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A PAIR OF MINIATURE CLAY WHEELS FROM AN INFANT BURIAL ASCRIBED TO THE CORDED WARE CULTURE NEAR WALLERSTEIN (LKR. DONAU-RIES / D)

The emergence of wheeled vehicles in Central Europe has been dated to the mid-4th millennium BC based on abstract depictions on vessels (Milisauskas/Kruk 1982; Bakker et al. 1999) and megalithic slabs (Loerper/Jockenhövel/Dirksen 2008), as well as preserved tracks (Mischka 2010; 2011) and the traces of *in-situ* decomposition of carts (Friederich/Hoffmann 2013). Direct evidence is confined to wetland sites in Southwestern Germany and Slovenia (Schlichtherle 2004) as well as Northwestern Germany and the Netherlands (Burmeister 2004), which have yielded a considerable number of wheels and axes dating to the late 4th and 3rd millennium BC, including an exceptional set of three wooden miniature wheels from Olzreute (Schlichtherle 2010). Apart from these wooden examples, a small number of clay disc fragments that have central parts resembling naves have been discovered in the context of Endneolithic settlement sites in Southeastern Germany and are assumed to represent miniature wheels. As most miniature clay wheels have been discovered as singular pieces either in the form of decontextualized stray finds or within settlements contexts (Seregély 2004), the context of their use has remained rather enigmatic. Here, we present a pair of clay discs, each with a nave, from an infant burial at Wallerstein that provides new insights into the use of these miniature wheels during the Endneolithic period.

SITE AND MATERIAL

The Wallerstein site is situated in the western part of the Nördlinger Ries, a meteorite impact crater within the Swabian-Franconian Jura in Western Bavaria (fig. 1A). Due to very fertile loess sediments in the western part, a high density of prehistoric settlement sites has been discovered in this area so far. The topography of the site, situated northwest of the modern village of Wallerstein, is characterized by a gentle slope towards the course of the Steinbach stream to the north (fig. 1B). An extensive LBK settlement had been discovered based on archaeological excavations and geophysical surveys, in close proximity to the west (Lutz/Kopecky-Hermanns/Zach 2013; Drummer/Mischka 2014). This led to a rescue excavation of 12,400 m² in advance of the area being developed in 2019.

While a group of post-holes in the northwest can probably be associated with the LBK settlement area further west, four structures with circular ditches and one grave-pit feature were documented in the southeastern and eastern part of the excavated area. Structures within these circular ditches were only observed for feature 26 that enclosed two oval pits without any human remains or artefacts and the westernmost circular ditch (feature 8), which enclosed a central double burial (feature 9). Burial feature 24 was a grave pit 15 m southeast of the double burial (feature 9) with extremely bad preservation immediately below the modern plough horizon (fig. 1C).

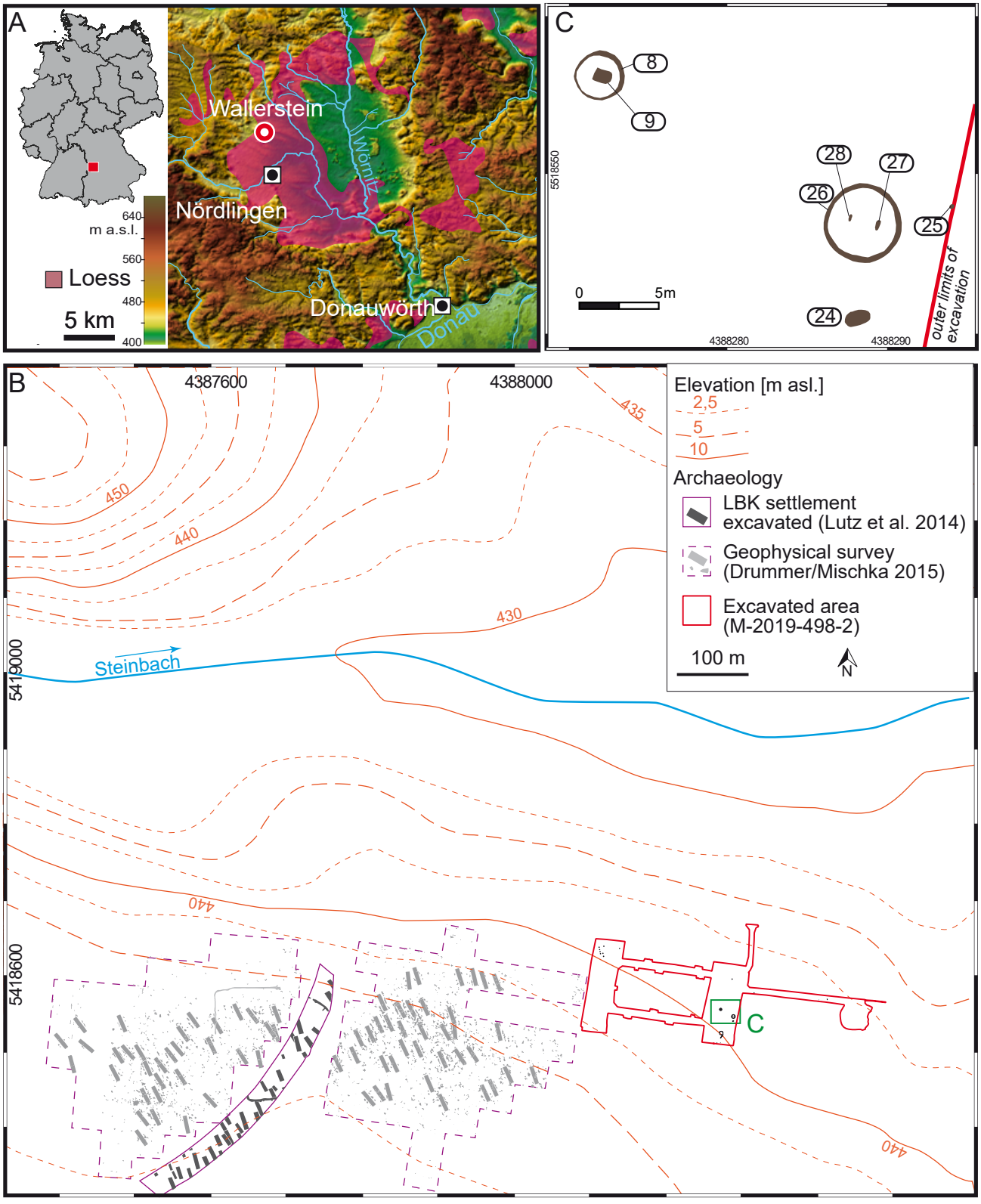

Fig. 1 **A** Topographic situation of the Nördlinger Ries area in Western Bavaria. – **B** excavation area with local topographical and archaeological setting. – **C** detail map of the features discussed. – (Maps J. F. Tolksdorf, M. Woidich; A elevation data according to NASA SRTM 1).

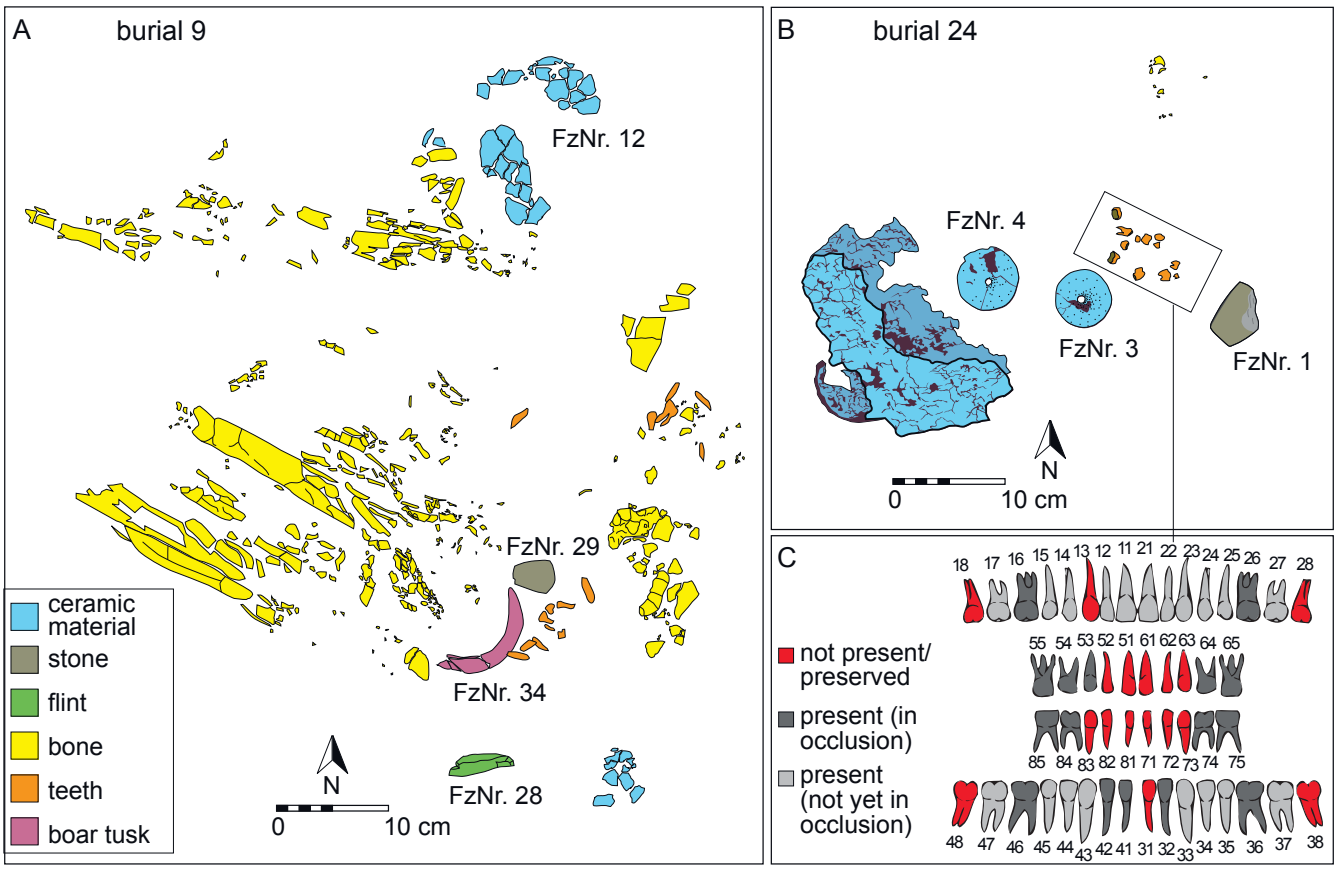

Fig. 2 **A** Double burial 9. – **B** infant burial feature 24 with the scheme of the preserved teeth in dental notation (**C**). – (Drawings J. F. Tolksdorf, M. Woidich, E. Kropf).

RESULTS

Double Burial 9

Although the preservation of the bone material in feature 9 was rather bad (**fig. 2A**), this grave can be reconstructed as an east-west inhumation burial of a 17-30 year old individual in a crouched position with the head in the east looking southwards. A second burial of a 4-8 year old infant can only be deduced by the presence of a deciduous tooth and five incompletely developed permanent teeth as well as very few badly preserved bone fragments north of the adult remains. An axe blade (**fig. 3**, FzNr. 29), a flint scraper (**fig. 3**, FzNr. 28) and a boar tusk (**fig. 3**, FzNr. 34) together with a ceramic vessel were situated in the area south of the upper torso in front of the adult individual, while a decorated ceramic vessel (**fig. 3**, FzNr. 12) had been deposited north of the double burial. The vessel decorated with impressions resembles the decoration typical for the beaker type Geiselgasteig (Engelhardt 1998, 89) and allows for an attribution of this double burial to the developed Corded Ware Culture in the mid-3rd millennium BC and is in accordance with the other grave goods and the burial mode.

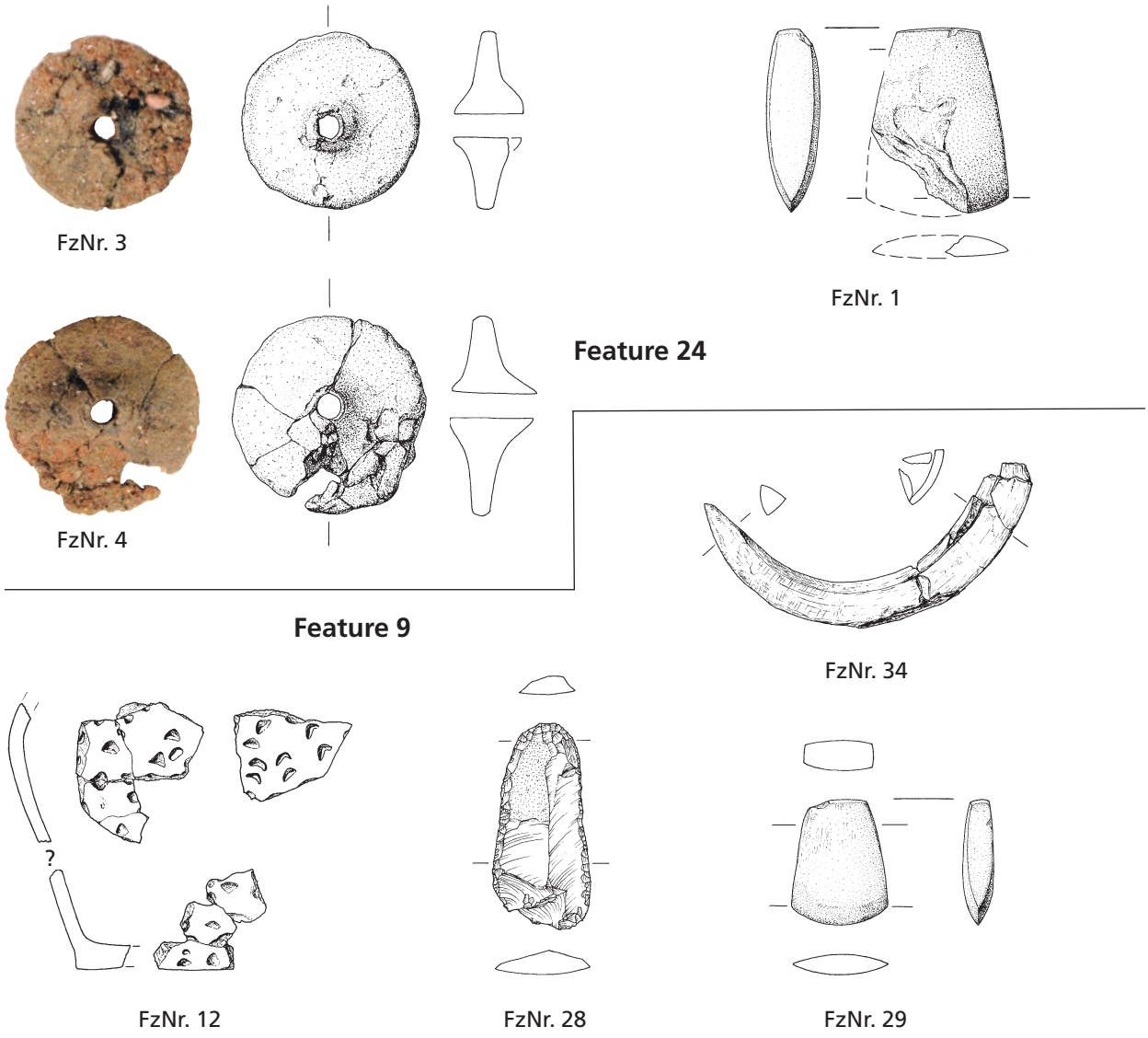

Fig. 3 Artefacts from burial features 9 and 24 (see **fig. 2A-B** for position within the graves). – (Photos and drawings Y. Duan, M. Blana). – Scale 1:2.

Burial 24

The preservation of human tissue was mainly restricted to the teeth and did not allow for a reconstruction of the burial position (**fig. 2B**). Beside a damaged phyllite axe blade (**fig. 3**, FzNr. 1) and a ceramic vessel that was too degraded to allow reconstruction, two pierced clay discs were observed and recovered *en bloc* (**fig. 2B; fig. 3**, FzNr. 3-4). An anthropological assessment of the teeth shows the presence of eight deciduous molars (54, 55, 64, 65, 74, 75, 84, 85 according to FDI nomenclature) and very likely one deciduous canine (53) (**fig. 2C**). The first permanent molars (16, 26, 36, 46) as well as the lower incisors had already largely been developed. Further permanent teeth were incompletely formed and probably remained unerupted at time of death. As to be expected, the third molars or wisdom teeth were completely absent at this stage of tooth development. Thus, the child's dentition had been transitional and its age at death probably around six to seven years. A ^{14}C-analysis of molars 16 and 36 (sample MAMS-41990) failed due to insufficient collagen preservation.

The Clay Discs from Burial 24

The clay discs were highly fragmented, found 8.75 cm apart (measured from the centre), in a nearly horizontal position (**fig. 2B**). The removal of sediment in the restoration workshop was followed by successive stabilization with Paraloid B48. Material removed from the hubs was sampled and analyzed using Fourier-transform infrared spectroscopy (FTIR) but yielded no preservation of any organic compounds. Both objects are made from coarse tempered clay with slightly varying diameters of 5.0 and 5.4 cm respectively (**fig. 3**, FzNr. 3-4). They are not formed as flat discs but instead flatten out from a thickness of 1.5 cm in the central part to 0.8 cm at the outer rims. The areas around the central holes, which are 0.7 cm in diameter, have been accentuated by protruding conical clay rings resembling some kind of naves that are preserved to a maximum thickness of nearly 3 cm.

DISCUSSION

Although a direct chronological assessment of grave 24 by ^{14}C-analysis failed due to poor collagen preservation, the close topographic relation to the double burial 9, which can be attributed to the Corded Ware Culture, suggests a similar cultural affiliation. A small number of comparable clay discs have been discovered from Late Neolithic and Endneolithic contexts so far and are predominately discussed to represent miniature wheels (**fig. 4**). While a pair of clay discs without perforation from Quenstedt (Lkr. Mansfeld-Südharz/D) have been reconstructed as part of some kind of cultic table from the Bernburg culture (Kaufmann 1997), ceramic miniature wheels with a nave and central perforation have been found only as solitary items. They appear among material collected from the surface at the Endneolithic settlement areas at Burgerroth (Lkr. Würzburg/D) (Spennemann 1984, 57), Wattendorf-Motzenstein (Lkr. Bamberg/D) (Seregély 2004; Müller et al. 2009, 132), and Karlstadt-Saupurzel (Lkr. Main-Spessart/D) (Hoppe 2002, 63-66). These circumstances have prevented any further interpretation about the context of their use so far. Exceptions are three miniature wheels of slightly different sizes made from wood at Olzreute (Lkr. Biberach/D) (Schlichtherle 2010). Dating to the 29th century BC they present round as well as rectangular center bores without any indication of a nave, thus proving the parallel existence of different wheel concepts. A highly fragmented object from a ditch at the site Riekhofen-Kellnerfeld (Lkr. Regensburg/D), ascribed to the Chamer culture (Matuschik 1990) as well as a yet unpublished and undated pierced clay disc from a prehistoric settlement pit at Aholming (Lkr. Deggendorf/D) (excavation report M-2011-1991-1), may represent additional examples of the occurrence of miniature wheels.

On a supraregional scale, clay miniature wheels are common in Eastern Europe during the 4th and 3rd millennium BC, mainly from settlement contexts (Mansfeld 2013; Klimscha 2017) and clay wheels connected to clay miniature wagons with mainly two pairs of wheels have been observed from the Baden culture (Maran 2004, 270-272; Bondár 2012, 21-42). While a cultic context has been discussed for some miniature wagons (Vosteen 1999, 46-51), the transfer of this interpretation to miniature wheels from Southwestern Germany remains highly tentative. Even though the wooden wheels from the wetland site at Olzreute are highlighting the importance of taphonomic processes for the archaeological record, no other item related to carts, wheels or the use of animal traction has been found in Endneolithic burials of Southwestern Germany so far. Without any further supporting evidence for the use of wheels as symbolic items (e. g. Maran 2017, 117), an interpretation as simply an individual object or toy may be reasonable as well, given the age of the individual it was found with.

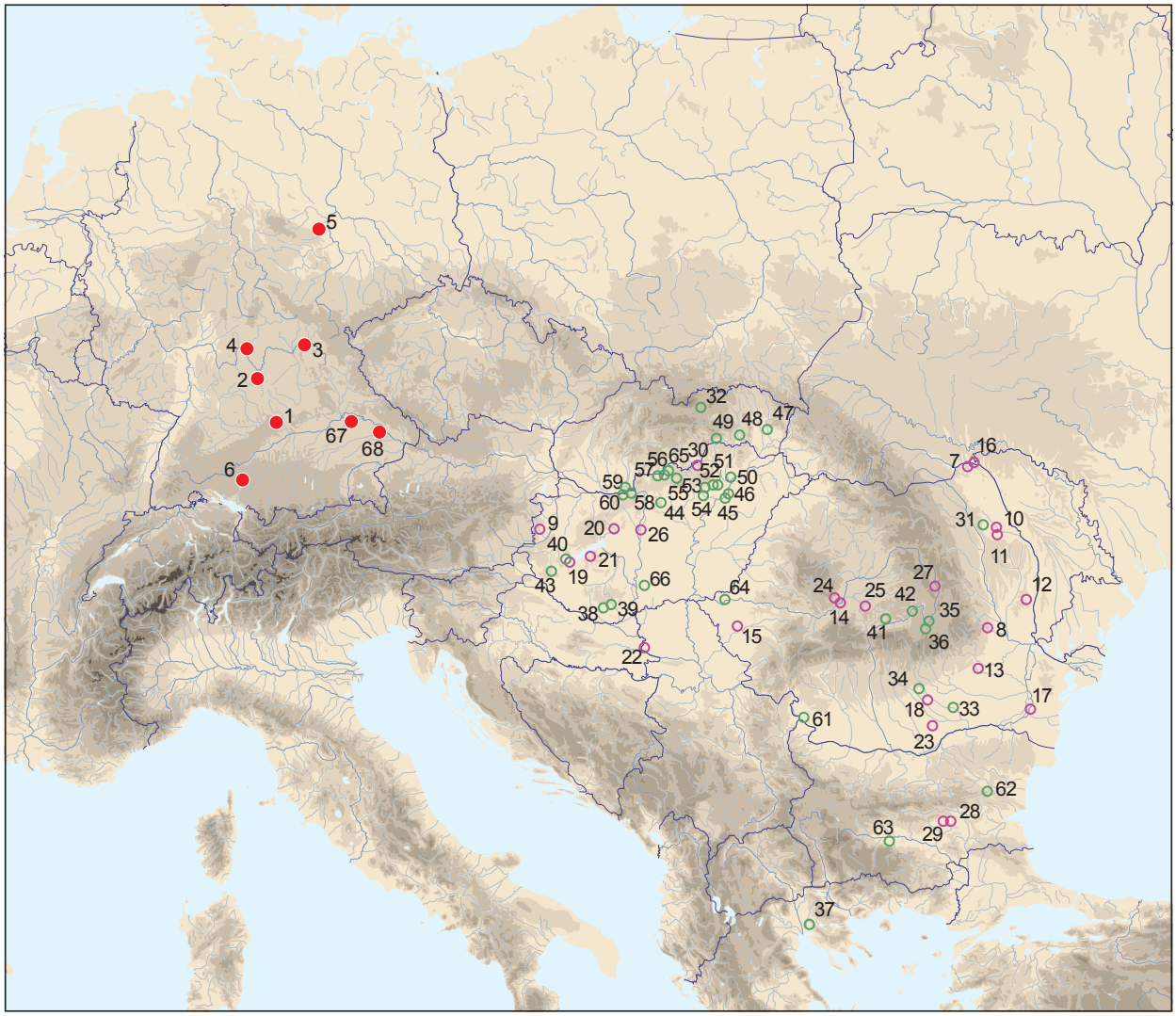

Fig. 4 Distribution of clay miniature wheels in Germany (●) and comparable objects dated to the 4th (○) and 3rd millennium BC (○) in Eastern Europe (mainly drawing on the data compiled by Klimscha 2017): **1** Wallerstein (this study). – **2** Burgerroth (Spennemann 1984). – **3** Wattendorf-Motzenstein (Seregély 2004). – **4** Karlstadt-Saupürzel Süd (Hoppe 2002). – **5** Quenstedt (Kaufmann 1997). – **6** Olzreuter Ried (Schlichtherle 2010). – **7** Darabani. – **8** Bonteşti. – **9** Szombathely. – **10** Erbiceni. – **11** Doroşcani. – **12** Puricani. – **13** Sudiți. – **14** Cacova. – **15** Chișoda Veche. – **16** Horodiștea. – **17** Cernavodă. – **18** Căscioarele. – **19** Balatonberény. – **20** Moha. – **21** Balatonőszöd. – **22** Vučedol. – **23** Tangiru. – **24** Ighiel. – **25** Boarta. – **26** Szigeszentmárton. – **27** Jigodin. – **28** Bikovo. – **29** Ezero. – **30** Ózd. – **31** Băiceni. – **32** Vel'ka Lomnická. – **33** Glina. – **34** Odaja Turcului. – **35** Ariușd. – **36** Braşov. – **37** Saratsé. – **38** Zók. – **39** Nagyárpad. – **40** Keszthely. – **41** Feldioara. – **42** Cuciulata. – **43** Börzönce. – **44** Domony. – **45** Árokto. – **46** Tiszakeszi. – **47** Michalovce. – **48** Bárca. – **49** Lucska. – **50** Tiszalúc. – **51** Vatta. – **52** Tibolddaróc. – **53** Novaj. – **54** Füzesabony. – **55** Kisterenye. – **56** Szécsény. – **57** Patvarc. – **58** Esztergom. – **59** Kamenin. – **60** Nyergesújfalu. – **61** Ghîrla Mare. – **62** Veselinovo. – **63** Plovdiv. – **64** Semlac. – **65** Piliny. – **66** Nemesnádudvar. – **67** Riekhofen-Kellnerfeld (Matuschik 1990). – **68** Aholming (unpubl.). – (Map J. F. Tolksdorf).

References

Bakker et al. 1999: J. A. Bakker / J. Kruk / A. E. Lanting / S. Milisauskas, The Earliest Evidence of Wheeled Vehicles in Europe and the Near East. Antiquity 73/282, 1999, 778-790.

Bondár 2012: M. Bondár, Prehistoric Wagon Models in the Carpathian Basin (3500-1500 BC). Archaeolingua, Series Minor 32 (Budapest 2012).

Burmeister 2004: S. Burmeister, Neolithische und bronzezeitliche Moorfunde aus den Niederlanden, Nordwestdeutschland und Dänemark. In: Fansa/Burmeister 2004, 321-340.

Drummer/Mischka 2014: C. Drummer / C. Mischka, Gradiometerprospektion einer linearbandkeramischen Großsiedlung bei Wallerstein. Das archäologische Jahr in Bayern 2014 (2015), 18-20.

Engelhardt 1998: B. Engelhardt, Der schnurkeramische Bestattungsplatz von Künzing-Ost, Lkr. Deggendorf. In: K. Schmotz (ed.), Vorträge des 16. Niederbayerischen Archäologentages (Deggendorf 1998) 71-98.

Fansa/Burmeister 2004: M. Fansa / S. Burmeister (eds), Rad und Wagen: der Ursprung einer Innovation. Archäologische Mitteilungen aus Nordwestdeutschland Beiheft 40 (Mainz 2004).

Friederich/Hoffmann 2013: S. Friederich / V. Hoffmann, Die Rinderbestattungen von Profen – mit Rad und Wagen. In: H. Meller (ed.), 3300 BC. Mysteriöse Steinzeittote und ihre Welt [exhibition catalogue] (Halle/Saale 2013) 83-84.

Hoppe 2002: M. Hoppe, Endneolithisch-frühbronzezeitliche Siedlungen am Maindreieck in Unterfranken. Berichte der bayerischen Bodendenkmalpflege 41/42, 2002, 57-72.

Kaufmann 1997: D. Kaufmann, Eine Opfergrube der Bernburger Kultur von Quenstedt, Ldkr. Mansfelder Land. Jahresschrift für mitteldeutsche Vorgeschichte 79, 1997, 149-180.

Klimscha 2017: F. Klimscha, Transforming Technical Know-how in Time and Space. Using the Digital Atlas of Innovations to Understand the Innovation Process of Animal Traction and the Wheel. eTopoi. Journal for Ancient Studies 6, 2017, 16-63.

Loerper/Jockenhövel/Dirksen 2008: L. Loerper / A. Jockenhövel / D. Dirksen, Re-inspection of the Megalithic Art of the Gallery-grave at Züschen/Lohne, Germany, with Optical 3D Measurement Techniques. In: A. Posluschny / K. Lambers (eds), CAA2007 – Layers of Perception. Proceedings of the 35th International Conference on Computer Applications and Quantitative Methods in Archaeology (CAA). Kolloquien zur Vor- und Frühgeschichte 10 (Bonn 2008) 1-5.

Lutz/Kopecky-Hermanns/Zach 2013: P. Lutz / B. Kopecky-Hermanns / B. Zach, Eine große bandkeramische Siedlung mit Grabenwerk bei Wallerstein. Das archäologische Jahr in Bayern 2013 (2014), 16-28.

Mansfeld 2013: G. Mansfeld, Der Held auf dem Wagen. Archäologische Belege zur technischen Entwicklung des Wagens (Ruhpolding, Mainz 2013).

Maran 2004: J. Maran, Die Badener Kultur und ihre Räderfahrzeuge. In: Fansa/Burmeister 2004, 265-282.

2017: J. Maran, Wheels of Change: The Polysemous Nature of Early Wheeled Vehicles in 3rd Millennium BCE Central and Northwest European Societies. In: P. Stockhammer / J. Maran, Appropriating Innovations. Entangled Knowledge in Eurasia, 5000-1500 BCE (Oxford 2017) 109-121.

Matuschik 1990: I. Matuschik, Die neolithische Besiedlung in Riekofen-»Kellnerfeld«: Beiträge zur Kenntnis des Spätneolithikums im südlichen Bayern [Diss. Univ. Freiburg i. Br. 1990 (Mikrofiche-Publ.)].

Milisauskas/Kruk 1982: S. Milisauskas / J. Kruk, Die Wagendarstellung auf einem Trichterbecher aus Bronocice in Polen. Archäologisches Korrespondenzblatt 12, 1982, 141-144.

Mischka 2010: D. Mischka, Flintbek LA3, Biography of a Monument. Journal of Neolithic Archaeology 12/2, 2010. DOI: 10.12766/jna.2010.43.

2011: D. Mischka, The Neolithic Burial Sequence at Flintbek LA 3, North Germany, and its Cart Tracks: A Precise Chronology. Antiquity 85/329, 2011, 742-758. DOI: 10.1017/S0003598X00068289.

Müller et al. 2009: J. Müller / T. Seregély / C. Becker / A.-M. Christensen / M. Fuchs / H. Kroll / D. Mischka / U. Schüssler, A Revision of Corded Ware Settlement Pattern – New Results from the Central European Low Mountain Range. Proceedings of the Prehistoric Society 75, 2009, 125-142.

Schlichtherle 2004: H. Schlichtherle, Wagenfunde aus den Seeufersiedlungen im zirkumalpinen Raum. In: Fansa/Burmeister 2004, 295-314.

2010: H. Schlichtherle, Als die ersten Räder rollten… Räder der Jungsteinzeit aus dem Olzreuter Ried bei Bad Schussenried. Denkmalpflege in Baden-Württemberg 39/3, 2010, 140-144.

Seregély 2004: T. Seregély, Radmodell und Votivaxt – außergewöhnliche Funde der Kultur mit Schnurkeramik von der Nördlichen Frankenalb. In: Fansa/Burmeister 2004, 315-320.

Spennemann 1984: D. Spennemann, Ein tönernes Radmodell aus dem späten Jungneolithikum Süddeutschlands? Germania 62, 1984, 55-61.

Vosteen 1999: M. U. Vosteen, Urgeschichtliche Wagen in Mitteleuropa. Eine archäologische und religionswissenschaftliche Untersuchung neolithischer bis hallstattzeitlicher Befunde. Freiburger Archäologische Studien 3 (Rahden/Westf. 1999).

Zusammenfassung / Summary / Résumé

Ein Paar Miniaturräder aus Ton aus einer Kinderbestattung der Schnurkeramischen Kultur bei Wallerstein (Lkr. Donau-Ries/D)

Paarig aufgefundene durchlochte Tonscheiben mit einer deutlich ausgeprägten Radnabe aus einer Kinderbestattung bei Wallerstein (Lkr. Donau-Ries, südwestliches Bayern) stellen mit sehr hoher Wahrscheinlichkeit ein Paar Miniaturräder dar und können der Schnurkeramik zugeordnet werden. Während vergleichbare Funde aus Ton und Holz nur sehr selten und stets ohne klaren Kontext in Süddeutschland gefunden wurden, gewähren diese Neufunde nun einen neuen Einblick in die mögliche Bedeutung und den Gebrauch von Miniaturrädern während des Endneolithikums/Chalkolithikums. In größerer Anzahl treten vergleichbare keramische Miniaturräder und überwiegend vierrädrige tönerne Miniaturwagen im Karpatenbecken während des 4. und 3. Jahrtausends v. Chr. auf. Gelegentlich kommen sie hier in Gräbern vor und werden meist einem symbolischen oder kultischen Zusammenhang zugeschrieben. Für das Miniaturräderpaar aus Wallerstein ist hingegen im Kontext einer Kinderbestattung und unter Berücksichtigung des Fehlens anderer Hinweise auf Wagen und Räder in zeitgleichen Bestattungen auch ein profaner Kontext im Sinne eines Spielzeugs zu bedenken.

A Pair of Miniature Clay Wheels from an Infant Burial Ascribed to the Corded Ware Culture Near Wallerstein (Lkr. Donau-Ries/D)

A pair of pierced clay discs with a clearly formed nave found in an infant burial near Wallerstein (Lkr. Donau-Ries, southwestern Bavaria) evidently represents a pair of miniature wheels and can be ascribed to the Corded Ware Culture. Whereas comparable artefacts of clay and wood in Southern Germany have been found extremely rarely and always without a secure context, these new finds now offer a fresh insight into the possible meaning and use of miniature wheels during the Endneolithic/Chalcolithic period. During the 4th and 3rd millennia BC similar clay miniature wheels and usually four-wheeled clay miniature wagons occur in larger numbers in the Carpathian Basin. There they occasionally appear in graves and are mainly attributed with a symbolic or ritual connection. However, found within the context of an infant burial and with regard to the general absence of other indications for wagons or wheels in contemporary burials, for the pair of miniature wheels from Wallerstein a profane explanation in the sense of a toy should also be considered.

Une paire de roues miniatures en terre cuite provenant d'une sépulture d'enfant attribuée au Cordé à Wallerstein (Lkr. Donau-Ries/D)

Une paire de disques perforés en terre cuite avec un moyeu bien marqué, provenant d'une sépulture d'enfant de Wallerstein (Lkr. Donau-Ries), représente certainement une paire de roues miniatures qui peuvent être attribuées à la Céramique cordée. Alors que des objets similaires en terre cuite ou en bois sont peu connus en Allemagne du Sud, et toujours sans contexte clair, ces nouvelles trouvailles permettent d'appréhender la signification possible et l'usage de ces roues miniatures durant le Néolithique final/Chalcolithique. Des roues miniatures comparables en céramique, et surtout des chariots miniatures à quatre roues, apparaissent en plus grande quantité dans le bassin des Carpates aux 4e et 3e millénaires av. J.-C. On les trouve ici parfois dans des tombes et les attribue alors à un contexte symbolique ou cultuel. A Wallerstein par contre, les roues miniatures reposant dans une sépulture d'enfant et aucun autre élément n'indiquant la présence de chariots ou de roues dans des sépultures contemporaines, on pourrait aussi envisager une fonction profane, celle d'un jouet.

Schlüsselwörter / Keywords / Mots clés

Schnurkeramik / Wagen / Räder / Miniaturräder
Corded Ware Culture / wagons / wheels / miniature wheels
Culture de la céramique cordée / chariots / roues / roues miniatures

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