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Neolithic Settlements on the Lublin Loess Upland

**Неолитическое поселение в пределах лёссовых районов
Люблинской возвышенности**

Neolityczne osadnictwo na obszarach lessowych Wyżyny Lubelskiej

Archaeological investigations of Stone Age cultures on the Lublin Upland were restricted to Neolithic sites. Only two surface finds of the Early Stone Age were reported¹. The Mesolithic sites, 20 of which were excavated were not however based on systematic investigations.

Our knowledge of the Late Stone Age of the Lublin Upland is however more adequate. Apart from research work which was carried out in the period between the two World Wars at Strzyżów, (the Hrubieszów district²) investigations on the Neolithic were carried out mainly after the World War II. The investigations were initiated in 1945, by the Department of Archaeology of the Marie Curie-Skłodowska University, under the leadership of Prof. Nosek. In addition major research operations are in progress on the Lublin Upland, in which the following institutions are taking part: the Archaeological Department of the Lublin Museum, the State Archaeological Museum in Warsaw, the Institute of Polish Archaeology (IHKM) of the Polish Academy of Sciences in Cracow, and the Officer in charge of archaeological remains in the Lublin Voivodship.

The limits of this paper do not permit a full survey of the archaeological investigations of all Neolithic sites on the Lublin Upland. Only a brief account of the most important sites is here given, arranged in the chronological order of the cultures to which they belonged³.

In 1959 the first site of the Linnear Pottery culture⁴ was discovered at Tarnoszyn (Tomaszów district) in a bad state of preservation. In pit-dwellings there were found many animal bones, fired clay, small tools, pieces of flint, stone scrapers, fragments of guern stone and of stone hoes (Fig. 1)⁵.

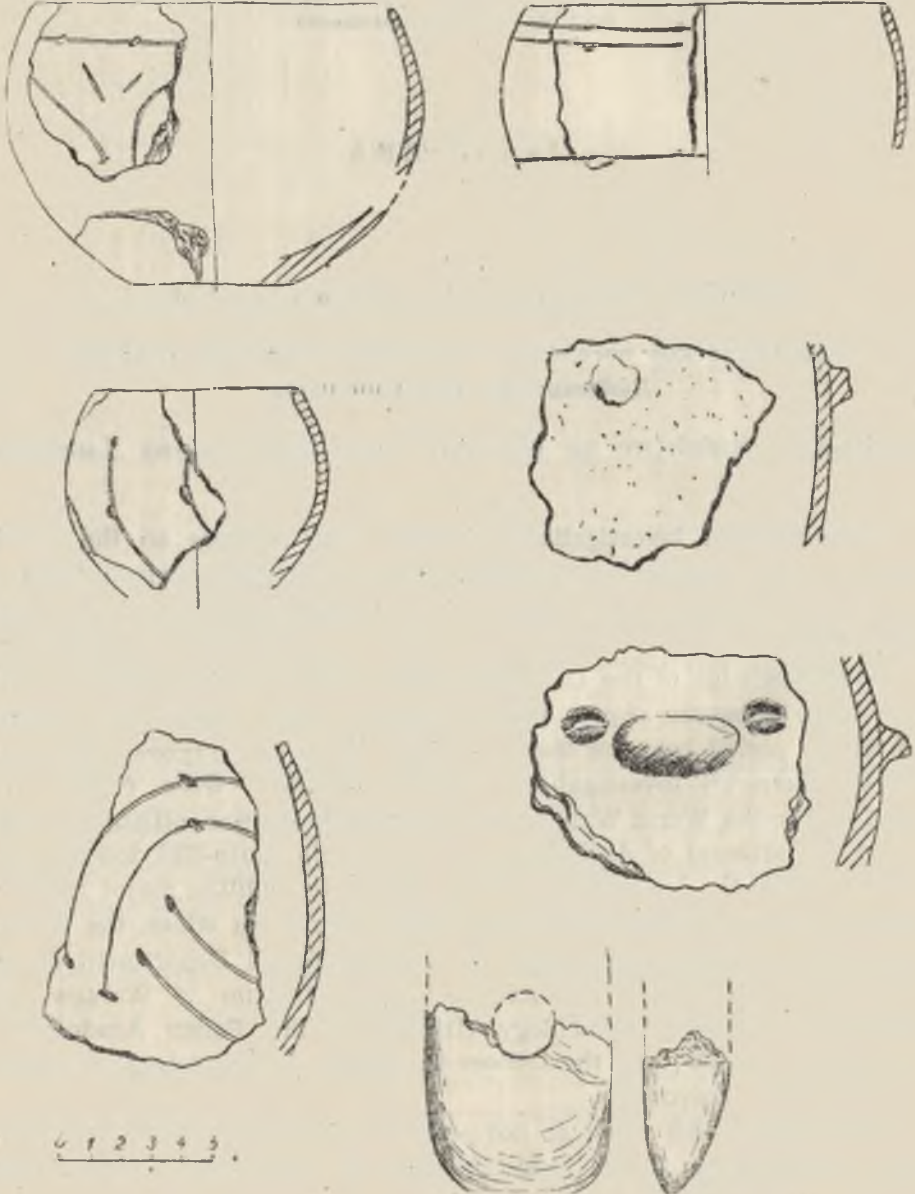


Fig. 1. Tarnoszyn, Tomaszów district. Pottery and stone implements belonging to the Linnear Pottery culture.

In 1960 a site of the Linnear Pottery culture was examined at Werbkowice-Kotorów and fragments of this pottery were obtained from Żuków, Horodło and Ornatowice, all in the Hrubieszów district⁶, and from Krasnystaw (Fig. 2).

Small collections of stroke-ornamented pottery were recorded on two sites only: Strzyżów⁷ and Werbkowice⁸ (Hrubieszów district).

Sites of another culture considered of southern origin, called the Theiss culture (a group of white-painted pottery)⁹ are more frequent on the Lublin Upland¹⁰. Remains of this culture were examined at Łopatki¹¹, Nałęczów, Antopol¹², (the Puławy district), Strzyżów¹³, Werbkowice¹⁴, Werbkowice-Kotorów¹⁵, (the Hrubieszów district). Cemeteries belonging to this culture were unearthed at Jaszczów (the Lublin district), Gródek, Żuków, Raciborowice¹⁶ and Ornatowice¹⁷ (the Hrubieszów district).

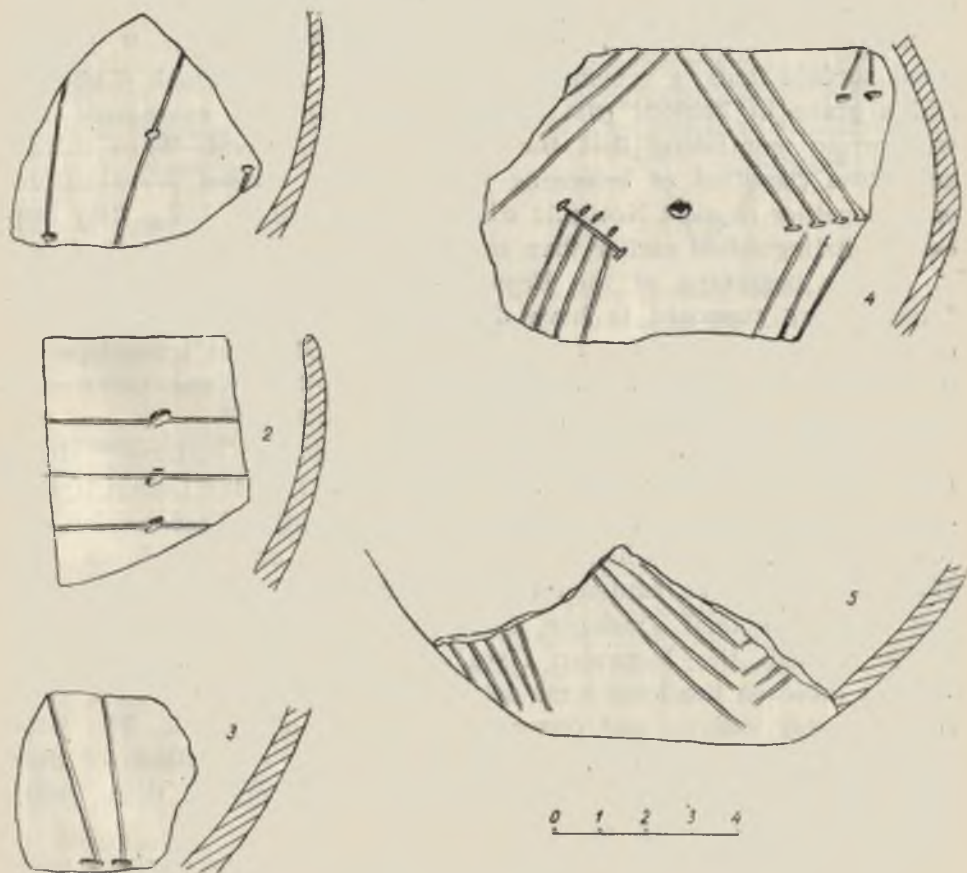


Fig. 2. Żuków (1), Ornatowice (2), Horodło (3), Hrubieszów district, Krasnystaw (4, 5). Pottery belonging to the Linnear Pottery culture.

Of all Neolithic cultures recorded on the Lublin Upland our knowledge of the Funnel Beaker culture¹⁸ is the most comprehensive. The investigations of the settlements of this culture which were carried out at Gródek (the Hrubieszów district)¹⁹, Chruszczów-Kolonia²⁰, Klementowice²¹, (the Puławy district), Trzciniec (the Opole district)²² and Krężnica Jara (the Lublin district) yielded very rich materials. On the basis of these finds many conclusions could be reached. The same concerns the graves at Sławinek, suburb of Lublin²³ and numerous graves in the Puławy district²⁴.

Our knowledge of Globular Amphora culture on the Lublin Upland is based exclusively on the contents of graves which were examined in the Puławy district²⁵ and in the Hrubieszów district (Raciborowice²⁶, Strzyżów²⁷).

Collections of Comb-pottery culture²⁸ are known only from casual excavations.

The same is also true of the Early Corded Ware culture²⁹. Besides small surface finds, a cemetery of that culture at Sławinek (Lublin³⁰) and a grave in Zakłódź (the Zamość district³¹) were examined. It is worthwhile mentioning that the remains of the Comb Ware culture and those classified as belonging to the earlier Corded Ware culture occur together in most Neolithic sites. As two distinct groups they cannot be distinguished earlier than in the closing period of the Neolithic.

At the beginning of the Bronze Age some cultures of the Late Neolithic are supposed to have disappeared from the Lublin Upland but in its eastern part the Strzyżów group³² („Bugflint”) developed at that time. This group, distinct from other Corded Ware cultures, is known from settlements in the Hrubieszów district³³.

The distribution of sites of the distinct Neolithic cultures³⁴ shows that those of the early Corded Ware culture occur on the Lublin Upland only on loess soils, unlike the sites of the Mesolithic Tardenoisian culture, the remains of which have been found on sand-dunes only (Fig. 3)³⁵. It can be assumed that the first people, who depended on soil tillage for their existence, came to the Lublin Upland from the South through the Moravian Gate and along the Vistula valley³⁶. Besides those on the loess some settlements have been found on fertile soils of river valleys, and occasionally also on other soils. The latter were situated in the closest vicinity of the loess soils. Some of these sites can be looked upon as traces of the migrations of those people along river valleys (Fig. 4).

The topographical situation of sites with the remains of the Linear Pottery culture shows that they were distributed along river valleys. Only a few settlements were situated on sites well protected by natu-

ral features e. g. places resembling by their shape an island or a peninsula situated among bogs. (Tarnoszyn, Tomaszów district).

The settlements assigned to a somewhat earlier Theiss culture were similar in character. Its bearers are supposed to have come directly

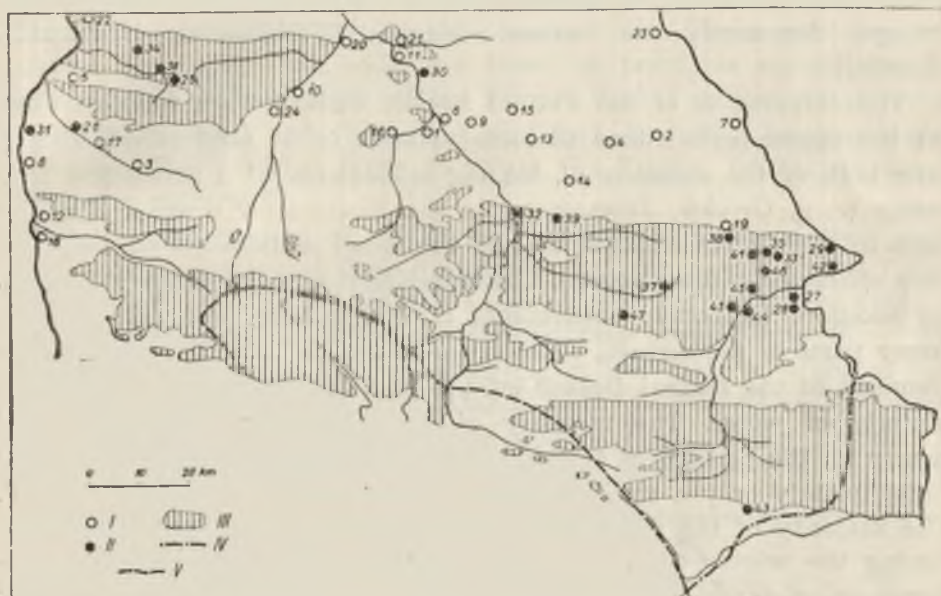


Fig. 3. The distribution of finds belonging to southern farming cultures and to the people of the Tardenuasian culture living by hunting on the Lublin Upland.

I — sites of the Tardenuasian culture, II — sites of southern farming cultures, III — loess areas (according to A. Jahn, 1956), IV — boundary of the state, V — boundary of the Lublin Upland and Roztocze.

1. Biskupice, Lublin distr.;
2. Brzeźno, Chełm distr.;
3. Chodel, Bełżyce distr.;
4. Czuleczyce, Chełm distr.;
5. Dobre, Puławy distr.;
6. Dorohucza, Chełm distr.;
7. Husynne, Chełm distr.;
8. Kaliszany, Opole distr.;
9. Kanie, Chełm distr.;
10. Lublin: 11. Łęczna, Lublin distr.;
12. Łopoczno, Opole distr.;
13. Marynin, Chełm distr.;
14. Niedziałowice, Chełm distr.;
15. Pawłów, Chełm distr.;
16. Piaski, Lublin distr.;
17. Piszczek, Opole distr.;
18. Poczęśle, Opole distr.;
19. Putnowice, Chełm distr.;
20. Spiczyn, Lubartów distr.;
21. Stara Wieś, Lubartów distr.;
22. Włostowice, Puławy distr.;
23. Wola Uhruska, Włodawa distr.;
24. Zemborzyce, Lublin distr.;
25. Antopol, Puławy distr.;
26. Chodlik, Opole distr.;
27. Czumów, Hrubieszów distr.;
28. Gródek, Hrubieszów distr.;
29. Horodło, Hrubieszów distr.;
30. Jaszczów, Lublin distr.;
31. Kamień, Opole distr.;
32. Krasnystaw; 33. Kułakowice, Hrubieszów distr.;
34. Łopatki, Puławy distr.;
35. Miedniki, Hrubieszów distr.;
36. Nałęczów, Puławy distr.;
37. Ornatowice, Hrubieszów distr.;
38. Raciborowice, Hrubieszów distr.;
39. Siennica Różana, Krasnystaw distr.;
40. Sławęcín, Hrubieszów distr.;
41. Stepankowice, Hrubieszów distr.;
42. Strzyżów, Hrubieszów distr.;
43. Tarnoszyn, Tomaszów distr.;
44. Werbkowice, Hrubieszów distr.;
45. Werbkowice-Kotołów, Hrubieszów distr.;
46. Wołajewice, Hrubieszów distr.;
47. Żuków, Hrubieszów distr.

from the South through the Carpathian passes which lie on the shortest route from the Theiss (Dukla Pass). The settlements of this culture on the Lublin Upland were also found exclusively on loess soils or in their immediate vicinity (Fig. 5). Like those of the Linnear Pottery culture, all sites of the Theiss culture were distributed along river valleys, frequently on natural islands (Werbkowiec, Hrubieszów district).

The settlements of the Funnel Beaker culture were founded often on the upper parts either of loess uplands or of sand-dunes. This is true both of the majority of the big settlements of a permanent character (e. g. Gródek, Trzeszczany in the Hrubieszów district, Kreźnica Jara in the Lublin district) and of the small settlements of a temporary character (Klementowice, Drzewce-Kolonia in the Puławy district). In addition, temporary settlements of this culture occur also in the lower parts of the terrain, on sandy hills and in river valleys. All settlements of the Funnel Beaker culture were situated in the immediate vicinity of water. The majority of the temporary settlements and nearly all the permanent settlements were situated on fertile loess soil; unfortunately only a small number of them were investigated (Fig. 6). The majority of the settlements discovered were habitually abandoned during the winter time. All such settlements were situated on sand-dunes or on sandy mounds which occur on lower river terraces. Their distribution indicates the economy of the people who lived in them. It was based most likely on stock-breeding on more or less damp valley meadows. No conclusions can be drawn with regard to the topography and distribution of the settlements of the Globular Amphora culture (Fig. 7), all sites known so far being burial places. Grave goods from these sites show that their bearers lived mainly by stock-breeding³⁷, although they also knew primitive agriculture³⁸.

Permanent settlements of the Neolithic Corded Ware culture do not occur on the Lublin Upland. Traces of temporary settlements are easily to be found throughout the whole area, especially on sand-dunes, where they occur side by side with the remains of the Funnel Beaker culture or those of the Comb-Pottery culture (Fig. 8). Traces of temporary settlements have also been found in the close vicinity of river valleys (with the exception of watershed areas). The remains of the Early Bronze Age group of Corded Ware culture, of the Strzyżów group, occur exclusively in the eastern part of the Lublin loess Upland (Fig. 9).

Sites of the Comb-Pottery culture are distributed on the Lublin Upland exclusively on sand-dunes.

The distribution of settlements, assessed without the assistance of archaeological data, indicates in general terms the character of the economy of separate Neolithic cultures found and explored on the Lublin Upland. Archaeological data fully confirm these conclusions. The economy of the bearers of the cultures of southern origin, of the Stroke-ornamented Pottery culture and of the Theiss culture, who settled mainly on loess soils, was based on primitive agriculture. The same is true of the people of the Funnel Beaker culture whose origin is much disputed and there is a tendency to revise long-established opinions. This revision tends to relate the Funnel Beaker culture to southern cultures³⁹.

Unlike the bearers of the earlier cultures, who grazed their cattle in the close vicinity of their dwelling-places, the people of the Funnel Beaker culture (who shared the same settlements) were, according to the existing division of labour, divided into groups, into those who tilled the soil close to their dwelling-places and those who grazed their stock at a smaller or greater distance from their settlements. Temporary settlements of Funnel Beaker culture were largely founded on dry sand-dunes, situated close to bogs and meadows. It is very diffi-

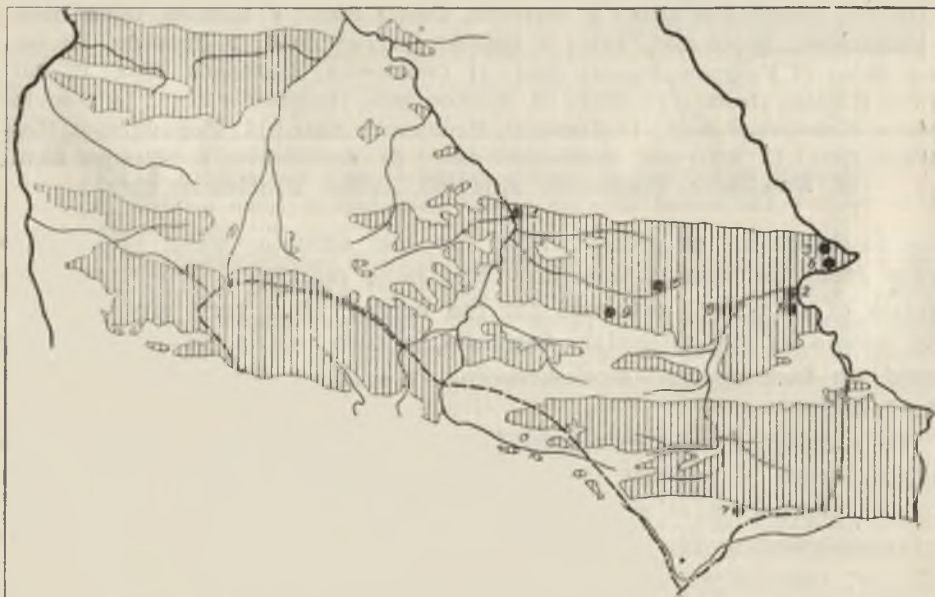


Fig. 4. Sites of the Linear Pottery culture on the Lublin Upland;
 1. Czumów, Hrubieszów distr.; 2. Gródek, Hrubieszów distr.; 3. Horodło, Hrubieszów distr.; 4. Krasnystaw; 5. Ornatowice, Hrubieszów distr.; 6. Strzyżów, Hrubieszów distr.; 7. Tarnoszyn, Tomaszów distr.; 8. Werbkowice-Kotorów, Hrubieszów distr.; 9. Żuków, Hrubieszów distr.

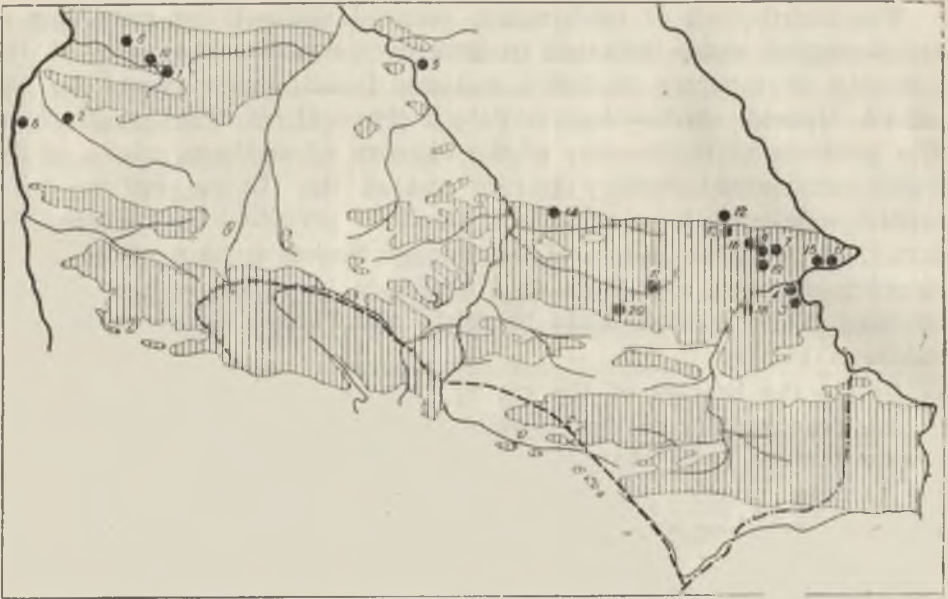


Fig. 5. Sites of the Theiss culture on the Lublin Upland;

1. Antopol, Puławy distr.;
2. Chodlik, Opole distr.;
3. Czumów, Hrubieszów distr.;
4. Gródek, Hrubieszów distr.;
5. Jaszczów, Lublin distr.;
6. Kamień, Opole distr.;
7. Kułakowice, Hrubieszów distr.;
8. Łopatki, Puławy distr.;
9. Miedniki, Hrubieszów distr.;
10. Nałęczów, Puławy distr.;
11. Ornatowice, Hrubieszów distr.;
12. Putnowice Kolonia, Hrubieszów distr.;
13. Raciborowice, Hrubieszów distr.;
14. Siennica Różana, Krasnystaw distr.;
15. Sławęcın, Hrubieszów distr.;
16. Stepankowice, Hrubieszów distr.;
17. Strzyżów, Hrubieszów distr.;
18. Werbkowice, Hrubieszów distr.;
19. Wołajewice, Hrubieszów distr.;
20. Żuków, Hrubieszów distr.

cult to determine at present how far the animals were allowed to graze from the sites where they had been reared, to which separate groups of shepherds returned for the winter. It is very probable that the people of the Globular Amphora culture had a similar economy based on farming and stock-breeding, the latter being however their chief activity.

In contrast to the extensive form of stock-breeding under which animals were reared for commercial purposes, the people of the older Corded Ware culture and of the Comb-Pottery culture were engaged in stock-breeding for their own needs. Hunting was also their chief activity, especially at the early period of Comb-Pottery culture.

This short survey shows that in the Late Stone Age the loess soils of the Lublin Upland, like those in the south of Poland, were inhabited mainly by people of farming cultures. Strongly contrasted to the loess soils were the dunes, frequent in the river valleys, which served as temporary camping-places for hunters and shepherds. For early

man, who depended on soil tillage for his existence, loess soils were not only fertile fields but also convenient places for building pit-dwellings. It should, however, be borne in mind that the people who lived by farming and who derived from southern cultures brought with them their own ways of tilling soils on loess territories. A factor which



Fig. 6. Sites of the Funnel Beaker culture on the Lublin Upland;

1. Antopol, Puławy distr.;
2. Biskupice, Lublin distr.;
3. Bochothnica, Puławy distr.;
4. Bochothnica Kolonia, Puławy distr.;
5. Bronice, Puławy distr.;
6. Chodel, Bełżyce distr.;
7. Chruszczów, Puławy distr.;
8. Chruszczów Kolonia, Puławy distr.;
9. Czechówka, Hrubieszów distr.;
10. Deszkowice, Zamość distr.;
11. Drzewce Kolonia, Puławy distr.;
12. Górna Owczarnia, Opole distr.;
13. Graniczna, Opole distr.;
14. Grobla, Zamość distr.;
15. Gutanów, Puławy distr.;
16. Hrubieszów;
17. Husynne, Hrubieszów distr.;
18. Karczmyska, Opole distr.;
19. Kijany, Lubartów distr.;
20. Klementowice, Puławy distr.;
21. Kobyle, Chełm distr.;
22. Krasnystaw;
23. Krężnica Jara, Bełżyce distr.;
24. Kułakowice, Hrubieszów distr.;
25. Las Stocki, Puławy distr.;
26. Lublin;
27. Milejów, Lublin distr.;
28. Moszna, Lublin distr.;
29. Nałęczów, Puławy distr.;
30. Nałęczów Kolonia, Puławy distr.;
31. Nielisz, Zamość distr.;
32. Niesiołowice, Opole distr.;
33. Nowosiółki, Hrubieszów distr.;
34. Oleśniki, Krasnystaw distr.;
35. Płonki, Puławy distr.;
36. Sasiadka, Zamość distr.;
37. Spiczyn, Lubartów distr.;
38. Splawy, Opole distr.;
39. Stara Wieś, Lubartów distr.;
40. Stok, Puławy distr.;
41. Strzelce, Puławy distr.;
42. Strzelce Kolonia, Puławy distr.;
43. Strzyżów, Hrubieszów distr.;
44. Sułowiec, Zamość distr.;
45. Trzciniac, Opole distr.;
46. Uchanka, Hrubieszów distr.;
47. Wąwolnica, Puławy distr.;
48. Werbkowice, Hrubieszów distr.;
49. Włostowice, Puławy distr.;
50. Wólka Złojcka, Zamość distr.;
51. Wysokie, Zamość distr.;
52. Żmijowiska, Opole distr.;
53. Gródek, Hrubieszów distr.;
54. Trzeszczany, Hrubieszów distr.

favoured settlements on loess territories was that the people of the Mesolithic Tardenoisian culture who lived by hunting did not care for loess territories. Their favourite hunting places were in the vicinity of water, chiefly on sand-dunes in damp river valleys, the only dry places for laying down camps.

Some aspects of the contemporaneous natural environment cannot be overlooked when discussing the Neolithic settlements on the loess soils of the Lublin Upland.

The climate of the Mesolithic was warm, probably warmer than today. During the whole post-glacial period the most favourable ther-



Fig. 7. Sites of the Globular Amphora culture on the Lublin Upland;

1. Bezek, Chełm distr.;
2. Bochoznica, Puławy distr.;
3. Buchałowice, Puławy distr.;
4. Dobryniów Kolonia, Krasnystaw distr.;
5. Dratów, Lubartów distr.;
6. Drzewce, Puławy distr.;
7. Głuszczyzna, Lublin distr.;
8. Gródek, Hrubieszów distr.;
9. Huta, Chełm distr.;
10. Kęblów, Lublin distr.;
11. Klementowice, Puławy distr.;
12. Kosiorów, Opole distr.;
13. Kryłów, Hrubieszów distr.;
14. Las Stocki, Puławy distr.;
15. Lublin;
16. Łęczna, Lublin distr.;
17. Łopiennik Dolny Kolonia, Krasnystaw distr.;
18. Majdanek, Tomaszów distr.;
19. Mełgiew, Lublin distr.;
20. Miedniki, Hrubieszów distr.;
21. Nałęczów, Puławy distr.;
22. Parchatka, Puławy distr.;
23. Piaski, Lublin distr.;
24. Poniatówka, Chełm distr.;
25. Raciborowice, Hrubieszów distr.;
27. Skomorochy, Hrubieszów distr.;
27. Stadarnia, Chełm distr.;
28. Stok, Puławy distr.;
29. Stołpie, Chełm distr.;
30. Strzyżów, Hrubieszów distr.;
31. Swidniki, Hrubieszów distr.;
32. Terespol, Zamość distr.;
33. Turowiec, Chełm distr.;
34. Tworyczów, Zamość distr.;
35. Włostowice, Puławy distr.;
36. Wola Grodecka, Tomaszów distr..

mic conditions were those of the Atlantic period which coincided with the Middle Neolithic⁴⁰. During the Atlantic period the flora is supposed to have changed, especially the flora of the forests; the geographic limit of some plants shifted considerably northwards and northeast. In the Atlantic period thermophilous trees prevailed. Fertile soils ensured the development of thermophilous deciduous forests with an undergrowth of hazel, oak and alder. Lime, elm, ash and maple had their share in the composition of those forests. Yoke-elm gradually spread, and the pine prevailed only on sandy soils⁴¹. Mixed forests of deciduous trees prevailed on the loess plateau in the middle of Poland, where steppe vegetation developed only on limestone⁴².

The Atlantic climatic optimum, characterized by a higher humidity, milder winters and cooler summers⁴³ than those we have today, was followed at the end of the third millennium B. C. by a sub-Boreal period in which climatic conditions gradually and slowly worsened⁴⁴. The majority of the older as well as of the most recent works on the Late Stone Age stress the alleged „dryness” of the sub-Boreal climate in comparison with the „humid” Atlantic climate⁴⁵. Meanwhile the latest investigations show that the climate of the Atlantic period was warm and relatively damp, while the climate of the sub-Boreal period did not differ much from that of the Atlantic period and was a kind of transition to the much cooler and damper sub-Atlantic climatic period⁴⁶. Accordingly objections have been voiced even to the existence of a separate sub-Boreal climatic period⁴⁷. Some authors are inclined to regard the sub-Boreal period as including characteristics of the continental climate proper to the Atlantic climatic period⁴⁸.

However, the theory about the xerothermic sub-Boreal period, widely accepted by biologists and archaeologists and assisted by „die Steppenheidetheorie” of Gradman⁴⁹ lost much of its popularity when later investigations of bogs were undertaken by the method of pollen analysis. In addition to the data which were obtained by this method, the humidity of the sub-Boreal climate was proved by archaeological investigations⁵⁰.

Investigations carried out by pollen analysis show that during the Neolithic most of Poland (90 per cent), like most of Central Europe, was covered by enormous thick forests with large areas of bog and swamp⁵¹. The data obtainable from scientific literature have so far favoured the widely accepted opinion that loess soils were not covered by forests but that the vegetation which grew on them had a steppe character. This opinion is opposed by J. Motyka who puts forward a hypothesis about the „anthropogenic” origin of steppe vegetation. According to him, steppe vegetation developed in these terrains



Fig. 8. Sites of the Comb-Pottery (I) and Corded-Ware culture (II) on the Lublin Upland;

1. Bochtolica, Puławy distr.;
2. Brzezice, Lublin distr.;
3. Chodel, Bełżyce distr.;
4. Dorohuczka, Chełm distr.;
5. Krynice, Krasnystaw distr.;
6. Łęczna, Lublin distr.;
7. Łuszczów, Lubartów distr.;
8. Piaski, Lublin distr.;
9. Spiczyn, Lubartów distr.;
10. Włostowice, Puławy distr.;
11. Babin, Bełżyce distr.;
12. Bachus, Chełm distr.;
13. Blisko, Chełm distr.;
14. Biskupice, Lublin distr.;
15. Borysowiec, Chełm distr.;
16. Brzeźno, Chełm distr.;
17. Chełm;
18. Chodyłowice, Krasnystaw distr.;
19. Chojno, Chełm distr.;
20. Czulczyce, Chełm distr.;
21. Dobromyśl, Chełm distr.;
22. Dra-tów, Lubartów distr.;
23. Gałęzów, Chełm distr.;
24. Gdole, Chełm distr.;
25. Głusko, Opole distr.;
26. Głuszczyzna, Lublin distr.;
27. Grabowiec, Hrubieszów distr.;
28. Gródek, Hrubieszów distr.;
29. Gródki, Krasnystaw distr.;
30. Horodło, Hrubieszów distr.;
31. Hrebenne, Hrubieszów distr.;
32. Hostynne, Hrubieszów distr.;
33. Husynne, Hrubieszów distr.;
34. Husynne, Chełm distr.;
35. Jaszczów, Lublin distr.;
36. Jeziorna, Lublin distr.;
37. Kajetanówka Nowa, Hrubieszów distr.;
38. Kanie, Chełm distr.;
39. Kazimierz, Puławy distr.;
40. Klarów, Lublin distr.;
41. Klemensów, Zamość distr.;
42. Konotopy, Chełm distr.;
43. Krasne, Chełm distr.;
44. Krynice, Tomaszów distr.;
45. Kurów, Puławy distr.;
46. Kumów, Chełm distr.;
47. Liski, Hrubieszów distr.;
48. Lublin;
49. Ludwin, Puławy distr.;
50. Łukówek Górny, Chełm distr.;
51. Łykoszyn, Tomaszów distr.;
52. Majdanek, Tomaszów distr.;
53. Majdan Ostrowski, Chełm distr.;
54. Majdan Stajeński, Chełm distr.;
55. Mach-nów, Tomaszów distr.;
56. Miętkie, Hrubieszów distr.;
57. Mokre, Zamość distr.;
58. Moniatyce, Hrubieszów distr.;
59. Niedźwiada Mała, Opole distr.;
60. Niesioło-wice, Opole distr.;
61. Werbkowice-Kotorów, Hrubieszów distr.;
62. Okszów, Chełm distr.;
63. Ornatowice, Hrubieszów distr.;
64. Pilaszkowce, Krasnystaw distr.;
65. Piotrowice Wielkie, Puławy distr.;
66. Pobołowice, Chełm distr.;
67. Dobre, Puławy distr.;
68. Putnowice, Chełm distr.;
69. Rachanie, Tomaszów distr.;
70. Rad-ków, Tomaszów distr.;
71. Rudka, Chełm distr.;
72. Sahryń, Hrubieszów distr.;

73. Sajczyce, Chełm distr.; 74. Sarniak, Chełm distr.; 75. Siedliszcze, Chełm distr.; 76. Sitno, Zamość distr.; 77. Siemnice, Tomaszów distr.; 78. Skoków, Opole distr.; 79. Sławęcin, Hrubieszów distr.; 80. Sobianowice, Lublin distr.; 81. Stanisławówka, Hrubieszów distr.; 82. Staw, Chełm distr.; 83. Stachosław, Chełm distr.; 84. Stręczyn Nowy, Chełm distr.; 85. Stróże, Lublin distr.; 86. Strzyżów, Hrubieszów distr.; 87. Surchów, Krasnystaw distr.; 88. Szczuczki, Bełżyce distr.; 89. Tarnoszyn, Tomaszów distr.; 90. Teresin, Chełm distr.; 91. Tokary, Krasnystaw distr.; 92. Trzciniec, Opole distr.; 93. Turkułówka, Hrubieszów distr.; 94. Uchanie, Hrubieszów distr.; 95. Ujazdów, Zamość distr.; 96. Wojsławice, Chełm distr.; 97. Wola Uhruska, Włodawa distr.; 98. Wołajewice, Hrubieszów distr.; 99. Woźczyn, Tomaszów distr.; 100. Wólka, Chełm distr.; 101. Wólka Złojcka, Zamość distr.; 102. Wygnańce, Chełm distr.; 103. Wyżnica, Kraśnik distr.; 104. Zakłodzie, Zamość distr.; 105. Złojec, Zamość distr.; 106. Zdanów, Zamość distr.; 107. Zmijowiska, Opole distr.; 108. Żuków, Hrubieszów distr.

As the majority of sites belonging to the Corded-Ware culture are known only from finds composed of stone implements they cannot yet be chronologically classified.

through the activity of man, who cut down the forests⁵². After the forests had been destroyed, the soils of those areas, through long exposure to heat, were salinised with carbonates; this process created favourable conditions for the growth and development of steppe vegetation. As with the steppe vegetation, the range of meadow vegetation increased on the soils which had been denuded of trees by man⁵³.

The devastation of forests in the Neolithic, through which steppe vegetation began to develop on loess soils, is confirmed by the results of archaeological investigations and those carried out by pollen analysis. The possession of celts, necessary for felling trees, by the oldest farming people in Southern Poland is confirmed by the finding of axes. A piece of indirect evidence is the fact that those people built large, strong wooden buildings to live in.

The beginning of the Late Stone Age is demonstrated in pollen diagrams by such characteristic evidence as an abrupt rise in the percentage of pollens in grass plants; there is a marked increase of birch pollens and a parallel decrease of pollens belonging to trees constituting deciduous forests. Additional evidence is a layer of charcoal⁵⁴ considered to have belonged to the beginnings of the Late Stone Age. The presence of pollens of weeds and synanthropic plants in the Mesolithic diagrams may be regarded as the oldest evidence of a temporary settlement of man in the Middle Stone Age⁵⁵. Considerable increase in birch pollens points to the activity of man in forests, using the axe and starting cultivation based on slash-and-burn clearance. Layers of charcoal provide evidence of this kind of cultivation.

It is worthwhile mentioning that on the clearings of that time birch and pine usually appear first. At the same time as a diagrammatic

decrease in the curves of pollens of deciduous forests, pollens of weeds and cereals appear. Pollens of cereals, which occur simultaneously with charcoal, point to the fact that the first farmers settled in glades which they cleared by the slash-and-burn method. Below the layer containing charcoal no pollens of cereals were observed⁵⁶. In addition, the period of incipient agriculture is evidenced in diagrams by the increased development of plants characteristic not of forest vegetation, but of open areas such as meadows and marshes. It is then clear that meadow and marsh vegetation could have spread to bigger areas only through the slash-and-burn clearance of the forest⁵⁷. The same is also true of the intrusion of steppe vegetation from its primeval sites on territories cleared of trees by man; the soil here was fertile and abounded in lime.

We have to take into account the size of the primitive family in order to get some idea of the degree to which the forests were destroyed as a result of clearings for farming purposes, whether the soil was used for cultivation for the first time or was allowed to go fallow for a certain time. The average primeval family consisted of

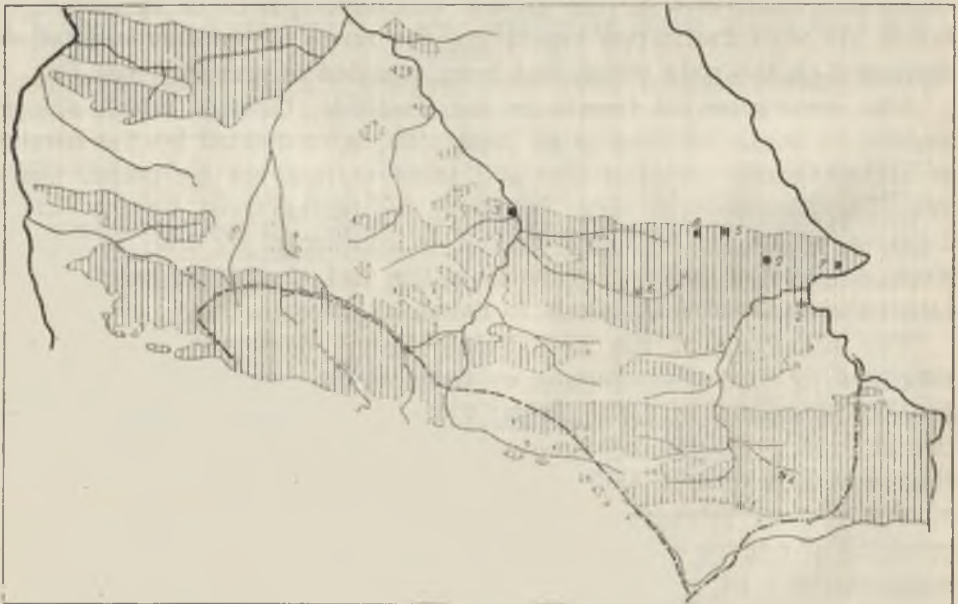


Fig. 9. Sites of the Strzyżów-group belonging to the Corded-Ware culture on the Lublin Upland;

1. Dyniska Nowe, Tomaszów distr.;
2. Gródek, Hrubieszów distr.;
3. Krasnystaw;
4. Krzewica, Tomaszów distr.;
5. Raciborowice, Hrubieszów distr.;
6. Skomorochy Małe, Hrubieszów distr.;
7. Strzyżów, Hrubieszów distr.;
8. Uchanie, Hrubieszów distr.;
9. Wołajewice, Hrubieszów distr.

about 30 to 40 members; this comparatively large group of people cleared about 2 hectares of forested area every year by the slash-and-burn method and seeded 2.5 to 3 hectares of soil. By this method a minimum subsistence level was reached only when crops were very good. The farming on clearings by the slash-and-burn method required large areas of forested land⁵⁸ because after several seasons crops were reduced and inadequate; the plots had to be abandoned, to be used again after a lapse of some 40 or 50 years. A large Neolithic family needed about 100 hectares of forested area for their subsistence⁵⁹.

Another reason why areas of forested land were cleared was the extensive stock-breeding on which primeval people largely depended, making their herds graze especially in the bush and in clearings. It is worthwhile mentioning here that the primeval man who lived by stock-breeding prepared a supply of winter food for his animals composed of bark, leaves and twigs. In the west of Europe Neolithic man prepared for one cow supplies of food consisting of one thousand bunches of leaves and twigs, each 1 kg in weight, or one ton of food in all⁶⁰. As the winter period was longer in Central Europe, supplies of food had to be comparatively larger there. In addition, one must remember that wood was used in building and for fuel, and that there were occasional forest-fires, all of which played a part in the destruction of forests. A reduction of the forested areas took place parallel with the spread of the areas taken under cultivation and with the increase in population. The loess areas of Little Poland (Małopolska) were considerably deforested by the Neolithic peoples, whose distribution was here more dense than anywhere else⁶¹. This resulted in erosion and denudation processes of these areas going on apace there already as early as in the Neolithic⁶².

The growing deforestation process and the parallel increase in arable areas resulted in the introduction, in some territories, of the draught-force of animals for tilling the soil by the people of Funnel Beaker culture.

The distribution and the character of the Neolithic sites so far discovered on the Lublin Upland suggest that two periods may be distinguished in the development of Neolithic farming cultures of that area:

- 1) the introduction of agriculture and the gradual replacement of nomadic life with a half-settled way of living based on slash-and-burn clearance, which started the process of deforestation;

- 2) the introduction in deforested areas of a farming system which was linked with stock-breeding; this brought about the use of animals for draught-work and the devising of new agricultural implements.

The tilling of the soil with the help of animals which results in an increase in denudation processes has been the basic farming system in Central Europe since the end of the Neolithic age up to our times.

Both periods distinguished here in the development of farming cultures of the Late Stone Age are not specific to the Lublin Upland in the Neolithic. They have their parallels in all the loess territories of Little Poland (Małopolska)⁶³.

¹ S. Nosek: *Materiały do badań nad historią starożytną i wczesnośrednio-wieczną międzyrzeczną Wisły i Bugu* (*Matériaux pour servir aux recherches protohistorique du territoire entre la Vistule et le Boug*). Ann. Univ. Mariae Curie-Skłodowska, sectio F, vol. VI (1951), Lublin 1957, p. 33.

² Z. Podkowińska: *Badania w Strzyżowie, pow. Hrubieszów, woj. Lublin, w latach 1935—1937 oraz 1939* (*Ausgrabungen in Strzyżów, Kreis Hrubieszów, Woiwodschaft Lublin, in den Jahren 1935—1937 und 1939*). „Archeologia Polski”, V, 1960, pp. 39—80.

³ S. Nosek: *Stan i potrzeby badań w zakresie neolitu Małopolski* (*The Conditions and Needs of Research on the Neolithic in Southern Poland*). „Wiadomości Archeologiczne”, XXIII, 1956, pp. 1—22; idem: *Zarys archeologii Małopolski*. Kraków 1956, pp. 19—28; Z. Podkowińska: *Neolit i wczesna epoka brązu w Polsce. Rozwój badań w latach 1945—1954*. Pierwsza sesja archeologiczna IHKM PAN Warszawa 1955, Warszawa 1957, pp. 54—72; S. Nosek: *Materiały...*, pp. 502; comp. the review of the recent article in *Rocznik Lubelski*, I, 1958, pp. 249—252; „Archeologia Polski”, V, 1960, pp. 291—295. Since the articles mentioned here have their own bibliographies on investigations carried out up to the year 1956, I refer readers to these bibliographies. The literature I have quoted is more recent.

⁴ The only traces of this culture on the Lublin Upland have been: 1. fragments of pottery ware of the Linnear Pottery culture found in Strzyżów (Hrubieszów district), 2. cremation grave in Gródek (Hrubieszów district) (information kindly supplied by Dr. J. Kowalczyk) and 3. a fragment of a pot of Linnear Pottery culture from Czumów (Hrubieszów district). The first was described by Z. Podkowińska: *Badania...*, p. 46. The description of the grave will appear in „Wiadomości Archeologiczne”. A fragment of a pot from Czumów was described by J. Głosik in the article, *Archeologiczne badania powierzchniowe przeprowadzone w r. 1956 nad Bugiem w okolicy Hrubieszowa*, „Wiadomości Archeologiczne”, XXVI, 1959, p. 320.

⁵ Because of the importance of the materials concerning the site in Tarnoszyn (they have not been published so far) some results of the investigations are given here in general terms. The only item of information about the site is given in *Rocznik Lubelski*, III, 1960, p. 294.

⁶ T. Dąbrowska, T. Liana: *Tymczasowe sprawozdanie z prac ratowniczych przeprowadzonych w Werbkowicach-Kotorowie w 1960 r.* Sprawozdania Katedry Archeologii Polski UMCS.

⁷ Z. Podkowińska: *Badania...*, p. 46.

⁸ J. Głosik, W. Śladowski: *Werbkowice, pow. Hrubieszów*. „Z Otchłani Wieków”, XXV, 1959, p. 210.

⁹ Compare A. Żaki: *Krytyczny przegląd Archeologii Małopolski*. Sprawozdania z posiedzeń Komisji Oddziału PAN w Krakowie, July — December 1959,

pp. 3—4. For the group of Theiss culture called „biało-malowana” which so far was called „południowo-morawska kultura ceramiki malowanej” the following name has been adopted recently: „kultura ceramiki wstęgowej malowanej”. (Z. Podkowińska: *Pierwsza charakterystyka stanowiska eneolitycznego na polu Grodzisko I we wsi Złota pow. Sandomierz* (The first characteristic of an aeneolithic site on a field called Grodzisko I at Złota, Sandomierz district). „Wiadomości Archeologiczne”, XIX, 1953, p. 47).

¹⁰ S. Nosek: *Materiały...*, pp. 53—57.

¹¹ J. Gurba: *Materiały do badań nad neolitem Małopolski* (Materiale zur Untersuchung über das Neolithikum in Klempolen). Ann. Univ. Mariae Curie-Skłodowska, sectio F, IX, (1954), 3, Lublin 1957, pp. 129—133.

¹² Idem: *Ślady neolitycznej osady kultury nadcisańskiej w Antopolu, pow. Puławy* (Traces of the Neolithic Settlement of the Lengyel Culture at Antopol, distr. Puławy). Sprawozdania Archeologiczne, IX, 1959, pp. 77—80.

¹³ Z. Podkowińska: *Badania...*, p. 48.

¹⁴ P. Komorowski: *Osada bagienna kultury ceramiki nadcisańskiej w Werbkowicach, pow. Hrubieszów* (A Boggy Settlement of the Tisza Culture at Werbkowice the Hrubieszów District). *Materiały Starożytne*, IV, 1958, pp. 326—333; comp. the review in *Rocznik Lubelski*, III, 1960, pp. 293—294.

¹⁵ T. Dąbrowska, T. Liana: l. c.

¹⁶ Z. Ślusarski: *Raciborowice, pow. Hrubieszów*. „Z Otchłani Wieków”, XXV, 1959, pp. 208—209.

¹⁷ „Wiadomości Historyczne”, II, 1959, p. 165.

¹⁸ S. Nosek: *Materiały...*, pp. 57—69; T. Sulimirski: *Polska przedhistoryczna* (Prehistoric Poland), II, Londyn 1957—1959, pp. 200—202; J. Kowalczyk: „Złoty wiek” Lubelszczyzny w młodszej epoce kamienia. „Z Otchłani Wieków”, XXV, 1959, pp. 172—176.

¹⁹ K. Jażdżewski: *Uwagi ogólne o osadzie neolitycznej w Gródku Nadbużnym w pow. hrubieszowskim* (Stanowisko I C) (Allgemeine Bemerkungen über die neolithische Ansiedlung in Gródek Nadbużny, Kreis Hrubieszów, Woiw. Lublin) (Fundstelle I C). „Archeologia Polski”, II, 1958, pp. 279—286; T. Poklewski: *Osada kultury pucharów lejkowatych w Gródku Nadbużnym, pow. Hrubieszów* (stanowisko I C) (Ansiedlung der Trichterbecherkultur in Gródek Nadbużny, Kreis Hrubieszów, Woiw. Lublin) (Fundstelle I C), *ibidem*, pp. 287—328; J. Kowalczyk: *Badania osady kultury pucharów lejkowatych w Gródku Nadbużnym, pow. Hrubieszów, przeprowadzone w 1955 r.* (Excavations of a Settlement of the Funnel Beaker Culture at Gródek Nadbużny, the Hrubieszów District — 1955). „Wiadomości Archeologiczne”, XXIV, 1957, pp. 37—52; idem: *Sprawozdania z badań osady kultury pucharów lejkowatych w Gródku Nadbużnym, pow. Hrubieszów w 1956 r.* (Report on the 1956 Excavation of a Settlement of the Funnel Beaker Culture at Gródek Nadbużny, the Hrubieszów District), *ibidem*, pp. 300—306; idem: *Prace badawcze w 1957 r. osady pucharów lejkowatych w Gródku Nadbużnym, pow. Hrubieszów* (Excavations of a Settlement of the Funnel Beaker Culture at Gródek Nadbużny, the Hrubieszów District), *ibidem*, XXV, 1958, pp. 314—321; idem: „Złoty wiek”..., pp. 172—176; J. Zacharuk: *Do pytania pro spiwwidnoszenia i swiazky miż kulturoju Lijczastoho posudu ta trypilskoju kulturoju* (À propos des rapports mutuels et de la civilisation des gobelets en entonnoir avec la civilisation tripolienne). *Materiały i doslidżennia z archeologii Prykarpattia i Wolyni*, II, 1959, p. 63.

²⁰ J. Gurba: *Stanowisko kultury czas lejujących w miejscowości Chruszców Kolonia, pow. puławski (Fundstelle der Trichterbecherkultur in der Ortschaft Chruszców Kolonia, Kreis Puławy)*. Ann. Univ. Mariae Curie-Skłodowska, sectio F, vol. XI, (1957), 2, Lublin 1959, pp. 33—42.

²¹ J. Kowalczyk: *Osada i cmentarzysko kultury pucharów lejokształtnych w miejscowości Klementowice, pow. Puławy (Settlement and a Cemetery of the Funnel Beaker Culture at Klementowice, the Puławy District)*. Materiały Starożytne, II, 1957, pp. 175—202.

²² A. Gardawski: *Wyniki prac wykopaliskowych przeprowadzonych w 1952 r. w miejscowości Trzcinięc, pow. Puławy (Results of 1952 Excavations at Trzcinięc, Puławy District)*. „Wiadomości Archeologiczne”, XX, 1954, pp. 368—396.

²³ Z. Ślusarski: *Sprawozdanie z prac wykopaliskowych w 1960 r., Lublin — Stawinek*. Sprawozdania Katedry Archeologii Polski UMCS.

²⁴ J. Zacharuk: *Nowyje issledowanija kultury woronkowidnych sasudow w Polsce (Nouvelles études sur la culture des vases infundibuliformes en Pologne)*. „Wiestnik Driewniej Istorii”, 1956, pp. 65—70; T. Dzierżykraj-Rogalski: *Cmentarzyska neolityczne w Stoku i Lesie Stockim (Cimetières néolithiques à Stok et Las Stocki)*. Materiały i Prace Antropologiczne, 30, 1958, p. 70; comp. the review in Rocznik Lubelski, III, 1960, pp. 294—295; J. Gurba: *Z najnowszych badań nad kulturą czas lejujących w Lubelskim (Nouvelles fouilles relatives à la civilisation des gobelets en entonnoir dans la région de Lublin en Pologne)*. „Archeologické Rozhledy”, IX, 1957, pp. 510 ff.; idem: *Materiały do badań...*, pp. 133—156; idem: *Cmentarzysko kultury czas lejujących w miejscowości Kolonia Strzelce, pow. Puławy (Burial Ground of the Culture of Funnel Beaker Pottery in Kolonia Strzelce, District Puławy)*. „Sprawozdania Archeologiczne”, V, 1959, pp. 259—267.

²⁵ S. Nosek: *Materiały...*, pp. 69—82.

²⁶ Z. Ślusarski: *Raciborowice...*, p. 208.

²⁷ L. Gajewski, J. Gurba: *Sprawozdanie z prac ratowniczo-badawczych przeprowadzonych w roku 1958 w Strzyżowie, pow. Hrubieszów (A Report on the Investigatory Works of Salvage Carried out at Strzyżów, Hrubieszów District, in 1958)*. „Sprawozdania Archeologiczne”, X, 1960, pp. 98—102.

²⁸ S. Nosek: *Materiały...*, pp. 82—84; A. Gardawski: *Zagadnienie kultury „ceramiki grzybkowej” w Polsce (Problem of the Comb-Pottery Culture in Poland)*. „Wiadomości Archeologiczne”, XXV, 1958, pp. 287—313.

²⁹ This is my way of describing Neolithic groups of this culture in contrast to earlier groups distinguished separately and related to Corded Ware culture.

³⁰ Z. Ślusarski: *Sprawozdanie...*

³¹ W. Antoniewicz: *Neolithisches Hügelgrab in Dorf Zakłodzie, Kreis Zamość, Wojewodschaft Lublin, Polen*. Acta Archeologica Academiae Scientiarum Hungaricae, 9, 1958, pp. 62—83.

³² J. Gurba: *Grób kultury ceramiki sznurowej z Krzewicy w pow. Tomaszowskim (Une sépulture de la civilisation de la céramique cordée découverte à Krzewica, distr. de Tomaszów Lubelski)*. „Przegląd Archeologiczny”, XII, 1959, p. 18.

³³ J. Głosik: *Przegląd ważniejszych badań nad kulturą ceramiki sznurowej we wschodniej Lubelszczyźnie (Aperçu sur les fouilles d'importance des stations à céramique cordée dans la partie orientale de la région de Lublin)*. „Archeologické Rozhledy”, XII, 1960 pp. 403—407; idem: *Osada kultury ceramiki sznurowej w Strzyżowie pow. Hrubieszów, w świetle badań w latach 1935—37 i 39*

(*A Settlement of the Cord-Pottery Culture of Strzyżów, in the Light of the 1935—37, 39 Excavations*), *Materiały Starożytne*, VII, 1960, pp. 111—164. Compare the article by J. Kowalczyk: *Zagadnienie kultury mierzanowickiej zwanej także tomaszowską (Problem of the so-called Mierzanowice Culture)*, „*Wiadomości Archeologiczne*”, XXVI, 1959, pp. 1—8.

³⁴ Because of insufficient source materials due to scanty occasional investigations and because the results of findings in the Lublin district are seldom published, the author depended for their interpretation on some facts which were confirmed as true also in other parts of Little Poland (Małopolska) which is regarded here as a separate region (M. Janiszewski: *Regiony geograficzne Polski*. Warszawa 1959, pp. 61—74). The author felt entitled to adopt such a method because of the considerable uniformity of the general character of separate Neolithic cultures on the whole area of Little Poland (J. Gurba: *Wpływ środowiska geograficznego na kształtowanie się neolitycznego osadnictwa w Małopolsce*. 1960, the manuscript).

³⁵ Similarly as on the area of the Lublin Upland (A. Kozłowska: *Rola roślin uprawnych w historycznym rozwoju kultury materialnej Polski*. Szata roślinna Polski, vol. I, Warszawa 1959, p. 551).

³⁶ J. Kostrzewski: *Rola Wisły w czasach prehistorycznych Polski (Le rôle de la Vistule dans le préhistoire de la Pologne)*. „*Przegląd Archeologiczny*”, V, 1933—34, p. 63.

³⁷ L. Gabałówna: *Pochówki bydłce kultury amfor kulistych ze stanowiska 4 w Brześciu Kujawskim w świetle podobnych znalezisk kultur środkowo-europejskich (Cattle Burials of the Globular Amphora Culture from Site 4 at Brześć Kujawski in the Light of Similar Finds of the Central Europe Cultures)*. *Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi. Seria Archeologiczna*, 3, 1958, p. 85.

³⁸ S. Nosek: *Niektóre problemy neolitu polskiego*. *Pierwsza Sesja Archeologiczna...*, p. 80; J. Gurba: *Materiały do badań...*, p. 164; T. Wiślański: *Wyniki prac wykopaliskowych w Strzelcach w pow. mogileńskim w latach 1952, 1954 (Les résultats des fouilles à Strzelce, distr. de Mogilno en 1952 et 1954)*. *Fontes Archaeologici Posnanienses*, X, 1959, p. 56.

³⁹ L. Gajewski, J. Gurba: *Uwagi o chronologii eneolitu na Wyżynie Lubelskiej* (in print).

⁴⁰ A. Środoń: *Zarys historyczny rozwoju szaty roślinnej Polski w późnym glacie i postglacie*. *Szata roślinna Polski*, vol. I, Warszawa 1959, p. 522 and information supplied by the author of the above article.

⁴¹ W. Szafer, M. Kostyniuk: *Zarys paleobotaniki*. Warszawa 1952, p. 163; A. Środoń: *op. cit.*, p. 535—526.

⁴² J. Motyka: *Step środkowo-europejski (The Middle European Steppe)*. *Acta Soc. Bot. Poloniae*, XVII, 1946, suppl., p. 38.

⁴³ K. Bruks: *Klimaty przeszłego (S. E. P. Brocks, Climate through the Ages)*. Moskwa 1952, p. 126.

⁴⁴ W. Szafer: *Szata roślinna Polski niżowej*, *Szata roślinna Polski*, vol. II, Warszawa 1959, p. 126.

⁴⁵ T. Sulimirski: *op. cit.*, I, Londyn 1955, p. 76; A. Gardawski, J. Gąssowski, Z. Rajewski: *Archeologia i pradzieje Polski*, Warszawa 1957, pp. 82—119

⁴⁶ W. Szafer, M. Kostyniuk: *l. c.*; A. Środoń: *op. cit.*, p. 526; M. Tyczyńska: *Klimat Polski w okresie trzeciorzędowym i czwartorzędowym (Climat*

de Pologne au tertiaire et au quaternaire). „Czasopismo Geograficzne”, XXVIII, 1957, p. 159.

⁴⁷ K. Markow: *Problemy paleogeografii czwartorzędu ZSRR (Some Problems of Paleography of the Quaternary Period in the Soviet Union)*, „Przegląd Geograficzny”, XXVIII, 1956, pp. 266—267.

⁴⁸ M. Strzemiński: *Na drogach do nowych osiągnięć nauki o glebie w zakresie genetyki gleb Polski i gleboznawstwa rolniczego (Towards New Achievements of Soil Science)*. Postępy Nauk Rolniczych, II, 1955, No 4, p. 33.

⁴⁹ A. Gradman: *Die Steppenheitstheorie*. „Geographische Zeitschrift”, XXXIX, 1933, pp. 265—278.

⁵⁰ T. Sulimirski: *Osadnictwo i ruchy etniczne a klimat (The Influence of Climate on Colonisation and on the Movements of the Population)*. Roczniki Dziejów Społeczno-Gospodarczych, III, 1934, p. 9; J. Kowalczyk: *Prace badawcze...*, p. 320.

⁵¹ J. Kornaś: *Wpływ człowieka i jego gospodarki na szatę roślinną Polski*. Szata roślinna Polski, vol. I, Warszawa 1959, p. 90.

⁵² J. Motyka: *op. cit.*, p. 38; idem: *W sprawie współpracy geobotaniki i gleboznawstwa*, „Kosmos”, vol. III, series A, 1954, p. 753; idem: *Geobotanika*, Warszawa 1953, p. 104; J. G. D. Clark: *Europa przedhistoryczna (Prehistoric Europe)*. Warszawa 1957, p. 115; M. Strzemiński: *op. cit.*, pp. 33—34.

⁵³ W. Szafer: *Analiza pyłkowa w zastosowaniu do badań historii kultury materialnej człowieka*. „Kultura i Społeczeństwo”, II, 1958, p. 54.

⁵⁴ W. Szafer: *op. cit.*, p. 54; idem: *O początkach kultury rolniczej w okolicy Rzeszowa*. Rocznik województwa rzeszowskiego, I, 1958, No 2, p. 10; M. Strzemiński: *Dzieje gleby na tle historii świata*. „Kosmos”, vol. IV, series A, 1955, p. 39.

⁵⁵ W. Szafer: *op. cit.*, p. 7; A. Żaki: *Krytyczny przegląd...*, p. 3.

⁵⁶ J. G. D. Clark: *op. cit.*, p. 116; L. Gabałówna: *Z problematyki uprawy roli w neolicie (Notes on the Problem of the Neolithic Soil Cultivation)*. Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi. Seria Archeologiczna, II, 1957, pp. 128—129, 131; W. Szafer: *Analiza...*, p. 54 ff.

⁵⁷ W. Szafer: *op. cit.*, p. 54; idem: *O początkach...*, p. 10.

⁵⁸ Forest reclaiming was rendered difficult by a simultaneous calcareous process going on in the soil (J. Motyka: *Geobotanika*, p. 104).

⁵⁹ Data according to P. Tretiakow (J. Sauszkin: *Wstęp do geografii ekonomicznej*. Warszawa 1960, pp. 467—468).

⁶⁰ J. G. D. Clark: *op. cit.*, p. 152.

⁶¹ J. Gurba: *Z zagadnień neolitu Małopolski*. Sprawozdania z posiedzeń Komisji Oddziału PAN w Krakowie, lipiec — grudzień 1960.

⁶² J. Dylik: *O peryglacialnym charakterze rzeźby środkowej Polski (Du caractère périglaciaire de la Pologne centrale)*. Acta Geographica UŁ, 4, 1953, p. 92; A. Jahn: *Wyżyna Lubelska. Rzeźba i czwartorzęd (Geomorphology and Quaternary History of Lublin Plateau)*. Warszawa 1956, p. 382.

⁶³ J. Gurba: *Wpływ środowiska...*

Р Е З Ю М Е

В начале младшего каменного века в лёссовых районах Люблинской возвышенности появляется население, принадлежащее к группе культуры, называемой культурой старшей ленточной керамики.

Районы, в пределах которых появилась в то время упомянутая выше культура были раньше лишены поселения, так как предыдущий, охотившийся человек мезолитической — тарденуаской культуры, поселялся на дюнах в пределах речных долин. Во время неолита лёссовые районы Люблинской возвышенности поселялись почти исключительно сельскохозяйственными культурами южного происхождения (ленточная и притисская культуры). Инфильтрующие из юга культуры принесли с собой собственные традиции поселения на лёссах. То же самое можно сказать о постоянном поселении культуры воронковидных сосудов, проявляющими тесные связи с южными культурами.

У населения культуры воронковидных сосудов обнаруживается отчетливое разделение труда. Жители общих поселков разделялись на группы: группы занимающиеся земледелием поблизости поселков — и на группы, выпасающие стада скота на лугах, расположенных в долинах в малом расстоянии или неподалёку от материнских, постоянных местопребываний. Кратковременные лагеря этих пастухов в большинстве случаев закладывались на сухих местах песчаных дюн, торчащих над поймами долин. Дюны являлись также местами переходного поселения, кочевавшего населения культуры ямочно-гребенчатой керамики, культур зачисляемых к циклу шнуровых, а частично также культуры шаровидных амфор.

При всё более расширяющемся возделывании земли проводимому в лёссовых районах и увеличивающейся густоте населения земледельческого населения последовало медленное но постоянное убывание лесных поверхностей. Поступательный процесс уменьшения площади леса происходил параллельно поступительному увеличению площади пахотной земли. Это, в свою очередь, способствовало применению населением культуры воронковидных сосудов в некоторых районах Малой Польши запряжной тягловой силы в земледелии. Уже в конце младшего каменного века отмечается значительный убыток лесов в более густо заселенных лёссовых районах Люблинской возвышенности, что отразилось также в усилении эрозионных и денудационных процессов.

Рис. 1. Тарношин, томашовский уезд. Керамика и каменные орудия культуры ленточной керамики.

Рис. 2. Жуков (1), Орнатовице (2), Городло (3), хрубешовский уезд. Красныстав (4—5). Керамика культуры старшей ленточной керамики.

Рис. 3. Размещение находок сельскохозяйственных южных культур и населения тарденуаской культуры, занимающегося охотой на Люблинской возвышенности; I — находки тарденуаской культуры, II — находки сельскохозяйственных южных культур, III — лёссовые районы (по А. Яну, 1956), IV — граница государства, V — граница Ростоха и Люблинской возвышенности.

Рис. 4. Находки культуры старшей лепточной керамики на Люблинской возвышенности.

Рис. 5. Находки культуры притисской на Люблинской возвышенности.

Рис. 6. Находки культуры воронковидных амфор на Люблинской возвышенности.

Рис. 7. Находки культуры шаровидных амфор на Люблинской возвышенности.

Рис. 8. Находки культуры ямочно-гребенчатой керамики (I) и шнуровой керамики (II) на Люблинской возвышенности.

Примечание: Большая часть находок культуры шнуровой керамики представлена лишь каменными орудиями, нет, пока, оснований подразделять их хронологически.

Рис. 9. Находки стжижовской группы культуры шнуровой керамики.

STRESZCZENIE

Z początkiem młodszej epoki kamiennej pojawia się na lessowych obszarach Wyżyny Lubelskiej ludność przynależna do grupy kulturowej określanej mianem kultury starszej ceramiki wstęgowej. Obszary na których pojawiła się wówczas wspomniana wyżej kultura, były dotychczas wolne od osadnictwa, gdyż poprzednia, myśliwska ludność mezolitycznej kultury tardenuaskiej zajmowała wydmy w obrębie rzecznych dolin. Podczas neolitu lessowe obszary Wyżyny zajmowane były prawie wyłącznie przez rolnicze kultury pochodzenia południowego (kultura wstęgowa i nadcisańska). Infiltrujące z południa kultury przyniosły ze sobą własne tradycje osadnictwa na lessach. To samo można powiedzieć i o stałym osadnictwie kultury czasz lejowatych, wykazującym ściśle związki z kulturami południowymi.

U ludności kultury czasz lejowatych stwierdzamy wyraźny podział pracy. Mieszkańcy wspólnych osad dzielili się na grupy: na grupy zajmujące się uprawą roli nieopodal osad — i na grupy, wypasające stada zwierząt na łąkach położonych w dolinach, w mniejszej lub nieco znaczniejszej odległości od macierzystych, stałych siedzib. Krótkotrwałe obozowiska tych pasterzy były zakładane w większości przypadków na suchych terenach piaszczystych wydm sterzcących wśród den dolinnych. Wydmy te były również terenami przejściowego osadnictwa pasterskiej ludności kultury grzebykowej, kultur zaliczanych do cyklu sznurowych i częściowo również kultury amfor kulistych.

Przy coraz bardziej rozszerzającej się uprawie roli prowadzonej na terenach lessowych i zwiększającej się gęstości zaludnienia rolniczej ludności, następowało powolne, ale stałe zmniejszanie się powierzchni leśnych. Postępujący proces wylesiania był równoległy do postępującego zwiększania powierzchni pól uprawnych. Umożliwiło to z kolei wprowadzenie przez ludność kultury czasz lejowatych rolnictwa sprzężonego na niektórych obszarach Małopolski. Już z końcem młodszej epoki kamiennej możemy mówić o stosunkowo znacznym wyniszczeniu

lasów na gęściej zaludnionych obszarach lessowych przestrzeni w obrębie Wyżyny Lubelskiej, co znalazło także swe odbicie we wzroście procesów erozyjnych i denudacyjnych.

OPIS RYCIN

Ryc. 1. Tarnoszyn, pow. Tomaszów. Ceramika i narzędzia kamienne kultury starszej ceramiki wstęgowej.

Ryc. 2. Żuków (1), Ornatowice (2), Horodło pow. Hrubieszów (3), Krasnystaw, (4—5). Ceramika kultury starszej ceramiki wstęgowej.

Ryc. 3. Rozmieszczenie znalezisk rolniczych kultur południowych i myśliwskiej ludności kultury tardenuaskiej na Wyżynie Lubelskiej. Objaśnienia: I — stanowiska kultury tardenuaskiej, II — stanowiska rolniczych kultur południowych, III — obszary lessowe (wg A. Jahna, 1956), IV — granica państwowa, V — granica Rostocza i Wyżyny Lubelskiej.

Ryc. 4. Stanowiska kultury starszej wstęgowej na Wyżynie Lubelskiej.

Ryc. 5. Stanowiska kultury ceramiki nadcisańskiej na Wyż. Lubelskiej.

Ryc. 6. Stanowiska kultury czasz lejowatych na Wyż. Lubelskiej.

Ryc. 7. Stanowiska kultury amfor kulistych na Wyżynie Lubelskiej.

Ryc. 8. Stanowiska kultury ceramiki grzebykowej (I) i sznurowej (II) na Wyżynie Lubelskiej. Uwaga: Ponieważ większość stanowisk kultury ceramiki sznurowej reprezentowana jest jedynie przez znaleziska narzędzi kamiennych, nie można jeszcze w tej chwili dokonać ich podziału chronologicznego.

Ryc. 9. Stanowiska strzyżowskiej grupy kultury ceramiki sznurowej.

The first part of the report
 deals with the general
 conditions of the country
 and the progress of the
 various departments.
 It is followed by a
 detailed account of the
 operations of the
 different branches of the
 service.
 The report concludes
 with a summary of the
 results of the year
 and a statement of the
 resources available for
 the next year.