

An Early Neolithic *Plättbolzen* from Nieuw-Milligen (prov. of Gelderland, NL)

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1. Introduction

This paper is in memory of Johannes Diderik van der Waals, who passed away on 18th May 2022. Specialised in Neolithic archaeology, he published over the years several groundbreaking and thought-provoking studies¹. There is, first of all, his dissertation from 1964 entitled 'Prehistoric disc wheels in the Netherlands', which focuses on Neolithic and Iron Age wooden wheels from the northern Netherlands. Although small in size with just over 100 pages of text, this manuscript was so appreciated by the promotion commission that Diderik – as he was usually called – obtained his doctorate *cum laude* at the State University of Groningen. The seminal nature of van der Waals' dissertation is expressed by the renown S. Piggott (1983: 49) as follows: 'an exhaustive and far-reaching study... on which all subsequent thinking has been based...'. To further illustrate van der Waals' influence, reference should be made to his Beaker studies, which he mainly conducted with J. N. Lanting. Their shared ideas culminated in a paper published in 1976 which has influenced and even dominated the debate about the origin of the Bell Beaker Culture for decades up to the present day (Lanting & van der Waals, 1976). They hold the view that Bell Beakers developed in the Lower Rhine Basin.

The impact Diderik van der Waals had in archaeology, is also apparent from his contribution to the inquiry into the Early and Middle Neolithic. Under his direction and that of H. T. Waterbolk several excavations near Swifterbant were carried out in the 1970s, their major results being the birth of a 'new' archaeological culture, the Swifterbant Culture, and a new chapter in the study on Neolithisation in the Netherlands and adjacent regions. D. van der Waals' contribution to this research into the earliest agricultural communities also manifests itself from a survey of two categories of Early Neolithic perforated stone wedges from Belgium and the Netherlands: the *durchlochten hohen Schuhleistenkeile* (perforated shoe-last adzes) and the *durchlochten Breitkeile* (perforated broad wedges). Since its appearance in 1972 several studies continue on this paper (e.g. Creemers *et al.*, 2021; Drenth & Lanting, In: Beuker *et al.*, 1992; Raemaekers *et al.*, 2011; Verhart, 2012a). In fact, the present contribution does as well. It discusses an Early Neolithic adze with a perforation perpendicular to the length axis that was found in the central Netherlands. Given its shape like (a part of) an instrument to iron, this type of artefact is commonly called *Plättbolzen* in German archaeological literature (e.g. Brandt, 1967; Lönne, 2003). This term will therefore also be used here. The artefacts dealt with in the aforementioned overview by van der Waals are evidently related to these *Plättbolzen* in having a cutting edge and a shaft hole. Also with respect to raw material there are clear resemblances, as a brief discussion below will show. The *durchlochten hohen Schuhleistenkeile* and the *durchlochten Breitkeile* are, however, perforated differently, namely parallel to the cutting edge.

The artefact that is central to this paper has already been published by one of us in an overview of Neolithic axes in the Dutch province of Gelderland, north of the river Rhine (Schut, 1991: 61, 125 (cat. no.1) and fig. 41: no.4; here, **Fig. 1a & 1b**). Nonetheless, the

1. An overview of his publications at the time of his retirement is given by Bierma (1986), an *in Memoriam* was written by van der Sanden (2022).



Fig. 1a – The *Plättbolzen* from Nieuw-Milligen-Mottenkuil. Scale: 2/3.

authors have decided to put the object in the spotlight once more by highlighting the raw material. Recent röntgen fluorescence analysis (XRF) sheds light on its provenance. The paper is structured as follows. The first section treats the find circumstances, followed by a description and typological classification of the object. Next, its age, cultural affiliation, raw material and provenance are the key issues. The final chapter discusses briefly the distribution of *Plättbolzen* within the Netherlands and abroad.

2. Find circumstances and collection

As already hinted at by the previous section, the *Plättbolzen* under discussion was found in centre of the Netherlands, specifically in the present-day municipality of Apeldoorn, located in the aforementioned province. The orange circle in **Figure 2** marks the findspot. K. van der Sluis came across the object on a terrain adjacent to the Mottenkuil, a dead ice hole, in 1967. The artefact subsequently ended up in the collection of B. J. van Rheenen, a well-known local amateur archaeologist.

The object is currently a part of the Museum Nairac collection, which is housed at Barneveld, after the archaeological and related items collected by B. J. van Rheenen were donated to

this museum in 2009². There, the *Plättbolzen* is listed as NR247, which corresponds to the find number that the aforementioned amateur archaeologist gave it.

3. Description and typology

The artefact discussed here measures 11.7 x 6.1 x 3.5 cm and weighs 428.7 g. A conical shaft hole (diameter c. 1.7-2.05 cm) is located centrally on the object's longitudinal axis. A prominent sheen, in all likelihood attributed to shafting and use, covers its wall. A similar gloss characterises, generally speaking, the ground surface of the implement. As **Figure 1** shows, flake negatives cover the remainder, which is a substantial part of the object. These negatives all start from the cutting edge. One of them even reaches as far as the shaft hole, leaving there a clearly defined surface depression. The overall impression is that the artefact should be regarded an example of maintenance, or rather of reuse (see in this connection Schiffer, 1987: chapter 3). Anyway, more important in the present framework is that apparently a kind of artefact was pursued which is archaeologically well-known and typologically recognised. Brandt (1967: section I.4) *e.g.* labels this artefact type as *Plättbolzen*³.

One of the characteristics of *Plättbolzen* which Brandt (*ibidem*: 11) mentions are the (usually strongly) arched top and flat bottom. The Nieuw-Milligen-Mottenkuil artefact shows the beginning of such a planoconvex cross-section (**Fig. 1b**). This drawing also reveals that in cross-section the sides differ substantially in shape. One is domed, the other more or less flat. Judging from the published pictures this is typical of *Plättbolzen*. By contrast, a cross-section with one side domed and the other flat is frequently encountered in perforated wedges (*e.g.* Kaufmann, 2020: volume 72/VI; Raemaekers *et al.*, 2011; van der Waals, 1972). These shape reflect the method of making (Kaufmann, 2020: volume 72/V: chapter 8). Usually, after initial shaping by pecking, possibly preceded by flaking, a piece of rock which was to be transformed into a perforated wedge was sawn in half with a stone plate. As a result, one side, the saw cut, has a straight cross-section, while the second one is convex.

Based on the above, the most obvious conclusion is that the object from Nieuw-Milligen-Mottenkuil is a (presumably broken) perforated wedge recycled into a *Plättbolzen*. This interpretation is to some degree consistent with the views held by Louwe Kooijmans (2010: 206, note 29). In his opinion the object is a broken perforated wedge, which was at the end of its (use) life. Instead, we would like to emphasise that the reworking of the object signifies the beginning of a new life. This renewal took the shape of an item which is nowadays classified as a *Plättbolzen* in archaeological typology. From that perspective this typological label is completely justified and a classification as a (broken) perforated wedge is incorrect.

Although the present artefact must be labelled a *Plättbolzen*, it is without a doubt an unfinished one. A finished product would have had a sharpened, ground cutting edge. Despite its semi-finished state, the artefact is immediately identifiable as a *Plättbolzen* of variant b in Brandt's typological subdivision (Brandt, 1967: 11). Typical characteristics include a thick, clear-cut neck, a tongue-shaped edge, a shaft hole located close to the neck

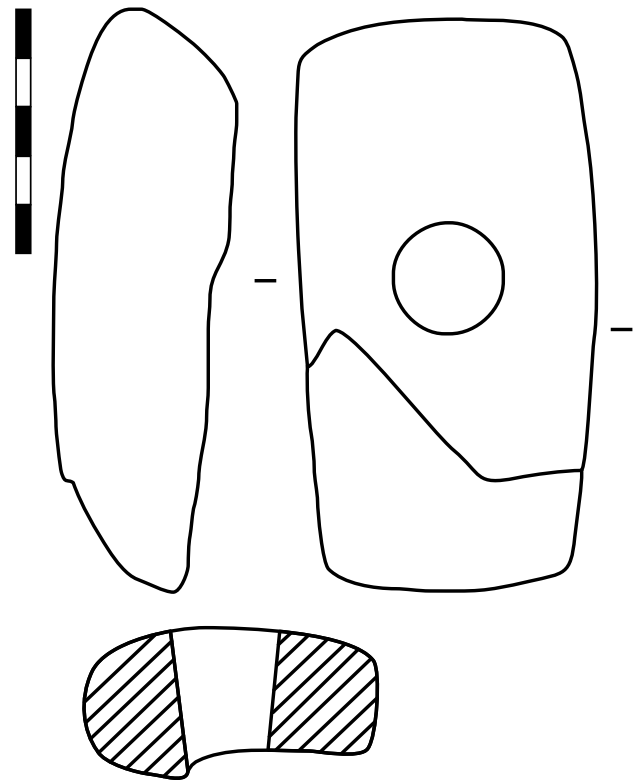


Fig. 1b – The *Plättbolzen* from Nieuw-Milligen-Mottenkuil. Scale: 2/3.

2. Diderik van der Waals was employed as a curator of this museum from 1951 to 1966. Afterwards he became a honorary curator, although we don't know until when.

3. Kaufmann (2020, volume 72/V: chapter 4) prefers a different nomenclature: *breite, dickblattige, senkrecht durchlochte Dechsel*. Hoof (1970: 73) uses a similar typological label, *senkrecht durchbohrter Keil*.

end, and the largest thickness usually located at the perforation. The second subtype, variant a, is double-edged, the largest thickness being at the perforation and the curved surface sloping down to both ends. Brandt (*ibidem*) distinguishes a third form – designated by us as variant c – which he prefers to see as a slender version of variant a.

4. Dating and cultural affiliation

This section starts with the reiteration that the Nieuw-Milligen-Mottenkuil *Plättbolzen* is a surface find. That seriously hampers the object's dating, as the original context remains out of sight. Likewise, it remains to be seen to what extent archaeological relicts that also come the same terrain are useful chronological indications. They appear not to be confined to one specific period, let alone to the same archaeological culture. One of the possibly contemporary accompaniments is a stone adze in *Kieselgeode*, which might date from the Early Neolithic B in the Dutch archaeological periodisation⁴. That is the time span ranging from c. 5000 to 4200 BC. Because the closed association of this object and the *Plättbolzen* has not been established, the adze is at most circumstantial chronological evidence.

The above implies that the age of the *Plättbolzen* under discussion must be determined on typo-chronological grounds. Similar from present-day Dutch territory do, however, not provide sufficient dating information. Their number is low, and the majority are known as stray finds (*cf.* Jager, 1981: 242). That is why chronological findings abroad are taken into account to sketch a general chronological picture.

Judging from the current archaeological record for northwestern continental Europe, *Plättbolzen* made their earliest appearance in Linear Pottery Culture (LBK, an abbreviation of the German term *Linearbandkeramik*) contexts (Hoof, 1970: 78, 166; with further references). The first *Plättbolzen* came thus into vogue in the Netherlands during the Early Neolithic A, which must be placed between c. 5225 and 5000 BC, according to Lanting & van der Plicht (1999/2000). Although it cannot be completely ruled out that the Nieuw-Milligen-Mottenkuil *Plättbolzen* originates from the final quarter of the sixth millennium BC, a younger age is more likely. The reason to assume this is that the *Plättbolzen* is, as argued before, a recycled perforated wedge. The latter kind is especially known within Europe from the period between c. 5000 and 4200 BC (Kaufmann, 2020: volume 72/V: chapter 10; Raemaekers *et al.*, 2011: section 1.3). As noted before, this time span is synonymous with the Early Neolithic B, according to the periodisation of Dutch prehistory.

What, of course, is of great importance in this connection are several *Plättbolzen* discovered in a fifth millennium BC context (see the references quoted in the present paper). This is exemplified by a grave gift from burial 42 at Lingolsheim in the Lower Alsace, France (Lichardus-Itten, 1980: 153 & pl. 13.8). The burial belongs to a cemetery of the Grossgartach Group, a cultural group according to Lanting & van der Plicht (1999/2000: 19) datable to 5000-4700 BC.

Another issue is obviously the end date of *Plättbolzen*. Both Brandt (1967: 14-19) and Hoof (1970: 77-79) hold the view that this artefact type persisted into the Rössen period (4600-4300 BC, according to Lanting & Van der Plicht, 1999/2000). Their argument is the substantial overlap in distribution between *Plättbolzen* and Rössen sites. In addition, Brandt (1967: 16) draws attention to a *Plättbolzen* recovered from the surface at Langenfeld-Leverkusen in Germany, a site that has also yielded a *durchlochter Breitkeil* and Rössen pottery. As Brandt himself admits, this association is no conclusive evidence of the persistence of the *Plättbolzen* type into Rössen times. The same conclusion is arrived at by Lönne (2003: 179) in an overview study on the cultural groups Grossgartach, Planig-Friedberg and Rössen in the southern section of Lower Saxony (Germany), which represent the Middle Neolithic in German archaeology. She mentions the discovery of

4. It goes beyond the present scope to extensively discuss the age of this adze. It suffices here to mention that the youngest non-flint stone adzes from the Netherlands appear to be Early Neolithic B in age. Furthermore, it should be stressed that the object in question has a different appearance and is manufactured from another raw material than the usual adzes of the Linear Pottery Culture (see in this connection Bakels, 1987).

three *Plättbolzen* in this research area stemming from Middle Neolithic sites. Lönne emphasises that this does not necessarily mean that the *Plättbolzen* are Middle Neolithic, since the objects are all surface finds.

In his discussion of a specimen encountered during work on a potato harvester at Fochteloo in the Dutch province of Friesland, Jager (1981: 242-243) makes a slightly less reserved impression. From the already cited works of Brandt and Hoof, he infers that *Plättbolzen* were probably also in use during Rössen times. One find in particular is referred to: a hoard from Frankfurt an der Oder in Germany, encompassing a *Plättbolzen*, a *durchlochter Breitkeil* and a copper axe of the Gorica type, also referred to as type Pločnik (see in connection Diaconescu, 2014). In view of the latter object, Brandt (1967: 16) attributes this hoard to the Stroked Pottery Culture (German: *Stichbandkeramik*). According to Jager (1981: 242-243; after oral communication by A. E. Lanting) Gorica (*i.e.* Pločnik) type hammer axes are, however, diagnostic of the younger Tiszapolgar- and Bodrogkeresztur cultures. Based upon the copper hammer axe in tandem with the *durchlochte Breitkeil*, the Frankfurt hoard is therefore considered to date most likely from the late Rössen period or perhaps even the early Michelsberg period. At least if the *Plättbolzen*, the *durchlochte Breitkeil* and the copper hammer axe are indeed a closed find, as Jager (1981: 243) adds. Even if this is accepted, it does not imply that *Plättbolzen* were still common in Rössen times. A recent study by Diaconescu (2014) indicates that the Pločnik type hammer axes are to be dated between c. 4700-4300 BC. Similar temporal ideas has Klimscha (2014: 148-149), who places the first appearance of these hammer axes around 4700/4600 BC, whereas as a type they '... continue until at least the third quarter of the fifth millennium.' So, following the chronology by Lanting & van der Plicht (1999/2000) who have this cultural group last from 4600 to 4300 BC, the Frankfurt an der Oder hoard may still predate the Rössen Culture and belong to the Planig-Friedberg horizon (4700-4600 BC, according to the former scholars). For the sake of clarity, the *durchlochte Breitkeil* cannot play a decisive role in this chronological debate. This kind of artefacts covers a long time span, from the very beginnings of the fifth millennium until the third quarter of this millennium (Kaufmann, 2020: 72/V, chapter 10); Raemakers *et al.*, 2011: section 1.3)⁵.

In conclusion, judging from typo-chronological indications, there is a good chance the *Plättbolzen* from Nieuw-Milligen-Mottenkuil dates somewhere between 5000 and 4600 BC. However, a broader chronological range remains possible, with 5225 and 4200 BC as the most plausible lower and upper limits.

As far as the present artefact and its cultural affiliation are concerned, there are no clear indications. One of the more plausible scenarios is that the native Swifterbant Culture – at the time still hunter-gatherers? – obtained the item directly or indirectly from early farmers in the south or southeast. The next two sections about raw material as well as provenance and the distribution of *Plättbolzen* support this vision.

5. Raw material and provenance

The raw material of the Nieuw-Milligen-Mottenkuil *Plättbolzen* consists of stone in which macroscopically darker and lighter bands are clearly discernible. They have a slightly wavy pattern and attest to foliation. This banding occurred during metamorphism, in which dark minerals composed mainly of iron-rich aluminosilicates separated from light minerals perpendicular to the direction of pressure. The latter will be composed mostly of feldspar, in this case plagioclase. This banding is again slightly folded, which means that after the formation of the banding, the rock underwent another or even more phases of folding and stretching when the rock was still warm. No grains can be distinguished with the naked eye, nor are any firstlings (phenocrysts), which is called an aphanitic structure in geology. Such a texture is typical of amphibolite, which is usually formed by the metamorphism of basic

5. As an aside and an issue beyond the present scope, the question emerges to what extent *durchlochte Schuileistenkeile* and *durchlochte Breitkeile* are two sides of the same coin, the morphological variation resulting from use and resharpening.

SiO ₂	%	47
CaO	%	6.10
P ₂ O ₅	%	0.776
K ₂ O	%	0.617
Al ₂ O ₃	%	4.94
TiO ₂	%	3.86
Fe ₂ O ₃	%	14
MnO	%	0.329
MgO	%	7.16
Ba	%	23
S	%	0.542
Zn	mg/kg	263
Cu	mg/kg	49
Co	mg/kg	137
Pb	mg/kg	8.06
Cr	mg/kg	659
Zr	mg/kg	434
Sr	mg/kg	56
Rb	mg/kg	2.54
As	mg/kg	9.37
Ba	mg/kg	365
V	mg/kg	502
Ni	mg/kg	231

Tab. 1 – Composition of the *Plättbolzen* from Nieuw-Milligen-Mottenkuil as measured by XRF.

rocks like basalt, diorite, and gabbro. The darker minerals usually consist of iron-rich amphibolites, and in the present case probably ilmenite.

A portable XRF apparatus (Niton XI3t GOLDD) was used to determine the chemical composition. The measurement time was 110 seconds, and measurements were made using the method mining. This method measures light, low, general, and heavy elements with four different settings. As for the light elements (from magnesium atomic number 12 to the element potassium atomic number 19), the element concentrations are only representative of the surface of the object. Any weathering where minerals are dissolved therefore mainly affects the concentration of these elements. The other elements are measured deeper in the object and are therefore less affected by surface effects.

Table 1 presents the averages of the measurements. Although major light element concentrations are not very accurate, it is clear that the *Plättbolzen* from Nieuw-Milligen-Mottenkuil can also be characterised as a metamorphic mafic rock type by its high Fe₂O₃ and MgO content and very low K₂O and Rb content. The high concentration of CaO indicates that the lighter parts of the rock are plagioclase. The darker phases are most likely iron rich amphibole and ilmenite, as indicated by the TiO₂ content. Future research by XRD or thin section analyses can verify this.

Amphibolite artefacts from the fifth millennium BC with a composition similar to the artefact central to this paper have come to light in large parts of Europe; they include an adze from Belgium and several perforated wedges and a *Scheibenkeule* from the Netherlands (see the paper by Drenth *et al.* about a lithic find from Hamont in the current issue of *Notae Praehistoricae*)⁶. According to Christensen *et al.* (2006), the raw material of which these objects are made should be called actinolite hornblende slate (AHS) because of its fine-grained nature. Its source seems located in the contact aureole of the Tanvald granite near Jablonec nad Nisou in the Sudetes in the Czech Republic,

where several remains of prehistoric mining of hornrock amphibolite have been found (Bernardini *et al.*, 2012; Ramminger & Šída, 2012; Šída & Kachlík, 2009). It is thought that this region is the source of many Neolithic amphibolite objects. The rock is characterised by relatively high levels of iron, calcium, magnesium, and titanium.

To conclude, the *Plättbolzen* under consideration closely matches other amphibolite finds by its petrographic description and chemical composition. All these finds are of the AHS type and were probably quarried or procured otherwise in the Sudetes, nowadays in the Czech Republic. It is dubious that the Nieuw-Milligen-Mottenkuil *Plättbolzen* is made of raw material coming from a primary geological context, as the natural surface that partially covers the neck of the object is rounded off.

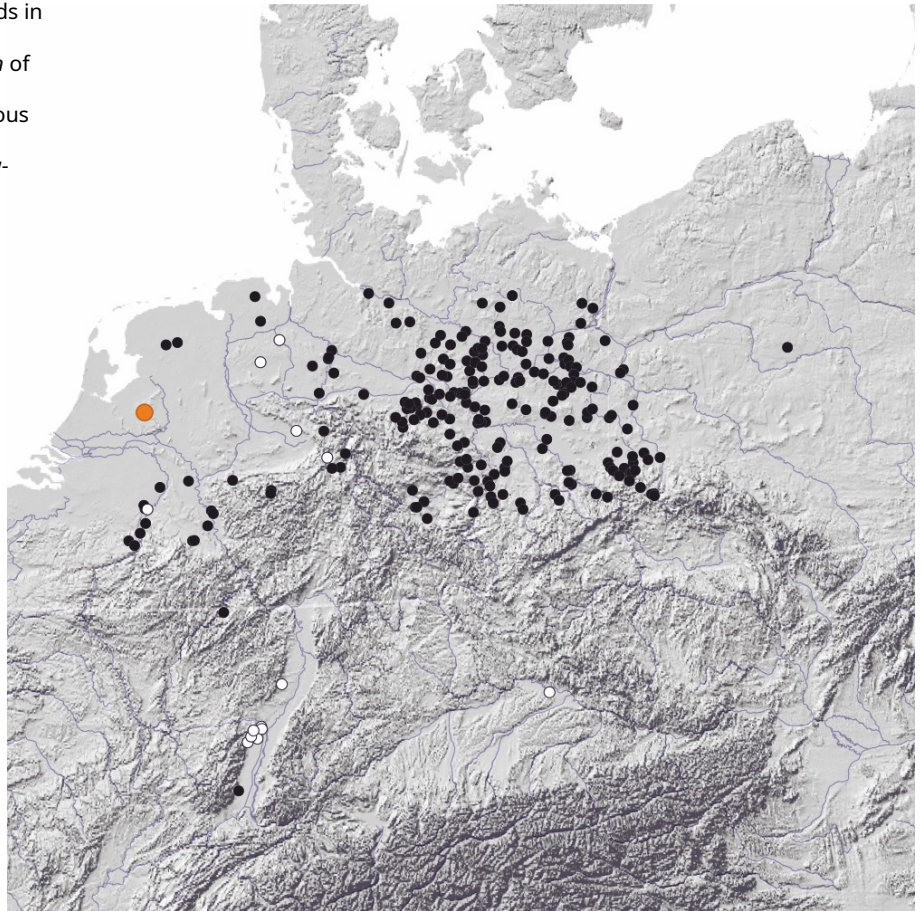
6. The distribution of *Plättbolzen*

As noted before, *Plättbolzen* have rarely come to light in the Netherlands. Getting insight into the overall distribution of these artefacts within Europe is far from easy. One of the major problems are the differences in typological nomenclature (see above), making it sometimes hard to ascertain that an object is a 'real' *Plättbolzen*. Furthermore, it is not always clear which variant it concerns. **Figure 2** must therefore be seen as an indicative map instead of a high-precision distribution map, all the more since it is based upon a literature inventory⁷.

6. All have relatively high TiO₂ concentrations (3-6 %) and very low Rb contents (2-6 ppm). In addition, Ni (106-398 ppm) and Cr (157-659 ppm) are relatively high in these objects, indicating the mafic nature of the rock.

7. The main sources for this map are: Brandt, 1967; Hoof, 1970, Creemers *et al.*, 2021; Kaufman, 2022; Wetzel & Beran 2023. Other publications that were consulted include: Clemens *et al.*, 1997: 342; Freigang, 2001: 51; 2005: 61, 76; Ismael-Weber, 2017: 79; Jager, 1981; Klassen, 2004: 2.7; Verhart, 2012b.

Fig. 2 – Distribution of *Plättbolzen* finds in northwestern continental Europe. Black circles = findspots of *Plättbolzen* of type a, b, or c; Open circles = findspot of unambiguous examples of type c; Orange circle = findspot of the Nieuw-Milligen-Mottenkuil *Plättbolzen*.



Furthermore, the map mainly displays the distribution north of the line Maastricht – Erfurt – Dresden. Detailed information with respect to the region south and east of this line was not sufficiently available, including the supposed provenance area⁸. Nevertheless, it appears that the majority of the finds originate from the area east of Hannover. To the west, their number decreases towards the Netherlands.

Lastly, **Figure 2** includes *Plättbolzen* designated by us as variant c, having as characteristics a very slender form and two cutting edges. Its overall distribution is poorly known, although it appears to coincide in space at least partially with the other *Plättbolzen*. A concentration of variant c is situated in the German-French border area near Strasbourg⁹, whereas specimens of variant c have been discovered as far as southwest France¹⁰.

8. Thanks are due to Dr P. Burgert (Institute of Archaeology, Czech Academy of Sciences, Prague, Czech Republic) and Prof. Dr A. Přichystal (Department of Geological Sciences, Masaryk University, Brno, Czech Republic), who pointed out that several finds of *Plättbolzen* have been made in the Czech Republic, but they are still awaiting a systematic inventory and publication.

9. Lefranc *et al.*, 2014.

10. Barrouquère *et al.*, 2003: fig. 4. It concerns a find from Bétan-Houac (Beylongue).

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Abstract

This paper discusses a unfinished *Plättbolzen*, a perforated adze in stone, that was found at Nieuw-Milligen (province of Gelderland) in the central Netherlands. It was found accidentally near a dead ice hole named De Mottenkuil. The stone artefact is an example of repair or reuse, being either a reworked larger *Plättbolzen* or, judging from the cross-section, rather a recycled perforated shoe-last adze or perforated broad wedge. By absence of contextual evidence, the age of the artefact must be determined on typo-chronological grounds. A date somewhere between c. 5000-4200 BC (Early Neolithic B, according to the periodisation of Dutch prehistory) is likely. The Nieuw-Milligen *Plättbolzen* is made of amphibolite. More specifically, its petrography and chemical composition, as established by XRF, indicate that the raw material consists of actinolite hornblende slate. The object may therefore very well be an import from the east, as this material was quarried in or procured from the northern part of the Czech Republic during the fifth millennium BC. It is dubious that the Nieuw-Milligen *Plättbolzen* is of stone coming from a primary geological context, since the natural surface that partially covers the neck of the object is rounded off. *Plättbolzen* have rarely come to light in the Netherlands. It is difficult to gain insight into their overall distribution within Europe. In the present framework, the distribution north of the line Maastricht – Erfurt – Dresden was examined in more detail; detailed information with respect to the region south and east of this line was not sufficiently available, including the supposed provenance area. It appears that the majority of the finds originate from the area east of Hannover. To the west, their numbers decrease towards the Netherlands.

Keywords: Nieuw-Milligen (prov. of Gelderland, NL), Early Neolithic B (according to Dutch periodisation), *Plättbolzen*, perforated adze, raw material, reuse.

Samenvatting

Dit artikel bespreekt een onvoltooide *Plättbolzen*, een doorboorde dissel van steen, die is gevonden te Nieuw-Milligen (provincie Gelderland) in Midden-Nederland. Het object is bij toeval gevonden op een terrein langs een doodijsgat genaamd De Mottenkuil. Het stenen artefact is een voorbeeld van hergebruik. Het is een bijgewerkte *Plättbolzen*, of, gelet op de dwarsdoorsnede, eerder een gerecyclede doorboorde schoenleestwig of een doorboorde brede wig. Bij gebrek aan contextuele aanwijzingen moet de ouderdom van het artefact op typo-chronologische gronden worden vastgesteld. Een datering ergens tussen ca. 5000-4200 v.Chr. (Vroeg-Neolithicum B, volgens de periodisering van de Nederlandse prehistorie) is waarschijnlijk. De onderhavige *Plättbolzen* is gemaakt van amfiboliet. Meer specifiek geven de petrografie en de chemische samenstelling ervan, zoals vastgesteld door XRF, aan dat de grondstof bestaat uit *Aktinolith-Hornblende-Schiefer*. Het object kan daarom heel goed een import uit oostelijke streken zijn, aangezien dit materiaal tijdens het vijfde millennium voor Christus werd gewonnen of verkregen uit het noordelijke deel van de huidige Tsjechische Republiek. Overigens is het twijfelachtig of de hier besproken *Plättbolzen* van grondstof uit een primaire geologische context is gemaakt. Het natuurlijke oppervlak dat de nek van het object gedeeltelijk bedekt, is afgerond. *Plättbolzen* zijn in Nederland zelden aan het licht gekomen. Het is lastig om inzicht te krijgen in de algehele verspreiding van deze objecten binnen Europa. In het huidige raamwerk is de verspreiding ten noorden van de lijn Maastricht – Erfurt – Dresden nader onderzocht; gedetailleerde informatie met betrekking tot de regio ten zuiden en ten oosten van deze lijn was niet voldoende beschikbaar, inclusief het vermoedelijke herkomstgebied. Het blijkt dat het merendeel van de vondsten afkomstig is uit het gebied ten oosten van Hannover. In het westen neemt hun aantal richting Nederland af.

Trefwoorden: Nieuw-Milligen (prov. of Gelderland, NL), vroeg-neolithicum B (volgens de Nederlandse periodisering), *Plättbolzen*, verticaal doorboorde dissel, grondstof, hergebruik.

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