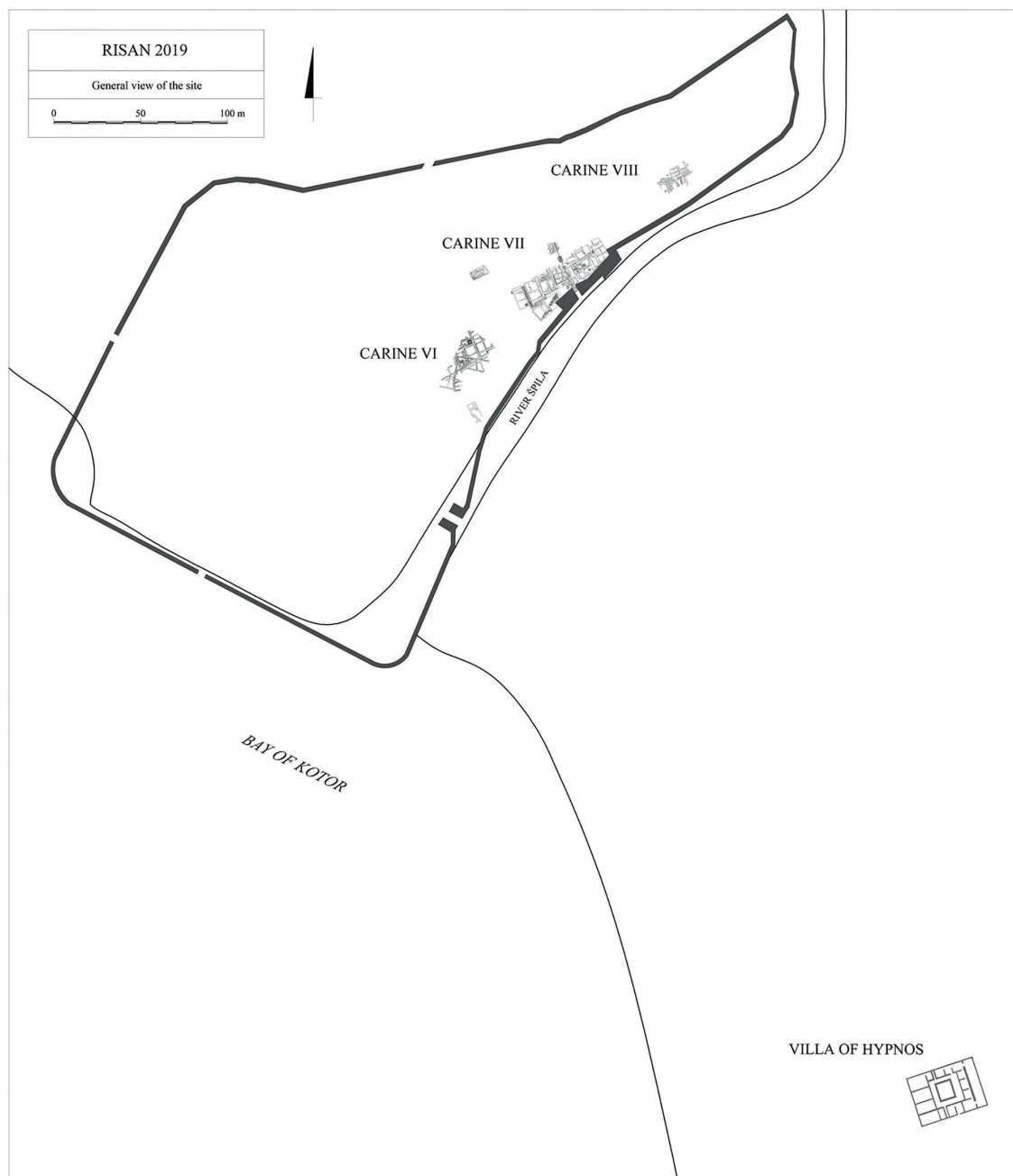
Fig. 11. General plan of ancient Risan (compiled by B. Wojciechowski)

RISAN 2001-2016

General plan of Carine VI, VII and VIII

0   50 m

PALATIAL AREA

CARINE VIII

CARINE VII

RESIDENTIAL AREA

FORTIFICATION WALL

RIVER SPILA

GATE

CARINE VI

RESIDENTIAL AREA
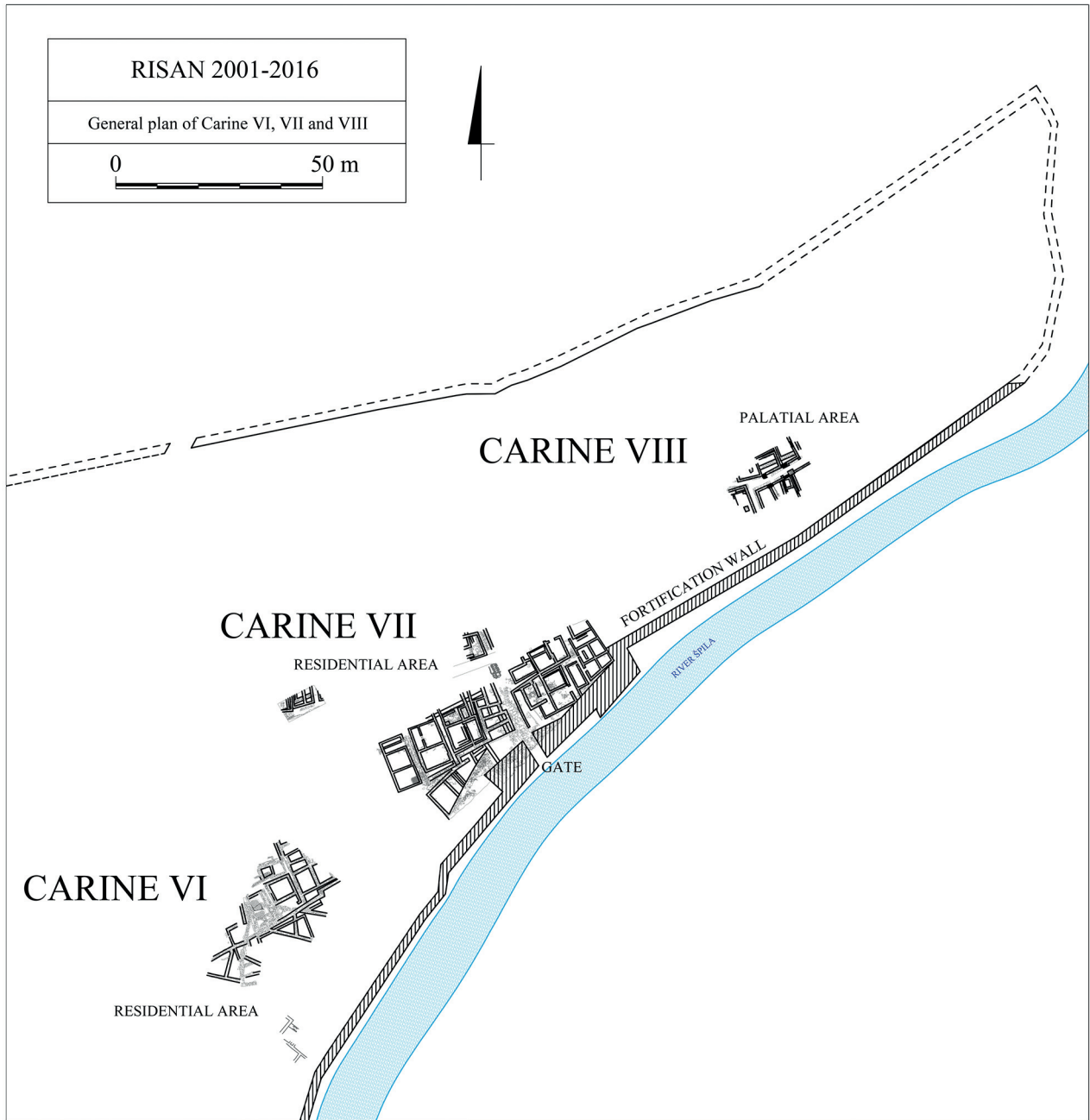
Fig. 12. General plan of Carine VI, VII, and VIII (compiled by B. Wojciechowski)

RISAN 2001 - 2016

Carine VI, general plan

0   10 m

◆ type B

● type C

RESIDENTIAL AREA

RIVER ŠPILA
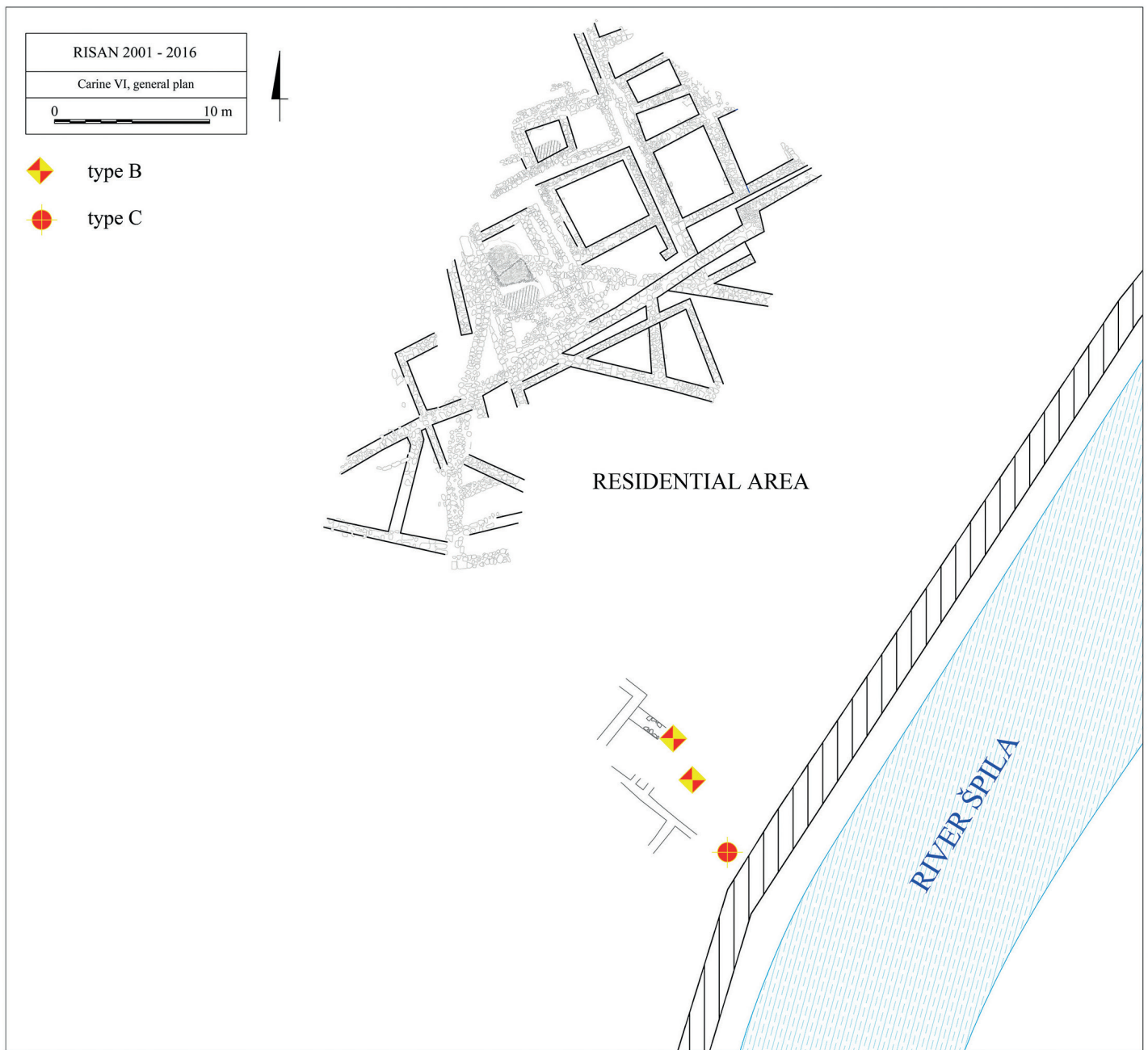
Fig. 13. Types B and C discovered at Carine VI (compiled by B. Wojciechowski)

RISAN 2001 - 2016

Carine VI, general plan

0   10 m

+ type D

type F

type K

RESIDENTIAL AREA

RIVER ŠPILA

Fig. 14. Types D, F, and K discovered at Carine VI (compiled by B. Wojciechowski)

RISAN 2001 - 2016

Carine VI, general plan

0   10 m

● type E

RESIDENTIAL AREA

RIVER ŠPILA
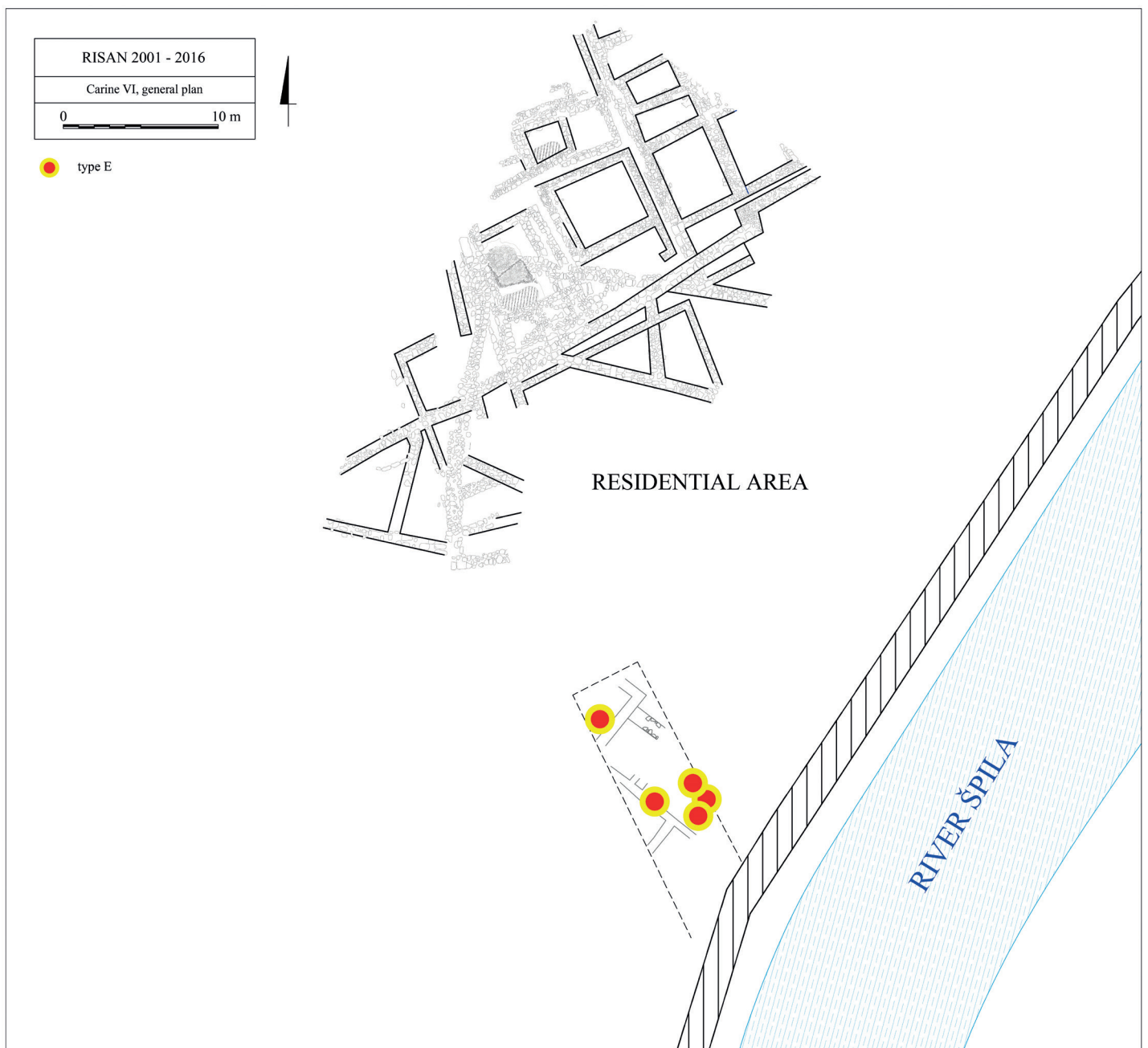
Fig. 15. Type E discovered at Carine VI (compiled by B. Wojciechowski)
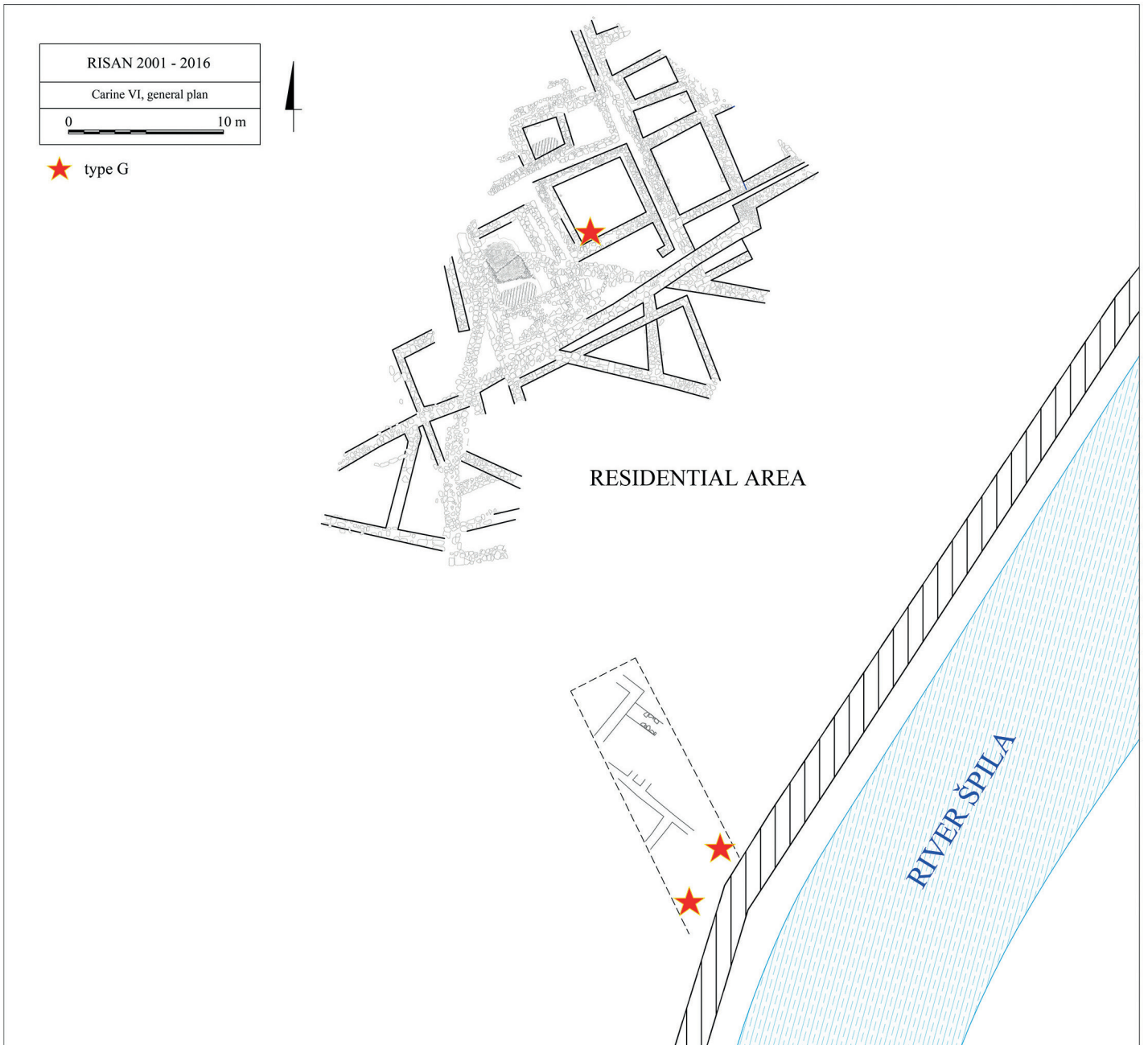
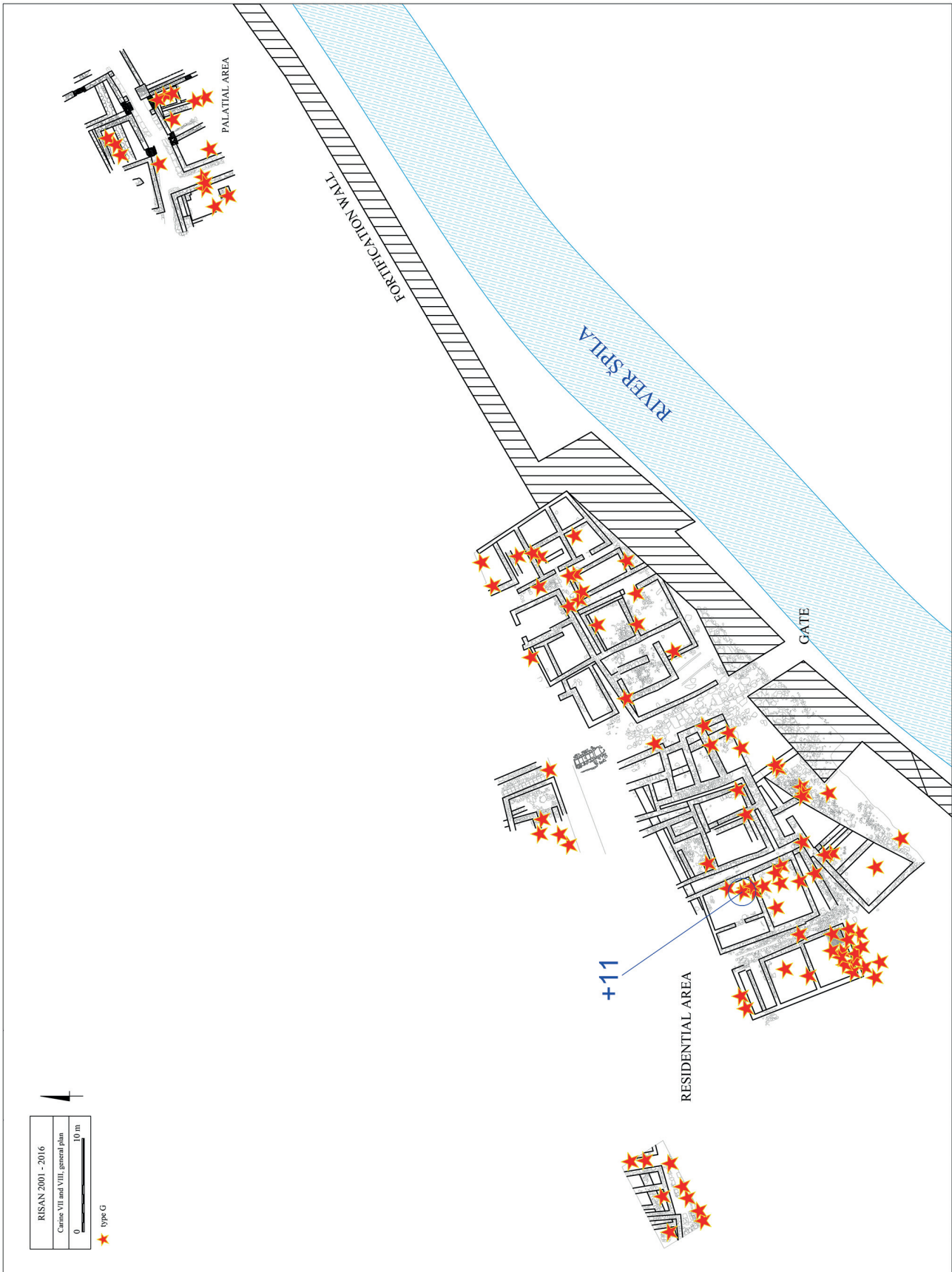Fig. 16. Type G discovered at Carine VI (compiled by B. Wojciechowski)
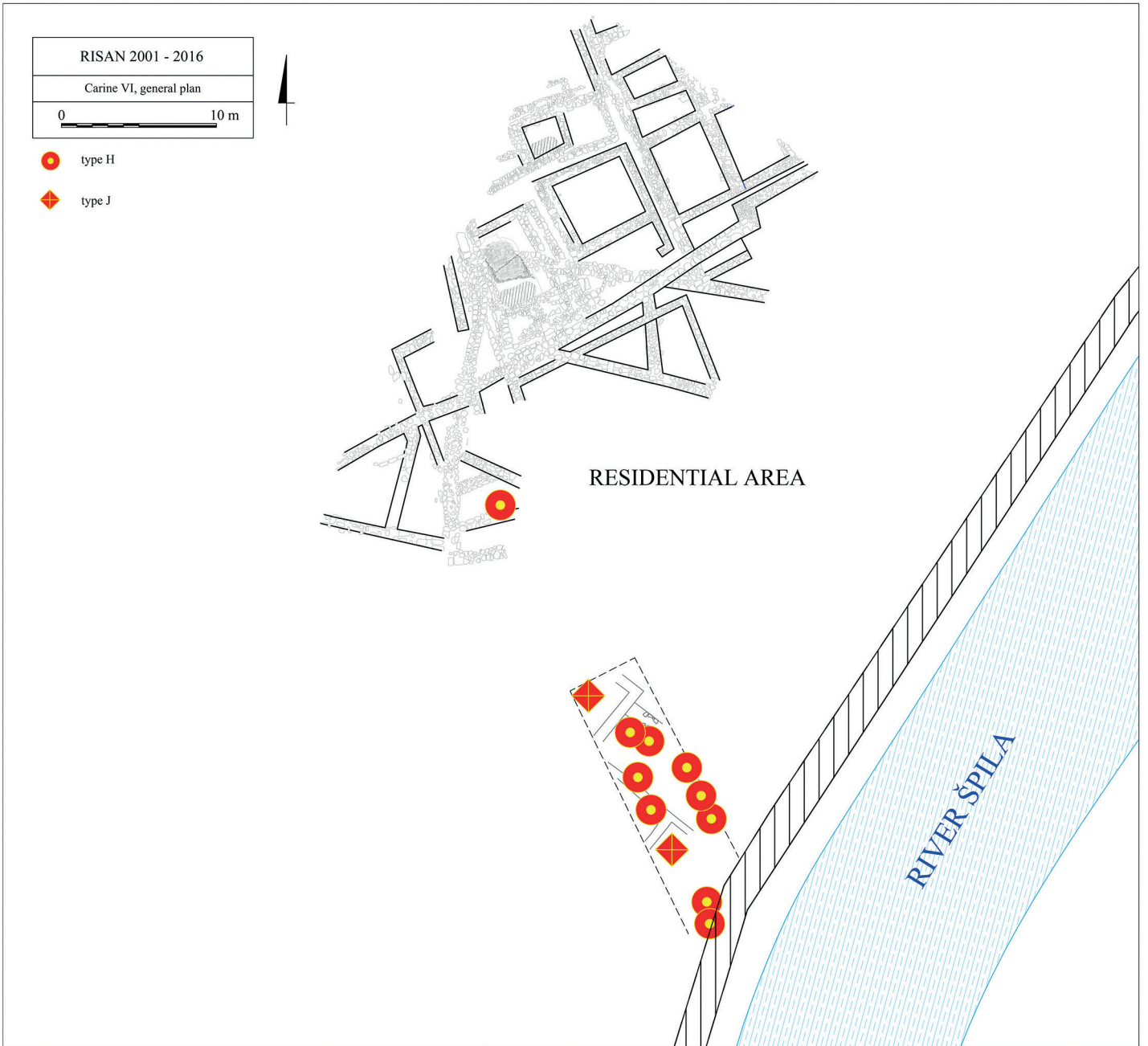
Fig. 17. Types H and J discovered at Carine VI (compiled by B. Wojciechowski)
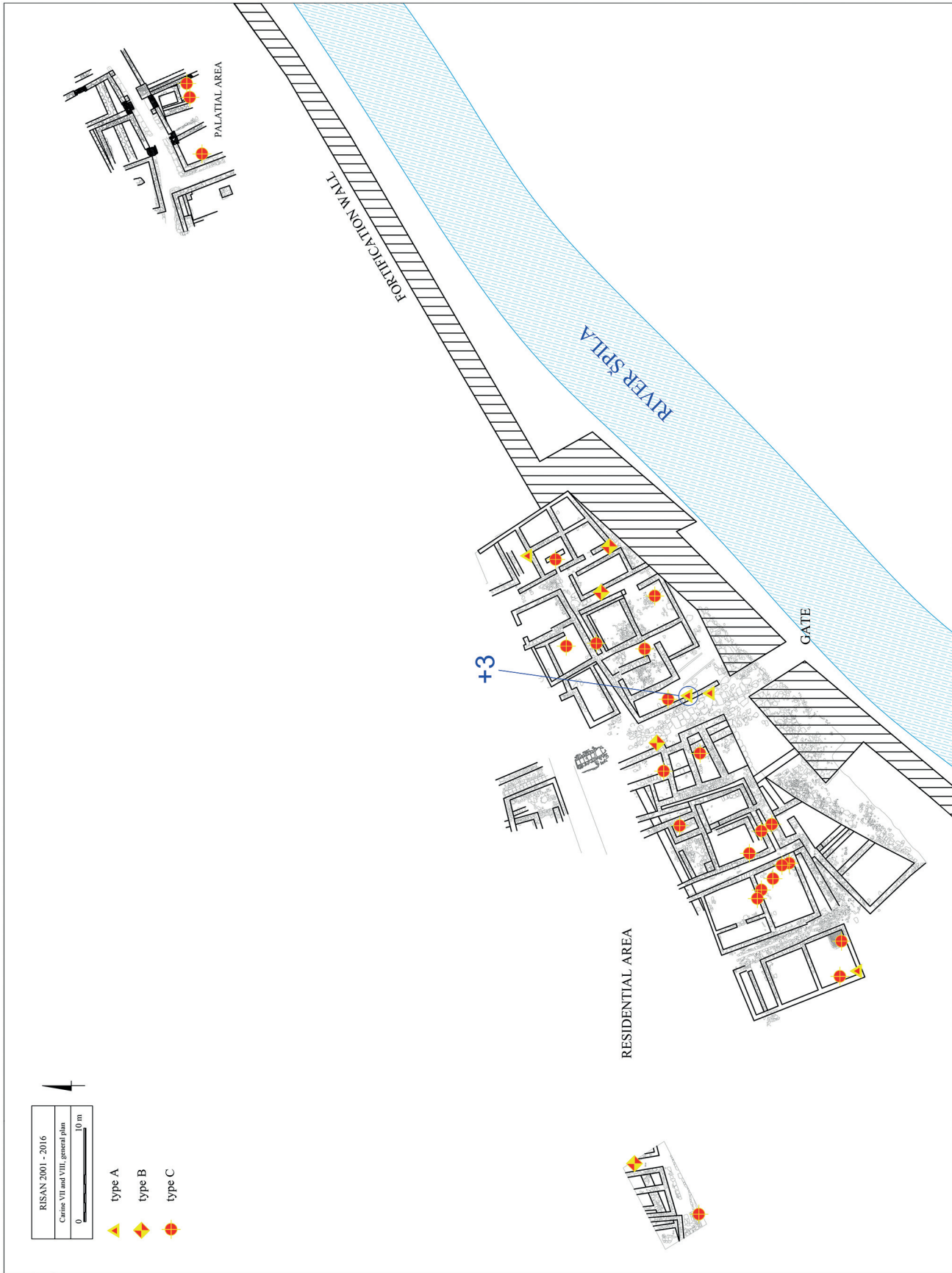
Fig. 18. Types A, B, and C discovered at Carine VII and VIII (compiled by B. Wojciechowski)
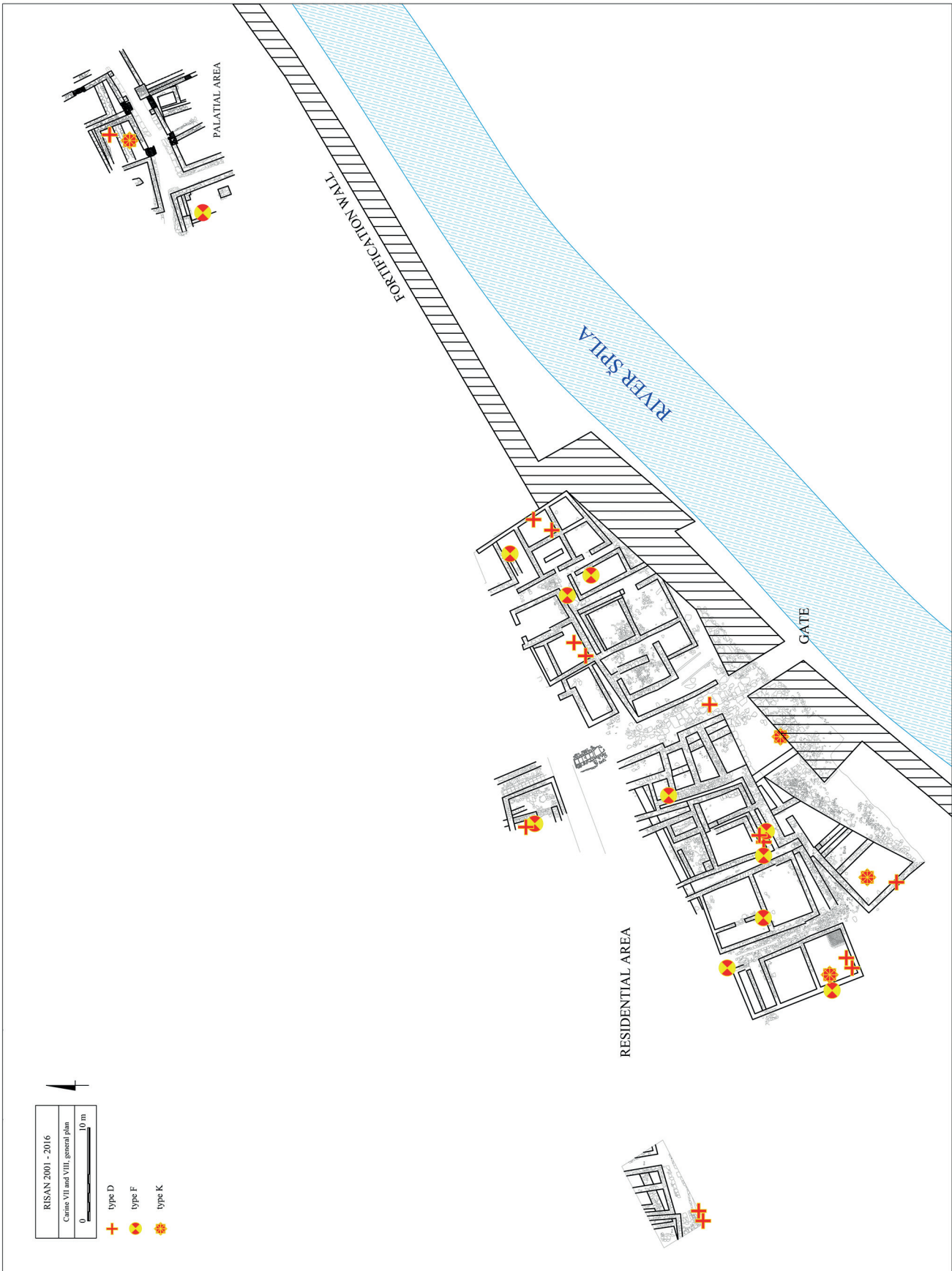
Fig. 19. Types D, F, and K discovered at Carine VII and VIII (compiled by B. Wojciechowski)
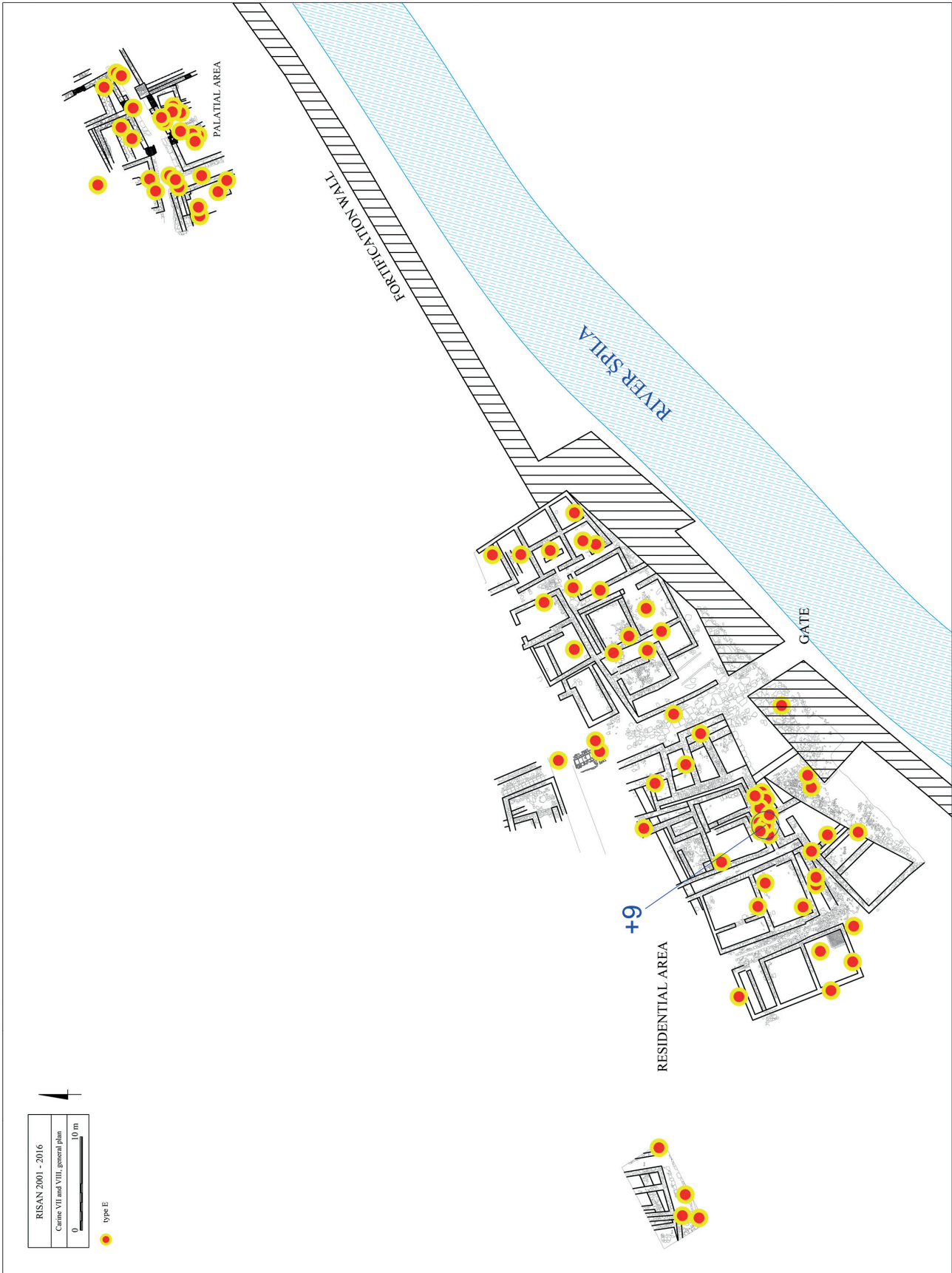
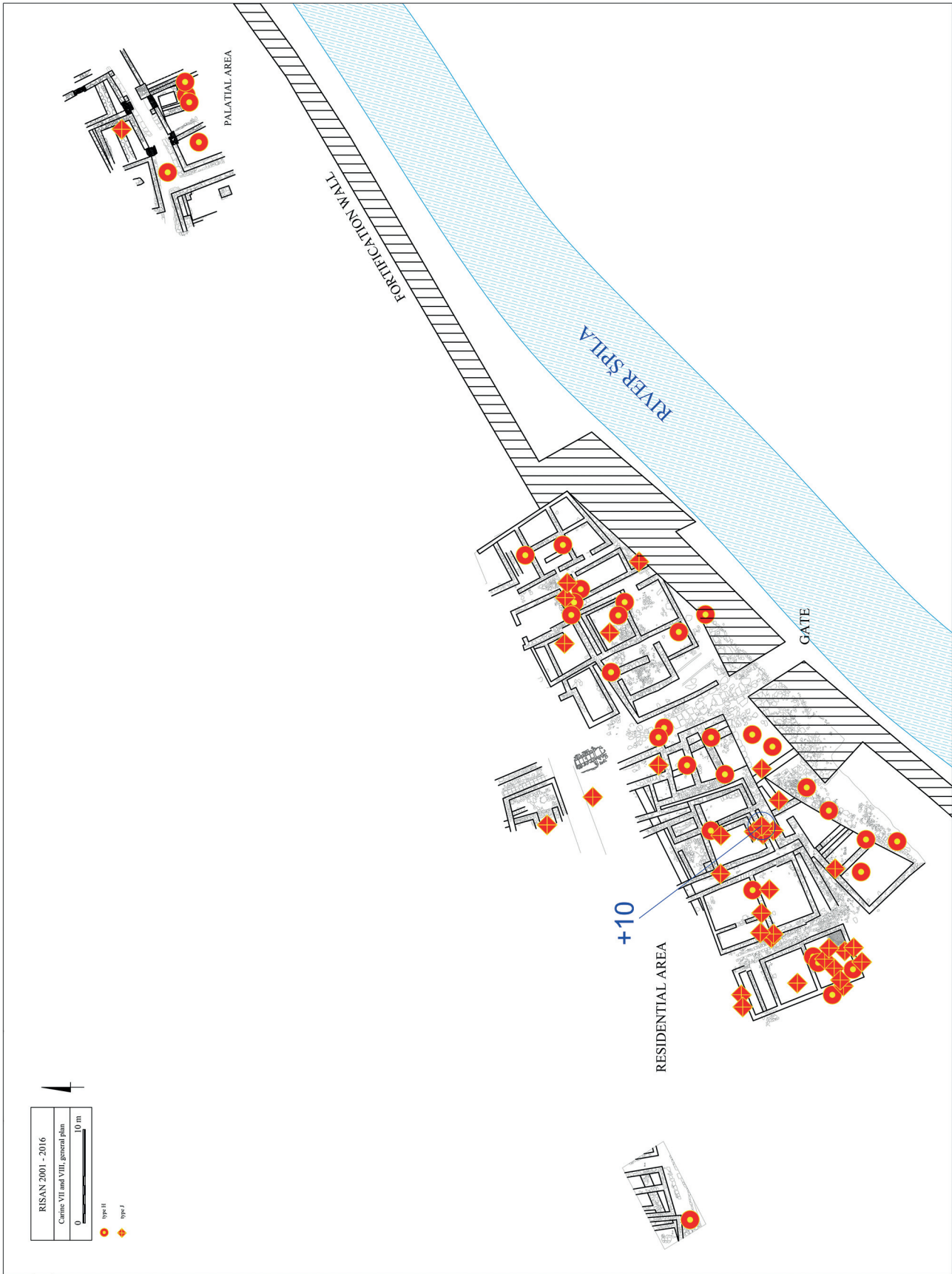Fig. 20. Type E discovered at Carine VII and VIII (compiled by B. Wojciechowski)

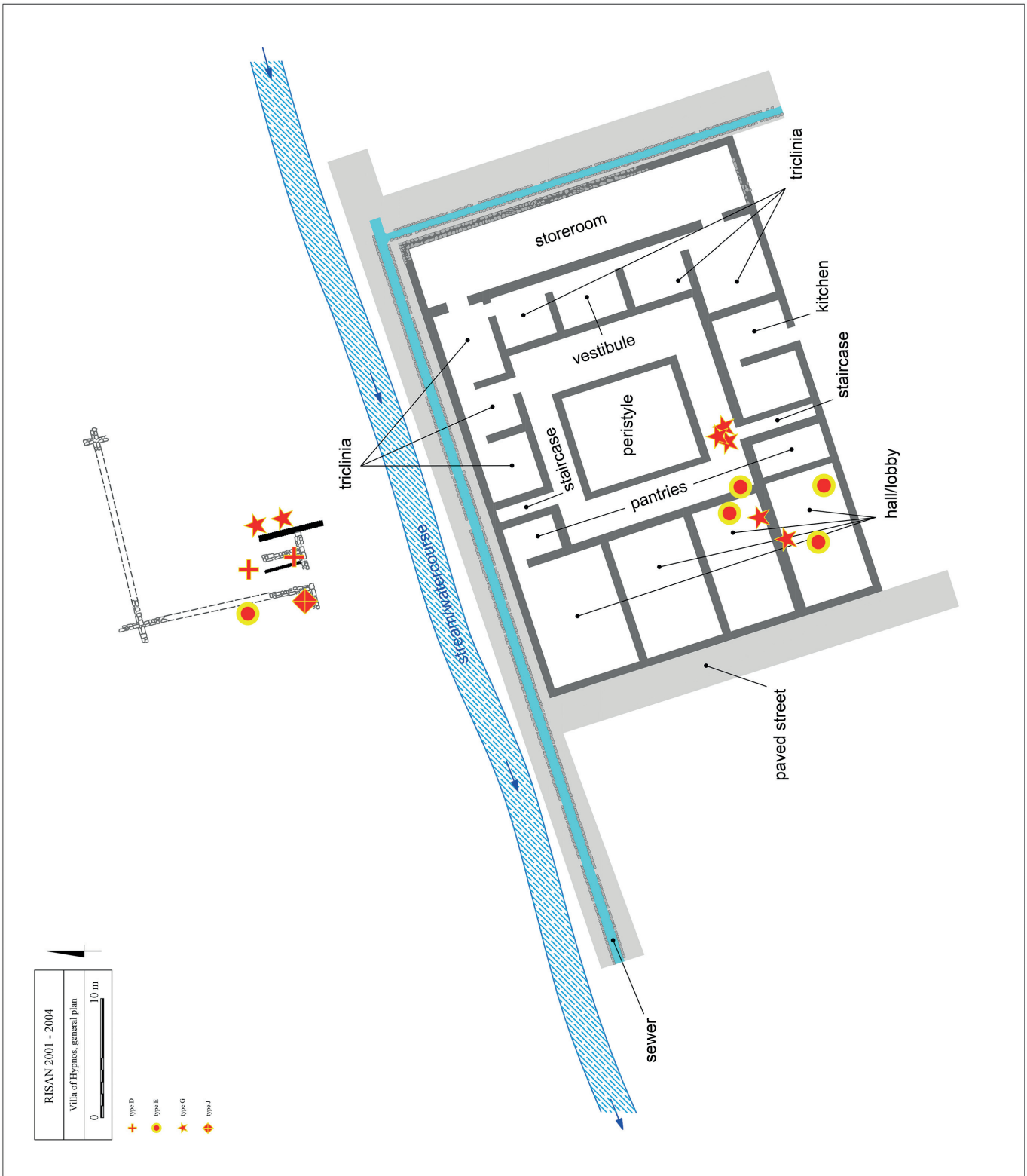PALATIAL AREA

FORTIFICATION WALL

RIVER ŠPILA

GATE

RESIDENTIAL AREA

+9

RISAN 2001 - 2016

Carine VII and VIII, general plan

0   10 m

type E

Fig. 21. Type G discovered at Carine VII and VIII (compiled by B. Wojciechowski)

RISAN 2001 - 2016

Carine VII and VIII, general plan

0   10 m

★ type G

RIVER ŠPILA

FORTIFICATION WALL

PALATIAL AREA

GATE

RESIDENTIAL AREA

+11

Fig. 22. Types H and J discovered at Carine VII and VIII (compiled by B. Wojciechowski)

PALATIAL AREA

FORTIFICATION WALL

RIVER ŠPILA

GATE

+10

RESIDENTIAL AREA

RISAN 2001 - 2016

Carine VII and VIII, general plan

0   10 m

type H

type J

Fig. 23. Nails discovered in the Villa of Hypnos and its surroundings (compiled by B Wojciechowski)

The findspots of bronze nails discovered so far are concentrated within or in close proximity to the unearthed buildings. Such distribution is not unusual and merely reflects the range and scale of excavations carried out to date, which covered only on a small portion of the entire site.

The majority of the aforementioned nail types were discovered in all three sectors of the archaeological site (Carine VI, VII, and VIII), both in the so-called 'residential' as well as the 'palace' zones. The only exceptions in this regard are the types A and B, which may be due to the generally sparse number of items discovered or recorded, representative of but a small percentage of the whole site.

Another exception is the Villa of Hypnos, where a relatively small number of bronze nails were discovered, all assigned to just four types: D, E, G, and J. The reason for this may be that the building itself is much later than the rest of the unearthed architecture – it dates from the Roman Period (second–fourth century AD)[9] when iron was already dominant in nail production.

Identification of functions of individual types or specimens is extremely difficult due to the lack of preserved materials or structures fastened together by the nails. Finding a shipwreck would greatly facilitate such analysis, but none has been discovered at Risan so far. There are also no nails with evidently magical or votive functions[10]. Unfortunately, the plans presented above contribute little to solving the question of functions, as there is no clear concentration of any of the types in a single place – apart from the most abundantly represented Type G, whose design suggests that it may have found use in upholstery work or been a part of a garment.

In the ancient world, nails or, more broadly, metal elements that bound together fragments of other (mainly wooden) structures served both practical and decorative functions.[11] In the case of the discussed bronze nails, the aesthetic function could have been manifested mainly through the shape and form of the head. Decorative qualities are evident in some of the heads of the Type H specimens, some of which have never been hammered. This, in turn, suggests that they were meant to be seen and served as a decorative element. The Risan nails were produced mainly for local needs and to suit the tastes of their purchasers.

Further and more precise identification of the function of individual items will become possible when the archaeological works intensify, particularly in areas designated for development of local infrastructure, and when the unearthed ancient architecture is recognised and understood in greater detail.

Bibliography

Bevilacqua 2011   G. Bevilacqua "Chiodi magici", *Archeologia Classica* 52, pp. 129–150.
Ciołek 2021   R. Ciołek, *The Monetary system in the kingdom of Ballaeus* [= Rhizon/Risinum. Illyrian Fortress, Greek and Roman Town. Volume 2], Warsaw.
Clarke 1979   G. Clarke, *The Roman Cemetery at Lankhills*, Oxford.
Dronjaković 2003   L. J. Dronjaković, *Risan pivih hiljadu godina*, Belgrade.
Dungworth 1998   D. Dungworth, "Mystifying Roman nails: clavus annalis, defixiones and minkisi", [in:] *TRAC 97: Proceedings of the Seventh Annual Theoretical Roman Archaeology Conference, Nottingham 1997*, eds. C. Forcey, J. Hawthorne, R. Witcher [= Theoretical roman archaeology conference 97], Oxford, pp. 148–159.
Dyczek 2010   P. Dyczek, "Hypnos from Risinium (Montenegro)", *Novensia* 20, pp. 51–63.

[9] Dyczek 2010, pp. 53–55.
[10] On such nails, see Dungworth 1998; Bevilacqua 2001.
[11] Sharp 2011, pp. 42–52.

SHARP 2011   E. G. SHARP, *A Comparison of Ancient Mediterranean Metal Structural Fittings* [= *Theses and Dissertations (Comprehensive)* 1029], Ontario.

LITWINOWICZ 2010a   P. LITWINOWICZ, *Gwoździe brązowe ze stanowiska w Risan, Czarnogóra (2001–2008). Analiza i interpretacja*, Warszawa.

LITWINOWICZ 2010b   P. LITWINOWICZ, "Wstęp do typologii gwoździ brązowych ze stanowiska w Risan" [Introduction to the typology of bronze nails from Risan], *Novensia* 21, pp. 165–175.

SHAW, SHAW 2000   J. W. SHAW, M. C. SHAW, *Kommos IV: The Greek Sanctuary*, Princeton.

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