
CONTOURS AND CONTENTS OF THE GHOST: TRYPILLIA CULTURE PROTO-CITIES

by Mikhail Yu. Videiko

Few years ago Dr. D. Monah wrote about the ghost, haunting Europe – Neolithic proto-cities – „... ghost without contour and content”. He show, that the Trypillia settlements, as the other Neolithic sites from Europe and Anatolia ...” do not meet the necessary conditions to be considered cities”¹. It is truth that any of such settlements never were the true cities. But the cities don’t appeared one day as now, after the decision of the supreme power. The real born of the city was a long, controversial process, which, it seems, sometimes continued for a very long time. Only archaeology now can find the beginning of this event in Prehistory. It is impossible (and incorrectly) to compare the definition of the CITY with archaeological records, related with the process of the origin of the city, i.e. PROTO-CITY.

Now it seems that the idea about Trypillia Culture proto-cities traversed path from declarations, mentioned by D. Monah, to ponderable content: the ghost becomes more and more visible. For a long time since 1971 only few articles were published². For the next thirty years the most of ideas and materials were published at near 200 abstracts and short articles, mainly in Russian and Ukrainian³. But during only last seven years several books were published about the history of investigations⁴, explorations of the large settlements, such as Maydanets’ke⁵, Tall’anky⁶, East-Trypillia Culture settlements⁷. Were published new plans of the settlements⁸, results of other

¹ D. Monah, *A Ghost is Haunting Europe: the Neolithic Proto-Cities*, in *Tripolian settlements-giants. The international symposium materials*, Kyiv, 2003, p. 239-243.

² M.M. Shmaglij, *Velyki trypil's'ki poselennya I problema rannikh form urbanizacii*, Kyiv, 2001, 123 p.; M. Yu. Videiko, *Die Grosse Tripol'ye Culture Siedlungen auf Ukraine*, in *EurAntiq*, 1, 1996.

³ Idem, *Trypil's'ki protomista. Istoria doslidzhen'*, Kyiv, 2002, p. 127-140 (bibliographie).

⁴ *Ibidem*, p. 5-69.

⁵ N.M. Shmaglij, M. Yu. Videiko, *Maidanets'ke – tripolskij protogorod*, in *SP*, 2, 2001-2002, p. 44-136.

⁶ V.A. Kruts, A.G. Korvin-Piotrovsky, S.N. Ryzhov, *Talianki – settlement-giant of the Tripilian culture, investigations in 2001*, Kiev, 2001, 110 p. + 32 color; V.A. Kruts, A.G. Korvin-Piotrovsky, S.N. Ryzhov, G.N. Busyan, E.V. Ovchinnikov, D.K. Chernovol, V.V. Chabanyuk, *Issledovanie poselenii-gigantov tripol'skoi kul'tury v 2002-2004 gg.*, Kiev, 2005, 140 p. + 15 color.

⁷ O.V. Tsvek, *Poselennya Skhidnotrypil's'koi kul'tury. Korotky narys*, Kyiv, 2006, 85 p.

excavations and field inspections. The „ghost” received the entirely visible contour and ponderable content. This article regards as the step to familiarity with the image of Trypillia Culture proto-cities.

The archaeological culture of Trypillia was discovered more than 130 years ago. Since that time archaeologists have found thousands of artefacts and excavated hundreds of ancient settlements. Archeometric investigations (both aerial and magnetic resonance survey) have allowed archaeologists to produce maps of large settlements that belonged to various periods of Trypillia culture.

These settlements were quite vast, occupying areas from 0.5 to as much 4.5 square kilometres. At the territory of Ukraine we know near 40 such places. More than 90 settlements have square from 10 to 40 ha (tab. 1). For the last time we have information about 135 settlements with square more than 10 ha at Ukraine. It is near 7% from all known Trypillia culture settlements (near 2000) at this territory. At Moldova there are 59 Cucuteni-Trypillia settlements with square more than 10 hectares⁹. Among them – Petreny (30 ha), Brynzeny VIII (40 ha), Varvarivka VIII (50 ha), Stolnicheny (80 ha). If we have now at Moldova and Ukraine near 2440 Cucuteni-Trypillia settlements, 194 (i.e. near 8%) have square more than 10 ha.

The large settlements exhibited regular planning and contained hundreds or even thousands of dwellings, all of which existed at the same time. Radiocarbon dating of these settlements ranges from 4600-4200 to 2750 BC. It means, that the epoch of the large settlements continued from 1850 up to 1450 years.

Thirty years of research have produced the data necessary to describe the chronology, architecture, and economy of large settlements in Trypillia. We now have the facility to put forward some arguments concerning their appearance and demise.

The absolute chronology of the proto-cities

One of the most interesting questions was: in what times did Trypillian proto-cities existed? Traditional dating of TC at 70th was between 4000-2200 BC. Archaeologists used uncalibrated ¹⁴C dates. So, they dated proto-cities near 3000-2600 BC. It looks that this kinds of settlements appeared in Europe at times when Sumer and Egypt states were established.

Situation was changed by using of calibration. The earliest of the dated large settlements (according to dates and archaeological data) is Vesely Kut (stage BI/II), dated by the end of V or the beginning of IV mil. BC (tab. 2).

Settlements Maydanets and Tall'anki (stage CI) dated to the middle of IV mil. BC. Vilkhovets (stage CII) dated by the first half of III mil. BC. So the period of large Trypillia settlements continued near 1200-1500 years from 4200 / 4100 to 2900 / 2700 BC.

⁸ V.P. Dudkin, M. Yu. Videiko, *Planuvanna poselen' trypil's'oi kul'ury*, in *Enciclopedia Trypil's'koi Civilizacii*, tom. I, Kyiv, 2004, p. 303-314.

⁹ V.M. Masson, *Dinamika razvitia tripol'skogo obschestva v svete paleodemograficheskikh ocenok*, in *Pervobytnaia arkheologia. Poiski I nakhodki*, Kiev, 1980, p. 208, tab. 1.

Nr.	Settlement	Square, ha	Stage of Trypillia	Territory, river's system	Plans ¹⁰ :	Investigations ¹¹	Explored	
							Houses	Other objects
1	2	3	4	5	6	7	8	9
1	Mogylna III	near 10	A	Mogylanka S. Bug	M	I		
2	Stepanivka	15	A-BI	S. Bug		I		
3	Chyzhivka	20-30	BI	S. Bug	V	E		
4	Tzvizhyn	15	BI/II	S. Bug	V	E	1	
5	Onopryivka	60 ~ 80	BI/II	G. Tikych S. Bug	V	E	4	1
6	Kharkivka	100	BI/II	S. Bug	V	E	+	
7	Vesioły Kut	150	BI/II	G. Tikych S. Bug	V, A	E	27	
8	Myropillya	100-200	BI/II	G. Tikych S. Bug	V	E	5	
9	Vil'khovets II	100	BI/II	G. Tikych S. Bug		I		
10	Pianeshkove (Bugachivka II)	100	BI/II	Umanka S. Bug	V	E	41	1
11	Veremya 1	~ 25	BI/II	Krasna Dnipro	V	E	9	
12	Trypillia	~ 200	BI/II	Krasna Dnipro	V	E	20	
13	Kolomyitsiv Yar	~ 30	BI/II	Stugna Dnipro		E	3	
14	Magala	25	BII	Dnister	V	E	1	
15	Nezvisko XI	15	BII	Dnister	V	E	1?	
16	Bovshiv	40	BII ?	Dnister		I		
17	Kryshtopivka	60	BII	Sob S. Bug		I		
18	Ternivka	26	BII?	Berezhanka S. Bug		I		
19	Nemyrivske	~ 40	BII	Kodyma S. Bug		E	2	
20	Brygidivka	~ 40	BII	Lyadova Dnister		I		

¹⁰ M – magnetic; A – aerial; V – visual.

¹¹ E – excavated; I – inspected.

1	2	3	4	5	6	7	8	9
21	Ukhozhan	~ 50	BII	Kodyma S. Bug		I		
22	Krynichky	~ 50	BII	Kodyma S. Bug		E	11	
23	Korytna	~ 50	BII	Kodyma S. Bug		E	2	
24	Labushnaya-Sad	12	BII	Kodyma S. Bug		I		
25	Strymba	40	BII	Kodyma S. Bug		I		
26	Khrystynivka	100	BII	S. Bug		E	1	1
27	Volodymyrivka	~ 100	BII	Synukha S. Bug	V, A	E	27	2
28	Mykhailivka (Fedorivka)	50-100	BII	Synukha S. Bug	M, A	I		
29	Gordashivka 1	~ 60	BII	G. Tikych S. Bug		E		
30	Lekarevo	40	BII	Velyka Vys S. Bug		I		
31	Vladyslavcyk	100	BII	Svynarka- S. Bug		I		
32	Maslove	40	BII	Velyka Vys S. Bug		E	1	
33	Andriyivka	80	BII	Velyka Vys S. Bug		E	1	
34	Kryvi Kolina	> 60	BII	Synukha S. Bug	A	I		
35	Pischana	~ 15	BII	Synukha S. Bug	M, A	E	2	
36	Nebelivka	300	BII	S. Bug	A	I		
37	Glybochok	132	BII	G. Tikych S. Bug	A, M	E	2	
38	Peregonivka	~ 100	BII	Synukha S. Bug	A	I		
39	Yampil	~ 60	BII	Velyka Vys S. Bug	A, M	I		
40	Yatranivka I	> 50	BII	Yatran S. Bug	A, M	I		
41	Gryshchynsi II	50	BII	Dnipro		I		
42	Buda - Orlovets'	~ 30	BII	Serebrank Dnipro		I		
43	Valyava	100	BII	Vil'shanka Dnipro		I		
44	Garbusyn	70-80	BII	Ros' Dnipro		E	4	2

1	2	3	4	5	6	7	8	9
45	Peremozhynsi	40-50	BII	Ros' Dnipro	V	E		
46	Gudzivka	30	BII-CI	Dnipro		I		
47	Moryntsi I	20	BII-CI	Dnipro		I		
48	Moryntsi II	15	BII-CI	Dnipro		I		
49	Derenkovets' II	20	BII-CI	Ros' Dnipro		I		
50	Zaricha'	10	CI	Ros' Dnipro		I		
51	Nova Buda	15	CI	Dnipro		I		
52	Pochapintzi I	16	BII-CI	Dnipro		I		
53	Pochapintzi II	16	BII-CI	Dnipro		I		
54	Sakhnivka II	10	BII-CI	Dnipro		I		
55	Smil'chntsy	15	BII-CI	Dnipro		I		
56	Shevchenkove	10	BII-CI	Dnipro		I		
57	Tagancha	30	BII-CI	Ros' Dnipro		I		
58	Vil'shana 1	30	CI	Vil'shanka Dnipro		E	2	3
59	Vil'shana 2	20	BII or CI	Vil'shanka Dnipro		I		
60	Voronivka-I	15	CI	Povilzh'a Dnipro		I		
61	Voronovka II	20	BII or CI	Dnipro		I		
62	Zelena Dibrova	13	CI	Nypivka Vil'shanka Dnipro		E	2	
63	Kvitky II	20-150	CI	Ros' Dnipro		I		
64	Sukhiny	20	CI	Dnipro		I		
65	Komarivka	15	CI	Dnipro		I		
66	Kychintsy I	22-40	BII-CI	Dnipro		I		
67	Kvitky III	25	CI	Ros' Dnipro		I		
68	Voronovka 1	15	BII or CI	Dnipro		I		
69	Ksaverove	100	CI	Midyanka Dnipro	V	I		
70	Petryky II	20	BII-CI	Zhyravka Vil'shanka Dnipro		I		
71	Gorodysche II	15	CI	Dnipro		E	2	

1	2	3	4	5	6	7	8	9
72	Mliev 1	50	CI	Vil'shanka Dnipro		I		
73	Nezamozhnyk	20	BII-CI	Zhyravka Vil'shanka Dnipro	V	E	4	4
74	Rubanyi Mist	~ 50	CI	Velyka Vys S. Bug		E	1	1
75	Sokil 1	24	CI ?	Dnister		E		
76	Nyzhniv XLII	14	CI ?	Dnister		I		
77	Oleshiv IV	18	CI ?	Dnister		I		
78	Chereshen'ka	16	CI ?	Vovk Dnister		I		
79	Ometryntsi II	12	CI ?	S. Bug		I		
80	Kozhykhiv	8-12	BII-CI	S. Bug		I		
81	Kusykhivtsi	8-12	BII-CI	S. Bug		I		
82	Lysogirka	15	BII-CI	S. Bug		I		
83	Lisne	8-12	BII-CI	S. Bug		I		
84	Sosny	10	BII-CI	S. Bug		E		2
85	Shevchenka	8-12	BII-CI	S. Bug		I		
86	Berezna	8-12	BII-CI	S. Bug		I		
87	Golod'ky	8-12	BII-CI	S. Bug		I		
88	Gorodysche II	10	CI	Zgar S. Bug	V	E		1
89	Kurylivka	50	BII-CI	S. Bug	V	E		
90	Berezivka II	22,5	BII-CI	Murashka S. Bug		I		
91	Kanatkiivtsi	15	BII-CI	Lozova Dnister		I		
92	Chechelnyk	72	CI	S. Bug	V	E	5	
93	Ivashkove - Sad	~ 15	CI	Kodyma S. Bug	V	I		
94	Serby II	12	BII-CI	Kodyma S. Bug		I		
95	Oleksandrivka - Krutians'ka I	15	CI	Dnister		I		
96	Stina IV	100	CI	Rusava Dnister	V	E	2	
97	Yaltushkiv 1	100-120	CI	Lyadova Dnister	V	E	1	
98	Tochilove	10-12	BII-CI	S. Bug		I		

1	2	3	4	5	6	7	8	9
99	Sushkivka	100	CI	Yatran Synyukha S. Bug	V, A	E	5	
100	Popudnya	~ 15	CI	S. Bug	V	E	23	
101	Budysche	15	CI	G. Tikych S. Bug		I		
102	Bondarka II	16	CI	S. Bug		I		
103	Buzhanka	10	CI	G. Tikych S. Bug		I		
104	Dubrivka	12	BII-CI	S. Bug		I		
105	Gorodnytsya	25	CI	S. Bug		I		
106	Kolodyste 1	10 ~ 50 ?	CI	G. Tikych S. Bug	V, A	E	10	
107	Kolodyste 2 (Lukivka)	16	CI	G. Tikych S. Bug	V, M	E	6	6
108	Dobrovody	250	CI	G. Tikych S. Bug	A	E	7	1
109	Chychyrkozivka	200-300	CI	G. Tikich S. Bug	A	E	1	
110	Rozsokhuvatka	~ 100	CI	G. Tikich S. Bug	A	I		
111	Vasylkove (Iskrenne)	50-100	CI	S. Bug	A	I		
112	Petroostriv	30-40	CI	Velyka Vys S. Bug		I		
113	Kaitanivka II	10	CI	S. Bug		I		
114	Romanivka	100	CI	G. Tikych S. Bug	V	I		
115	Tal'ne 1	30-40	CI	Talyanka G. Tikych S. Bug	A	I		
116	Maydanets	200	CI	Talyanka G. Tikych S. Bug	A,M	E	34	20
117	Tallyanky	450	CI	Talyanka G. Tikych S. Bug	A,M	E	32	4
118	Stodul'tsi	24	CII ?	Riv S. Bug		I		
119	Kocherzhyntsi (Pankivka)	~ 30	CI	Yatran S. Bug	A	E	1	
120	Stari Babany	50	CI	Yatran Synyukha S. Bug	A	I		

1	2	3	4	5	6	7	8	9
121	Pugachivka	20	CI	Revukha-S. Bug		I		
122	Tomashivka	150-250	CI	Yatran Synyukha S. Bug		E	4	
123	Novo - Ukrainka	30-50	CI	Velyka Vys S. Bug	A	I		
124	Cherpovody I	15	CII	Yatran S. Bug		I		
125	Kobrynove	~ 15	CII	G. Tikych S. Bug	A	I		
126	Kosenivka	120	CII	Yatran Synyukha S. Bug	A	E	5	
127	Korzhova	20	CII	Yatran S. Bug		I		
128	Korzhova - Slobidka	16	CII	Yatran S. Bug		I		
129	Vilkhovets I	~ 92	CII	G. Tikych S. Bug	A, M	E	1	1
130	Kocherzhyntsi (Shulhivka)	~ 100	CII	Yatran Synyukha S. Bug	A	E	1	
131	Apolyanka	90-100	CI-CII	Yatran Synyukha S. Bug		E	1	
132	Sharyn	30	CII	S. Bug		E	3	2
133	Sverdlykove	18	CII	Synyukha S. Bug		E		1
134	Vil'shana - Slobidka	30	CII	Yatran S. Bug	V	I		
135	Krasnopilka	28	CII	Yatran Synyukha S. Bug		E		1
	TOTAL			A-22 / M-10 / V-26		E-53/ I-82	312	63

Tab. 1. Trypillia Culture settlements with square more than 10 ha in Ukraine¹².

¹² The most of information originated from: *Arkheologichni pamyatki Trypil's'koi kul'tury na teritorii Ukrainy*. Reestr, in *Enciclopedia Trypil's'koi Civilizacii*, Kyiv, 2004, tom. I, p. 563-700.

One of the most important questions of studying of the large settlements was the question of their internal chronology, or micro-chronology. Were the thousands of buildings on the area of hundreds hectares existed at one time or not? It is known, that the large agricultural agglomerations at Central Europe, which existed in Neolithic, developed for a long time, but contemporary were only parts of explored houses or other objects.

At the beginning of investigations M. Shmaglij wrote, that „... the large settlements Maydanets may be developed from the centre to borders during the life of 3-4 generations, who build the new ellipse structures during 100 or more years ...”¹³.

After many years of excavations at Maydanets’ke and Tall’anky, where many houses and other objects were investigated, archaeologists received data to answer this question¹⁴.

Analysis of all sources – stratigraphy of the sites, planigraphy of the settlements, stylistics of the pottery from the objects (houses and pits) give us possibility to consider, that:

1. The large settlements were created and developed step-by-step (see below stages 1-4, defined at Maydanets’ke).
2. Most of the houses and other installations existed at one time.
3. Most of buildings were inhabited contemporary and were destroyed (burnt) at one time.
4. It was the first period of settlement being, when houses were built without any common plan, than most of them were destroyed before ellipses – fortifications were built.

So we can propose the such model of Tripillya proto-cities development, based on results of previous investigations at Maydanets’ke settlement:

STAGE 1 – „the stage of settling” – period, when the first small groups of houses at the territory of future settlement appeared;

STAGE 2 – „the stage of centralized construction” – period, when ellipses – fortifications and main streets were constructed;

STAGE 3 – „the stage of development” – period, when new ellipses and other structures appeared;

STAGE 4 – „the final stage” – time, when whole the settlement was burnt.

The main conclusion is that according to our data the most of dwellings coexisted at the last stage at the settlement history.

¹³ M.M. Shmaglij, *op.cit.*, p. 71.

¹⁴ N.M. Shmaglij, M. Yu. Videiko, *Mikrokhronologia poselenia Maidanetskoe*, in *Rannezemledel’cheskie poselenia-giganty na territorii Ukrainy*, Kiev, 1990, p. 91-94; S.N. Ryzhov, *Mikrokhronologia poselenia Tal’anki*, in *Rannezemledel’cheskie poselenia-giganty na territorii Ukrainy*, Kiev, 1990, p. 83 - 90.

Settlement	Lab. number	B.P.	cal BC	Stage of TC
Vesely Kut	Bln-2137	5180 ± 65	4012 ± 94	BI-II
Vesely Kut	Ki-903	5100 ± 100	3869 ± 118	BI-II
Tall'anky	Ki-6865	4755 ± 50	3565 ± 81	CI
Tall'anky	Ki-6866	4720 ± 60	3475 ± 96	CI
Tall'anky	Ki-6867	4810 ± 55	3586 ± 66	CI
Tall'anky	Ki-6868	4780 ± 60	3575 ± 76	CI
Maydanets'ke	Ki-1212	4600 ± 80	3226 ± 163	CI
Maydanets'ke	Bln-2087	4890 ± 50	3679 ± 43	CI
Vilkhovetz	Ki-6922	4170 ± 55	2422 ± 115	CII
Vilkhovetz	Ki-6923	4165 ± 60	2766 ± 96	CII
Vilkhovetz	Ki-6924	4205 ± 50	2786 ± 84	CII
Vilkhovetz	Ki-6925	4225 ± 55	2792 ± 86	CII

Tab. 2. Isotope dates from Trypillya culture large settlements.

Phase	Square, hectares					Total
	10-30	30-50	60-90	100	> 100	
CII	6	3	2	3	–	12
CI (+ BII-CI)	52	13	1	7	5	78
BII	5	13	6	6	2	32
BII-II	2	1	1	4	2	10
BI	1	1	–	–	–	2
A	1	–	–	–	–	1
	67	31	10	20	9	135

Tab. 3. Distribution of the large settlements: periods / size.

Bug-Dnepr	Square, hectares					Total
	10-30	30-50	60-90	100	> 100	
Late Kaniv group	31	6		1		37
Tomashivka group	4	5		4	5	18
Both groups	35	11		9	5	55

Tab. 4. The large settlements at Bug-Dnepr region, phase CI (+ BII-CI).

Distribution of the large settlements: time, size, territory

The other important question is the distribution of sites (territory, time, size). We can explore this question, using data from the table 1. From BI-II phase we have multi-level system of settlements with territory from 10-15 up to 100 and more hectares (tab. 3). Then we can see, that this type of settlements are known in all areas of Trypillia Culture - Dniester, Dniester - South Bug, South Bug - Dnepr regions (fig. 1). All local groups at BII and CI phases had several 10-15 ha settlements and few 30-50-100 ha centres. So, it can reflect the situation with the social organization of Trypillia Culture population, which was similar in different places.

But the most of the large settlements were discovered at the territory between the South Bug and Dnepr. Here the top of their spreading was at BII and CI phases, when the largest centres developed. At this territory coexisted two large local groups of Trypillia culture: Tomashivka group and Kaniv group. They have the similar structure which included the settlements of different size – from 10 to 450 ha. At Kaniv group the most of settlements was from 10 to 30 ha, 6 – 30-50 and only one had square 100 ha. Tomashivka group had only four villages from 10 to 30 ha, but four 100 ha centres and five – from 200 to 450 ha.

It seems that this data reflects some strong system of organization, which existed and spreaded for a long time at the different Cucuteni-Trypillia areas. This system included small settlements (under 10 ha), and the large of different size (fig. 2).

The planning of proto-cities

There are reasons to suspect that the most basic planning principles, whether in the form of circles or ellipses, „streets” or „farmsteads,” were customary in Trypillia culture even before the appearance of large settlements¹⁵.

The oldest of these are the BI/II stage settlements, among which is *Vesely Kut* with an area of 150 hectares. The aerial photo of the settlement shows the existence of separate farmsteads and some traces of elliptical structures. In O. Tsvek's opinion, the principle of building in a circular pattern was used here, although the distance between the houses was 10-20 m. In period BII we see as many as six elliptical structures at *Volodymyrivka* (approximately 100 hectares). The area between some of these structures was either not built up or the space between them was intentionally left open (Shishkin, 1985, fig. 1-2, 4). Special attention was given to the construction of a „habitable wall”, remains of which was first excavated in 1946.

At *Volodymyrivka* we find the earliest examples of such fortifications. Aerial photographs of *Volodymyrivka* and *Mykhailivka* reveal lines of „streets” and rectilinear „blocks” similar to the later examples found at *Maydanets'ke* and *Tallyanky* (fig. 3-5). Similar to this planning scheme are the CI stage settlements found at *Dobrovody* and *Vasylkove*. Photos and magnetic resonance maps show the existence of two or three building clusters in an elliptical pattern with free space separating the central and surrounding ovals (fig. 4), as well as „quarters” (blocks) and „streets” (fig. 5 a-c). Entrances to the large settlements were fortified. They were flanked by the dwellings, as we see it at *Glybochok* (fig. 5 d), *Nebelivka* and other places.

¹⁵ V.P. Dudkin, M. Yu. Videiko, *op.cit.*, in *loc.cit.*, p. 309-310.

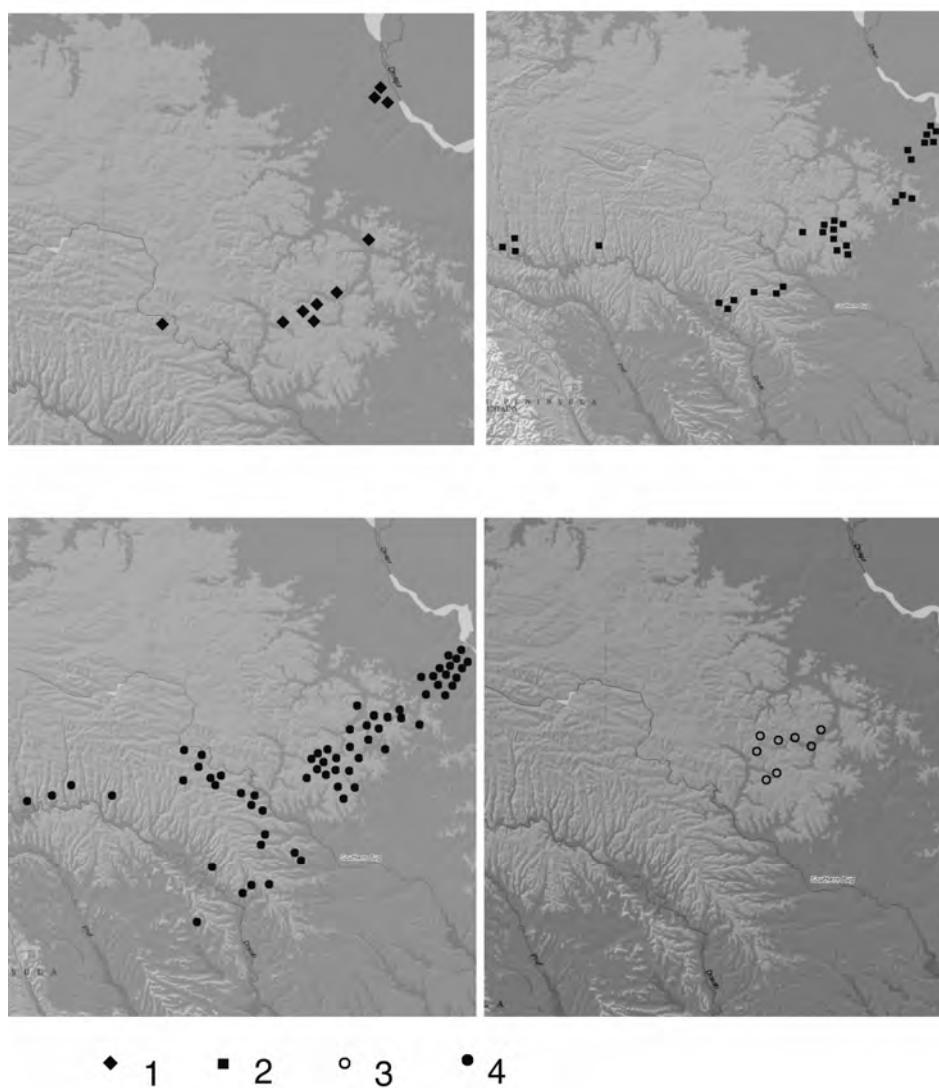


Fig. 1. The large settlements of Trypillia Culture, territorial distribution:
 1 – Trypillia BI/II; 2 – Trypillia BII; 3 – Trypillia CI (and BII-CI); 4 – Trypillia CII.

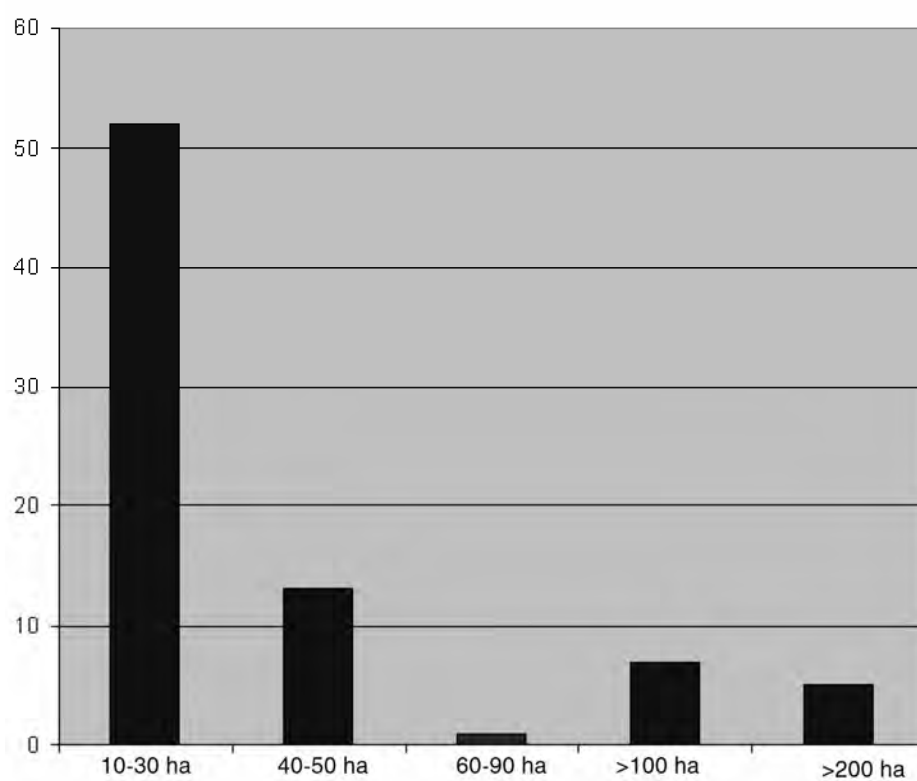


Fig. 2. The lagre settlements of Trypillia Culture, Bug-Dnipro region (Kaniv and Tomashivka groups), distribution by size.

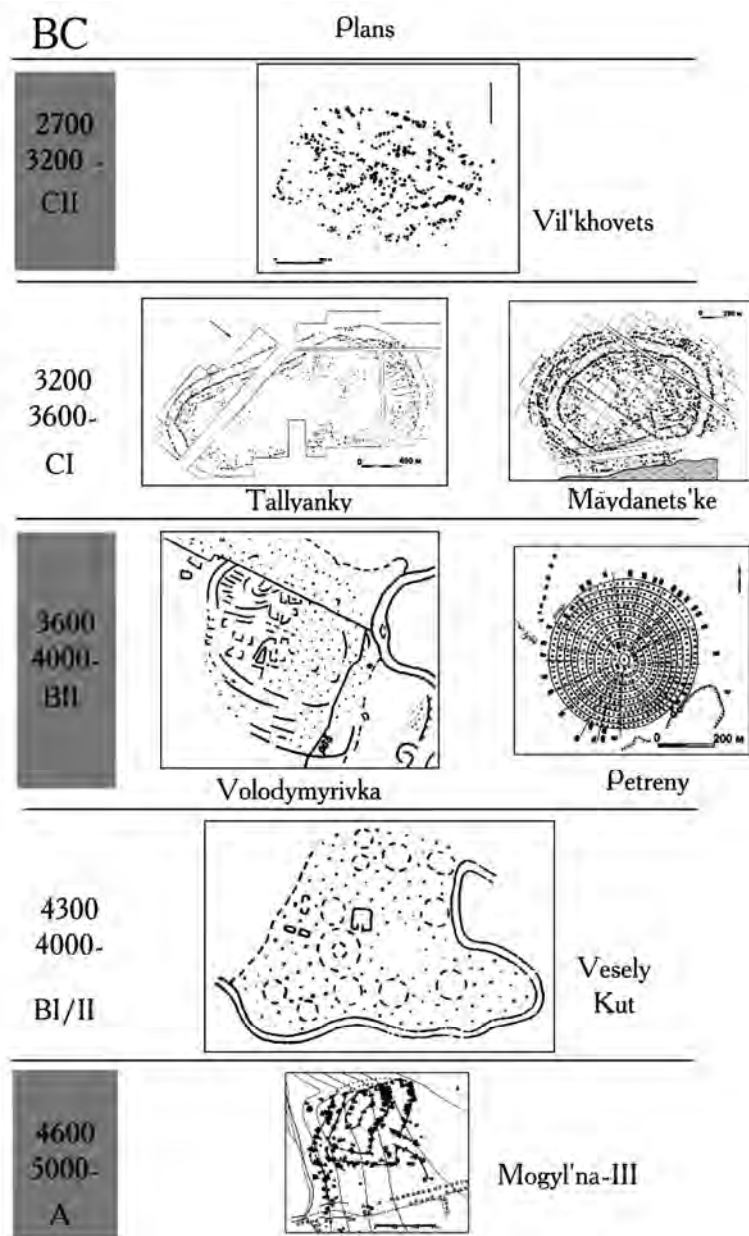


Fig. 3. The large settlements of Trypillia Culture, absolute chronology and development of the planning.

<http://www.muzeu-neamt.ro> / <http://cimec.ro>



Fig. 4. Plan of the largest Trypillia Culture settlement at Tallianky (Trypillia CI) – near 450 ha, (reconstruction):
1 – dwellings, verified by magnetic prospection (after V. Dudkin); 2 – reconstruction.

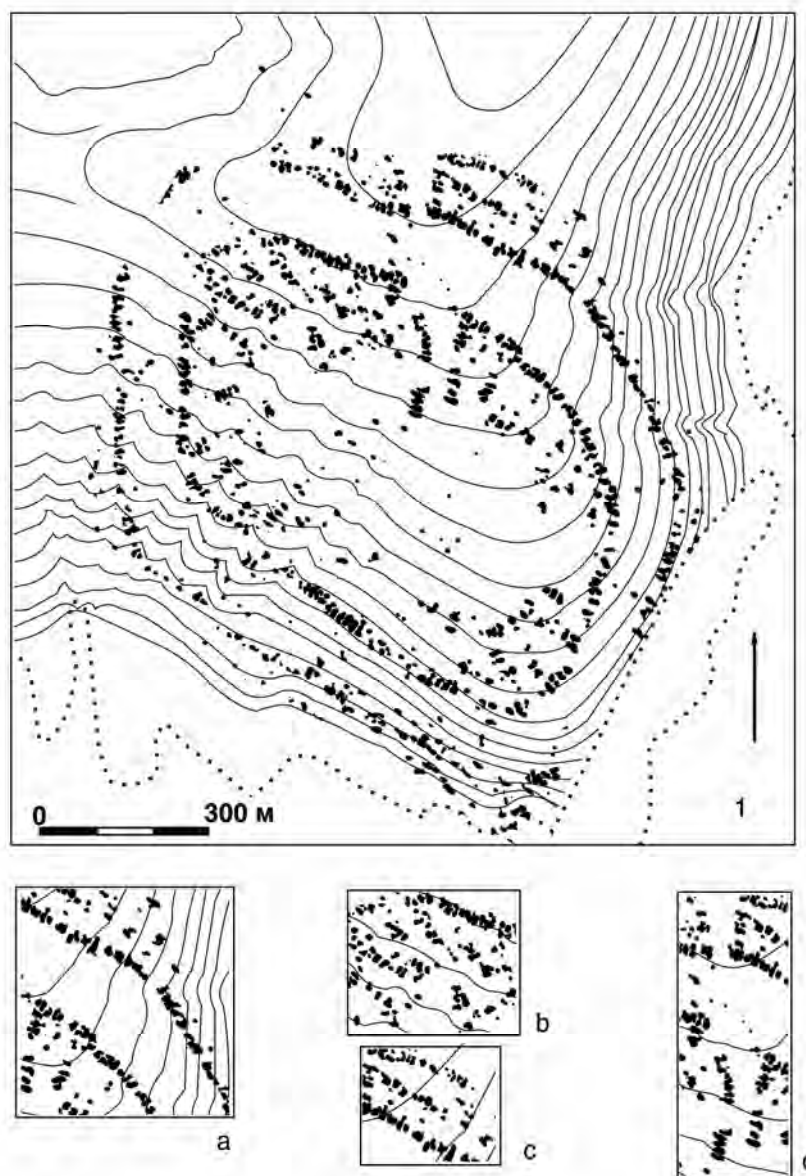


Fig. 5. Plan of the large settlement at Glybochok (Trypillia BII):
 1 – plan; a – part from elliptical structures; b, c – „streets” and „quarters”;
 d – entrance, defended by dwellings.

In the Southern Bug region standard planning schemes were developed and reproduced between 4200 and 2750 BC (fig. 3). They comprise elliptical structures with interim vacant sites intended for defensive purposes, „streets” and „quarters” (blocks) in the central area of the settlement. All aspects of this building tradition had been known to the Trypillia population from the beginning of the early period – *Mogyl'na* III settlement (Trypillia AIII, approximately 5000-4800 BC), where two elliptical buildings were found in an area of about 10 hectares. Some 1500 years later, in *Maydanets'ke* (in stage CI), we observe a fully formed settlement building system, or proto-city. This settlement was protected by two lines of „inhabited walls” with open space between them and contained „quarters” (blocks) and „streets” in the central area.

Some unique planning we can observe at Petreny settlement in Moldova. A general settlement area was by 30 hectares, on which counted near 500 dwellings. Building conducted on plan, by concentric circles. The Houses by middle dimensions 5 x 8 m stood along circular and radial streets prettily densely. Totally were 18 radial streets and eight circular. At the central part of the settlement was small unbuilt – up area with two big buildings near. By external settlement edge on photo loud by 25 big buildings by dimensions 14-16 m long and 6-7 m width. They are disposed one by one on settlement perimeter, in one place three stand on small distance one from one. As supposed V.I. Markevich, that these buildings could have defensive disposition, may be as original towers on settlement perimeter¹⁶.

The architecture of large settlements

The majority of archaeologists today believe that the most typical of Trypillia culture were early timber frame buildings with wooden walls and ceilings plastered with clay¹⁷. Straw and sometimes leaves were admixed into the clay. Structures were built, as a rule, with supporting posts made of tree trunks set deep into the earth in order to secure a vertical position. The walls were also made of timber and plastered with clay. As can be seen in dwelling models, these vertical posts divided the walls into separate sections, each projecting outward as half-columns. The model from *Volodymyrivka* also indicates that the walls of the dwellings were painted.

The ceilings were constructed of wood, either with square or round timbers depending on the building's width. Many finds of clay coating that preserve the impressions of these constructions survive. The standard width of houses was 4-5 m, but some rooms are known which measured 9-10 m wide. Buildings were rectangular in plan and ranged in size from small (4.4 x 9 m) to large (15 x 10 m, 9 x 21 m, 7 x 33 m etc.).

Wooden floors were covered with clay to which straw was commonly added. This covering resulted in the creation of an even, clay floor surface, or *dolivka*, at the ground level.

Interiors of inhabited rooms included a stove or an open hearth. Smoke was vented through an opening in the ceiling. The rooms were outfitted with various

¹⁶ V.I. Markevich, *Pozdnetripolskie plemena Severnoi Moldavii*, Kishinev, 1981, p. 18, fig. 14.

¹⁷ M. Yu. Videiko, *Arkhitektura poselenn' trypil's'koi kul'tury*, in M. Yu. Videiko, R.V. Terpilovsky, V.O. Petrashenko, *Davni poselennya Ukrainy*, Kyiv, 2005, p. 45-50, 57-75.

benches made of clay, raised platforms, and troughs with millstones mounted onto them. Judging from the images on the recovered clay models, windows were round with geometrical or ornamental patterns around them. Thresholds were made of clay, and entrances were outlined by complicated geometrical and ornamental patterns. These served to protect the room from the penetration of „evil spirits”.

In the case of two-storied buildings, the second floor, with its stove, was used for living while the first floor supported the household requirements of storage, the shelter of animals, etc. In this way the household complexes of the early period in Trypillia were kept warm. In addition to domestic complexes, potters' workshops were also excavated. These were situated close to dwellings but were differentiated as separate work places – at *Vesely Kut*, *Myropillya*¹⁸.

The people of Trypillia also invented a new type of settlement compound. These were combined into a single, two-story household complex that consisted of buildings attached to each other. The distance between the recovered architectural remains was not more than 1-1.5 m. The remains of such structures were excavated in *Maydanets'ke* (fig. 6-7) and *Volodymyrivka*.

The economy of large settlements

The extensive agricultural cultivation practiced by these populations, primarily in the forest-steppe region, resulted in the decimation of local forests in the vicinity of the household settlements. This has been proven by palynological data gathered for settlements of Trypillia culture. The amount of tree pollen diminishes in the palynological spectra while the pollen of bread grains, weeds and secondary woody types increases. Traces of ash that might appear as the result of burning vegetation have also been found¹⁹.

The Copper Age (end of the 5th millennium - beginning of the 3rd millennium BC) represents the period when human beings first made a considerable impact on their immediate environment. Periodic transference of Trypillia settlements suggests that this population experienced the first bitter repercussions of civilization, namely ecological problems. It is arguable that they tried to resolve these problems with the assistance of magic and rituals. Some archaeologists interpret the presence of symbolic objects as a coping mechanism for environmental stress.

We have come to the conclusion that the economy of Trypillia culture was a balanced system, and that a major share of plant cultivation²⁰ and livestock breeding ensured the existence of necessary products. All other kinds of economic activities, such as hunting, fishing, and the gathering of wild fruits, honey, and mollusks, supplemented the principle branches of the economy.

¹⁸ O.V. Tsvek, *Poselennya Skhidnotrypil's'koi kul'tury.*, p. 22-23, 41; fig. 4-5, 16.

¹⁹ K.V. Kremenetskii, *Paleoekologia drevneishykh zemledeltsev i skotovodov Russkoi ravniny*, Moskva, 1991, 123 p.

²⁰ G.A. Pashkevich, M. Yu. Videiko, *Ril'nytstvo plemen trypil's'koi kul'tury*, Kiev, 2006, 143 p.

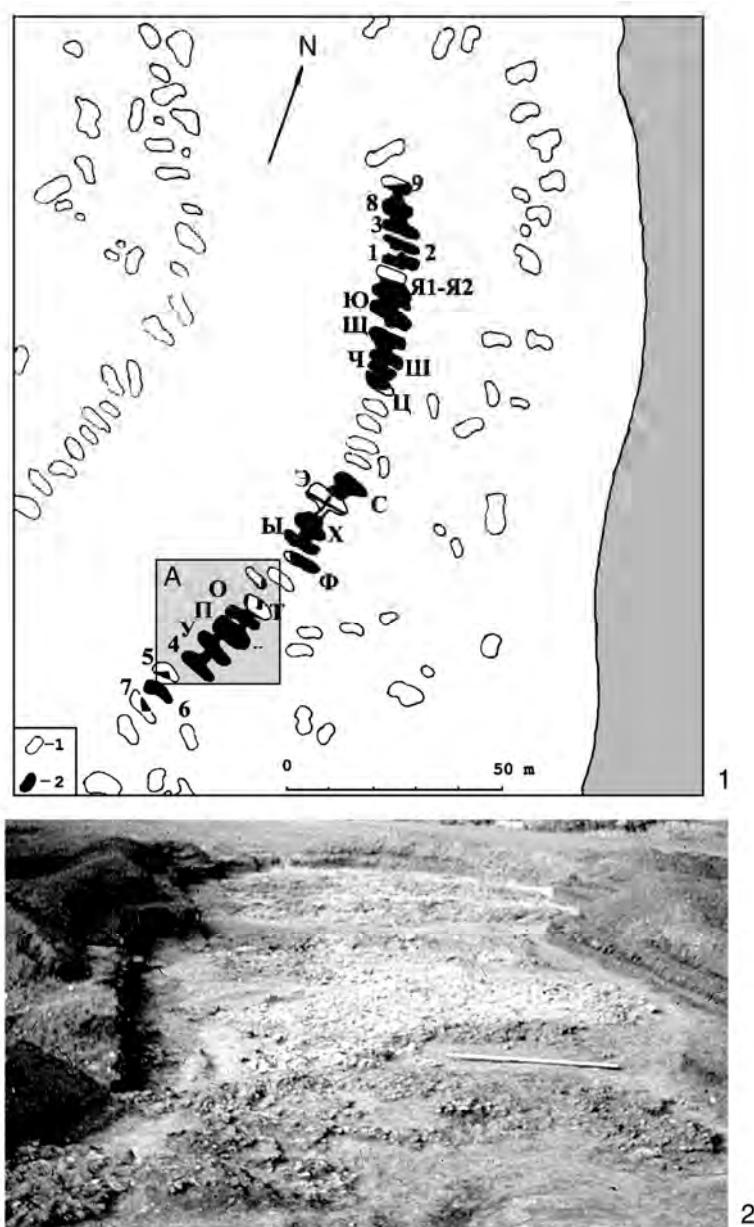


Fig. 6. Maydanets'ke (Trypillia CI), excavations at the second ellipse:
 1 – plan (1 – dwellings, detected by magnetic prospection; 2 – excavated at 1986-1991);
 2 – group of dwellings, explored at 1987.

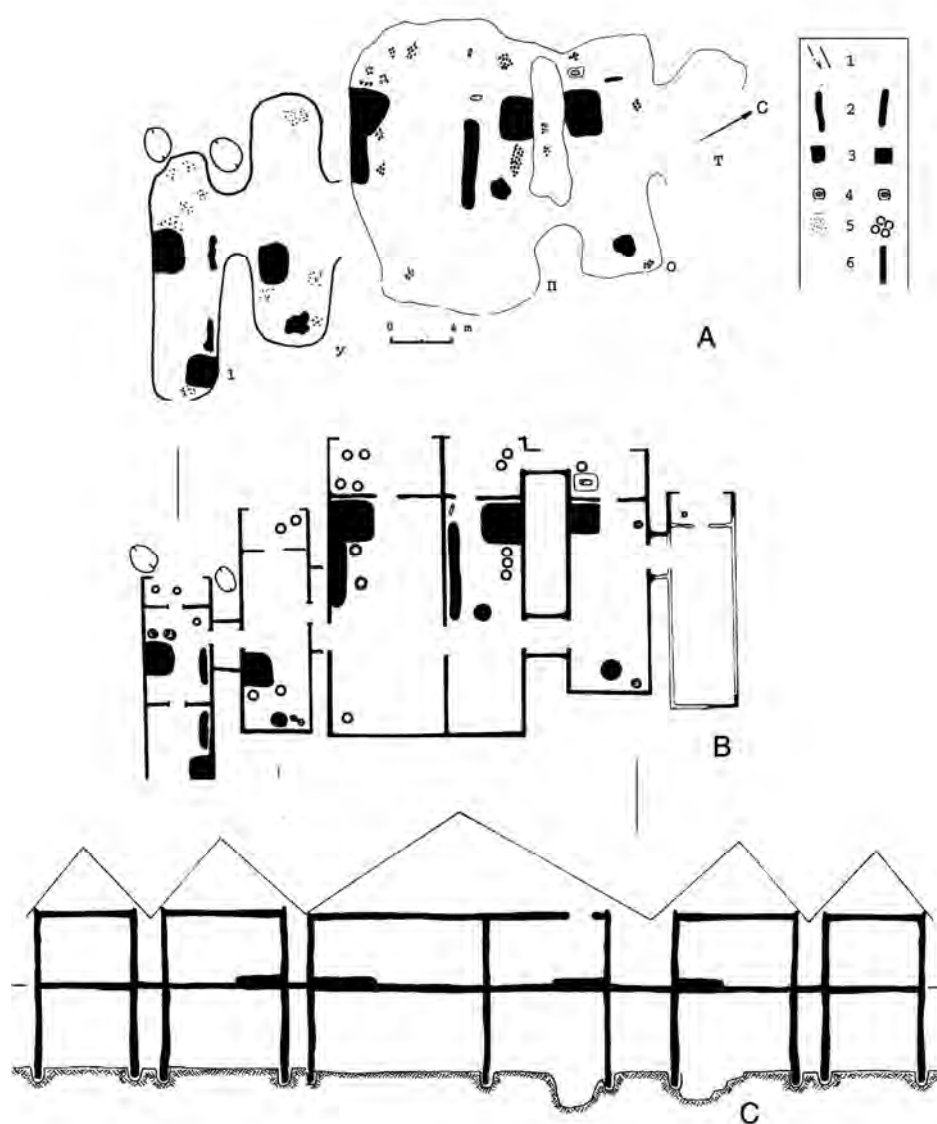


Fig. 7. Maydanets'ke (Trypillia CI), excavations at the second ellipse at 1986, 1989 and 1990:
 A – plans of explored remains of dwellings; B – contours at the level of the second floor;
 C – cross-section (reconstruction); 1 – contours of burnt clay; 2 – clay podium;
 3 – oven or fireplace; 4 – millstone; 5 – pottery, 6 – walls (reconstruction).

The main feature of Trypillia's extensive economy was the control over large territories. Only strong collectives, with high demographic rates and strong military potential, were able to realize such control. The early proto-cities of Trypillia, as agglomerated agrarian communities, represent the logical outcome of further development of a subsistence strategy. Otherwise the economic reasons for such a concentration of population do not make sense²¹.

B. Gaydarska, analyzing the subsistence strategies of Trypillians, which lived at *Maydanets'ke*, considered, that „... in order to maintain subsistence on such a huge scale, a strongly hierarchical social organization is needed. Such organization presumes some kind of division of labour and division of land... Such a division of land and labour may have resulted in a gradually increased social tension, which, in addition to the logistical difficulties of maintaining such large-scale subsistence practices, probably have contributed to the collapse and abandonment of the settlements-giants”²².

The spreading of proto-cities contributed to the development of arts and crafts, including pottery, figurines, flint-working. At the territory of the large Trypillia settlements three specialized pottery workshops were found. We have data about the explorations of such places at BI/II and BII settlements of East Trypillia culture Vesely Kut and Myropillya, Trostyanchyk²³. At the largest settlements at South Bug - Dnepr region such workshops were not found. Only in central part of *Maydanets'ke* in 1985 we excavated pit with slagged pottery, possible trace of existed near this place workshop.

But all data about technology, assortment and amount of pottery, found during excavations, could be evidence of the developed pottery craft and „the movement to the centralization of the manufacturing operations”²⁴. From BII stage Trypillia culture population mainly used painted pottery. For baking of such pottery specialized two-level pottery stoves were used. Pottery forms changes show tendency of searching of the simplest forms, convenient for manufacture. At Tomashivka group rounded forms by biconical forms, more useful, were changed. For pottery making special clay models were used. Some such models in *Volodymyrivka* (BII stage) were found. Two of them were forms for small painted bowls, another for pot. For creating of the biconical vessels clay ribbons used.

In every dwelling, explored at *Maydanets'ke* we found from 30 to 120 different pottery vessels, which we can restore²⁵. On average in every household it

²¹ G.A. Pashkevich, M. Yu. Videiko, *op.cit.*, p. 119-122.

²² B. Gaydarska, *Application of GIS in settlement archaeology: an integrated approach to prehistoric subsistence strategies*, in *Tripolitan settlements-giants. The international symposium materials*, Kyiv, 2003, p. 212-215.

²³ O.V. Tsvek, *Gomcharne vyrobnytstvo plemen trypil's'koi kul'tury*, in *Enciclopedia Trypil's'koi Civilizacii*, tom. I, Kyiv, 2004, p. 290-299.

²⁴ L. Ellis, *Population growth, food storage and ceramic manufacturing centres in Pre - Bronze Age Europe*, in M. Petrescu-Dîmbovița, N. Ursulescu, D. Monah, V. Chirica (eds.), *La civilisation de Cucuteni en contexte Européen, Session Scientifique Iași - Piatra-Neamț 1984*, BAI, I, Iași, 1987, p. 180.

²⁵ M. Yu. Videiko, *Pro kharakter ta obsyagi vyrobnytstva glynianogo posudu v tripil's'kokh protomistakh*, in *UCJ*, 1 (11), 2004, p. 30-35.

where to 75 vessels. It means that at 2000 households of *Maydanets'ke* were in use at one moment up to 150000 different vessels.

British archaeologists, exploring Uruk period settlement in Mesopotamia, considered, that one household used every year 86 different ceramic ware. If the level of ware consumption at *Maydanet'ske* was the same, here were produced many millions of vessels and plates! (see tab. 5)

Duration of settlement life, years	One-year consumption	Whole-life consumption
50	172000	8600000
80	172000	13760000

Development of proto-cities led to creation of an affiliated exchange system. We note that the development of proto-cities stimulated flint mining at the region of the proto-cities²⁶ and at *Volhynia* and also developed the exchange of flint tools²⁷.

Another important product for proto-cities was salt. J. Chapman and B. Gaydarska explored the „salt business” of *Maydanets'ke*. The year estimated salt demand for people and animals (the low level) reached here 36200 kg (for 8000 people). They concluded, that „the consumption of the small fraction of the estimated demand for salt would have required a major logistical achievement – the organization of the world's first bulk trading network”²⁸.

At the same time, however, crafts were never the primary occupation among the population of early Trypillia proto-cities. We see instead that these places were primarily administrative, military, and religious centres and not centre of craft and trade.

Proto-cities in the system of Trypillia Culture

Large settlements appeared in Trypillia Culture at the end of the fifth or the beginning of the fourth millennium BC. Different types of settlements could have existed at the same period within one group²⁹. These may have been small (2-7 hectares), average (7-10 hectares), or large (20 and more hectares) in size. Concerning the large settlements only two types can be singled out: those that were as large as 50-100 hectares and those that were more than 100 hectares. These settlements were related in a hierarchical fashion, with the largest being dominant. Settlement groups controlled territories of 10-20 km in

²⁶ O.V. Tsvek, I.I. Movchan, *Eneoliticheskiy proizvodstvennyi kompleks po dobyche i obrabotke kremnya na reke Bol'shaya Vys*, in *Na poshanu Sofii Stanislavivny Berezanskoi, zbirka naukovykh prats'*, Kiev, 2005, p. 66-76.

²⁷ N.N. Skakun, *Le role et l'importance du silex dans le Chalcolithique du sud-est de l'Europe (sur la base du materiel provenant des fouilles du campement de Bodaki)*, in *La Prehistoire au Quotidien (Melanges offerts a Pierre Bonenfant)*, Grenoble, 1996, p. 223-235, M. Yu. Videiko, *Vydobutok ta obrobka kremenu*, in *Enciclopedia Trypil's'koi Civilizacii*, tom I, Kyiv, 2004, p. 266-267, 270.

²⁸ J. Chapman, B. Gaydarska, *The Provision of Salt to Tripolye Mega-Sites*, in *Tripolian settlements-giants. The international symposium materials*, Kyiv, 2003, p. 203-211.

²⁹ M. Yu. Videiko, *Trypil's'ki protomista. Istoria doslidzhen'*, p. 74-78.

radius and were situated in river basins. They maintained their own „capital”, which included the largest settlement (with an area of 50-200 hectares) and the dependent „towns” (10-40 hectares) and villages (2-7 hectares). Such a group, it seems logical, corresponds to a chiefdom.

Two or more such groups comprised a local type, which occupied large territories generally situated in the area between rivers, at least in part. The local group, which occupied the highest level in the social hierarchy of Trypillia culture, corresponded, in our opinion, to a complex chiefdom. The largest proto-cities may have been the capitals of these complex chiefdoms.

We have, in addition, a three- or five-level organization of local groups which, we believe, was connected with various population densities in some regions. In certain conditions, where the population of local groups expanded to as much as 5000 or even 30000 people, the traditional tribal structures were likely modified.

It seems, that J. Nandris was true, when wrote, that „... the Neolithic populations of the fourth millenium were non indefferentiated primitivi egaliterians”. This assertion based on data mainly from Cucuteni Culture³⁰.

Trypillia proto-cities in Old Europe

To determine the disposition and place of large Trypillia culture settlements in the history of Europe we will attempt to compare them with synchronous settlement structures³¹. From the fifth to the fourth millennium BC there existed a series of vibrant, early agrarian cultures in central and southeast Europe. These included the *Lengyel*, *Polgar*, *FBC*, *Kojadermen*, *Karanovo*, *Gumelnitsa* and *Vinča*, among others.

Tendencies of urbanization began to appear in Europe during the Neolithic period. The growth of population and the intermixing complexity of social structures and management played an important role in this process. It is interesting to compare Trypillia data with H. Parzinger's description of urbanization in Europe³². From the beginning (stage Trypolya A, or Parzinger's chronological horizons 5-8), we have „disseminated villages”, „agglomerate villages” and „proto-cities” in Trypillia territory.

The *Mogyl'na* III settlement occupied an area of approximately 10 hectares, contained more than 100 dwellings, and had a population of between 500 and 800 people. We also see a complex (two- or three-level) hierarchy of settlements at this site. This included one large *Mogyl'na* III, one small *Mogyl'na* I, and one *Mogyl'na* II settlement nearby. We see a similar situation in Moldova. The existence of very large settlements, with areas of tens or hundreds of hectares and large populations (5000 or more), can be traced at horizons 9-12. These would be considered „early cities” according to the scale proposed here.

³⁰ J.G. Nandris, *Romanian Ethnoarcheology and Cucuteni*, in M. Petrescu-Dîmbovița, N. Ursulescu, D. Monah, V. Chirica (eds.), *op.cit.*, p. 214.

³¹ M. Yu. Videiko, *Processes of urbanization in Old Europe and trypillia culture proto - cities, in Tripolian settlements-giants. The international symposium materials*, Kyiv, 2003, p. 256-261.

³² H. Parzinger, *Studien zur chronologie und kulturgeschichte der jungstein, kupfer- und fruhbronzezeit Zwischen Karpaten und Mitlerem Taurus*, vol. 2, Mainz am Rhein, 1993, p. 294-310; abb. 17.

This correlation shows that when the proto-cities formations ceased in southeast Europe, they flourished on the borders of European civilization between the Prut and Dnieper rivers. *Trypillia-Cucuteni* proto-cities disappeared at the same time the urban formations of the Troy I-II types appeared in Anatolia. It should be noted that Trypillia settlements were larger and more populous compared to other European and Anatolian settlements. The Trypillia settlements had as many as 10000-14000 people, with 1600 to 2800 dwellings and areas as large as 250-450 hectares.

Why did Trypillia Culture proto-cities appear?

There are two points of view concerning the large settlements of Trypillia. Some archaeologists believe that they appeared on the borders of agrarian communities under the threat of the „steppe invasion”³³. Others hold that their appearance resulted from internal social development under the threat of wars between Trypillia tribes (Shmaglii, Videiko, 1993; Videiko, 2002, p. 70-100). The most recent investigations have shown that some internal cultural processes (economic as well as social) in Trypillia were connected not only with steppe, but also with central European cultures³⁴.

Trypillia proto-cities appeared around 4200 BC in different territories (and not only on the steppe borderlands) as a reaction to the economic and political situation associated with the Trypillia-Cucuteni unity. Population growth, military conflicts between tribes, and migrations could all be cited as possible contributing factors. These proto-cities were the centers of numerous Trypillia chiefdoms which were in a state of perpetual internecine war. The cause of these clashes lay in the expansive character of agriculture: Settlements had to be transferred to new fields every forty to seventy years, while the territory of the forest-steppe between the Carpathians and the Dnieper River was limited. The large Trypillia settlements provide an example of the beginning of the process of urbanization which was similar to the prehistory of Sumerian cities in Mesopotamia from 4000-3000 BC³⁵.

M. Gimbutas wrote that „the Proto- or Early Indo-Europeans, whom I have labeled „Kurgan” people, arrived from the east, from southern Russia, on horseback. Their first contact with the borderland territories of Europe in the Lower Dnieper region and west of the Black Sea began around the middle of the fifth millennium BC. This initiated a continuous flow of people and influences into east-central Europe which lasted for two millennia. The peaceful agriculturalists, therefore, were easy prey to the warlike Kurgan horsemen who swarmed down upon them. These invaders were armed with thrusting and cutting weapons; long dagger-knives, spears, halberds, and bows and arrows ...”³⁶.

In our opinion, however, there were no economic, political, or military pre-conditions to „steppe” aggression against Tripillya proto-cities, and there is no real

³³ V.A. Kruts, *K istorii naselenia tripol'skoi kul'tury v mezhdurech'ie Yuzhnogo Bugu i Dnepra*, in *Pervobytnaya arkheologia. Materialy I issledovaniia*, Kiev, 1989, p.130.

³⁴ See BPS, vol. 9.

³⁵ M. Yu. Videiko, *Tripolye „pastoral” contacts. Facts and character of interactions*, in BPS, 2, 1994, p. 5-28; M. Yu. Videiko, *Trypil's'ka Cyvilizatsia*, Kiev, 2003, p. 138-150.

³⁶ M. Gimbutas *The Civilization of Goddess: The world of Old Europe*, San Francisco, 1991, p. 391.

archaeological evidence that such conflicts ever existed. Trypillia agriculturalists had built their well-fortified settlements long before „militant Kurgan (steppe) horsemen” appeared in the steppes. From the sixth millennium BC these „peaceful agriculturalists” produced such weapons as hammer-axes made of stone and metal, daggers, arrowheads etc., which had appeared in steppe burials only in the third millennium BC.

In fact, one Trypillia Culture „village” that of *Maydanets* in the southern Bug-Dnieper region, had an army more powerful than the combined forces of all the tribes of the *Sredny Stog* unity. The disintegration of Trypillia husbandry and culture may be connected instead with the change in the physical environment after 3500-3400 BC. These changes led to the expansion of the production economy in the steppe zone.

Interactions between Trypillia and the *Sredny Stog* unity created the pre-conditions for this process. After 3400-3200 BC, some groups of the Trypillia population took part in the creation of new cultural groups in the steppes and forest-steppe zones. These included the *Usatovo* and *Gorodsk* cultures, among others. It was only after these events that the steppe pastoralists appeared. Trypillia and *Bolgrad-Aldeni* cultures played the role of higher civilizations in the creation of the European semi-nomadic tradition.

On the other hand, the proto-cities provided some guarantee for the preservation of Trypillia cultural identity. We can conclude that in some cases the „western” factor played a role in the processes connected with the origin of Trypillia proto-cities.

The period of *Polgarisation* in the Trypillia territory ceased after 4300 / 4200 BC, when the first large settlements appeared in eastern Trypillia culture³⁷. Following this was a lengthy period (between 4000 and 3400 BC) during which only territories belonging to different Trypillia local groups with a tradition of proto-cities organization remained outside the process of cultural integration and influence from central European Late Neolithic and Eneolithic cultures. Only after the disappearance of the proto-cities system did the intensive process of influence from the Baden cultural group begin. (This did not have any influence in the territory of the *Kosenivka* group, where the last proto-cities existed until 2900-2750 BC). Proto-cities disappeared completely at the end of the fourth or beginning of the third millennium BC as the result of global cultural changes.

The first steps of urbanization

We can detect more than a few parallels between *Ubaid – Uruk – Jemdet Nasr* and Trypillia development. Territorial expansion, growth of population, the concentration of population in large settlements,³⁸ two- and three-level hierarchies, the development of craft exchange, the appearance of the first recording systems – all these phenomena appear to be very similar, and it seems that Mesopotamia and Europe developed along the same lines between 5000 and 3000 BC. Only the conclusion of this

³⁷ M. Yu. Videiko, *Tripolye and the cultures of Central Europe: facts and character of interactions: 4200-2750 BC*, in *BPS*, 9, 2000, p. 13-25.

³⁸ We must note that the population density at Ur ranged from 100-125 to 250 people per hectare. The population density at Maydanets was approximately 31-43 people per hectare. This implies that a Trypillia 100 hectares area settlement corresponded to a 15-30 hectares „town” at Sumer.

development differs: in Mesopotamia the first states appeared, while European proto-cities fell into decay between 3400 and 3000 BC. Some of them (like *Vil'khovetz*') may be existed at the beginning of III-rd mil. B.C.

It is logical to suppose that similar processes could take place in early agricultural societies, which had to solve the same problems. These included population growth and overpopulation, lack of agricultural fields, and conflicts between communities. It is little wonder that these problems were solved everywhere in a similar way: populations migrated to new lands, and fortified settlements were constructed. One may consider the appearance of large settlements in *Trypillia-Cucuteni* culture as only the first phase of urbanization, or one of its possible models. This process was interrupted on the territory of Ukraine at the beginning of the Early Bronze Age after 3200 BC. The disappearance of proto-cities was a reflection of the crisis of an extensive agricultural economy.

The ancient Near East and Europe show two paths of civilization development in the fourth millennium BC: the growth of early cities and states in Mesopotamia versus the temporary shut-down of social progress in some regions of Europe. From this point of view, the growth and decline of Trypillia proto-cities provides us with an opportunity to study the first steps of urbanization which, in other places, were obscured by later development. It is for this reason that we consider the study of large Trypillia settlements – the proto-cities in Ukraine – to be at once interesting and promising.