

UNION INTERNATIONALE DES SCIENCES PRÉHISTORIQUES ET PROTOHISTORIQUES
INTERNATIONAL UNION FOR PREHISTORIC AND PROTOHISTORIC SCIENCES

PROCEEDINGS OF THE XV WORLD CONGRESS (LISBON, 4-9 SEPTEMBER 2006)
ACTES DU XV CONGRÈS MONDIAL (LISBONNE, 4-9 SEPTEMBRE 2006)

Series Editor: Luiz Oosterbeek

VOL. 3



Session C16

Le concept de territoires dans le Paléolithique supérieur européen

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BAR International Series 1938
2009

This title published by

Archaeopress
Publishers of British Archaeological Reports
Gordon House
276 Banbury Road
Oxford OX2 7ED
England
bar@archaeopress.com
www.archaeopress.com

BAR S1938

Proceedings of the XV World Congress of the International Union for Prehistoric and Protohistoric Sciences
Actes du XV Congrès Mondial de l'Union Internationale des Sciences Préhistoriques et Protohistoriques

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Le concept de territoires dans le Paléolithique supérieur européen, Vol.3, Session C16

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ISBN 978 1 4073 0418 2

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Printed in England by CMP (UK) Ltd

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UKRAINIAN UPPER PALAEOLITHIC BETWEEN 40/10.000 BP: CURRENT INSIGHTS INTO ENVIRONMENTAL-CLIMATIC CHANGE AND CULTURAL DEVELOPMENT

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Abstract: Dynamics of cultural development and patterns of land colonisation are discussed in their relation on environmental change in course of second half of OIS 3 and OIS 2. Accordingly to Ukrainian scheme of stratigraphical subdivision, this period embraces Bug, Dofinovka, and Prichernomorie intervals. Seven chronological periods are analysed, namely 40/32, 32/28, 28/22, 22/19, 19/18, 18/13, and 13/10.000 BP. Period roughly between 40 and 25.000 BP is characterised by presence of technomorphologically variable Middle and Upper Palaeolithic industries, often overlapping spatially and temporally. Period between 25 and 13.000 BP is characterised by chronologically gradual substitution of distinct industries, while pattern of coexisting but technomorphologically particular industries again is typical for the period after 13.000 BP. Biological and mineral resources were not dispersed evenly through the territory under consideration. Areas with rich and predictable resources of both kinds were associated mainly with the extreme south and west of territory of modern Ukraine. Patterns of land colonisation either by MP or UP occupants between 40-22.000 BP demonstrate strong association of populated areas with regions of higher biodiversity and richness of lithic raw materials. Significantly different situation is reported for the period between 22-18.000 BP, when population was concentrated in steppes of southern part of the country. Pattern of land colonisation crucially changed after 18.000 BP, when previously abandoned areas of tundra-like landscapes were intensively colonised. Since 18.000 BP land colonisation demonstrates no restrictions conditioned by landscape, climate, and peculiarities of distribution of biological and mineral resources.

Keywords: Ukraine, Upper Palaeolithic, environment, cultural development

Résumé: La dynamique du développement culturel et les modèles de peuplement du territoire sont étudiés sur leur relation avec les changements de l'environnement au cours de la deuxième moitié du stade OIS 3 et du stade OIS 2. En accord avec le schéma Ukrainien de subdivision stratigraphique, cette période recouvre les épisodes climatiques Bug, Dofinovka et Prichernomorie. Sept périodes chronologiques sont analysées, à savoir 40/32, 32/28, 28/22, 22/19, 19/18, 18/13, et 13/10.000 BP. La période entre 40 et 25.000 BP est caractérisée par la présence, techno-morphologiquement très variable, d'industries du Paléolithique Moyen et Supérieur, souvent superposées spatialement et chronologiquement. La période entre 25 et 13.000 BP est caractérisée par le remplacement graduel de ces industries spécifiques, pour un modèle standardisé. Un modèle d'industries techno-morphologiquement différenciés a de nouveau cours pour la période après 13.000 BP. Les ressources alimentaires et les matières premières lithiques n'étaient pas présentes régulièrement sur le territoire considéré. Les domaines avec de riches et prédictibles ressources des deux aspects étaient liés particulièrement à l'extrême sud et ouest du territoire de l'Ukraine moderne. Les modèles de peuplement du territoire par les habitants du PM ou PS entre 40-22.000 BP présentent une association essentielle des aires occupées avec les domaines caractérisés par une plus haute variété biologique et la richesse en matières premières. La situation est essentiellement différente pour la période entre 22 et 18.000 BP, quand la population était concentrée dans la zone des steppes dans la partie sud du pays. Le modèle de peuplement du territoire a changé complètement après 18.000 BP, quand les territoires autrefois abandonnés des zones de toundra ont été colonisés d'une manière très intensive. Après 18.000 BP, le peuplement du territoire ne présente plus aucune restriction conditionnée par le paysage, le climat et les particularités de la distribution des ressources biologiques et minérales.

Mots-clés: Ukraine, Paléolithique Supérieur, environnement, développement culturel

INTRODUCTION

This proposed brief survey is aimed to elucidate the dynamics of the main cultural changes which took place on the territory of Ukraine, Eastern Europe, under conditions of changing environment of the end of Last Glacial. Special attention is paid to some further aspects such as through time dynamics of colonisation patterns, and interdependency between availability of resources and localisation of inhabited areas. More detailed analysis on the scale of individual sites or spatially and temporally limited group of sites is beyond the scope of this paper.

The chronological frameworks of the proposed survey are determined by currently available data on temporal

position of the earliest and the latest Upper Palaeolithic sites, and roughly defined between 40 and 10.000 uncalibrated radiocarbon BP. Inasmuch as Middle Palaeolithic still survives and coexists with Upper Palaeolithic in course of early stages of the period under consideration, related data is also involved in analysis. The official stratigraphical schema of Quaternary deposits of Ukraine (URMSK 1993) is based upon works of M.F. Veklich team (Veklich *et al.* 1984) which is used as geochronological frameworks in this paper. Accordingly to this scheme, the chronological period between 40 and 10.000 BP embraces several climatic episodes, which are Bug, Dofinovka and Prichernomorie, all over corresponding to second half of OIS 3 and OIS 2. The proposed synopsis is based on a bulk of specialised publications

dealing with various aspects of archaeological and natural science data. The constraints of this volume provide no possibility to refer directly to all used titles, therefore references cited were forced to be essentially limited. The reliability of hereafter stated consequences following from the analysis of currently available data depends on correspondence of archaeological database to realities of the past. Indeed, taphonomical factor, as well as insufficient rate of investigation of some areas or chronological periods may appreciably mistakes general apprehension. Contrariwise, the history of Palaeolithic studies in Ukraine exceeds 130 years, and there are certain grounds to regard the records in hands as mirroring more or less adequately the real situation in the past. At least we are coming from this assumption.

GEOGRAPHICAL PECULIARITIES OF THE AREA UNDER CONSIDERATION AND CONSTRAINTS IN DISTRIBUTION OF BIOLOGICAL AND MINERAL RESOURCES

Two major types of landscapes are characteristic for Ukraine, i.e. mountainous areas in extreme west and south (Carpathians and Crimean Mts., respectively) and

crucially predominant flat areas of the south of East European plain. Several great hydro systems, these are – west to east -Dniestr, Dnepr, Southern Bug and west tributaries of Lower Don, subdivide the southern plain.

Biological and mineral resources were of vital importance for Palaeolithic population but they were not overall throughout the territory of the country (Ryzhov *et al.* 2006). Besides, there were objective difficulties in their supply, as a function of global and seasonal climatic rhythms. During warm periods, especially during humid phases, availability of secondary or re-deposited raw material outcrops had essentially decreased. The same periods coincides with considerable seasonal (snowy period) difficulties in procurement of raw materials. Flint raw materials became more accessible during cold periods, both in primary (Crimean and Carpathian foothills, Volhyno-Podolian and Donetsk elevations), and in redeposited outcrops (river alluvium and moraine flints in the north of the country) (Fig. 4.1).

Global and seasonal climatic changes strongly conditioned the availability of both mineral and biological resources, as well. Three environmental factors are important in this respect, these are peculiarities of

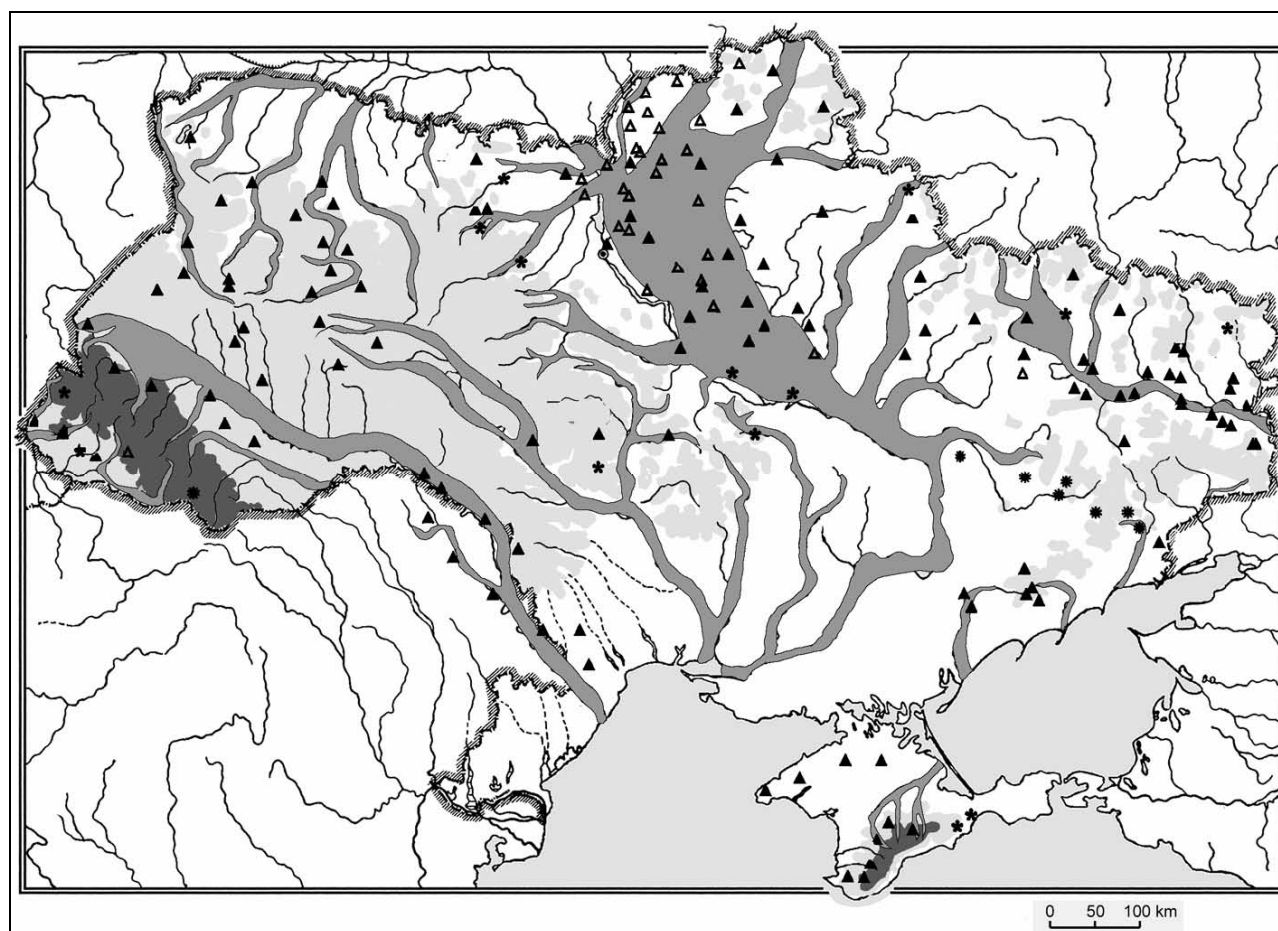


Fig. 4.1. Distribution of flint and siliceous rocks in system of Quaternary river valleys and landscape on the territory of Ukraine (after Bondarchuk [1960])

landscape, continentality of climate, and characteristics of snow cover. Flat landscapes are the most common in Ukraine, but diversity, predictability and availability of bioresources in such landscapes was lesser, than under conditions of elevations and foothills, potentially more productive due to peculiarities of mosaic landscapes. Hereupon, elevations and foothills were more attractive both for animals and ancient population. Factor of continentality of climate was resulted in sharpness of daily and annual cycles of temperatures, duration and severity of winters. Degree of continentality was progressively decreased westward and southward. Essential role was played by factor of snow cover varying by such characteristics, as thickness, duration of preservation, and tightness. Spatial pattern of animal habitats and fauna composition were to a great extent corrected by these three environmental factors. The most comfort and, consequently, the most richness in bioresources and, hence, attractive for settling, were zones of crossed foothills and highlands, and, in general, the extreme south and west of territory of modern Ukraine. It is worthy to emphasize that the areas with stable and predictable primary sources of raw materials and the areas with rich and comparatively well predicted bioresources, are principally coinciding.

ENVIRONMENTAL CHANGES AND CULTURAL DEVELOPMENT BETWEEN 40-10.000 BP

Bug interval

The Bug episode, or Bug time, generally corresponds with OIS 3 and is dated roughly between 50 and 30.000 BP. In light of palynology, malacology, and paleopedology data (Sirenko, Turlo 1986; Sirenko *et al.* 1990; Veklich *et al.* 1984), this interval is characterised by the predomination of steppe environment, ranged from xerotic steppe in the south to mosaic landscapes of periglacial forest steppe in the north of the country (Fig. 4.2). The climate of Bug period is generally recognised as rather sharply continental. Stratigraphically, the period is characterised by the accumulation of loessic sediments, albeit there are also evidence of warm climatic fluctuations as it witnessed by presence of soil formations. Megafauna is represented by common species of the late Mammoth complex including mammoth, woolly rhinoceros, and herbivore ungulates like bison, wild horse etc (Bibikova, Belan 1979). It should be stressed the association of mammoth and rhinoceros with forest steppe and low mountain areas, while open steppe landscape is characterised by presence of bison and reindeer.

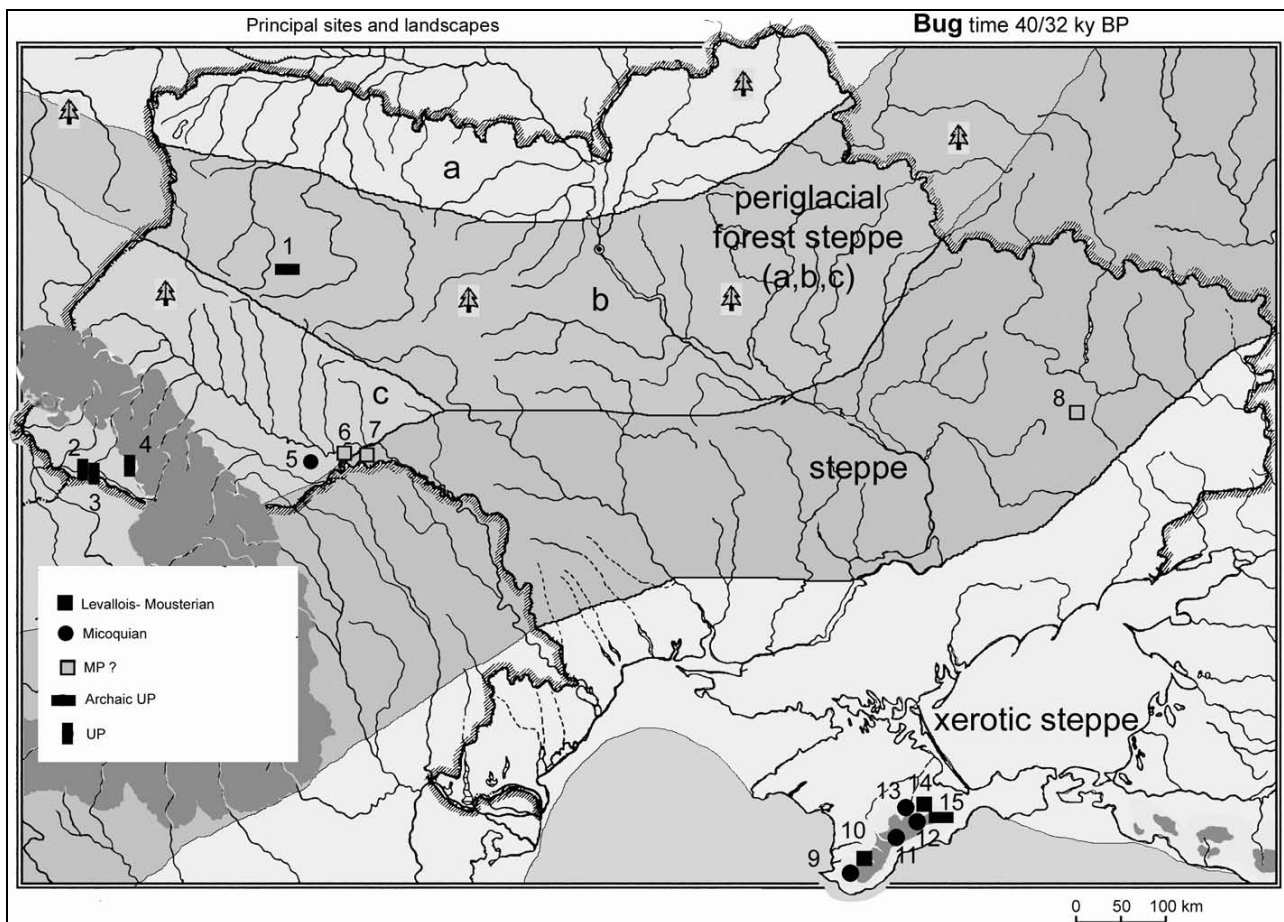


Fig. 4.2. Bug interval, 40/32.000 BP. Main sites and landscapes. Environmental reconstruction after Melnichuk [2004].
 Key: *Archaic UP*: 1 – Kulychivka: IV, III; 15 – ?Buran-Kaya: IIIC; *UP* 2: – Korolevo I: Ia; 3 – Korolevo II: II; Sornyt'sya; *Micoquian*: 5 – Sinka I: upper; 9 – Starosel'ye: I; 11 – Kiik-Koba: IV; 12 – Prolom I: II; 13 – Zaskal'naya VI (site of Kolosov): IIIa, III; *Levallois-Mousterian*: 10 – Kabazi II: IIA/1-II/A1; 14 – Alyoshin Grot: II; *MP?*: 6 – Molodova V: 10a, 10b; 7 – Korman' IV; 10; 8 – Belokuz'minovka

The presence of population is recognised by comparative concentrations of sites mainly in low mountain areas of Crimea and Transcarpathia, and in canyon-like valley of Middle Dniester, and, also, by few isolated sites in eastern and north-western areas of Ukraine. This period is characterised by the coexistence of Middle and Upper Palaeolithic industries. MP occupations are well represented in Crimea by both Micoquian and Levallois-Mousterian assemblages. The latter are probably survived in Middle Dniestr area as well (Anisiutkin 2001; Haesaerts *et al.* 2003), but currently it is not argued by absolute chronology data. Instead, assemblages known in continental Ukraine are either ambiguous (like Molodova V: 10a, b), or were recently proclaimed to be “MP to UP transitional” (Belokuzminovka, Stinka I: upper) (Chernysh 1987; Kolesnik 2003; Anisiutkin 2005). The most early, and seemingly not Aurignacian, Upper Palaeolithic occupations are known in Transcarpathia and dated to ca. 38.000 BP (Sokirnitsa) (Usik *et al.* 2004). Some of UP industries provisionally are affiliated with Central European Szeletian (Korolevo II:2; Buran-Kaya III:C), while another are similar to Bohunician (Kulychivka) (Marks, Monigal 2000; Stepanchuk, Cohen 2000-2001).

In general, there is well recognisable association of occupations, either UP or MP, with steppe and low mountains areas; exceptions are few and controversial. Therefore, both Middle and Upper Palaeolithic population are exploiting basically similar areas with rich primary outcrops of qualitative raw materials and high level of productivity of bioresources in extreme south and west of the country. It is worthy to emphasise spatial overlapping of areas settled by MP and UP population, though there is obvious concentration of MP sites in Crimean foothills.

The Dofinovka period

The Dofinovka period is dated to approximately 30/22.000 BP and corresponds with the end of OIS 3. Natural science data allows reconstructing mixed conifer/deciduous forest in the north of Ukraine, steppe area in the south, and forest steppe with birch and pine between these two zones (Sirenko, Turlo 1996; Sirenko *et al.* 1990; Melnichuk 2004). The climate is generally evaluated as temperate and humid. Stratigraphically, this period is characterised by a complex of several buried soils. Megafauna is represented by common species of the late Mammoth complex, though worthy to note the association of mammoth and rhinoceros with N and NW territories of Ukraine and low mountain areas, while bison and reindeer are associated mainly with steppe zone. Inside the Dofinovka period, it is possible to recognize two substages, i.e. early, dated between 32-28.000 BP, and late, dated ca. 28-22.000 BP. Despite the absence of detailed paleoenvironmental reconstruction for these substages, there are grounds – from archaeological standpoint – to characterize them separately.

Dofinovka, early substage, 32-28.000 BP, is characterised by ongoing coexistence of MP and UP population (Fig.

4.3). General pattern of peopling slightly differs from preceding period, as more sites are known in continental Ukraine out of low mountains areas. Nevertheless, the same trend – to be associated with steppe areas – is still the same as during the Bug interval. There is a clear spatial dichotomy of MP and UP occupations: MP obviously gravitates toward the extreme south, while UP sites are more common for W, NW and N areas of continental Ukraine. Concentration of ultimate Middle Palaeolithic sites is reported for Crimea, where both Micoquian and Levallois-Mousterian industries still persisted (Stepanchuk *et al.* 2004; Chabai 2004). It cannot also be excluded, that some MP population has survived in NW Ukraine (Zhornov: 2) (Piasetskiy 1992). The early substage of Dofinovka is also characterised by rough – in frameworks of substage – coexistence of several varieties of UP assemblages, that is Aurignacian, Gravettian, and so called Archaic or symbiotic industries representing mixture of MP and UP technomorphological features. It is worthy to mention some further regularities of spatial distribution of UP occupations, e.g. Gravettian sites demonstrate clear concentration in Middle Dniester area, while Aurignacian sites are reported from all areas. General trend of localisation of sites in southern and western areas of the territory of Ukraine where rich and predictable mineral and biological resources were disposed is still typical for this period.

The Dofinovka late substage, 28-22.000 BP

The Dofinovka late substage represents still survived though crucially decreased in number the Micoquian MP occupations in Crimea, isolated archaic UP and Aurignacian assemblages, and dramatically predominant Gravettian sites (Fig. 4.4) (Goretski, Tseitlin 1977; Goretski, Ivanova 1982; Sapozhnikov 2003; Djindjian *et al.* 2006). Generalised pattern of peopling demonstrates further step in progressive colonisation of open and forested landscapes, although the majority of sites are still connected with areas of predictable biological and mineral resources. Big game – as it recorded in archaeological data – is still demonstrate the same regularities: steppe sites yield bison, wild horse, and deer, while occupations in low mountain areas and forested zones alongside with above species are rich in remains of mammoth, rhinoceros, and infrequent forest species.

The Prichernomorie period

The Prichernomorie period, accordingly to URMSK 1993, is dated to ca. 22/10.000 BP and corresponds with OIS 2. Global climatic deterioration between 22-19.000 BP was resulted in the rise of periglacial tundra-steppe landscapes in the north of Ukraine and dry steppe in the south. The boundary between these principal landscape areas was fluctuating as a function of further cycles of climatic deterioration/amelioration. The Prichernomorie period includes the maximum of late glacial and the following series of warm fluctuations corresponding with terminal Pleistocene interstades. Pre-LGM, LGM, post-LGM, and

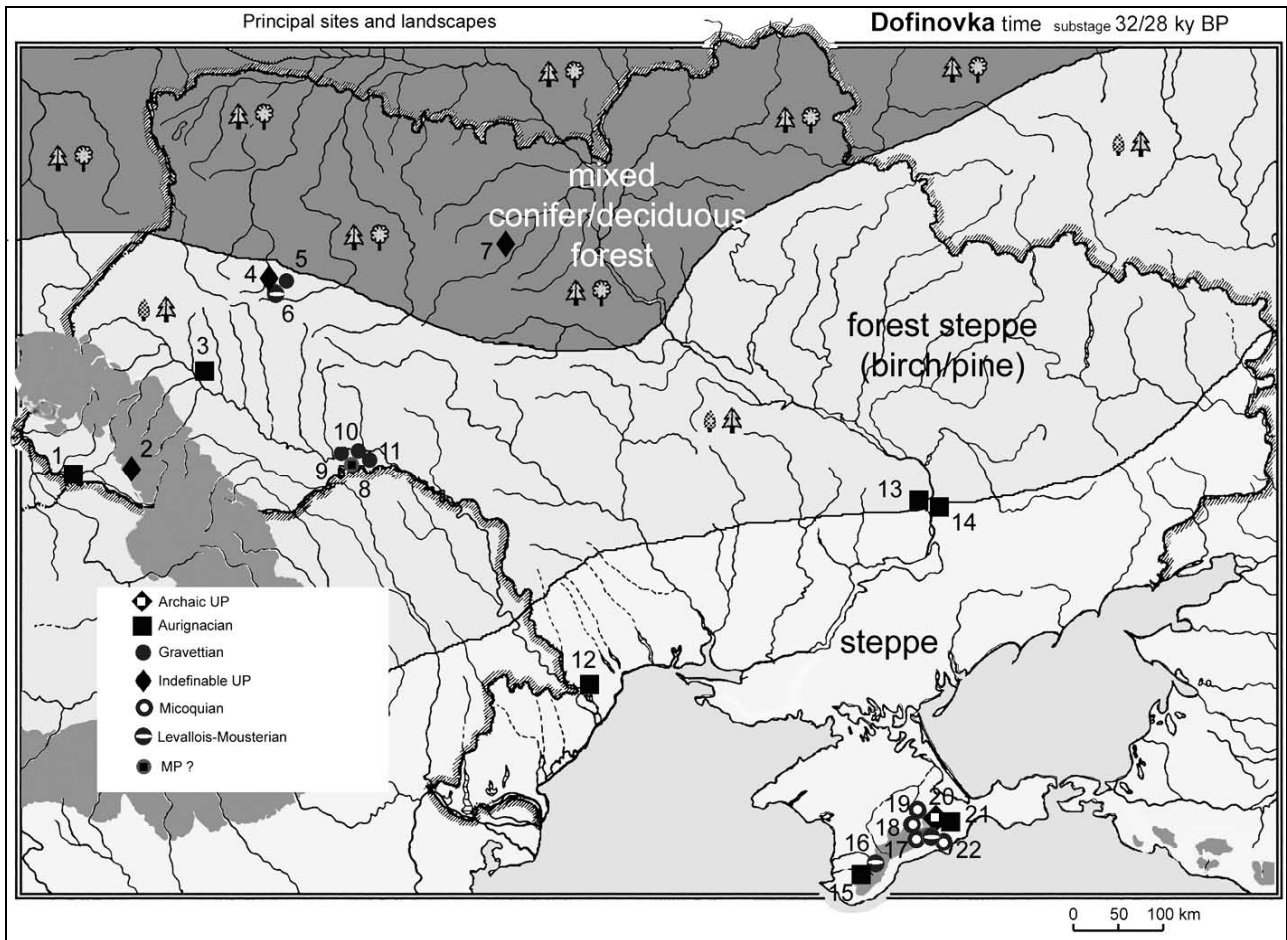


Fig. 4.3. Dofinovka, early substage, 32/28.000 BP. Principal sites and landscapes. Environmental reconstruction after Melnichuk [2004]. Key: *Archaic UP*: 2 – Shayan I: II; 4 – Zhornov: 1; 20 – Buran-Kaya: IIIC; *Aurignacian*: 1 – Beregov I; 3 – Mezhygirtsi: lower; 12 – Zeleny Khutor; 13 – Nenasytets III; 14 – Vorona III: lower; 15 – Siuren' I: FA-1-FB2, GA-GB2; 21 – Buran-Kaya III: 6/5-3; *Gravettian*: 5 – Zhornov: 2a; 9 – Molodova I: 3; 10 – Molodova V: 10, 9; 11 – Oselivka: 3, 2; *Indefinable UP*: 7 – Radomyshl'; *Micoquian* 17 – Prolom I: I; 18 – Zaskal'naya V: II, I; 19 – Zaskal'naya VI (site of Kolosov): II; 22 – Buran-Kaya: B1; *Levallois-Mousterian*: 6 – Zhornov: 2; 16 – Kabazi II: II/1a; 23 – Alyoshin Grot: I; *MP ?* 8 – ?Korman' IV: 10, 9

final Pleistocene substages are characterised by substantially different environments and provide fairly different patterns of peopling and cultural development.

The Prichernomorie interval, pre-LGM substage, 22/19.000 BP

This substage is characterised by the coexistence of two main types of UP industries, namely epi-Gravettian and epi-Aurignacian. Occupations of both industrial variants demonstrate compelling tendency to localise within area of dry steppe (Fig. 4.5). Another obvious tendency concerns the pattern of terrain colonisation: for the first time occupants leave low mountain areas and gravitate toward highlands of Dniester-Dnepr interfluvium and Dnepr valley. This bias probably reflects considerable improving of behavioural strategies involving basically different – in comparison with preceding periods – sources of lithic raw materials and less predictable bioresources. At the same time, big game is represented by the same species: bison, wild horse, deer, and rhinoceros and mammoth in

neighbor area of steppe zone. Surprisingly, there is no evidence of peopling of Crimean foothills. Remarkable absence of population in northern regions of Ukraine might be plausibly explained in terms of presumably fairly abrupt (Krotova 1995; Sapozhnikov 2003; Djindjian *et al.* 2006) environmental changes, accompanying by reduction of wanted animal and human habitats, and lack of technologies adapted for surviving under the terms of periglacial tundra-steppe.

Prichernomorie interval, LGM substage, 19/18.000 BP

This substage is characterised by presence of the only type of UP industry, that is so called epi-Gravettian with Aurignacoïde features. Practically all known sites again localise within the area of dry steppe (Fig. 4.6). Pattern of peopling is basically the same as recognised for preceding period of 22-18.000 BP and still demonstrate predominant exploitation of flat areas and river valleys, as well as frequently re-deposited outcrops of lithic raw materials of continental Ukraine. There also are isolated instances of

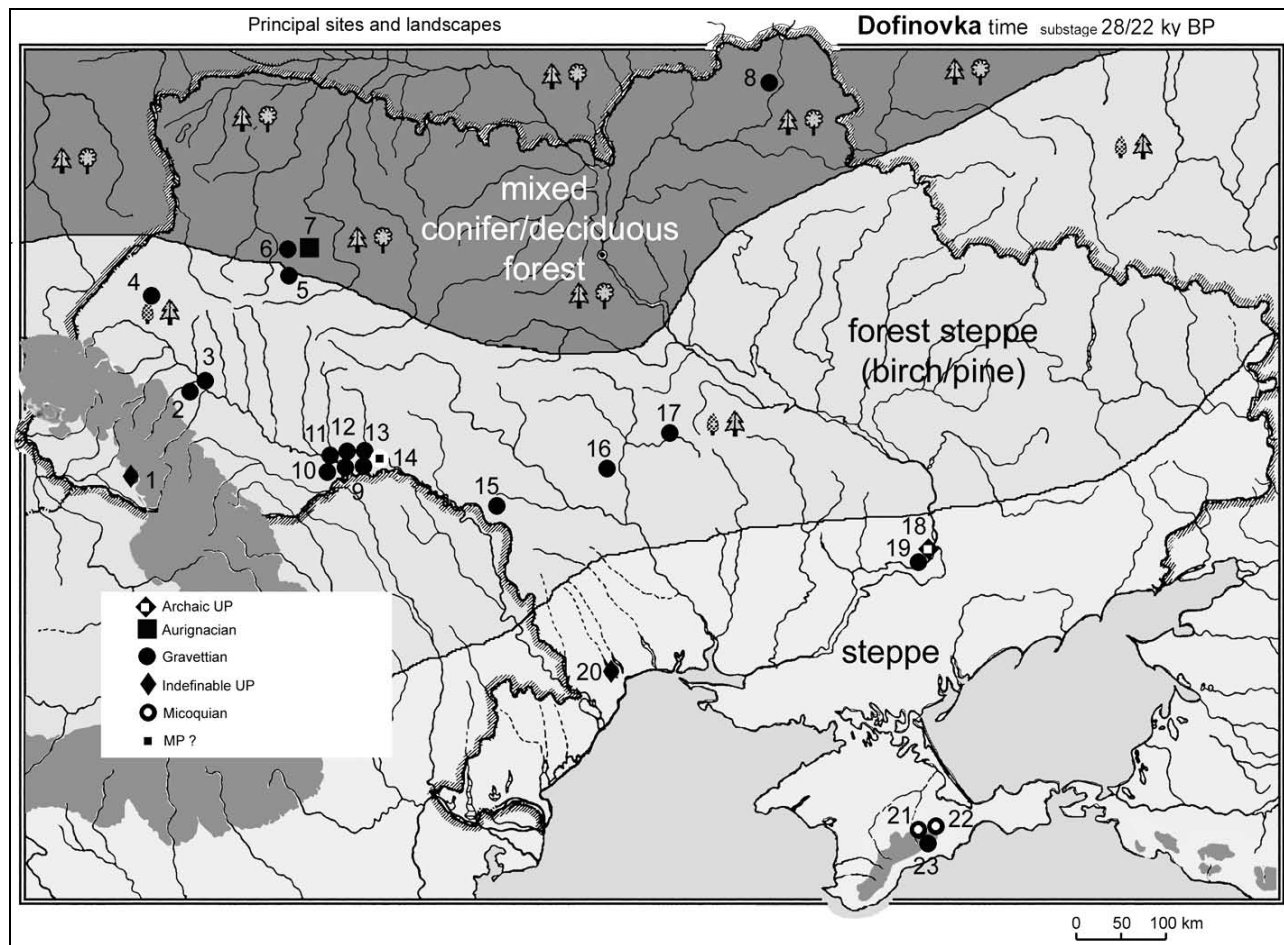


Fig. 4.4. Dofinovka, late substage, 28/22.000 BP. Main sites and landscapes. Environmental reconstruction after Melnichuk [2004]. Key: *Archaic UP*: 2 – Shayan I: II; 18 – Mira: I; *Aurignacian*: 7 – Ivanichi; *Gravettian*: 2 – Galich I: I; 3 – Mezhygirts: middle; 4 – Lviv VII: lower; 5 – Kulychivka: I; 6 – Lipa I; 8 – Pushkari I; 9 – Voronovitsa: lower; 10 – Oselivka I: 3, 2; 11 – Babyn I: 2, 1; 12 – Molodova V: 7, 6; 13 – Korman' IV: 7; 15 – Leski; 16 – Vladimirovka: VIII, VII; 17 – Troianovo 4; 19 – Mira: II/2; 23 – Buran-Kaya III: 6/2; *Indefinable UP*: 1 – Molochny Kamen'; 20 – Il'inka; *Micoquian*: 21 – Prolom II: II, I; 22 – Zaskal'naya VI (site of Kolosov): I; *MP ?*: 14 – ?Korman' IV: 10, 9

occupations localised within tundra-steppe landscapes, but, as well as for Prichernomorie interval 22-18.000 BP, exact chronological position of these sites is rather controversial. Therefore, for this period, there are no convincing arguments for stable exploitation of tundra-like landscapes. There also is a certain difference, probably significant, of the big game content. The steppe and low mountain sites yield usual bison, horse, deer, while mammoth and rhinoceros are absent in reported lists of species.

The Prichernomorie period, post-LGM substage, 18/13.000 BP

The sites of this period are quite uniform in sense of lithic technology and morphology; all known assemblages are defined as epi-Gravettian. Indeed, there are certain grounds to recognise some territorially and temporally more limited groups of sites with more higher level of techno-morphological similarity (Iakovleva, Djindjian 2005), but all of these local groups, in any case, belong to

the same epi-Gravettian cultural entity. Spatial pattern of occupations has drastically changed during this substage (Fig. 4.7). Some quantitative and qualitative trends concerning processes of colonisation have to be emphasised. Number of sites increased significantly after 18.000 BP. Quantitative rise of occupations was coinciding with broadening of colonised areas northward, eastward, and southward if to take as core area the zone of dry steppe, persistently inhabited in course of 22-18.000 BP. In fact, for the first time since 40.000 BP the territory of Ukraine was peopled everywhere, as epi-Gravettian occupations are reported for low mountains, highlands, lowlands, and valleys of large rivers. These records witnesses important basic innovations in subsistence strategies and technologies were engrained, which allow successful adaptation to constraints of environmentally highly variable loci. Since that time such colonisation restricting factors as lack of good quality raw materials, low rates of bioproductivity, and climatic constraints were overcome. Usual list of hunted animals includes bison, horse, and deer in steppe area, supplemented with

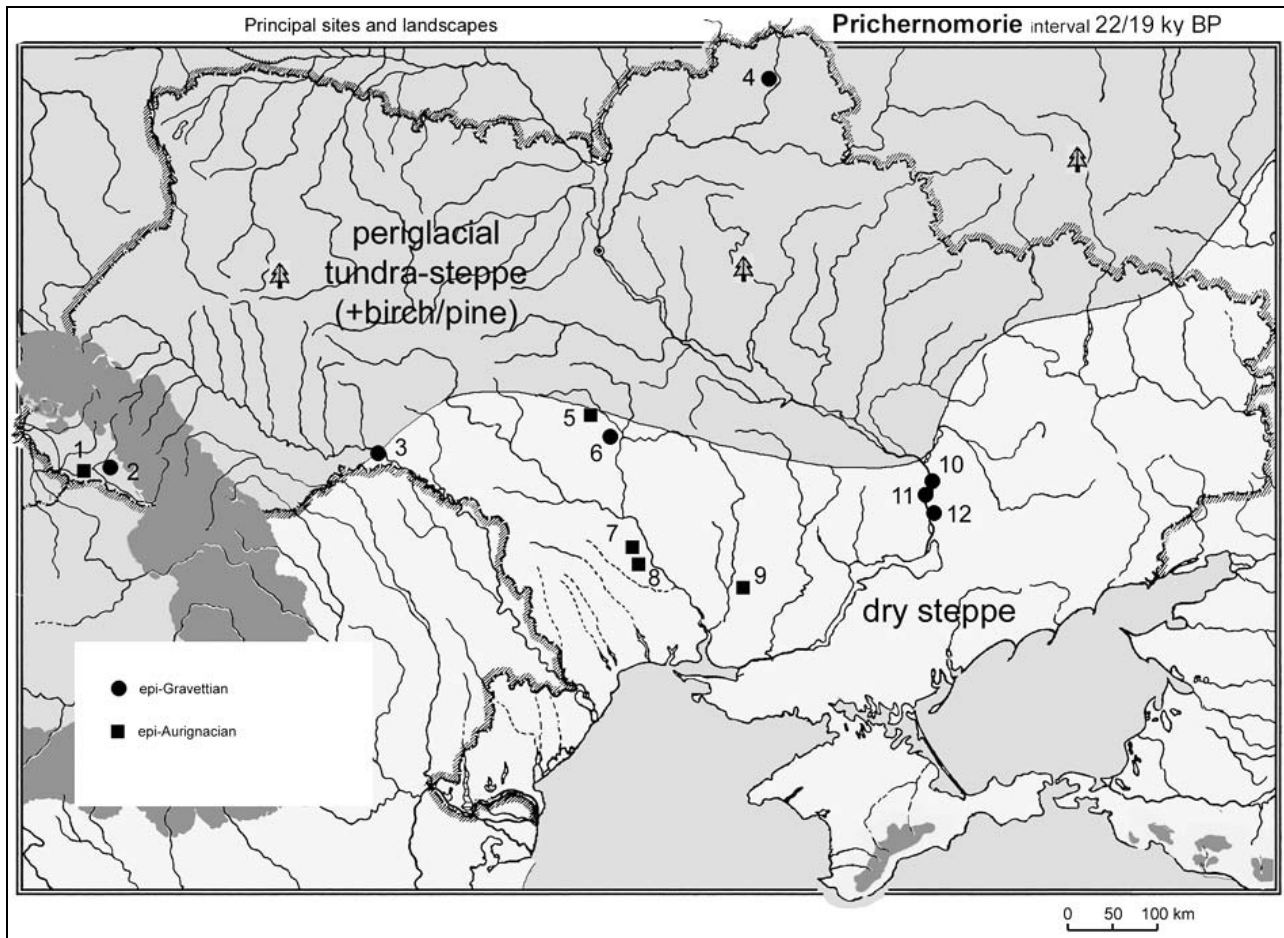


Fig. 4.5. Prichernomorie, pre-LGM substage, 22/19.000 BP. Main sites and landscapes. Environmental reconstruction after Melnichuk [2004]. Key: *EpiGravettian*: 2 – ?Shayan I; 3 – Korman' IV; 4 – Novgorod-Severski; 6 – Vladimirovka; 10 – Osokorovka I; 11 – ?Osokorovka IV; 12 – Pidporozhny; *EpiAurignacian*: 1 – Beregovovo I; 5 – Gordashovka; 7 – Ivashkovo VI; 8 – Anetovka I; 9 – Sagaidak I: lower

mammoth, rhinoceros, bear, elk in tundra steppe, and bear, wild boar, and saiga in Crimea.

The Prichernomorie period, final Pleistocene substage, 13/10.000 BP

From archaeological standpoint, this substage is characterised by the next diversification of cultural variability. The technomorphological uniformity of the preceding substage was biased toward deep diversification mirrored in broad coexistence of such cultural phenomena as Krasnoselye, Swiderian, Shan-Kobian, and so called assemblages with big trapezes (Zalizniak 1989; 1998). The association of tanged point cultures – Krasnoselye and Swiderian – with forested open woodland landscapes seems to be rather unequivocal. Contrariwise, Azilian of Shan-Koba and assemblages with big trapezes are associated with Crimean low mountains, and steppe area, respectively. Thereby, for the first time, the fact of direct correlation between peculiarities of exploited landscape and cultural singularity might be acknowledged. It is worthy to emphasise the clear disbalance in population density, as it mirrored by

quantity of known sites, between NW territory of Ukraine and latter areas. Mammoth and rhinoceros finally disappeared from lists of hunted species, and horse, bison, deer are typical for steppe zone, while reindeer is supposed to be the main object of game in NW territories of the country (Zalizniak 1989).

BRIEF DISCUSSION AND CONCLUSIONS

General trends of cultural development

Arguable appearance of Upper Palaeolithic on the territory of Ukraine seems to be dated back to around 40.000 BP. There also is notion of more early age of UP occupations in Transcarpathia (Gladilin, Demidenko 1989) but it needs further argumentation. The exact industrial affiliation of the early UP aged ca. 38.000 BP is not clear yet (Usik *et al.* 2004). The later period, between 38-32.000 BP, is marked by existence of Upper Palaeolithic assemblages similar to Central European Szeletian (Buran-Kaya III:C in Crimea), and Bohunician (so called Kremenician industry of Kulychivka in

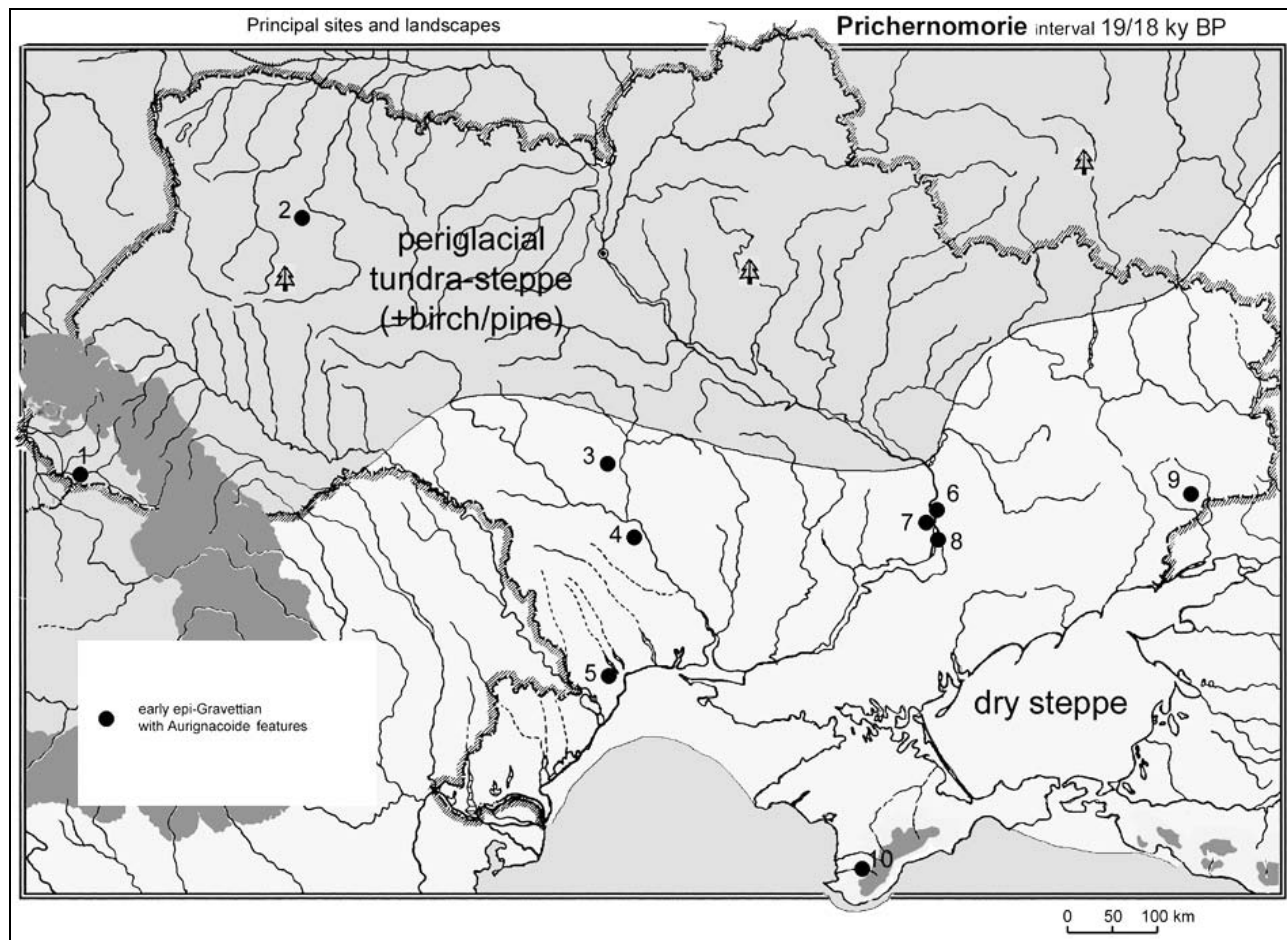


Fig. 4.6. Prichernomorje, LGM substage, 19/18.000 BP. Main sites and landscapes. Environmental reconstruction after Melnichuk [2004]. Key: *EpiGravettian with Aurignacoïde features*: 1 – ?Shayan I: I; 2 – Lipa VI: V; 3 – Vladimirovka: V; 4 – Anetovka II; 5 – Bolshaya Akkarzha; 6 – Vorona III: upper; 7 – Kaistrova balka VI; 8 – ?Osokorovka IV; 9 – Amvrosievka; 10 – Siuren' I: middle

Volhynia) (Marks, Monigal 2000; Stepanchuk, Cohen 2000-2001). Till ca. 30.000 BP, the territory of the country was populated by bearers of MP industries, as well (Chabai *et al.* 1998; Chabai 2004; Stepanchuk 2002). Although there is certain – mainly radiochronological – data that points to probability of more recent age of some MP occupations in Crimea survived up to ca. 25.000 BP (Stepanchuk *et al.* 2004), this evidence needs in further confirmation.

Chronologically subsequent Upper Palaeolithic records are affiliated with Gravettian, Aurignacian, and “transitional” or symbiotic UP (Gorodsovian and, probably, Szeletian) and are reported both for Dniester and Dnepr valleys and Crimean Mts. (Chernysh 1987; Demidenko, Otte 2000-2001; Stepanchuk 2005). The Gravettian occupations become dominant between 28-22.000 BP and are known both in continental Ukraine (Molodova 5, Mira: II/2, Mezhygirtsy e.a.) and Crimea. The very beginning of this time span, ca. 28.000 BP, is characterised by the presence of archaic or symbiotic UP and Aurignacian occupations in southern Ukraine and Crimea (Mira: I, probably Illinka, Zeleny Khutor, Siuren ?)

(Stepanchuk 2005; Sapozhnikov 1994; 2003; Demidenko, Otte 2000-2001).

The development of various EpiAurignacian and EpiGravettian industries are characterising the period between 22-19.000 BP (Molodova 5: 6; Buran-Kaya III: 6.5-3; Muralovka, Sagaidak, Anetovka 1 e.a.). The last Glacial maximum is characterised by the development of original industries provisionally defined as EpiGravettian with Aurignacoïde features (Bolshaya Akkarzha, Vladimirovka: V, Anetovka II, Osokorovka IV e.a.). Post-LGM period, between 18-13.000 BP is characterized by the broad diffusion of EpiGravettian (Gontsy, Mezin, Govorukha, abri Skalisty e.a.). Final EpiGravettian (Shankoba and Rogalik-Tsarinka) is common in South of Ukraine between 13.3 and 10.3.000 BP, while areas to the north were occupied by sites affiliated with Hambourgian, Swiderian, and Lingby cultures.

Patterns of field colonisation

Between 40-32.000 BP, coexisting UP and MP populations share the same biozones (steppe and mosaic

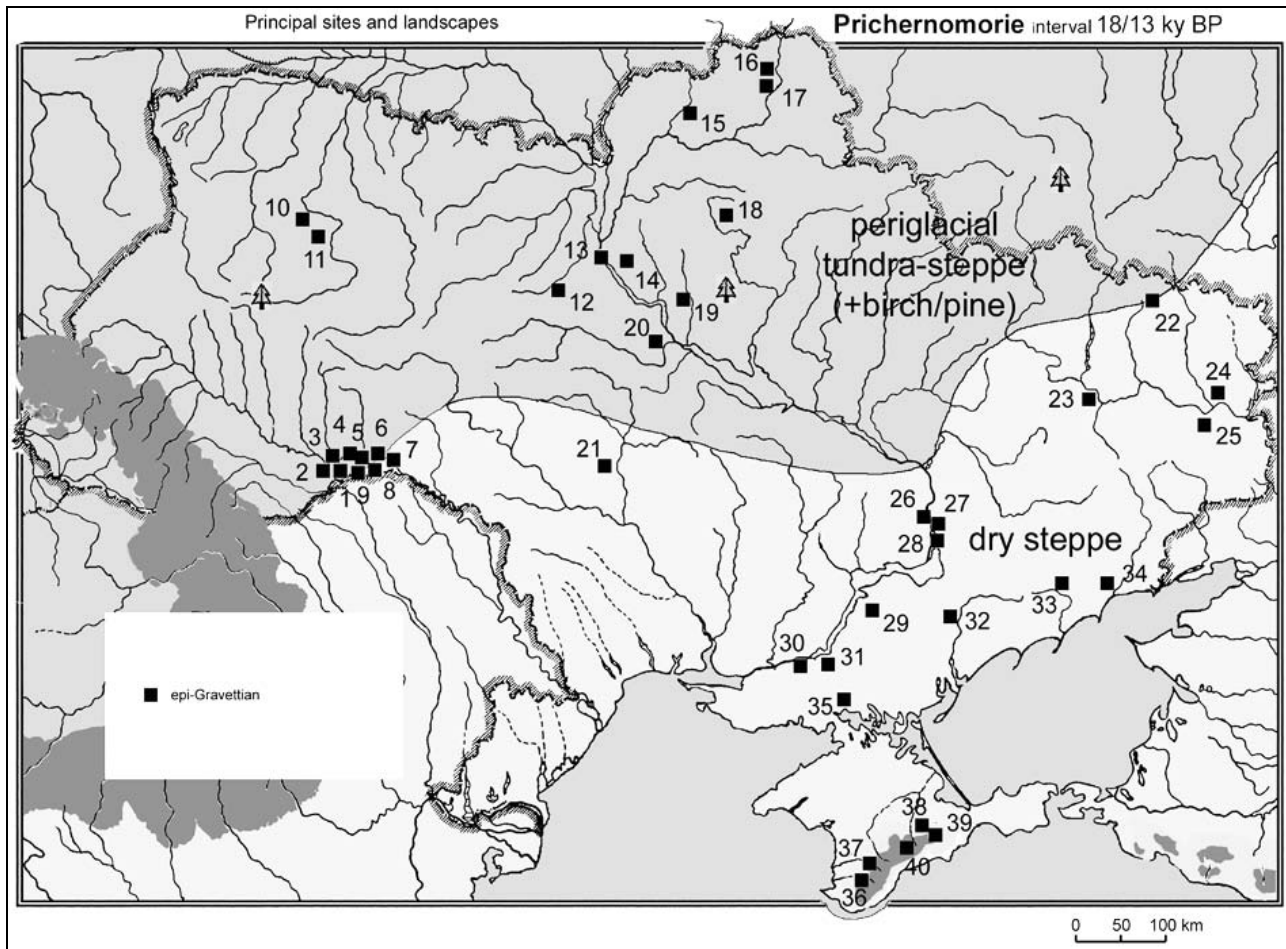


Fig. 4.7. Prichernomorie, post-LGM substage, 18/13.000 BP. Main sites and landscapes. Environmental reconstruction after Melnichuk [2004]. Key: *EpiGravettian*: 1 – Ataki I: 4-2; 2 – Babyn I: 3; 3 – Vrublevtsi: upper; 4 – Molodova I: 2-0; 5 – Molodova V: 1-5; 6 – Oselivka I: 1; 7 – Oselivka III; 8 – Voronovitsa: upper; 9 – Korman' IV: 4-1, A; 10 – Lipa VI: 1-4; 11 – Barmaki; 12 – Fastov; 13 – Kirilovskaya; 14 – Semenovka I, II; 15 – Mezin; 16 – Chulatovo; 17 – Pogon; 18 – Gontsy; 19 – Dobranichevka; 20 – Mezhirichi; 21 – Vladimirovka: IV-I; 22 – Yamy; 23 – Min'evskiy Yar; 24 – Rogalik VII; 25 – Govorukha; 26 – Kaistrova balka IV; 27 – Dubova Balka; 28 – Osokorovka I: IIIv; 29 – Dmitrovka; 30 – Somova balka; 31 – Liubimovka I; 32 – Kashtaeva balka; 33 – Yanisol'; 34 – Fedorovka; 35 – Novovladimirovka; 36 – Skalisty: VII-IV; 37 – Siuren' I: upper; 38 – Vishnennoye: A, B, V; 39 – Buran-Kaya III: 4; 40 – Adzhi-Koba: upper

foothills) and the same landscapes (highlands and low mountains) in extreme south and west of the country. These areas are characterised by plenty of primary outcrops of high quality raw materials and comparatively higher productivity of bioresources.

The same pattern of land colonisation is still typical for the following chronological period between 32-28.000 BP. MP, Aurignacian and symbiotic UP occupations again are overlapping spatially during this period, instead Gravettian demonstrates more local pattern. First signs of progressive colonisation of open territories with lesser predictable bioresources and lack of rich primary flint outcrops are reported for this period.

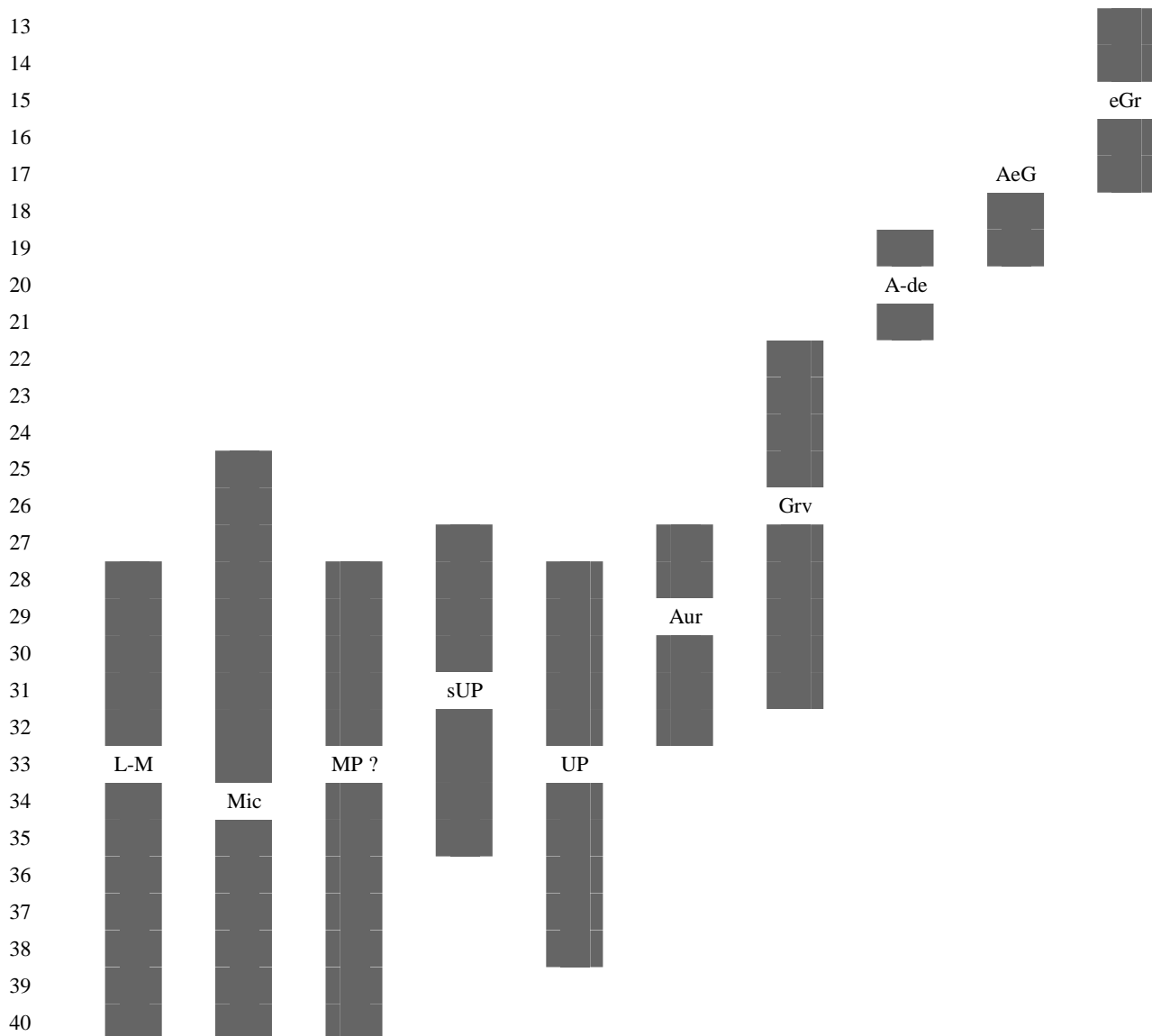
Principally the same pattern is characteristic for the period between 28-22.000 BP, as the majority of sites are associated with areas of predictable biological and mineral resources. At the same time, this period is

characterised by further progress in peopling of open and forested landscapes eastward and north-eastward from zones rich in primary mineral resources.

Important changes took place between 22-19.000 BP when population concentrates in zone of steppe and seemingly abandons areas of low mountains. This period is characterised by rather intensive colonisation of highlands of Dniester-Dnepr interfluvium and Dnepr valley. Basically the same pattern of exploitation of flat areas and river valleys of continental Ukraine is typical for the period between 19-18.000 BP. In general, period between 22-18.000 BP is characterised by the absence of population in northern territories of Ukraine, although there are some rather controversial instances of occupations in zone of tundra-steppe.

Pattern of land colonisation is crucially changing after 18.000 BP. Since that time and till ca. 13.000 BP, the

Table 4.1. General trends of industrial variability between 40/13.000 BP: L-M –Levallois-Mousterian, Mic – Micoquian, MP? – Middle Palaeolithic (?), sUP – symbiotic UP, UP – Upper Palaeolithic, Aur – Aurignacian, Grv – Gravettian, A-de – Aurignacoide industries, AeG – Aurignacoide epi-Gravettian, eGr – epi-Gravettian.



territory of Ukraine was peopled everywhere, and epi-Gravettian occupations are known in low mountains, highlands, lowlands, and valleys of large rivers. This shift is especially important if to keep in mind that northern territories of the country were still represented by tundra-steppe landscapes. Traced since ca. 40.000 BP dependence of UP population on spatially limited predictable and rich mineral and biological resources was overcome.

New forms of technological and, probably, social behaviour under the terms of scattered biological and mineral resources remains still common and obtains its further development during the next period between 13-10.000 BP. As to land colonisation pattern, this period is characterised by clear concentration of occupations in north-west territory of Ukraine.

Concluding remarks

As it is drawn by currently available data, following significant features concerning the peculiarities of cultural development between 40 and 10.000 BP are characteristic for the territory of Ukraine. First chronometrically argued appearance of Upper Palaeolithic seems to be dated to the middle of OIS 3 and represented by assemblages demonstrating no obvious affiliation with Aurignacian. Aurignacian and Gravettian assemblages were appeared in Ukraine ca. 32-30.000 BP, the latter survives till ca. 22.000 BP, while the first has more short chronology between roughly 32-28.000 BP. Ultimate Middle Palaeolithic occupations were surviving till ca. 29/28.000 BP, and perhaps till 25.000 BP in Crimea. The period between 30-28.000 BP is marked by the appearance of so called archaic or symbiotic Upper Palaeolithic demon-

strating a fusion of MP and UP technomorphological features. The period between 22-18.000 BP is characterised by the renaissance of Aurignacoïde industries. Proliferation of EpiGravettian and total unification of these technologies between 18-13.000 BP was changed by further diversification of industries during the Final Pleistocene. Certain regularities of fluctuation of number of sites through time allow supposing the gradual character of decrease of MP population between 40-28.000 BP. If to take it on regional scale, there was likely stable demographical situation between 40-28.000 BP, followed by progressive increase of population after 28.000 BP, albeit interrupted by decrease between 22-18.000 BP. Till 22.000 BP patterns of colonisation of terrain demonstrate strong relation on restrictions conditioned by landscape, climate, and peculiarities of distribution of biological and mineral resources. Between 40-22.000 BP inhabited areas gravitate mainly toward mosaic and billowy landscapes of the extreme south and west of the country, where biological and mineral resources were rich and predictable. Situation was significantly changed between 22-18.000 BP, as during this period occupants for the first time leave low mountain areas and settle highlands of Dniester-Dnepr interfluvium and Dnepr valley. Northern areas of the country were practically abandoned between 22-18.000 BP, and no signs of population increase in coastal regions during transgression phases of Black Sea are traced. Final and crucial changes of colonisation pattern took place after 18.000 BP, when dependence on natural restrictions was essentially overcome and new sources of mineral and biological resources begun to be intensively exploited.

Acknowledgements

This study was supported by the Institute of Archaeology of National Ac. Sc. of Ukraine and French Econet program n°10148QD. Authors are grateful to F. Djindjian for invitation to participate in the session C16 "Palaeolithic hunter-gatherers concept of territory" of XV Congress of U.I.S.P.P.

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