K_2O are represented by lower percentages.

RADIOMETRIC DATINGS

Samples for radiometric dating were taken from layers 8 and 6 (especially from hearths) and send to laboratories at Groningen (contribution by W.G. Mook), Prague (contribution by J. Šilar) and Illinois. The charcoal layers in the archaeologically sterile underlying soil (layer 8) yielded two data:

GrN 15280 27 900 ± 550 B.P.
CU 749 24 725 ± 2163 B.P.

The second date, gained by the Charles University Laboratory in Prague, is too recent. After J. Šilar, its high deviation is due to small amount of the sample and to its dilution. Only after adding double deviation we arive to a realistic value. In the brickyard section, a stratigraphically comparable soil was dated to 28 300 ± 300 B.P. (GrN 2092, Klíma et al. 1962). Corresponding soil was recently found by excavation at nearby Milovice; at this site it included atypical Aurignacian and it was dated to 29 200 ± 950 B.P. (GrN 14826, Oliva 1989).

Earliest data for the Pavlovian (29 000 - 28 000 B.P.) are provided from the brickyard section, where the brown soil 8 lies in direct contact with the above cultural layer 6 (Klíma et al. 1962). In the upper part of the site a more or less thick loess deposit 7 separates the two layers.

Numerous data from the cultural layer at the new excavations, including the mammoth-bone deposit, range between 28 000 - 22 000 B.P. (cf. Klíma 1990, Svoboda 1989 etc.). The series of data from the western slope agglomeration fits into this interval. The Groningen data, however, are usually earlier (27 500 - 25 000 B.P.), while the Prague data of the same features and settlement units are generally more recent (about 25 000 - 22 000 B.P.). This evidence is supplemented by two Illinois data: 26 390 ± 270 B.P. and 22 630 ± 420 B.P. Elaboration of a fine chronology on the basis of such a range of datings, therefore, seems impossible. We suppose that the cultural layer was formed during longer time-span and in changing environments. The settlement agglomeration would be the result of repeated settling of the same space.

The overlying loess deposit is dated in the brickyard section (Klíma et al. 1962) to 18 400 ± 700 B.P. (depth of 5,5 m) and to 15 350 ± 1 000 B.P. (depth of 4 m).

CHARACTERISTIC OF FORMATION PROCESSES OF THE SECTION

Studies by L. Smolíková, H. Svobodová and J. Kovanda enabled characterisation of formation processes of the section and its separation into three cycles: the subsoil of the cultural layer, the cultural layer, and the overlying deposit.

The lower cycle (layers 9-7). The time-span before the Pavlovian settlement covers sedimentation of the loess, its

redeposition and pseudogley formation during subsequent short cold and moist oscillation. A weakly developed pararendzine, mixed with relicts of earlier chernozem soils, evolved on this substrat during a short time interval, under cold and relatively dry climate. Following moister oscillations are responsible for further pseudogley formation. This soil complex is separated by loess of variing thickness from the cultural layer.

The pollen analysis confirms the supposed mixture of different soil materials. The results suggest a temperate and rather moist climate during the interval of pedogenesis, while the overlying loess witness a colder type of vegetation. Malaccozoological analysis of the soil indicates both cold steppic societies and climatically not pretendous or unexpressive species. Malaccofauna of the overlying loess impoverished. Chronologically this time-span, including an oscillation of interstadial character (Denekamp), corresponds to the phasis of the Interpleniglacial prior 28 000 years.

The cultural layer (6). The Pavlovian cultural layer is formed by a fossil soil sediment, with admixture of earlier redeposited components, developed under increased activity of edaphon and vegetation and undergoing subsequently slight pseudogley formation. The pollen spectrum includes, besides usual glacial trees, certain thermophile species (the same species reappear in samples from other parts of the cultural layer; Svobodová-Svoboda 1988; Svobodová in press). The malaccozoological analysis, on the other hand, proves definitely cold Columella fauna. We expect, therefore, that the cultural layer developed during a longer time-span, in the period of changing climatic oscillations in transition from the Würmian Interpleniglacial to the Upper Pleniglacial, and at the limit of various altitudinal zones. This climatical instability, or contact of various environments, is important for understanding the Upper Paleolithic adaptations during human occupation of the site.

The upper cycle (layers 5-1). In the loess overlying the cultural layer we observe the impact of shorter, moist and dry oscillations, reflected in weak pseudogley formations, recalcification and contribution of material. Especially two pseudogley horizons, both in the initial stage of development (layers 4, 2), are macroscopically well visible and stratigraphically comparable to a soil found in similar position at Milovice (Smolíková in press). These horizons correspond to raw soils of fully glacial intervals. The pollen spectrum suggests vegetation cover of cold and dry steppic character, with higher share of arboreal pollen in the lower pseudogley horizon. The molluscs are dominated by Pupilla fauna of the cold steppes, poor in species. This phase corresponds to the beginning of the Upper Würmian Pleniglacial.

The studied section illustrates gradual cooling of the climate in the time-span of Würmian Interpleniglacial and beginning Upper Pleniglacial. This trend is clearly visible, even if the various disciplines, especially palynology, were confronted with problems of repeated redeposition of earlier

sediments. It shows that the climate after Denekamp did not evolve continuously, but in a number of oscillations, and this process was interrupted by hiatuses. The consequences are disappearence of the large mammoth-bone deposits and retreat of the Pavlovian settlement, not only from the Dolní Věstonice area, but from Moravia in general.

CHRONOLOGICAL POSITION OF THE PAVLOVIAN

Sites of South Moravia are of key importance for understanding stratigraphy of the Pavlovian. Earliest are the lower parts of both stations DV I and DV II, where the cultural layer appears in direct contact over the underlying soils. Measurements from Dolní Věstonice and Stránská skála date these soils between 33 000 - 28 000 B.P. (Denekamp). The Pavlovian cultural layers in the above deposits, i.e. in soil sediments at the base of the upper loess cover, date until about 22 000 B.P.

In summer 1990 we opened a series of trenches along the site DV I. Two layers of charcoal deposits in the lower part of the site (trench 1/90) yielded earlier data:

29 300 $\pm^{750}_{690}$ B.P. (the lower layer, GrN 18187)

27 250 $\pm^{590}_{550}$ B.P. (the upper layer, GrN 18188).

Cultural layer in the upper part of the site (trench 10/90) is more recent:

25 950 $\pm^{630}_{580}$ B.P. (GrN 18 189).

Position of Pavlovian at Pavlov (27 000 - 25 000 B.P.) and Předmostí (26 870 ± 250 B.P.) is chronologically comparable to the mean datings of DV I and II, while at Stránská skála IIa we still found late Aurignacian in the corresponding stratigraphic level. The Gravettian settlement at Milovice seems to be slightly more recent (25 500 - 22 000 B.P.). Generally, the Pavlovian may be placed into longer time-span between 29 000 - 22 000 B.P.

Earlier phasis of the Moravian Pavlovian is contemporary with several Gravettian sites in the Carpathian Basin: Nemšová (28 570 ± 1 345 B.P.), Slaninova Cave (27 950 ± 270 B.P.) and Bodrogkeresztur - Henye (about 28 000 B.P.). In this eastern region, the Lower Gravettian horizons still may appear in chernozem soil (the Mende soil). In south Poland and in Austria, the sites of Spadzista C2-layer IV and the Willendorf sequence, beginning with layer 5, fall in this same period.

Later phase of the Gravettian saw rapid development of settlement in Austria and West Slovakia. Layer 9 at Willendorf II may be placed around 20 000 B.P. The cultural horizon at Nitra-Čermáň is dated to 22 860 ± 400 B.P. and the stratigraphic sequence at Trenčianské Bohuslavice falls around 23 700 B.P. (Bárta 1987). The data of East Slovakian Gravettian are even later (Cejkov: 19 600 ± 360 B.P. and 19 755 ± 240 B.P.).