DATELIST

Domiarki, site 1 (PAR 99-57/83)[1]

Samples were submitted to *Beta Analytics Inc. Laboratory* (Miami) by Ewa Dreczko (at the time *Institute of Archaeology*, *University of Wrocław*, Wrocław) with the kind assistance of Anita Szczepanek (*Department of Mountain and Highland Archaeology, Institute of Archaeology and Ethnology, Polish Academy of Science*, Kraków).

Beta-625977 **3722 ± 20**
human bone /*os longum*; M; 25-35 yrs/ 2194-2043 cal BC (68.3%)

Beta-625978 **3740 ± 20**
human bone /*cranium*; F; 18-20 yrs/ 2199-2060 cal BC (68.3%)

Beta-625979 **3759 ± 19**
human bone /*cranium*; sex indet.; 13-16 yrs/ 2202-2141 cal BC (68.3%)

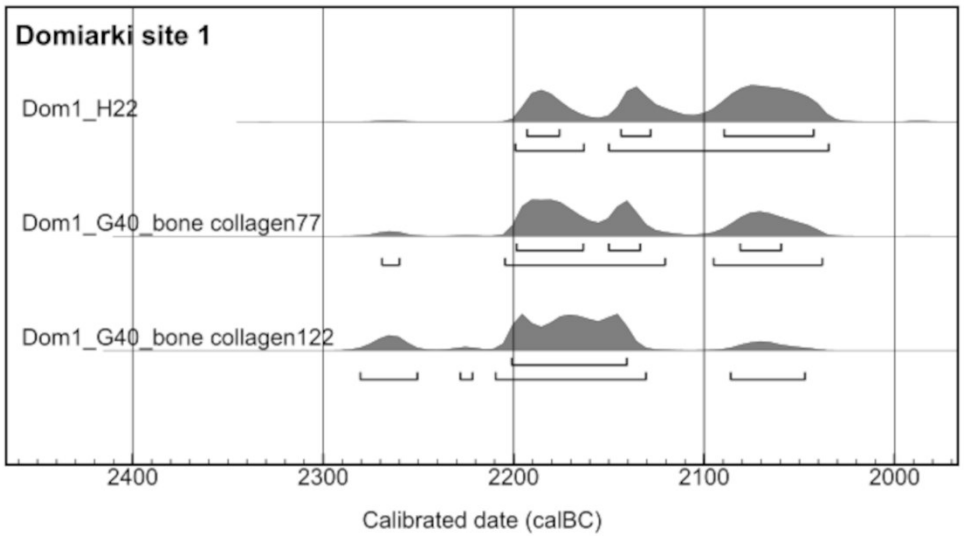

Fig. 1. Plot with radiocarbon dates from archaeological site Domiarki 1. Radiocarbon ages calibrated by Natalia Piotrowska using the IntCal20 curve in the OxCal 4.4 package.

Comment (T.J.Ch., E.D. & T.M.): The samples come from the excavations carried out by Przemysław Jażdżyk (at the time *Institute of Archaeology*, *University of Wrocław*) year 2016 (Dreczko, Mozgała-Swacha, and Murzyński 2022).

There are three radiocarbon age determinations from the site produced in the context of the rescue excavations project. All of them were performed on bone collagen extracted from human remains from just one of a few occupation phases distinguished, viz. to two funeral finds from the Early Bronze Age. One of the features in question was a regular grave (feature H22), and the other consisted of a collective burial in the bottom part of a trapezoidal storage pit (G40).

[1] PAR – Polish Archaeological Record (Pol. Archeologiczne Zdjęcie Polski).

For the former, a single measurement of radiocarbon age was made (Beta- 625977), whereas for the letter, two determinations for different individuals (Beta- 625978 and Beta- 625979) were carried out. All the results are in accord with archaeological dating of their contexts to the earliest phase of the Mierzanowice culture (cf. Górski et al. 2013; Włodarczak 2022:134).

Laboratory comment: –

Kraków-Nowa Huta-Krzesławice, site 41 (PAR 102-57/16)

Samples were submitted to the *Poznań Radiocarbon Laboratory* (Poznań) by Igor Kołoszuk (at the time, *Institute of Archaeology*, *Adam Mickiewicz University in Poznań*).

Poz-91129 **5563 ± 30**
charcoal (indet.) 4443-4356 cal BC (68.3%)

Poz-91130 **5634 ± 37**
charcoal (indet.) 4532-4372 cal BC (68.3%)

Poz-91131 **5611 ± 33**
charcoal (indet.) 4488-4367 cal BC (68.3%)

Poz-91132 **1887 ± 28**
charcoal (indet.) 125-205 cal AD (68.3%)

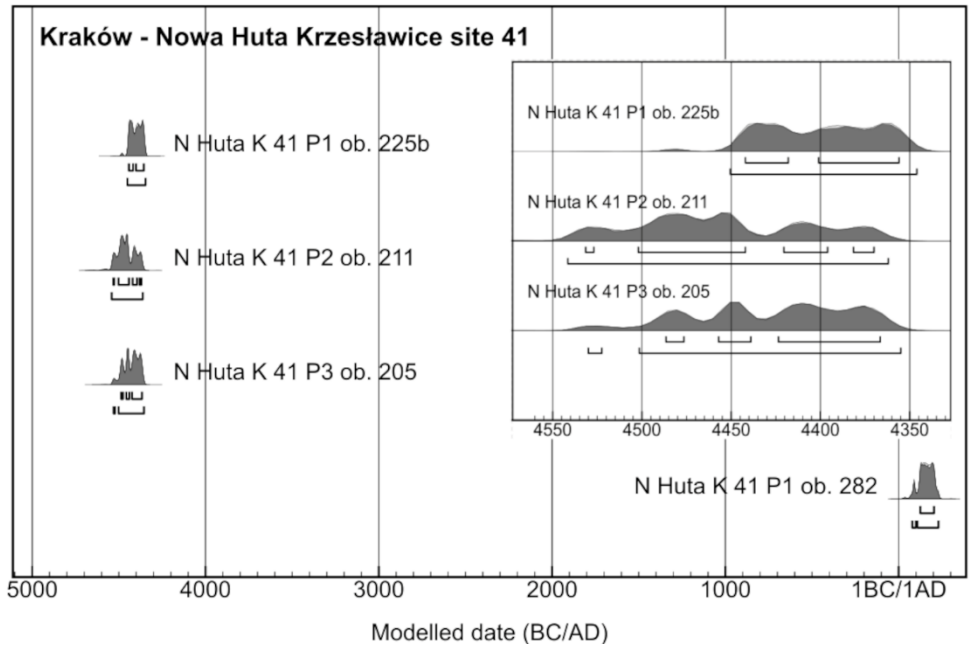

Fig. 2. Plot with radiocarbon dates from archaeological site Kraków-Nowa Huta-Krzesławice 41. Radiocarbon ages cali-brated by Natalia Piotrowska using the IntCal20 curve in the OxCal 4.4 package.

Comment (T.J.Ch., D.M.-T.): The samples come from the excavations carried out by Igor Kołoszuk (*Faculty of Archaeology*, *Adam Mickiewicz University in Poznań*. Poznań) and Iga Fabi-

szak (at the time *Institute of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań) in the years 2016 (by the former site supervisor) and 2022 (by the latter one; Naglik 2022).

Three out of four charcoal samples submitted for radiocarbon dating were taken from fills of features associated with the Lengyel culture. Although the order of radiocarbon ages within the short sequence is correct, all the resulting absolute dates seem to be too old. This applies to both the two charcoal samples from pits of the Pleszów-Modlnica group (Poz-91130: 4532-4372 cal BC, and Poz-91131: 4488-4367 cal BC), which occurred to be equal in radiocarbon ages with short-lived samples from secure Malice culture contexts discovered at Kraków-Nowa Huta-Zesławice 88 and Smroków 4 (see below), as well as to the charcoal sample from the Wyciąże-Złotniki group feature (Poz-91129: 4443-4356 cal BC), which would instead indicate its association with the preceding Pleszów-Modlnica group of the Lengyel culture (see related dates from Kraków-Nowa Huta-Zesławice 88). The situation may be caused by the use of charcoals redeposited from older anthropogenic deposits present at the site or by the so-called old-wood effect, or by both.

A single radiocarbon date (Poz-91132: 125-205 cal AD) was obtained for a piece of charcoal from a Przeworsk culture pit. This date overlaps with the period between the end of phase B2 and phase C1 of the Roman Period, i.e., the second half of the 2nd Century AD, to which the feature can be dated on the basis of pottery finds (cf. Dobrzańska 1995:40–2; Dobrzańska and Kalicki 2018:128–32).

Laboratory comment (Tomasz Goslar, personal communication): Since all the radiocarbon age determinations have been produced on samples of charred wood, the resulting dates are likely to be affected by the old wood effect.

Kraków-Nowa Huta-Zesławice, site 88 (PAR 101-57/7)

Samples were submitted to the *Radiocarbon and Mass Spectrometry Laboratory* in Gliwice (formerly *Gliwice Radiocarbon Laboratory*) by Tomasz J. Chmielewski (independent scholar, Wrocław) with the kind assistance of Anita Szczepanek (*Institute of Archaeology and Ethnology*, *Polish Academy of Science*, Kraków), who identified the anthropological material and Agata Sady (independent scholar, Zawiercie), who determined and selected archaeobotanical remains for dating. The sample selection was consulted with Paweł Jarosz (*Department of Mountain and Highland Archeology, Institute of Archaeology and Ethnology, Polish Academy of Science*, Kraków), Anna Józefowska, and Leszek Żygadło (*Department for Research on Late Antiquity and Early Medieval, Institute of Archaeology and Ethnology, Polish Academy of Science*, Wrocław).

GdA-7309 **3093 ± 40 BP**
human bone /*costa*; M; 30-35 yrs/ 1418-1297 cal BC (68.3%)

GdA-7310 **5638 ± 29 BP**
human bone /*costa*; F; 25-30 yrs/ 4531-4405 cal BC (68.3%)

GdA-7311 **5466 ± 28 BP**
human bone /*phalanx manus*; M; 40-50 yrs/ 4348-4267 cal BC (68.3%)

GdA-7312 human bone /*costa*; F; 20-25 yrs/	**5687 ± 27 BP** 4544-4460 cal BC (68.3%)
GdA-7313 human bone /*costa*; M; 30-35 yrs/	**4612 ± 26 BP** 3491-3359 cal BC (68.3%)
GdA-7314 human bone /*tibia*; M; 45-55 yrs/	**5422 ± 27 BP** 4332-4256 cal BC (68.3%)
GdA-7315 human bone /*costa*; M; 40-50 yrs/	**4596 ± 27 BP** 4361-4275 cal BC (68.3%)
GdA-7316 human bone /*costa*; M; 25-35 yrs/	**4615 ± 27 BP** 3492-3360 cal BC (68.3%)
GdA-7317 human bone /*tibia* ; F?; 45-55 yrs/	**3750 ± 26 BP** 2203-2064 cal BC (68.3%)
GdA-7318 human bone /*phalanx manus* ; M; 25-30 yrs/	**3747 ± 26 BP** 2202-2063 cal BC (68.3%)
GdA-7319 human bone /*costa*; F; 16-18 yrs/	**4712 ± 48 BP** 3617-3377 cal BC (68.3%)
GdA-7375 charred plant remains /*Triticum monoc*., *Triticum dicoc.*; spikes/	**5394 ± 27 BP** 4328-4241 cal BC (68.3%)
GdA-7421 dry plant remains /*Cerealia* indet.; husks/	**3035 ± 25 BP** 1378-1231 cal BC (68.3%)
GdA-7428 human bone (*os longum*; F; 20-30 yrs)/	**5545 ± 36 BP** 4443-4348 cal BC (68.3%)
GdA-7429 human bone /*fibula*; M; 45-55 yrs/	**5519 ± 31 BP** 4441-4336 cal BC (68.3%)
GdA-7430 human bone /*costa*; M?; 40-50 yrs/	**3046 ± 26 BP** 1383-1263 cal BC (68.3%)
GdA-7431 human bone /*os metacarpale*; F; 30-35 yrs/	**5381 ± 31 BP** 4327-4171 cal BC (68.3%)
GdA-7432 human bone /*os metatarsale*; M; 30-35 yrs/	**3089 ± 27 BP** 1411-1302 cal BC (68.3%)
GdA-7433 human bone /*costa*; sex indet.; 6-7 yrs/	**3030 ± 27 BP** 1376-1226 cal BC (68.3%)

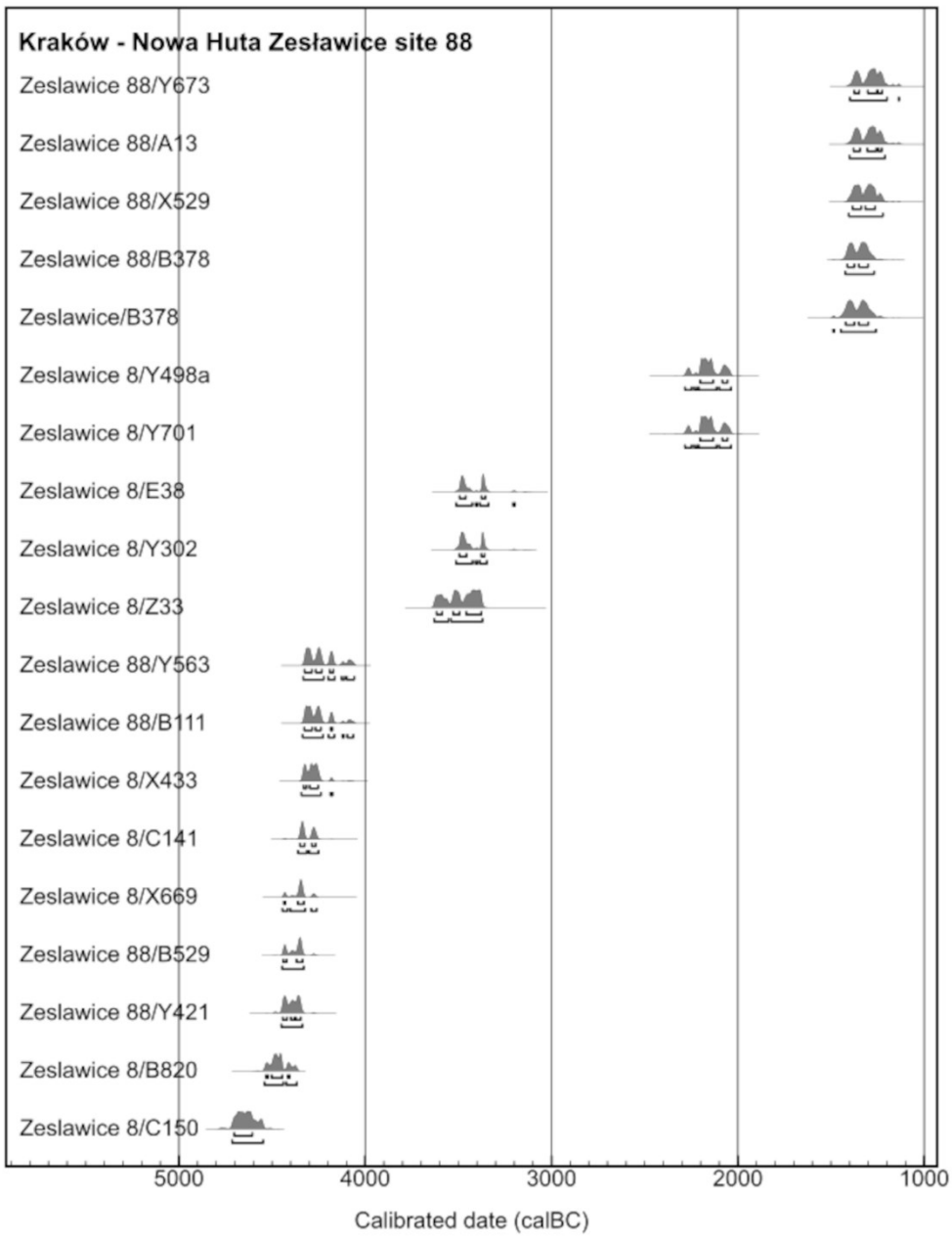

Fig. 3. Plot with radiocarbon dates from archaeological site Kraków-Nowa Huta-Zesławice 88. Radiocarbon ages cali-brated by Natalia Piotrowska using the IntCal20 curve in the OxCal 4.4 package.

Comment (T.J.Ch., P.J. & A.J.): The samples come from the excavations carried out by Iga Fabiszak (at the time *Institute of Archaeology*, *University of Wrocław*, Wrocław), Tomasz Murzyński (independent researcher, Wrocław), and Przemysław Jażdżyk (at the time *Institute of Archaeology*, *University of Wrocław*, Wrocław) in 2016-2022 (Kamyszek et al. 2023b, 2023a).

The vast majority of radiocarbon age determinations refer to prehistoric human burials. All the dates obtained for them are based on single unrelated measurements.

The oldest dates result from measurements (GdA-7310: 4531-4405 cal BC, GdA-7312: 4544-4460 cal BC, and GdA-7428: 4443-4348) performed on collagen extracted from bone remains of the people of the Malice culture. The skeletons were buried on bottoms of two deep pits (features B820 and C150) and one regular rectangular grave pit (Y421) localized within thesettlement. Considering radiocarbon dates obtained for other Malice culture finds in western Lesser Poland (cf. Zastawny 2022; Kadrow 2023), the current results appear to be consistent.

Based on grave goods, one burial from feature X433 can be attributed to the subsequent settlement phase defined for the site, i.e., the one related to the activity of the people of the Lengyel culture. The radiocarbon age of the bone sample submitted for analysis (GdA-7314: 4332-4256 cal BC) is in agreement with the artefactual typological attribution of its context (cf. Nowak 2009:116–17). In the case of the other four graves (features B529, C141, X669 and Y563), these were the radiocarbon dates (GdA-7429: 4441-4336 cal BC, GdA-7311: 4348-4267 cal BC, GdA-7315: 4361-4275 cal BC, and GdA-7431: 4327-4171 cal BC, accordingly) that provided the basis for their assignment to the Lengyel culture.

One ^{14}C date was determined for a human skeleton buried in a grave (feature Y302) located within the relics of one of two unchambered long barrows of the Funnel Beaker culture unearthed at the site. Additionally, radiocarbon dates were obtained for atypical skeleton deposits in the bottom parts of two pits localized beyond the cemetery in the neighboring settlement area. Based on previous radiocarbon determinations, all three radiocarbon ages measured (GdA-7313: 3491-3359 cal BC, GdA-7316: 3492-3360 cal BC, and GdA-7319: 3617-3377 cal BC) fall into the expected conventional time range for similar finds in this region (cf. e.g., Przybyła and Tunia 2013).

Two radiocarbon dates (measurements GdA-7317: 2203-2064 cal BC and GdA-7318: 2202-2063 cal BC) refer to the burials of two individuals representing an Early Bronze Age population. The first of them was inhumated in a regular grave pit (feature Y/498a) with a distinctive bowl typical of the Bell Beaker culture. Although the sample quality indicators confirm well-preserved material, the determined age (GdA-7317) does not perfectly fit the current absolute chronology of similar finds in western Lesser Poland (cf. Budziszewski and Włodarczak 2010: 114–21, tab. 11). The burial in question resulted in being younger than expected, what should be considered revealing, rather than incorrect. The second burial can be connected with the Early phase of the Mierzanowice culture. In this case, the date agrees well with the archaeological record (cf. Górski et al. 2013). The youngest in the series of radiocarbon dates obtained (GdA-7309: 1418-1297 cal BC and GdA-7432: 1411-1302 cal BC, GdA-7430: 1383-1263 cal BC, as well as GdA-7433: 1376-1226 cal BC) are related to human skeletal deposits from the early phase of the Lusatian culture. All of the burials were irregular and in different settlement pits (features B378, X529, and Y673, accordingly). Their chronology was initially determined on the basis of co-occurring artifacts. These three measurements were consistent with each other and the relative cultural chronology. Although there are no radiocarbon dates for similarly attributed finds from western Lesser Poland, the ^{14}C-based absolute chronology of the final phase of the directly preceding Trzciniec culture (cf. Muzolf 2020; Makarowicz et al. 2021) indicates that the results reported here are correct.

A separate group of radiocarbon age determinations consists of only two successful measurements obtained for macroscopic plant remains constituting chaff-and-straw temper of prehistoric daub. The sample with an older radiocarbon age (GdA-7375: 4328-4241 cal BC) comes

from feature B111 and dates to the Lengyel culture. The ^{14}C date produced corresponds with the relative chronology of the context. The second radiocarbon-dated piece of daub (GdA-7421: 1378-1231 cal BC), the age of which was also expected to correspond with the development of the Lengyel culture, occurred to be much younger. The date may indicate that the feature was contaminated with some younger material connected with the early phase of the Lusatian culture (see above). However, the rich and distinctive pottery assemblage from this context is homogenous and represents exclusively the pottery-making tradition of the Lengyel culture. This leads us to propose that it is not a matter of mechanical contamination of the context with younger architectural remains (redeposition) but rather demonstrates diagenetic contamination of the daub with younger carbon (see *Laboratory comment* below).

Laboratory comment (N.P., T.J.Ch.): It must be stressed that one of two measurements made for prehistoric daub (GdA-7421) was performed not on selected particles of charred chaff embedded in the clay matrix as recommended (cf. Chmielewski et al. 2017) but on the entire organic and inorganic carbon preserved in the sample. Similar exercises in radiocarbon dating of prehistoric daub remains have already proven that the 'mass carbon' contained in such architectural remains tends to be contaminated with younger carbon of unknown origin. It is supposed that these are humic acids and carbon-containing molecules introduced into the porous structure of daub by groundwater (Luthern 2012:42). Therefore, the doubts about the accuracy of the measured age expressed in the contextual comments are justified.

Smroków, site 4 (PAR 97-57/145)

Samples were submitted to the *Poznań Radiocarbon Laboratory* by Danuta Minta-Tworzowska (*Faculty of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań) and Igor Kołoszuk (*Faculty of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań) with the kind assistance of Iga Fabiszak (at the time *Institute/Faculty of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań) and Marta Rychtarska (at the time *Institute/Faculty of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań).

Poz-91093 **3313 ± 35 BP**
human bone /*os longum*; sex indet.; 30-40 yrs/ 1616-1535 cal BC (68.3%)

Poz-91094 **5232 ± 41 BP**
human bone /*femur*; sex indet.; 18-35 yrs/ 4213-3977 cal BC (68.3%)

Poz-91125 **5585 ± 35 BP**
human bone /*ulna*; sex indet.; 10-11 yrs/ 4448-4364 cal BC (68.3%)

Poz-91126 **5605 ± 33 BP**
human bone /*humerus*; sex indet.; 12-15 yrs/ 4456-4365 cal BC (68.3%)

Poz-91128 **3256 ± 30 BP**
human bone /*femur*; M?; 35-50 yrs/ 1598-1457 cal BC (68.3%)

Poz-127152 **5641 ± 38 BP**
human bone /*os longum*; F; ca. 22 yrs/ 4536-4404 cal BC (68.3%)

Poz-127153 **5667 ± 37 BP**
human bone /*os longum*; sex indet.; ca. 10 yrs/ 4537-4456 cal BC (68.3%)

Poz-127154 **5472 ± 36 BP**
human bone /*os longum*/ 4351-4266 cal BC (68.3%)

Poz-127156 **5613 ± 36 BP**
human bone /*os longum*; sex indet.; ca. 6 yrs/ 4489-4367 cal BC (68.3%)

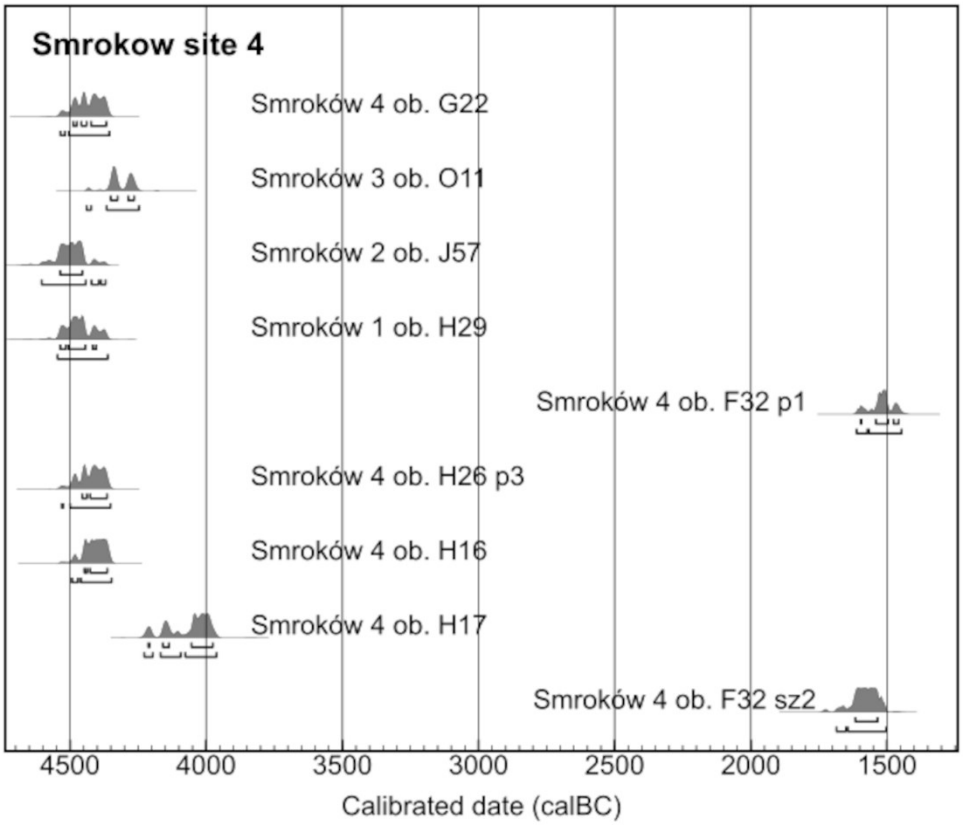

Fig. 4. Plot with radiocarbon dates from archaeological site Smroków 4. Radiocarbon ages calibrated by Natalia Piotrowska using the IntCal20 curve in the OxCal 4.4 package.

Comment (T.J.Ch., I.F., D.M.-T., M.M.P.): Large-scale salvage excavations, which yielded all the radiocarbon-dated samples, were conducted in 2018 and 2019 by Iga Fabiszak (at the time *Institute/Faculty of Archaeology, Adam Mickiewicz University in Poznań;* Minta-Tworzowska and Krueger 2021).

The main series of radiocarbon dates was obtained for Neolithic human burials. In one case, radiocarbon age measurements were made for as many as three different skeletons (burials H16, H17 and H26) deposited in three different places on the bottom of a large pit (feature H16). Two dates (Poz-91125: 4448-4364 cal BC; Poz-91126: 4456-4365 cal BC) statistically agree with each other, while the third one (Poz-91094: 4213-3977 cal BC) is an outlier, most likely due to contamination of collagen with younger carbon (see *Laboratory comment* below). A date very close to the pair of con-sistent dates was also the one obtained for an inhumation from

feature H29 (Poz-127152: 4536-4404 cal BC). Based on the artifacts found next to the skeletons, all these pits can be associated with the Malice culture. The obtained dates correspond to calendar ages of similar grave finds from site Kraków-Nowa Huta-Zesławice 88 (see above). Radiocarbon age determinations made for skeletons from features G22 and J57 should also be included in this series. The date obtained for the first one corresponds to the time interval in which burials from object H16 fall, while the date for the other feature (Poz-127153: 4537-4456 cal BC) is much closer to the one obtained for feature H29. All these dates fall within the general dating range of the Malice culture (cf. Zastawny 2022; Kadrow 2023).

A much younger age was measured for the last of the radiocarbon-dated Neolithic/Eneolithic burials. The resulting time interval in which the inhumated individual most likely died (Poz127154: 4351-4266 cal BC) coincides with the dating of the Lengyel culture graves from Kraków-Nowa Huta-Zesławice 88 (see above). In this case, though, it is not certain which burial was dated. According to the description of the sample, the skeleton dated was discovered in feature O11. However, no human remains were discovered in the pit. Most likely, these were the bones of an individual buried in feature O45 that were submitted for dating. Regrettably, the latter feature provided no datable artifacts that could help us com-plement the date.

Two other radiocarbon dates can be associated with the Bronze Age. Also, in this case, the radiocarbon measurements were performed on bone collagen. The samples come from two different skeletons buried in one pit. Both of the obtained dates (Poz-91093: 1616-1535 cal BC; Poz-91128: 1598-1457 cal BC) are in agreement with each other and with the absolute chronology of the Middle Bronze Age Trzciniec culture (cf. e.g. Górski and Kadrow 2001; Górski et al. 2003; Makarowicz et al. 2021). Although remains of the mentioned cultural unit are well represented at the site, the context wherein skeletons were deposited yielded no datable artifacts.

Laboratory comment (Tomasz Goslar, personal communication): In two cases (Poz-91093 and Poz-91094), low collagen yields and isotopic signatures of the extracted "gelatin" are indicative of strong diagenesis of bones and consequent possible contamination of the collagen with humic acids. Therefore, the measured radiocarbon ages are likely to be younger than expected.

Szczepanowice, site 1 (PAR 97-57/97)

Samples were submitted to the *Poznań Radiocarbon Laboratory* by Mirosław Furmanek (*Institute of Archaeology*, *University of Wrocław*, Wrocław) with the kind assistance of Agata Hałuszko (at the time *Institute of Archaeology*, *University of Wrocław*, Wrocław) who qualified anthropological material.

Poz-97884	**3880 ± 33**
human bone /*costa*; F; 39-44 yrs/	2454-2300 cal BC (68.3%)
Poz-97933	**3894 ± 31**
human bone /*cranium*; F?; 9-11 yrs/	2459-2343 cal BC (68.3%)
Poz-97935	**3877 ± 29**
human bone /*costa*; F; 8-9 yrs/	2453-2297 cal BC (68.3%)
Poz-97936	**3837 ± 35**
human bone /*costa*; F; 45-50 yrs/	2397-2205 cal BC (68.3%)

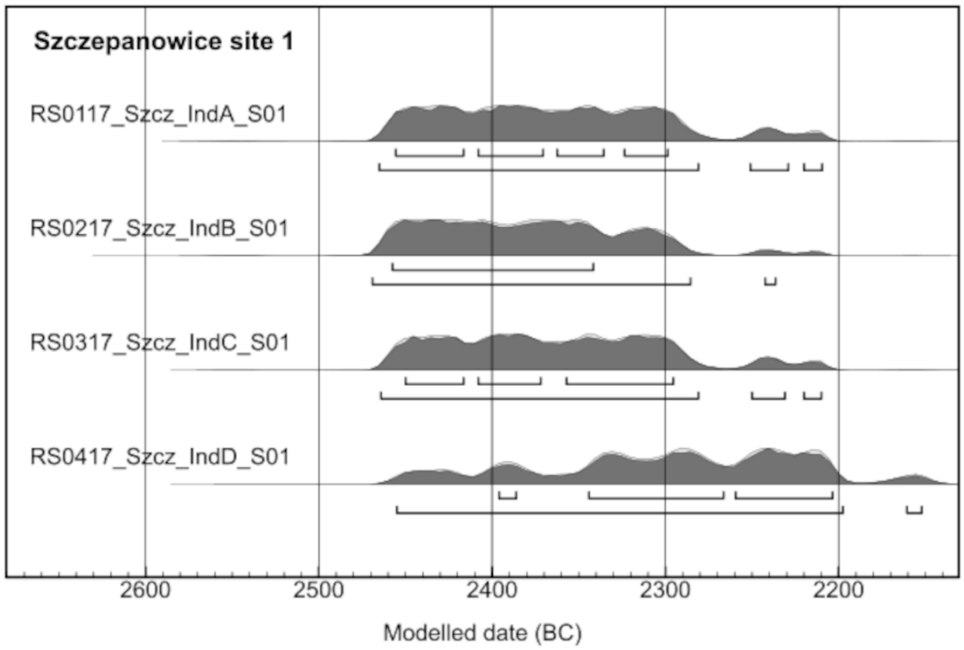

Fig. 5. Plot with radiocarbon dates from archaeological site Szczepanowice 1. Radiocarbon ages cali-brated by Natalia Piotrowska using the IntCal20 curve in the OxCal 4.4 package.

Comment (E.D., M.F., T.M.): The samples come from the excavations carried out by Iza Gomułka (at the time *Institute of Archaeology*, *University of Wrocław*, Wrocław) in 2016 (Dreczko, Masojć, and Murzyński 2021).

The four radiocarbon age measurements carried out in the context of the post-ex analyses conducted under the contract project were performed on bone collagen extracted from human remains discovered in one archaeological feature (B40). Archaeologically the grave dates to the Final Eneolithic and is attributed to the Corded Ware culture. The results of radiocarbon dating are harmonious with the relative chronology of the context, i.e., the last phase of the Corded Ware culture in western Lesser Poland (cf. Jarosz and Włodarczak 2007; Włodarczak 2013).

Laboratory comment: –

Zagaje Smrokowskie, site 10 (AZP 98-57/70)

Samples were submitted to the *Poznań Radiocarbon Laboratory* by Danuta Minta-Tworzowska (*Faculty of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań).

Poz-127357 **2401 ± 30**
charcoal (indet.) 515-405 cal BC (68.3%)

Poz-127358 **1526 ± 28**
charcoal (indet.) 540-594 cal AD (68.3%)

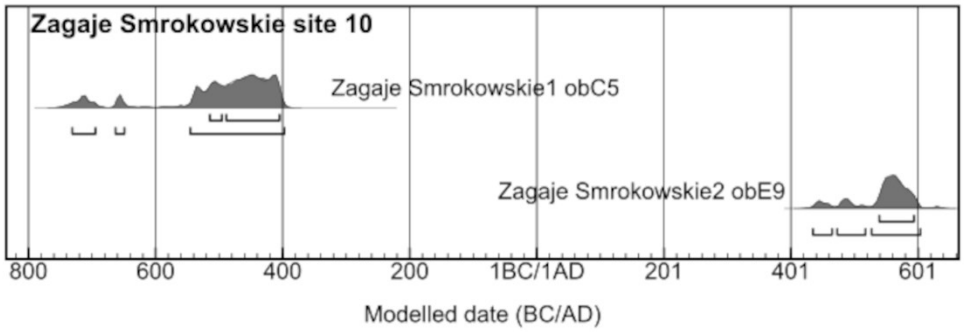

Fig. 6. Plot with radiocarbon dates from archaeological site Zagaje Smrokowskie 10. Radiocarbon ages cali-brated by Natalia Piotrowska using the IntCal20 curve in the OxCal 4.4 package.

Comment (I.F., D.M-T.): The samples come from the excavations carried out by Iga Fabiszak (at the time *Institute of Archaeology*, *Adam Mickiewicz University in Poznań*, Poznań) between 2016 and 2018 (Minta-Tworzowska 2022).

The first of the measured radiocarbon ages (Poz-127357) refers to feature C5, which yielded only 10 fragments of daub and the charcoal used for dating. The obtained date (515-405 cal BC) determines the *terminus post quem* for filling the pit. Accordingly, the feature must be considered no older than the early Iron Age (cf. e.g., Goslar 2019).

The other radiocarbon age measurement (Poz-127358) was performed on charcoal taken from the "post-destructional" filling of an oven (feature E9). The date obtained (540-594 cal AD) clearly indicates that the structure was built no earlier than in the Early Slavic period (cf. Kubica-Kabacińska 2005:19; Nowak et al. 2016:250; Szmoniewski 2016:25, Fig. 1).

Laboratory comment (Tomasz Goslar, personal communication): Since both the radiocarbon age determinations have been produced on samples of charred wood, the resulting dates are likely to be affected by the old wood effect.

REFERENCES

Budziszewski J, Włodarczak P. 2010. Kultura pucharów dzwonowatych na Wyżynie Małopolskiej. Kraków: Instytut Archeologii i Etnologii PAN, Oddział w Krakowie.

Chmielewski TJ, Sady A, Goslar T, Furmanek M, Juchelka J. 2017. Separating the wheat from the chaff: dating charred plant remains extracted from daub (with reference to the 14C chronology of the Epi-Lengyel culture in Upper Silesia). Radiocarbon 59(1):251–268. doi: https://org.doi/10.1017/RDC.2017.9.

Dobrzańska H. 1995. Kultura przeworska na wyżynach lessowych Zachodniej Małopolski w okresie rzymskim – główne problemy badawcze. Sprawozdania Archeologiczne 47:33–53.

Dobrzańska H, Kalicki T. 2018. Osadnictwo ludności kultury przeworskiej na równinach zalewowych w zachodniej części Kotliny Sandomierskiej. Archeologia Polski 63:119–143.

Dreczko E, Masojć M, Murzyński T, editors. 2021. Opracowanie wyników ratowniczych badań wykopaliskowych w Szczepanowicach, stan. 1, gm. Miechów, woj. Małopolskie, nr AZP 97-57/97. Wrocław: Uniwersytet Wrocławski (post-excavation report).

Dreczko E, Mozgała-Swacha M, Murzyński T, editors. 2022. Opracowanie wyników ratowniczych badań wykopaliskowych w Domiarkach, stan. 1, gm. Iwanowice, woj. Małopolskie, nr AZP 99-57/83. Tom 1. Wrocław: Uniwersytet Wrocławski (post-excavation report).

Górski J, Jarosz P, Tunia K, Wilk S, Włodarczak P. 2013. New evidence on the absolute chronology of the early Mierzanowice culture in South-Eastern Poland. In: Bartelheim M, Peška J, Turek J, editors. From Copper to Bronze. Cultural and Social Transformations at the Turn of the 3rd/2nd Millenia B.C. in Central Europe. Beiträge zur Ur- und Frühgeschichte Mitteleuropas 74. Langenweissbach: Beier & Beran. p. 105–118.

Górski J, Kadrow S. 2001. Die frühe und ältere Bronzezeit in Kleinpolen im Lichte der Radiokarbondatierungen (mit einigen Bemerkungen zu ausgewählten Fundstellen in der Ukraine). In: Czebreszuk J, Müller J, editors. Die absolute Chronologie in Mitteleuropa 3000-2000 v. Chr. Studien zur Archäologie in Ostmitteleuropa 1. Poznań: Uniwer-sytet im. Adama Mickiewicza; Bamberg: Otto-Freidrich-Universität. p. 131–176.

Górski J, Lysenko S, Makarowicz P. 2003. Radiocarbon chronology of the Trzciniec cultural circle between the Vistula and Dnieper basins. In: Kośko A, Klochko V, editors. The Foundations of Radiocarbon Chronology of Cultures between the Vistula and Dnieper: 4000-1000 BC. Baltic-Pontic Studies 12. Poznań: Adam Mickiewicz University. p. 253–306.

Goslar T. 2019. Chronologia i periodyzacja cmentarzyska z epoki brązu i wczesnej epoki żelaza w Domasławiu, pow. wrocławski, na podstawie datowania radiowęglowego. Przegląd Archeologiczny 67:31–48.

Jarosz P, Włodarczak P. 2007. Chronologia bezwzględna kultury ceramiki sznurowej w Polsce południowowschodniej oraz na Ukrainie. Przegląd Archeologiczny 55:71–108.

Kadrow SR. 2023. Radiocarbon chronology of the post-LBK Malice culture in Lesser Poland. Sprawozdania Archeologiczne 75(2):51–64. doi: https://org.doi/10.23858/SA75.2023.2.3481.

Kamyszek L, Masojć M, Piekalski J, Żygadło L, editors. 2023a. Opracowanie wyników ratowniczych badań archeologicznych przeprowadzonych w miejscowości Kraków-Nowa Huta-Zesławice, stan. 88, woj. małopolskie, AZP 101-57/7, nr na S7-139. Tom 2. Epoka brązu. Wrocław: Uniwersytet Wrocławski (post-excavation report).

Kamyszek L, Masojć M, Piekalski J, Żygadło L, editors. 2023b. Opracowanie wyników ratowniczych badań archeologicznych przeprowadzonych w miejscowości Kraków-Nowa Huta-Zesławice, stan. 88, woj. małopolskie, AZP 101-57/7, nr na S7-139. Tom 1. Wstęp. Neolit-Eneolit. Pradzieje. Wrocław: Uniwersytet Wrocławski (post-excavation report).

Kubica-Kabacińska E. 2005. Tereny Nowej Huty (obecnych dzielnic XIV-XVIII Krakowa) w VI-XIV wieku n.e. Krzysztofory. Zeszyty Naukowe Muzeum Historycznego Miasta Krakowa 23:17–28.

Luthern M. 2012. Using Daub, Bone, and Charcoal Samples to Establish the Chronology of Neolithic Tell Formation, and Establish Settlement Patterns, in the Körös Region, Hungary. Columbus: The Ohio State University (honors research thesis).

Makarowicz P, Goslar T, Górski J, Taras H, Szczepanek A, Pospieszny Ł, Jagodinska MO, Ilchyshyn V, Włodarczak P, Juras A, Chyleński M, Muzolf P, Lasota-Kuś A, Wójcik I, Matoga A, Nowak M, Przybyła MM, Marcinkowska-Swojak M, Figlerowicz M, Grygiel R, Czebreszuk J, Kochkin IT. 2021. The absolute chronology of collective burials from the 2nd millenium BC in East Central Europe. Radiocarbon 63(2):669–692. doi: https://org.doi/10.1017/RDC.2020.139

Minta-Tworzowska D, editor. 2022. Opracowanie wyników badań archeologicznych na Stanowisku Zagaje Smrokowskie 10, woj. Małopolskie, AZP 98-57/70, nr na inwestycji 75. Poznań: Uniwersytet Wrocławski (post-excavation report).

Minta-Tworzowska D, Krueger M, editors. 2021. Opracowanie wyników badań archeologicznych na stanowisku Smroków 4, gm. Słomniki, woj. małopolskie, AZP 97-57/145. Poznań: Uniwersytet Wrocławski (post-excavation report).

Muzolf P. 2020. Oznaczenia radiowęglowe zbiorowych grobów ciałopalnych trzcinieckiego kręgu kulturowego z Polski Środkowej. Materiały i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego 41:57–70. doi: https://org.doi/10.15584/misroa.2020.41.5.

Naglik R, editor. 2022. Opracowanie wyników badań archeologicznych na stanowisku Kraków-Krzesławice 41, woj. małopolskie, AZP 102-57/16.

Kraków-Poznań: Uniwersytet Wrocławski (post-excavation report)..

Nowak M. 2009. Drugi etap neolityzacji ziem polskich. Kraków: Instytut Archeologii UJ.

Nowak M, Liwoch R, Moskal-del Hoyo M, Wilczyński J, Rauba-Bukowska A. 2016. Korzkiew 5 – najstarsze stanowisko średniowieczne na Wyżynie Olkuskiej. Materiały Archeologiczne 41:245–262.

Przybyła MM, Tunia K. 2013. Investigations in 2012 of the Southern Part of the Funnel Beaker Culture Temenos at Słonowice near the Małoszówka River. Fourth Report. In: Kadrow S, Włodarczak P, editors. Environment and subsistence – forty years after Janusz Kruk's „Settlement studies". Studien zur Archäologie in Ostmitteleuropa 11. Bonn: Institute of Archaeology Rzeszów University-Dr. Rudolf Habelt GmbH. p. 139–161.

Szmoniewski BSz. 2016. Early Slavic culture. In: Trzeciecki M, editor. Polish Lands From The First Evidence Of Human Presence To The Early Middle Ages. Vol. 5. 500-1000 AD. Warszawa: Instytut Archeologii i Etnologii PAN. p. 21–73.

Włodarczak P. 2013. Projekt badań chronologii absolutnej eneolitu i początków epoki brązu w Małopolsce. In: Cheben I, M. Soják M, editors. Otázky neolitu a eneolitu našich krajín – 2010. Archaeologica Slovaca Monographiae 15. Nitra: Archeologický ústav Slovenskej akadémie vied. p. 373–387.

Włodarczak P. 2022. Obiekty ceremonialno-funeralne z interstadium epok eneolitu i brązu'. In: Dreczko E, Mozgała-Swacha M, Murzyński T, editors. Opracowanie wyników ratowniczych badań wykopaliskowych w Domiarkach, stan. 1, gm. Iwanowice, woj. małopolskie NR AZP 99-57/83. Tom 1. Wrocław: Uniwersytet Wrocławski (post-excavation report). p. 117–158.

Zastawny A. 2022. New Radiocarbon Dates for the Malice Culture in Western Lesser Poland. In: Dębiec M, Górski J, Müller J, Nowak M, Pelisiak A, Saile T, Włodarczak P, editors. From Farmers to Heroes? Archeological Studies in Honor of Sławomir Kadrow. Universitätforschungen zur Prähistorischen Archäologie 376. Bonn: Verlag dr. Rudolf Habelt GmbH. p. 151–171.