DOBUŻEK SCARP

Dobużek Kolonia, site 1

Samples submitted by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) with the kind assistance of Paweł Zawiślak (Lublin), Agata Hałuszko (*Insitute of Archaeology*, *University of Wrocław*, Wrocław) who qualified anthropological material, Agata Sady (Katowice) who prepared archaeobotanical remains, and Jan Wiejacki (*Institute of Archaeology, Nicolaus Copernicus University*, Toruń) who selected animal bones suitable for radiocarbon dating.

Poz-104729 **4060 ± 34**
charcoal /indet./ 2665-2490 cal BC (68.3%)

Poz-104777 **124 ± 26**
charred twig /indet./ 1685-1925 cal AD (68.3%)

Poz-105437 **4474 ± 36**
animal bone /*vertebrae thoracicae*, indet./ 3335-3090 cal BC (68.3%)

Poz-105438 **4852 ± 36**
animal bone /*humerus*, *Bos taurus*/ 3705-3530 cal BC (68.3%)

Poz-105439 **4636 ± 35**
animal bone /*humerus*, *Bos taurus*/ 3500-3365 cal BC (68.3%)

Poz-105440 **4414 ± 36**
Poz-105442 **4385 ± 36**
animal bone /*cranium*, *Bos taurus*/ 3090-2930 cal BC (68.3%)

Poz-105443 **4370 ± 35**
animal bone /*costae*, *Bos taurus*/ 3020-2915 cal BC (68.3%)

Poz-105444 **4399 ± 27**
animal bone /*radius*, *Bos taurus*/ 3090-2925 cal BC (68.3%)

Poz-105446 **2480 ± 31**
animal bone /*mandibula*, *Equus*/ 760-540 cal BC (68.3%)

Poz-105447 **4589 ± 32**
animal bone /*costae*, *Ovis vel Capra*/ 3495-3190 cal BC (68.3%)

Poz-105529 **4676 ± 37**
animal bone /*os coxae*, *Equus*/ 3520-3375 cal BC (68.3%)

Poz-105732 **4636 ± 37**
Poz-105733 **4643 ± 37**
human bone /*os frontale*; F?; Adultus/ 3500-3365 cal BC (68.3%)

Poz-105746 **4610 ± 37**
human bone /*costae*; M; Adultus/ 3500-3350 cal BC (68.3%)

Poz-106096	**4639 ± 35**
Poz-106097	**4593 ± 35**
animal bone /*cornu, Capreolus capreolus*/	3495-3360 cal BC (68.3%)
Poz-106247	**4661 ± 27**
charred twig /indet./	3510-3370 cal BC (68.3%)
Poz-106378	**4454 ± 92**
charred plant remains /caryopsis, *Bromus* sp./	3340-3010 cal BC (68.3%)

Comment (T.J.Ch.): The samples come from the excavations carried out by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) and Paweł Zawiślak (Lublin) in the years 2016-2018.

The vast majority of radiocarbon age determinations refers to the deposits from bottom parts of pits constituting the remains of a settlement of the Funnel Beaker culture. The dates are mainly based on single unrelated measurements: Poz-105438 (feature 21/2016), Poz-105439 (feature 24/2016), Poz-105447 (feature 38/2016) and Poz-105529 (feature 42/2016). On this background, a stratified sequence of radiocarbon ages (Poz-105732/105733, Poz-105746, Poz-106096/106097, Poz-106247, and Poz-106378) obtained for features 5/2016 and 6/2016 is of peculiar importance. The results of radiocarbon dating of all the features correspond with the ^{14}C-based chronology of analogical settlement remains of the Funnel Beaker culture discovered in the westernmost part of Volhynia (cf. Bronicki, Kadrow, and Zakościelna 2003).

The second group of measurements refers to three ditches (features 1/2016, 2/2016, and 3/2016) enclosing the settlement. The oldest ^{14}C dates (Poz-105440/105442, Poz-105443, and Poz-105444) were obtained for animal bones deposited on their bottoms and determine the starting moment of a long-lasting proces of backfilling of the dry moats. Within the sediment sequence of the backfill of the biggest, inner ditch (feature 1/2016) there were, among others, remains of an easily definable and radiocarbon dated (Poz-105446) event that took place in the Early Iron Age – a firepit documented as feature 54/2016. Chronology of the pit corresponds with the funeral activity recorded at sites Dobużek Kolonia 2 and Mikulin 9 (see below). Nevertheless, the persistence of ditches in the local landscape is probably best confirmed by the radiocarbon age measurement (Poz-104777) of a burning episode recorded as a layer of charcoals discovered in the upper-most part of the fill of the same ditch. The resulting dating leaves no doubt as to the persistence of a visible cavity up until the Modern period.

Measurements Poz-104729 and Poz-105437 refer to an enclosure adjacent to the settlement. In this case, both the samples submitted for radiocarbon dating come from one of two ditches, more precisely – the inner one (feature 58/2016). The older measurement (Poz-105437) was obtained for the articulated bones (a vertebral column) deposited *in situ* in the bottom part of the ditch. The younger one was made for undetermined charcoal from a burning episode recorded in the upper part of the feature fill. The radiocarbon age of the bone undoubtedly connects the initial stage of the backfilling of the ditch with the Funnel Beaker culture (see above), whereas the date for the charcoal deposited above corresponds with the early phase of the Corded Ware culture (cf. Machnik, Bagińska, and Koman 2009:219–32). Obviously, in the case of the latter, some old wood effect should be expected, therefore the date must be considered just as a *terminus post quem* of the layer's formation.

Laboratory comment (T.G.): Pairs of measurements Poz-105440 with Poz-105442, Poz-105732 with Poz-105733, and Poz-106096 with Poz-106097 were originally reported (Goslar 2018a) as respective weighted average values of: 4400 ± 25 BP (under number Poz-105440), 4640 ± 26 BP (Poz-105732), and 4616 ± 25 BP (Poz-106096). The remaining results of radiocarbon dating were provided as rounded values (Goslar 2018a, 2018b).

Dobużek Kolonia, site 2

Samples submitted by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) with the kind assistance of Igor Pieńkos (*Igor Pieńkos INGWAR*, Jędrzejów), Agata Hałuszko (*Insitute of Archaeology, University of Wrocław*, Wrocław) who selected the human bone, and Jan Wiejacki (*Institute of Archaeology, Nicolaus Copernicus University*, Toruń) who qualified the animal bone suitable for radiocarbon dating.

Poz-104802 **2475 ± 31**
human bone /*costae*, M?; Infans II/ 755-540 cal BC (68.3%)

Poz-105532 **3909 ± 33**
animal bone /*costae*, *Bos taurus*/ 2470-2340 cal BC (68.3%)

Comment (T.J.Ch.): The samples come from the excavations conducted by Igor Pieńkos (*Igor Pieńkos INGWAR*, Jędrzejów) in 2016.

The older of obtained radiocarbon age determinations (Poz-105532) refers to feature 3/2016. It is a deep pit with a cattle burial placed in anatomical order at the bottom of the feature. The pit did not yield any culturally diacritical dating artefacts. The age of the sample corresponds with the younger phase of the development of the Corded Ware culture on the Sokal Ridge (cf. Machnik et al. 2009:219–32). This is confirmed also by a very close ^{14}C date obtained for a grave (feature 15/2016) from site Mikulin 12 (see below).

The younger radiocarbon date, falling into the beginning of the Iron Age, refers to feature 11/2016. It is a pit with a human individual buried at the bottom in a frog position. The pit yielded no culturally specific material and the form of the grave does not follow any common burial rites of the time. Nevertheless, funeral activity from the Early Iron Age on the loess paha of Dobużek escarpment is well confirmed by the presence of similarly dated cremation graves at site Mikulin 9 (see below).

Laboratory comment (T.G.): Results of both the measurements were originally reported (Goslar 2018a, 2018b) as rounded values.

Mikulin, site 8

Samples submitted by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) with the kind assistance of Agata Hałuszko (*Insitute of Archaeology, University of Wrocław*, Wrocław) who selected human bones, and Jan Wiejacki (*Institute of Archaeology, Nicolaus Copernicus University*, Toruń) who qualified animal bones suitable for radiocarbon dating.

Poz-104803	**4700 ± 37**
human bone /costae; ?/Infans I/	3525-3375 cal BC (68.3%)
Poz-105526	**3743 ± 35**
animal bone /*metacarpus*, *Bos taurus*/	2205-2045 cal BC (68.3%)
Poz-105530	**3774 ± 35**
animal bone /*metatarsus*, *Bos taurus*/	2285-2140 cal BC (68.3%)
Poz-105531	**4529 ± 36**
animal bone /*radius*, *Bos taurus*/	3360-3105 cal BC (68.3%)
Poz-105534	**3734 ± 35**
animal bone /*costae*, *Bos taurus*/	2200-2040 cal BC (68.3%)
Poz-105743	**2855 ± 29**
human bone /*costae*; F; Adultus/	1105-930 cal BC (68.3%)

Comment (T.J.Ch.): The samples come from the excavations carried out by Mateusz Krupski and Bartosz Myślecki (*Instytut Archeologii*, *Uniwersytet Wrocławski*, Wrocław) in 2016.

The oldest two dates (Poz-104803 and Poz-105531) relate to a human burial and an animal bone deposited in the bottom parts of two ditches surrounding a settlement of the Funnel Beaker culture (features 16/2016 and 15/2016, accordingly). Although the results of dating indicate that backfilling of the ditches in Mikulin started earlier than of the ones constituting the enclosure from site Dobużek Kolonia 1 (see above), the radiocarbon ages of both the discussed samples correspond with the dating of other features of the Funnel Beaker culture discovered on the Dobużek Scarp.

The other three measurements (Poz-105534, Poz-105530 and Poz-105526) were obtained for three pits (features 2/2016, 6/2016, and 11/2016, accordingly) associated with the Early Bronze Age Mierzanowice culture. In the first case, it was a cattle burial deposited in anatomical order at the bottom of an unused settlement pit. Such remains of ritual activity are common for the period (cf. Kołodziej 2010:159–73, 206–10). The two other storage pits are also very typical of the Mierzanowice culture (cf. e.g. Kadrow 1991:19–38; Pelisiak and Rybicka 2013:27–71). The radiocarbon dating provided ages close to those obtained for analogical features of the early phase of Mierzanowice culture (Górski et al. 2013).

The single date falling into the Late Bronze Age (Poz-105743) refers to a skeleton found in a crouched position at the bottom of an empty, deep settlement pit (feature 1/2016). Burials of this kind do not represent regular funeral practices of the time. Also, the deposit did not yield any artefacts that date to this period. Nevertheless, the settlement from the Late Bronze Age in the western part of the loess paha of the escarpment has been well confirmed by the discovery of an inhumation cemetery at site Mikulin 10 (see below) and remains of an associated with it settlement just a few dozen metres to the west from the said burial ground (sites Mikulin 11-12).

Laboratory comment (T.G.): Results of all the measurements were originally reported (Goslar 2018a, 2018b) as rounded values.

Mikulin, site 9

Samples submitted by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) with the kind assistance of Igor Pieńkos (*Igor Pieńkos INGWAR*, Jędrzejów), Agata Hałuszko (*Insitute of Archaeology*, *University of Wrocław*, Wrocław) who completed anthropological analyses and selected human bones, and Agata Sady (Katowice) who studied and selected archaeobotanical finds suitable for radiocarbon analyses.

Poz-104730	**2441 ± 30**
charcoal /inner ring, *Quercus* sp./	735-415 cal BC (68.3%)
Poz-104776	**2453 ± 33**
charcoal /outer ring, *Quercus* sp./	750-420 cal BC (68.3%)
Poz-104804	**4636 ± 31**
OxA-38219	**4614 ± 30**
human bone /*costae*; F; Adultus/	3495-3360 cal BC (combined; 68.3%)
Poz-104886	**2484 ± 31**
charred twig /*Quercus* sp./	770-550 cal BC (68.3%)
Poz-105568	**2534 ± 31**
human cremains /*os longum*; sex indet.; Juvenile/	790-570 cal BC (68.3%)
Poz-105569	**2498 ± 31**
Poz-106009	**2519 ± 30**
human cremains /*os longum*; F?; Adultus/	770-565 cal BC (68.3%)
Poz-105744	**4596 ± 37**
Poz-105745	**4660 ± 37**
OxA-38015	**4699 ± 31**
human bone /*os temporale*; F; Adultus/	3510-4370 cal BC (combined; 68.3%)
Poz-114079	**2598 ± 29**
charred plant remains /fruits, *Lithospermum* sp./	805-780 cal BC (68.3%)

Comment (T.J.Ch.): The samples come from excavations carried out by Igor Pieńkos (*Igor Pieńkos INGWAR*, Jędrzejów) in 2017.

The group of older dates is related to feature 9/2017. This is one of over twenty inhumations from the unearthed part of a cemetery of the Funnel Beaker culture. Measurements OxA-38015, Poz-105744 and Poz-105745 were made for a single petrous part of the temporal bone, whereas OxA-38219 and Poz-104804 for the ribs of the same individual. Both the bone samples were considered as reservoirs of heterochronous collagen, dating of which allowed to build an accurately defined sequence and determine the very moment of burying of the individual more precisely (Chmielewski et al. 2021). The resulting date corresponds with those obtained for analogical funeral finds from the Lublin-Volhynia Upland (cf. e.g. Chmielewski 2015).

Another group of measurements refers to two burials from the Early Iron Age – feature number 2/2017 (Poz-104886 and Poz-105568) and feature number 13/2017 (Poz-104730, Poz-104776,

Poz-105569, and Poz-114079). These radiocarbon age determinations also provide the basis for modelling that allows to date the graves more accurately (Chmielewski et al. accepted).

Laboratory comment (T.G.): Pairs of measurements Poz-105569 with Poz-106009, and Poz-105744 with Poz-105745 were originally reported (Goslar 2018b) as respective weighted average values of 2509 ± 23 BP (under number Poz-105569) and 4628 ± 26 BP (under number Poz-105744). The remaining results of radiocarbon dating determined at Poznań Radiocarbon Laboratory were provided as rounded values (Goslar 2018a, 2019a).

Mikulin, site 10

Samples submitted by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) with the kind assistance of Jolanta Bagińska (*Regional Museum of dr. J. Peter*, Tomaszów Lubelski), Agata Hałuszko (*Insitute of Archaeology, University of Wrocław*, Wrocław) who selected human bones, and Jan Wiejacki (*Institute of Archaeology, Nicolaus Copernicus University*, Toruń) who qualified animal bones suitable for radiocarbon dating.

Poz-104806	**3803 ± 36**
human bone /*costae*; F; Adultus/	2295-2145 cal BC (68.3%)
Poz-105525	**5206 ± 36**
animal bone /indet., *Mammalia*/	4050-3970 cal BC (68.3%)
Poz-105535	**4624 ± 32**
animal bone /*cranium, Sus scrofa*/	3500-3360 cal BC (68.3%)
Poz-105536	**5039 ± 39**
animal bone /*vertebrae cervicales, Ovis vel Capra*/	3945-3780 cal BC (68.3%)
Poz-109070	**2793 ± 28**
human bone /*costae*; M; Juvenis/	995-905 cal BC (68.3%)

Comment (T.J.Ch.): The samples come from rescue excavations conducted by Tomasz J. Chmielewski (*Instytut Archeologii, Uniwersytet Wrocławski*, Wrocław) and Anna Zakościelna (*Instytut Archeologii, Uniwersytet Marii Curie-Skłodowskiej*, Lublin) in 2014, as well as excavations carried out at the site by Jolanta Bagińska (*Muzeum Regionalne im. dr. J. Petera*, Tomaszów Lubelski) in 2016 roku.

Animal bones with the earliest radiocarbon age come from a shallow pit recorded as feature 30/2016 (Poz-105525) and the bottom part of a ditch enclosing the settlement (feature 13/2016; Poz-105536). Both the features are associated with the Lublin-Volhynia culture. The results of the measurements correspond with radiocarbon ages of similar finds attributed to the same cultural unit (cf. e.g. Chmielewski 2008:71–82; Włodarczak 2017). It is noteworthy that the date obtained for the bone deposited at the bottom of the ditch is very close to the one received prior to the project for an analogical sample from an alike enclosure discovered at the neighbouring site of Mikulin 8 (Krupski et al. 2019:1754).

A single measurement (Poz-105535) was made for an animal bone found in the bottom part of a settlement pit (feature 8/2016) of the Funnel Beaker culture. The resulting date corresponds

with those obtained for analogical features of the same cultural unit discovered elsewhere within the loess paha of the Dobużek Scarp (see above).

Measurement number Poz-104806 refers to a part of the human skeleton placed together with an animal skull at the bottom of a shallow pit (feature 24/2016). The obtained date corresponds with the Early Bronze Age, but sparse finds from the fill of the pit do not confirm such chronology. The burial itself also cannot be considered as a typical grave from the period. Nevertheless, human remains (sometimes deposited with animal skeletons or their parts) occur in settlement pits of the Mierzanowice culture quite commonly (cf. Bobak et al. 2012:66–68). The presence of a burial from that time is even more likely as the remains of a settlement from the early phase of the Mierzanowice culture were discovered nearby at site Mikulin 8 (see above).

The last date (Poz-109070) refers to one of a few dozen inhumations from a burial ground dated to the Late Bronze Age that is already almost entirely destroyed. The deceased individual was buried in a supine position according to the burial rite of the Vysotskaya culture. Although the presence of such graves on the western fringe of the Volhynian Upland has been already indicated (Kłosińska 2005:171–77), the chronology of none has so far been confirmed by ^{14}C dating.

Laboratory comment (T.G.): Results of all the measurements were originally reported (Goslar 2018a, 2018b, 2019a) as rounded values.

Mikulin, site 12

Samples submitted by Tomasz J. Chmielewski (*Institute of Archaeology and Ethnology, University of Gdańsk*, Gdańsk) with the kind assistance of Jolanta Bagińska (*Regional Museum of dr. J. Peter*, Tomaszów Lubelski), and Agata Hałuszko (*Insitute of Archaeology, University of Wrocław*, Wrocław) who selected human bones suitable for radiocarbon dating.

Poz-104807 **3880 ± 36**
human bone /*cranium*, sex indet.; Infans I/ 2455-2295 cal BC (68.3%)

Poz-104808 **3884 ± 37**
human bone /*costae*, F; Maturus/ 2455-2295 cal BC (68.3%)

Comment (T.J.Ch.): The samples come from excavations conducted by Jolanta Bagińska (*Muzeum Regionalne im. dr. J. Petera*, Tomaszów Lubelski) in 2016.

Human bones from two burials placed at the bottom of pits recorded as feature 2/2016 and 15/2016 were submitted for radiocarbon dating (measurements Poz-104807 and Poz-104808, respectively). In both cases, the individuals interred at the bottom of the respective pits were placed in positions complying with the funeral traditions of the eastern Corded Ware circle. Although only feature 15/2016 contained grave goods, they allow attributing the burial to the Middle Dnieper culture. Finds of this kind occur on the Sokal Ridge within the younger phase of the development of the Corded Ware culture (cf. Machnik et al. 2009:194–240). Such chronology is corroborated by both the obtained dates which fall within the younger phase of the development of the Corded Ware culture on the Lublin-Volhynia Upland (Włodarczak 2016:541–544).

Laboratory comment (T.G.): Results of both the measurements were originally reported (Goslar 2018a) as rounded values.

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