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RADIOCARBON CHRONOLOGY OF THE SITE DĄBKİ

Radiocarbon chronology of the site Dąbki is based on a set of the dates of charcoal, wood and gyttja. The samples of gyttja were taken from continuous palynological profiles. Obtained radiocarbon dates concentrate in three distinct groups and lead to distinguishing three phases of habitation. Phase I, represented by 3 dates, is dated to 6250–6150 BP; phase II is represented by 4 dates and its duration may be estimated to 5700–5600 BP. Available dates are too scarce for estimation of duration of the youngest phase of habitation.

Radiocarbon chronology of Dąbki site (see Ilkiewicz 1989) is based on set of ten dates, obtained on samples of charcoal and charred wood (4 dates), gyttja (3 dates) and fragments of wood (3 dates). Dated samples were collected from four trenches, made in 1979–1983. Samples of gyttja were taken from continuous palynological profiles Dąbki 81 and Dąbki 83. Those three samples a special group and their dates may be regarded as determining the time scale for natural deposition of organic sediment (in conditions controlled to certain extent by the presence and activity of human group occupying this site). Other samples (charcoal and wood) should be treated as time markers of single and short records of human activity. Such interpretation concerns first of all dates of charcoal samples associated with hearths which undoubtedly are records of human activity, or fires, with probably may be regarded as anthropogenic.

Age determination by the radiocarbon method relies on assay of concentration of ^{14}C isotope in investigated organic remnants. For accurate dating it is therefore necessary to remove all organic compounds of foreign origin from dated sample. In case of inhomogeneous samples, consisting of carbon-containing matter of various origin, e.g. shell and plant fragments, careful separation of all components which have ^{14}C concentration different than that of terrestrial vegetation, is necessary. All dated samples were first subjected to careful visual inspection and then appropriate methods of chemical pretreatment were chosen, accounting for sample material, degree of decomposition and visible contaminants.

All samples submitted for dating were collected at depths below 100 cm, i.e. significantly below the range of rootlets of recent vegetation (ca 30 cm). The presence of rootlets may be therefore excluded, as was confirmed by preliminary visual inspection. In samples of wood and

charcoal macroscopic contaminants were not noted. Those samples were subjected to standard pretreatment procedure consisting of successive treatment with HCl, NaOH and HCl solutions (the so-called Acid-Alkali-Acid, i.e. AAA procedure, cf. M. F. Pazdur et al. 1986). In samples of gyttja from profiles I/81 and I/83 numerous shell fragments were noted. It is well known that the ^{14}C content in shell is significantly lower than in terrestrial vegetation (Goslar, M. F. Pazdur 1985) and in consequence, may lead to higher radiocarbon ages. Shell carbonates were removed by treating samples with 4% hydrochloric acid at ambient temperature.

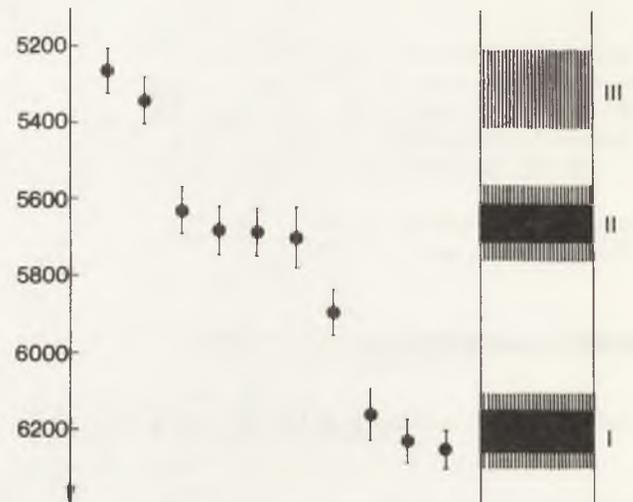
After washing to neutral condition and drying in electric oven the samples were charred in a stream of nitrogen and then combusted in stream of oxygen, and obtained carbon dioxide was purified in a vacuum line (A. Pazdur et al. 1986). Measurements of ^{14}C concentration were performed using proportional counters filled with pure carbon dioxide (A. Pazdur, M. F. Pazdur 1986). Reference ^{14}C activity for calculation of ages was determined by counting primary international standard NBS Oxalic Acid (Stuiver, Polach 1977) and ANU Sucrose Secondary Radiocarbon Standard (Polach 1979).

Results of age determinations of ten samples are listed in Table 1, including one date provided by Radiocarbon Laboratory in Berlin. All results are quoted as conventional radiocarbon dates in years BP, i.e. before 1950 AD, according to recommendations of M. Stuiver and H. A. Polach (1977). The errors quoted in Table 1 are one-sigma standard deviations and account for uncertainties of all recognized laboratory factors. True value of conventional radiocarbon age is confined within the limits of quoted errors with probability of 68% (cf. A. Pazdur, M. F. Pazdur 1982, 34, Fig. 17). The accuracy of all dates is approximately equal to 1%.

Results of ^{14}C age determinations

Trench	Sample material	Lab. no.	Conventional radiocarbon dates yr BP
I/79	charcoal	Gd-1277	5340±60
I/79	"	Bln-2465	5265±60
I/80	"	Gd-1279	5680±60
I/80	"	Gd-1278	5890±60
I/81	coarse-detrital gyttja	Gd-1698	5630±70
I/83	shell gyttja	Gd-2162	5700±80
I/83	shell gyttja	Gd-1703	6230±60
I/83	wood	Gd-2315	6160±70
I/83	"	Gd-3125	5680±60
I/83	"	Gd-3127	6250±40

All conventional radiocarbon dates are shown in Fig. 1 in form of bar plot. Three distinct groups of dates, corresponding to three phases of occupation, may be clearly distinguished. The oldest phase I is represented by three dates (Gd-1703: 6230±60, Gd-2315: 6160±70, Gd-3127: 6250±40). Duration of this phase is equal to ca 100 yr and ranges from 6250 BP to 6150 BP. After accounting for error limits of radiocarbon dates the probable duration of this phase may be estimated to ca 200 yr, from 6300 to 6100 BP. Phase II is represented by series of four dates (Gd-1279: 5680±60, Gd-1698: 5630±70, Gd-2162: 5700±60 and Gd-3125: 5680±60). The duration of this phase, similarly to phase I, may be estimated to 100 yr, from 5700 to 5600 BP, and accounting for error limits, to ca 200 yr (from ca 5750 to ca 5550 BP). The youngest phase III is represented by two dates (Bln-2465: 5265±60 BP, and Gd-1277: 5370±60 BP). The set of two dates cannot be regarded as representative reflection of duration of this phase, none the less it may be esti-



mated to ca 200 yr, from ca 5400 to ca 5200 BP. Intervals of time corresponding to distinguished phases of occupation are shown in right-hand part of Figure 1. Single date Gd-1278: 5890±60 BP obtained on charcoal found in layer of peat in trench I/80 coincides with the intermediate period separating dates of older and middle phases. Such an isolated result may indicate sporadic presence of human group in this site in the time interval between phases I and II. However, it should be taken into account that such date may result also from dating of mixed charcoals from fireplaces belonging to phases I and II. Alternative and more probable explanation of this date is connected with the so-called "old wood effect", i.e. combustion of fragments of older wood during middle phase of occupation. Definite answer of this question needs detailed analysis of archaeological evidence as well as geological profile of trench I/80.

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