

Glass La Tène Bracelets in the Lower Rhine Region

Typology, Chronology and social Interpretation

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Introduction¹

For several decades now the Lower Rhine region has been conspicuous within the western and central European La Tène cultural area for its high incidence of what we know as glass La Tène bracelets (*Fig. 1*). The first inventory by Peddemors yielded over 300 fragments for the Netherlands, while the next by Roymans and Rooijen came to more than 2,000 items². A recent update by Verniers has brought the total to in excess of 4,000 items³. This means that the Lower Rhine region – with the eastern part of the Dutch Rhine / Meuse delta as its core – now has the greatest density of glass arming finds within all of western



Fig. 1. Fragments of glass La Tène bracelets from the Dutch river area. – No scale.

¹ The authors wish to thank Jaap Fokkema and Bert Brouwenstijn (VU University Amsterdam) for their help in supplementing the database and preparing the illustrations presented here. Our

thanks also go to Annette Visser of Wellington New Zealand for translating the Dutch text.

² PEDDEMORS 1975; ROYMANS / VAN ROOIJEN 1993.

³ VERNIERS 2006.

and central Europe. This comes as even more of surprise when we consider that the region is generally regarded as being on the periphery of the La Tène culture.

The astonishing concentration of glass bracelets in this region raises a host of questions. What can account for such a dense pattern of distribution? What kind of archaeological contexts are the bracelets found in? Were they imported from more southerly regions, or produced for the most part in the region itself? If so, what evidence is there for this? What do we know about the social use of these bracelets and their role as identity markers? And how should we understand the abrupt halt to their circulation in the earliest Roman period? We will address all these questions below and will attempt to come up with answers based on the evidence now available. But first we will present a brief description of the dataset and its structure in terms of spatial distribution, typology and chronology. We will then look at a number of social themes: the evidence for local production, the exchange of bracelets and their role in identity construction. And lastly, the concluding discussion will place the Lower Rhine material in a broader European context and will suggest avenues for future research.

The evidence

Underpinning this study is a project launched in 1992 to inventorise glass bracelets in the Netherlands. Each fragment was entered individually into a database that included information about type, colour, find spot, archaeological context and collection. The database now contains 4,539 glass fragments⁴ and has been further supplemented with published finds from neighbouring regions of Germany (544 items) and Belgium (137 items)⁵.

The vast bulk (more than 90 %) of the Dutch material is made up of stray surface finds collected from fields by amateur archaeologists. Numerous private glass collections have sprung up over the years and we have made an inventory of the largest of them⁶. Only a small proportion of the finds come from archaeological excavations. The large ratio of stray surface finds makes it difficult to ascertain the archaeological contexts in which the bracelets occur in the soil. However the excavated material comes mainly from settlements, and we can assume that the same is true of most of the stray surface finds from amateur archaeologists. A strikingly small percentage originates from funerary contexts, but this is partly due to the general scarcity of Late Iron Age cemeteries in our region (see below)⁷.

⁴ Not included are approx. 1000 arming fragments from the Dutch river region that have not yet been inventoried, which would bring the total to more than 5000 pieces. This material is held in private collections; see note 6.

⁵ For the German Lower Rhine region and Westphalia, see the recent inventories of SEIDEL 2005; IDEM 2008; DEITERS 2008; JOACHIM 2005; WAGNER 2006. For Belgium, see COSYNS 2003.

⁶ We wish to thank the many amateur archaeologists who have cooperated willingly and enthusiastically with this study. In particular, we would like to mention Hein Jansen (Wijchen), Piet de Poot and Gerard Smits (Oss), Ben Elberse (Bunnik), Marc Ruijters (Echt), Roel van Zeelst and Fredo

van Berkel (Ammerzoden). The large private collection (more than 2000 glass fragments) belonging to the late Hein Jansen from Wijchen has since been purchased by the Valkhof Museum in Nijmegen. Yet to be inventoried is the material from Otto Uyttewaal's collection (Houten), and in part from Gerard Smits' collection (Oss). We would also like to thank Peter van den Broecke (Archeologische Dienst Gemeente Nijmegen) and Jan van Renswoude (ACVU-HBS) for information about arming fragments from excavations at Oosterhout-Van Boetzelaerstraat and Geldermalen-Hondsgemet.

⁷ Cf. ROYMANS 2007, 312 and fig. 1.

The large numbers of glass bracelets found in the area are the result of several factors and not just a direct reflection of intensive use by the region's inhabitants. These factors include a fairly high settlement density, especially in the eastern half of the Dutch river delta, and the fact that find layers from the Late Iron Age often outcrop in this holocene landscape, thereby creating favourable search conditions for amateur archaeologists. The large-scale presence of bracelets is also related to their fragility and to what people did with broken examples. These seem to have been discarded in large numbers as settlement waste; there does not appear to have been a systematic practice of collecting and recycling glass.

General distribution pattern

Figure 2 presents a general picture of the distribution of La Tène glass fragments in the Lower Rhine area. We see dense concentrations in the eastern part of the Dutch river delta, the Meuse valley in Limburg and the lower Lippe in Germany. Set against these is the marginal appearance of bracelets in the Dutch / Belgian coastal zone, the area north of the Lower Rhine and the Lippe, as well as in northern France and the Trier area. *Figure 3* plots the find spots that have yielded more than 50 armring fragments. The core of the distribution area clearly corresponds to the holocene Dutch river delta of the Rhine and Meuse, with 20 of the total 22 find spots located there.

We believe that *Figures 2* and *3* together give a representative picture of the true glass bracelet distribution. However, we think that the number of find spots in the sandy land-

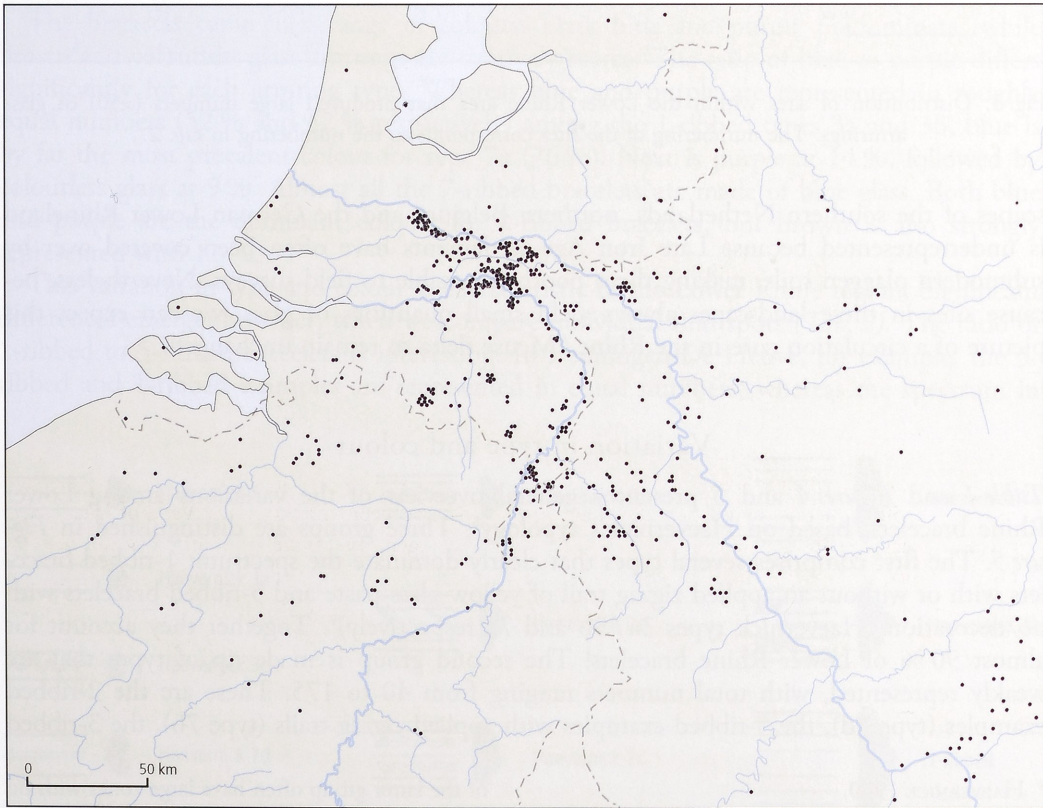


Fig. 2. General distribution of glass La Tène bracelets in the Lower Rhine region.

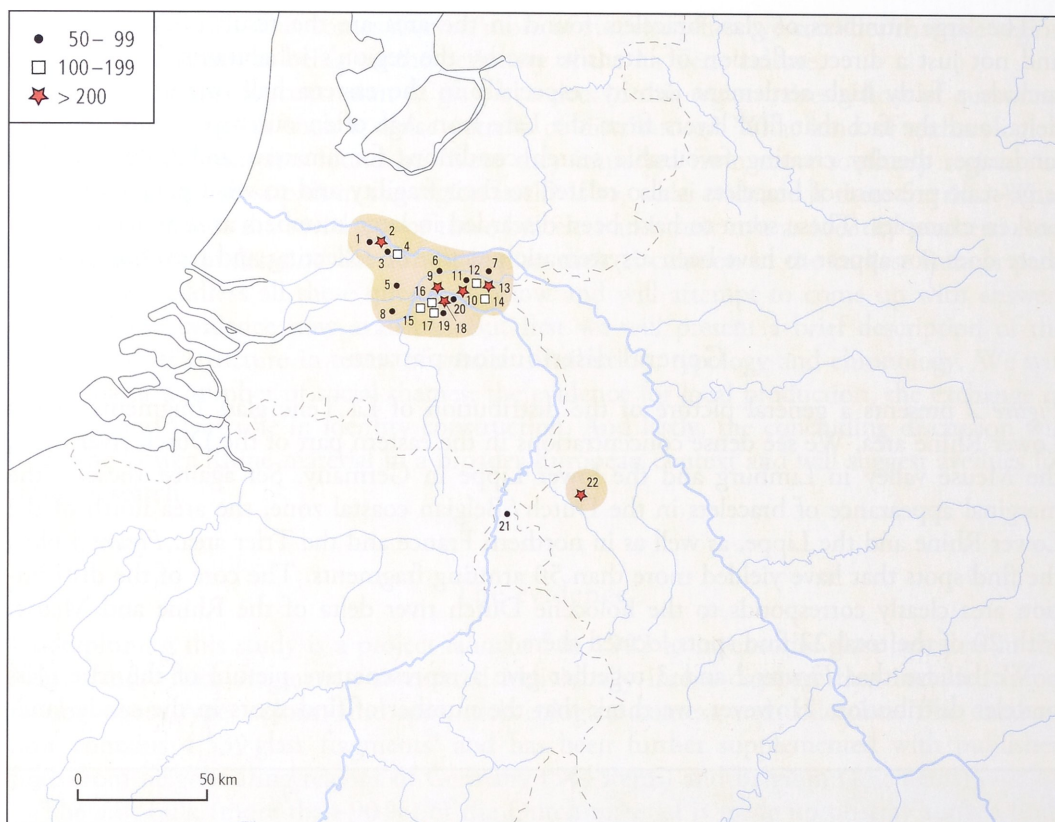


Fig. 3. Distribution of sites within the Lower Rhine area that produced large numbers (>50) of glass armrings. The numbering of the sites corresponds to the numbering in *tab. 2*.

scapes of the southern Netherlands, northern Belgium and the German Lower Rhineland is underrepresented because Late Iron Age settlements have often been covered over by submodern plaggen soils, making them poorly accessible to field surveys. Nevertheless, because sites in these landscapes always yield small quantities of glass, we can expect this picture of a circulation core in the Rhine / Meuse delta to remain unchanged.

Variation in type and colour

Table 1 and *Figures 4* and *5* present a general overview of the variations among Lower Rhine bracelets, based on Haevernick's typology⁸. Three groups are distinguished in *Figure 5*. The first comprises several types that clearly dominate the spectrum: 1-ribbed bracelets with or without an applied zigzag trail of yellow glass paste and 5-ribbed bracelets with no decoration (Haevernick types 3a/3b and 7a respectively)⁹. Together they account for almost 90 % of Lower Rhine bracelets! The second group is made up of types that are weakly represented, with total numbers ranging from 40 to 175. These are the 2-ribbed examples (type 7d), the 5-ribbed examples with applied zigzag trails (type 7b), the 3-ribbed

⁸ HAEVERNICK 1960.

⁹ The distinction between types 3a and 3b is of limited value for the Lower Rhine region as bracelets

of the latter group often have large zones with no applied glass trail. We therefore assume that many fragments of type 3a in fact belong to group 3b.

number of ribs	Haevernick type	number	%
1-ribbed (D-shaped cross-section), undecorated	type 3a	1281	29
idem, with applied zigzag trail	type 3b	1316	29
2-ribbed	type 7d	175	4
3-ribbed, with broad midrib, undecorated	type 6a	47	1
idem, with applied zigzag trail	type 6b	73	2
idem, with 3 identical ribs	type 6c	16	0.5
3-ribbed with an obliquely incised midrib	type 8a	15	0.5
5-ribbed, undecorated	type 7a	1303	29
idem, with applied zigzag trails	type 7b	141	3
7-ribbed	–	62	1
other		42	1
indeterminate		66	
total		4537	100 %

Tab. 1. Overview of the main armring types in the Netherlands and their relative proportions.

examples with or without a zigzag trail (type 6a, b, c), and the 7-ribbed bracelets. This latter variant was not yet known to Haevernick. Lastly, there is a third group of types that are rare in the Lower Rhine region, each represented by fewer than 20 examples. These are the 4-ribbed bracelets (type 7c) and those with an obliquely incised midrib (type 8a / 8c).

The bracelets came in a range of colours. Dark blue and purple predominate, while brown and colourless glass armrings are relatively scarce. The ratio of blue to purple differs significantly for each armring type. Whereas blue and purple are represented in roughly equal numbers (52 % and 42 % respectively) among the 1-ribbed types 3a and 3b, blue is by far the most prevalent colour for type 7a (76 %). Next is purple at 14 %, followed by colourless glass at 9 %. Almost all the 7-ribbed bracelets are made of blue glass. Both blue and purple are the dominant colours for 2-ribbed bracelets, but brown is also strongly represented with 11 %.

This variation in type and colour is characteristic of the Lower Rhine region. Significant differences emerge, however, when we compare individual find spots (*Tab. 2*). The ratio of 1-ribbed to 5-ribbed bracelets is interesting. In Beuningen-De Heuve, for example, the 5-ribbed and 1-ribbed examples are represented in equal numbers, whereas the spectrum in

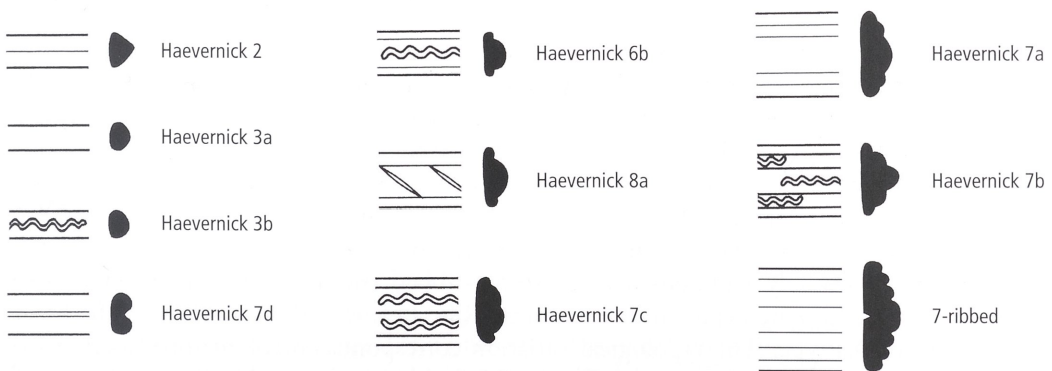


Fig. 4. Major armring types encountered in the Lower Rhine region. Typology after HAEVERNICK 1960.

	1-ribbed	2-ribbed	3-ribbed	4-ribbed	5-ribbed	7-ribbed	indet.	total
1. Houten-Loerik	47	2	–	–	4	–	–	53
2. Werkhoven- De Klaproos	228	14	6	–	21	–	57	326
3. Cothen-Kappelleweg	49	1	2	–	8	–	–	60
4. Cothen-De Dom	133	8	10	3	23	–	8	185
5. *Geldermalsen- Hondsgemet	42	4	3	–	–	–	1	50
6. IJzendoorn-Het Hof	54	3	6	–	30	–	–	94
7. *Oosterhout-Van Boetzelaerstraat	37	–	2	–	23	2	–	64
8. Bruchem-Broekseweg	68	2	3	–	15	–	–	88
9. Maasbommel- Kattenheuvels	141	11	7	1	44	1	–	205
10. Hernen-Wijnakker	135	6	9	–	58	5	–	213
11. Ewijk-Ewijkse Velden	31	1	2	–	21	2	–	57
12. Ewijk-Ooigraaf	52	3	6	–	39	1	–	101
13. Beuningen-De Heuve	175	8	11	1	198	8	–	401
14. Nijmegen- Bijsterhuizensestraat	89	7	8	–	66	7	–	178
15. Lith -Tussen de Stegen	96	7	3	1	40	1	–	148
16. Teeffelen-Rotsestraat	74	5	2	–	20	1	–	102
17. Teeffelen-De Honig	68	2	5	–	37	–	–	112
18. Macharen- Harensche Broek	149	6	–	–	60	1	–	216
19. Oss-Elzenburg	26	2	2	–	21	–	–	51
20. Deursen-Pachtkamp	25	6	2	–	26	–	–	60
21. Born	12	1	5	–	35	–	–	53
22. Erkelenz-Lövenich	70	9	23	4	78	28	–	212

Table 2. Specification of glass bracelets from sites in the Lower Rhine region that produced more than 50 fragments. The site numbers refer to the distribution map in *fig. 3*. * = excavated settlement

Werkhoven-De Klaproos is completely dominated by the 1-ribbed examples, and the 5-ribbed bracelets are of only marginal importance.

Figures 5 and 6 attempt to depict geographical differences within the Lower Rhine region. Five subregions are distinguished: the Kromme Rijn area, the eastern river region and the Meuse region of Limburg in the Netherlands, the German Lower Rhine area east of the Rhine, and Belgium. *Figure 3* shows regional differences in typological distribution. The Meuse region of Limburg and the German Rhine area present the same picture: The vast majority of bracelets are of the 5-ribbed type, and only about a quarter are of the 1-ribbed type. We see the reverse in the Dutch eastern river region, where 1-ribbed bracelets are much more strongly represented than their 5-ribbed counterparts. This latter trend is manifested to an extreme degree in the Kromme Rijn area, where about 80 % of the bracelets belong to this type. The typological variation corresponds to colour differences, particularly in the ratio of blue to purple (*Fig. 6*). While blue is the predominant colour in all regions, this applies to a greater degree in the Meuse region of Limburg and the German

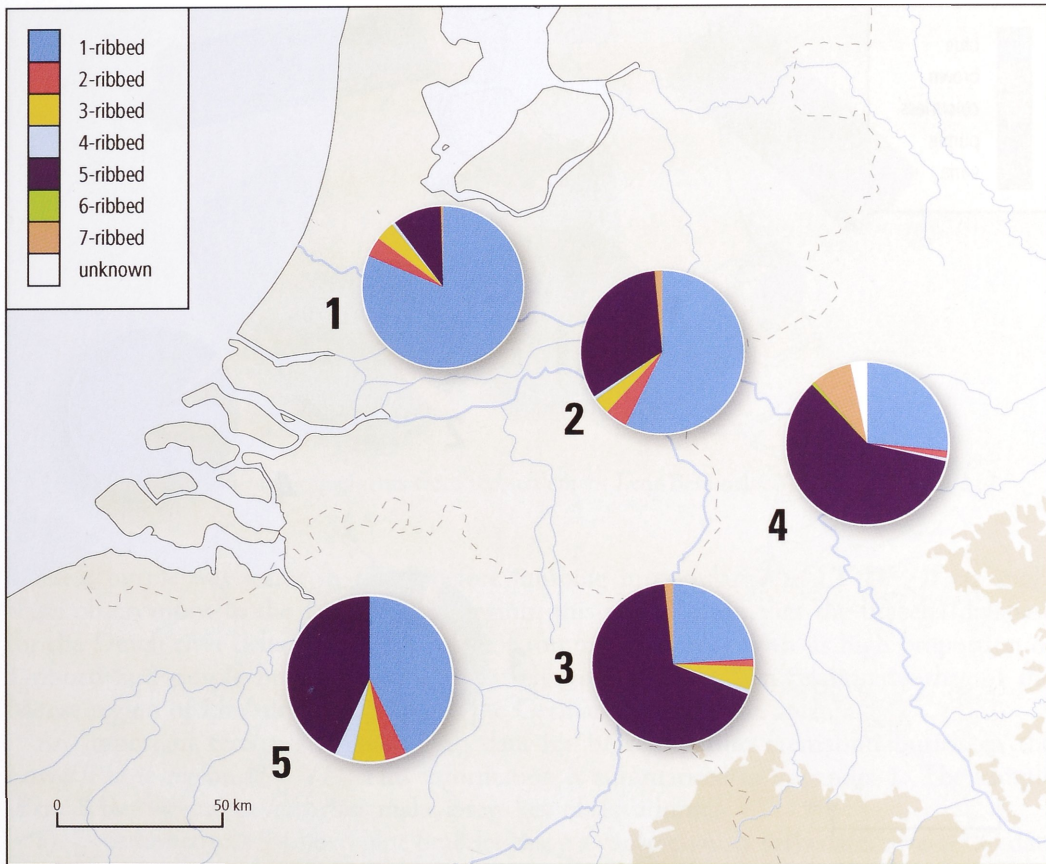


Fig. 5. Relative proportions of armring types in subregions within the Lower Rhine area. – 1 Kromme Rijn area. – 2 Dutch eastern river area. – 3 Limburg Meuse area. – 4 German Lower Rhineland east of the Rhine. – 5 Belgium.

Lower Rhine area east of the Rhine, where purple is only of marginal significance. The eastern river and Kromme Rhine areas on the other hand are characterised by a significant proportion (about 35 %) of purple bracelets. There appears to be a general geographical tendency: the further northwest you go towards the Rhine / Meuse delta, the higher the proportion of 1-ribbed bracelets and purple glass.

Chronology

As yet little is known about the relative and absolute chronologies of Lower Rhine bracelets. This is because the vast bulk of the material consists of stray surface finds, whereas material from settlement excavations often yields no accurate datings. Although bracelets from closed funerary contexts have much to tell us, there are still too few graves to establish a solid chronological framework. Nevertheless, we are able to draw some interesting conclusions from the data now available (*Fig. 7*).

The general chronology of La Tène bracelets, developed for central Europe, gives us our first lead, assuming that this is also relevant for the Lower Rhine region. The production of armrings began in LT C1a (the second quarter of the 3rd century BC) and went on to

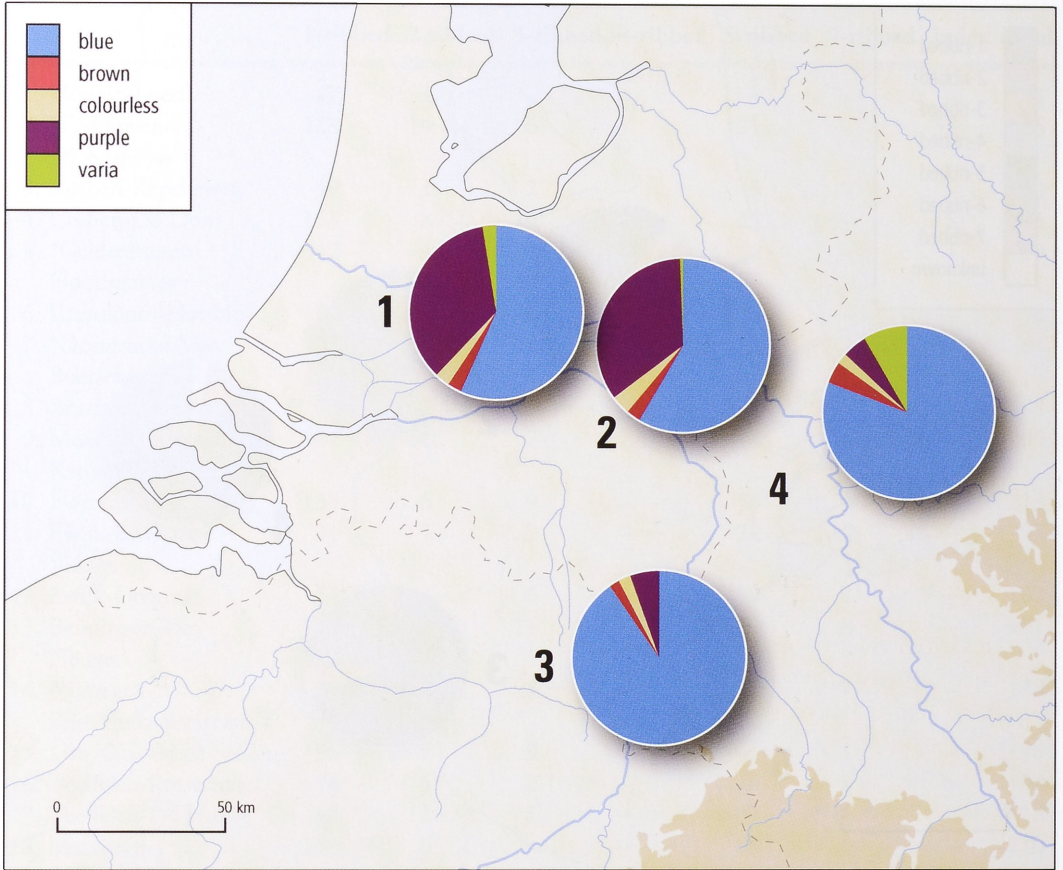


Fig. 6. Colour variation of glass armrings in subregions within the Lower Rhine area. – 1 Kromme Rijn area. – 2 Dutch eastern river area. – 3 Limburg Meuse area. – 4 German Lower Rhineland east of the Rhine.

span the entire LT C/D period. Broad, primarily 5-ribbed, bracelets (both decorated and undecorated) were a relatively early phenomenon (LT C/D1). The simple 1-ribbed variants, although occurring in LT C, did not peak until LT D¹⁰. An important observation can also be made about colour. Blue occurred in all phases, but reached a peak in LT C/D1,

number of ribs	type Haevernick	LT C1	LT C2	LT D1	LT D2	Early Roman
		260 BC	175 BC	125 BC	80 BC	15 BC
7-ribbed	-	[Bar chart showing presence from 260 BC to 125 BC]				
5-ribbed, undecorated	7a	[Bar chart showing presence from 260 BC to 125 BC]				
1-ribbed, undecorated	3a		[Bar chart showing presence from 175 BC to 15 BC]	[Bar chart showing presence from 125 BC to 15 BC]		
1-ribbed, with applied glass trail	3b		[Bar chart showing presence from 175 BC to 15 BC]	[Bar chart showing presence from 125 BC to 15 BC]		
2-ribbed	7d		[Bar chart showing presence from 175 BC to 15 BC]	[Bar chart showing presence from 125 BC to 15 BC]		

Fig. 7. Chronology of the main armring types produced in the Lower Rhine region.

¹⁰ See HAEVERNICK 1960; GEBHARD 1989; VENCLOVÁ 1990; KARWOWSKI 2004; WAGNER 2006.



Fig. 8. Some rare arming fragments from the settlement Lent-Bemmelsedijk. Glass. – Scale 1 : 1.

whereas purple was scarce in LT C before jumping in popularity in LT D¹¹. If we apply these observations to the Lower Rhine region, this would mean that the bracelet database for the Dutch river delta (and certainly the Kromme Rijn area), with its high proportion of 1-ribbed and purple bracelets, seems relatively young (LT D) in relation to that of the Meuse region of Limburg, Belgium and the German Lower Rhine area.

An important test case is the dating data for bracelets from cremation burials in the Lower Rhine region (*Fig. 11*). This information is summarised in appendix 1. The sample is small but we can nevertheless make a few key observations:

- a) 7- or sometimes 9-ribbed blue bracelets have a conspicuously early date: several ¹⁴C-datings place them in LT C1 and the beginning of C2¹².
- b) 5-ribbed blue bracelets seem to be characteristic of LT C and the beginning of LT D, in view of several ¹⁴C-datings and frequent associations with fibulae of Middle-La Tène construction.
- c) 1-ribbed bracelets occur from LT C2 onwards, but current grave finds do not allow us to say much about their later role.

Also important for the Lower Rhine chronology is the recently excavated Late Iron Age settlement at Geldermalsen-Hondsgemet in the Dutch eastern river region (*Fig. 12*). A large quantity of settlement material has been collected there (including 11 fibulae of Middle La Tène type and 27 Nauheim fibulae), most of which belongs in the phase 150–50 BC¹³. This material includes 50 arming fragments, the vast majority of which (85 %) are of the 1-ribbed type (with and without a zigzag trail). There is not a single 5-ribbed example! The colours represented are brown (6 %), blue (38 %) and purple (56 %). We obtain a similar picture from the settlement of Eschweiler-Laurensberg in the hinterland of Cologne¹⁴. Thanks in part to metal finds, this settlement can be dated to the later 2nd century

¹¹ GEBHARD 1989, 70–73; DEITERS 2008, 324.

¹² Blue glass bracelets with seven ribs are known from graves 778 and 1119 in the cemetery at Nederweert-Rosveld (HIDDINK 2006, 128, 155). Cremation remains from these burials provided

¹⁴C-datings of 2185 ± 40 and 2175 ± 40 BP respectively. See also appendix 1.

¹³ Cf. the contributions by Schuring (La Tène glass) and Van Renswoude (fibulae) in VAN RENSWOUDE / VAN KERCKHOVE 2009.

¹⁴ JOACHIM 1980; cf. DEITERS 2008, 324.

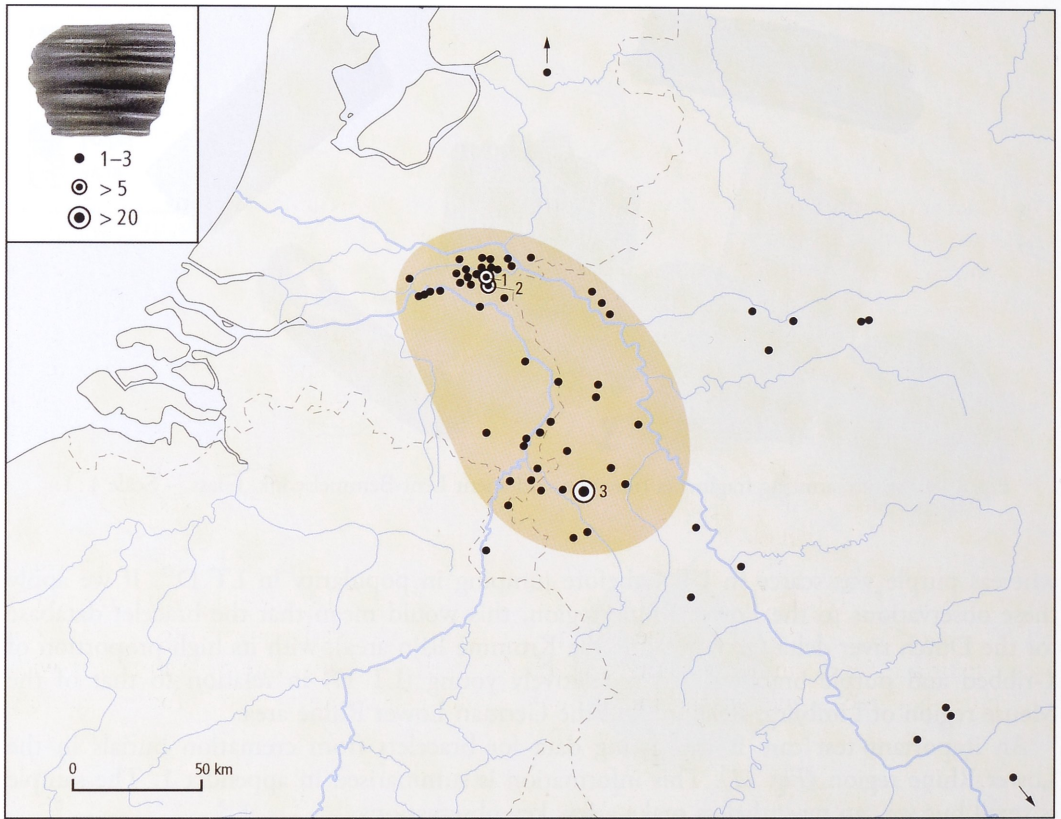


Fig. 9. Distribution of Middle La Tène 7-ribbed glass bracelets. Large symbols: >5 examples. – 1 Hernen-Wijnakker. – 2 Nijmegen-Bijsterhuizenstraat. – 3 Erkelenz-Lövenich.

BC (transition LT C/D). It yielded 14 armring fragments: eight of the 1-ribbed, two of the 3-ribbed and only four of the 5-ribbed type. These figures confirm that 1-ribbed bracelets, especially the purple variant, represent a late development in our research region and that 5-ribbed bracelets were clearly on the wane in LT D1.

Two things stand out in the above data. The first is the fairly early start to glass circulation in the Lower Rhine region (second half of the 3rd century), almost as early as in central Europe. Although the glass spectrum in the Dutch river region is dominated in quantitative terms by 'young' types, the early variants are also well represented there (see Fig. 9). Only in the Kromme Rijn area is there almost no evidence of this older horizon. The second salient feature is the lack of evidence in graves so far for continuing use of glass bracelets in the Early Roman period¹⁵. For the present, this argues against Van den Broeke's claim that glass La Tène bracelets circulated there until the Middle Roman era¹⁶.

¹⁵ The only exception is grave 803 at Nederweert-Rosveld, which is dated to the early 1st century AD on the basis of a Belgic beaker sherd, Holwerda type 3 (HIDDINK 2006, 137). Unfortunately, the homogeneity of this grave is uncertain, given that the finds come from two intersecting

pit fills. The Roman sherd comes from the youngest pit. Armring fragments do indeed occur regularly in native-Roman rural settlements, but these may involve older material that has been brought to the surface.

¹⁶ VAN DEN BROEKE 1978, 40.

Everything points to them going out of circulation during the Augustan period, and possibly earlier.

Evidence of glass production

The mass circulation of glass bracelets in the Lower Rhine region raises the question of production – to what extent were they also produced there? We can answer this question in methodological terms by a) looking for direct evidence of glass production in the form of production waste, furnace debris and semi-manufactured items, b) conducting chemical studies of the origin of the raw materials and pigments used in the bracelets, and c) tracing region-specific arming variants by analysing distribution patterns. No direct evidence of glass workshops has been found to date¹⁷, nor have there been any systematic chemical studies. This makes the results of distribution pattern analyses all the more important. On the basis of the current data, we can make a reasonable case for the production of different types in the Lower Rhine area, most notably the 7-ribbed, the 5-ribbed without decoration, the 1-ribbed and the 2-ribbed bracelets.

Glass production in the Lower Rhine began with broad 7-ribbed bracelets in an advanced phase of LT C1. Although they constitute a fairly small group, their distribution is almost solely confined to the Lower Rhine region (*Fig. 9*). It is interesting to note the presence of a series of unique variants¹⁸, which shows that artisans were experimenting with new types and techniques in the initial phase, while also continuing to produce existing central European types.

It seems that 5-ribbed bracelets were also produced in our region in LT C and the transition to LT D. By far the most predominant type is the undecorated variant (Haevernick 7a) (*Tab. 1*). Although it also occurs in more southerly parts, the high proportion of this type (over 1,300 fragments, or more than a quarter of the total Lower Rhine database!) certainly suggests that it was produced locally. A further argument is that 18% of the 5-ribbed bracelets are purple, a combination that rarely occurs in other areas¹⁹.

Similar arguments concerning local production can be made for 1-ribbed bracelets with a D-shaped cross-section. The undecorated variant (Haevernick 3a) is also found in other regions and is regarded as an almost universal type²⁰, but the numbers from those areas are limited. The 1-ribbed decorated bracelets (type 3b) occur primarily in the Lower Rhine area and it is on these grounds that Peddemors and Deiters assume a local production base²¹.

For the relatively small group of 2-ribbed bracelets (175 items) there can be almost no doubt that they were produced locally as they are virtually unknown outside the Lower

¹⁷ JOACHIM (2005, 67) assumes a local production base for bracelets at Erkelenz-Lövenich, thanks in part to several glass drop finds. However, these could just as easily have originated from cremation graves that were disturbed by ploughing, as has been observed in the southern Netherlands.

¹⁸ These are a 7-ribbed example of colourless glass with yellow foil on the inside from a cremation grave in Lomm and a settlement at Lent-Bemelse Dijk, a blue glass example from Dodewaard with a sinuous S-shaped decoration on the midrib (cf. Haevernick type 16), a blue glass ex-

ample with incised midrib from Erkelenz-Lövenich and a blue glass piece from Deest with three ribs decorated with applied trails of yellow glass paste.

¹⁹ Cf. WAGNER 2006, 86; 90; 99 maps 15; 22; 37.

²⁰ Cf. VENCLOVÁ 1990, 152–153, who regards Mandeuere and Stradonice / Bohemia as production sites.

²¹ PEDDEMORS 1975; DEITERS 2008. We should be aware that many type 3a items in the Lower Rhine region actually belong to type 3b (see note 9).

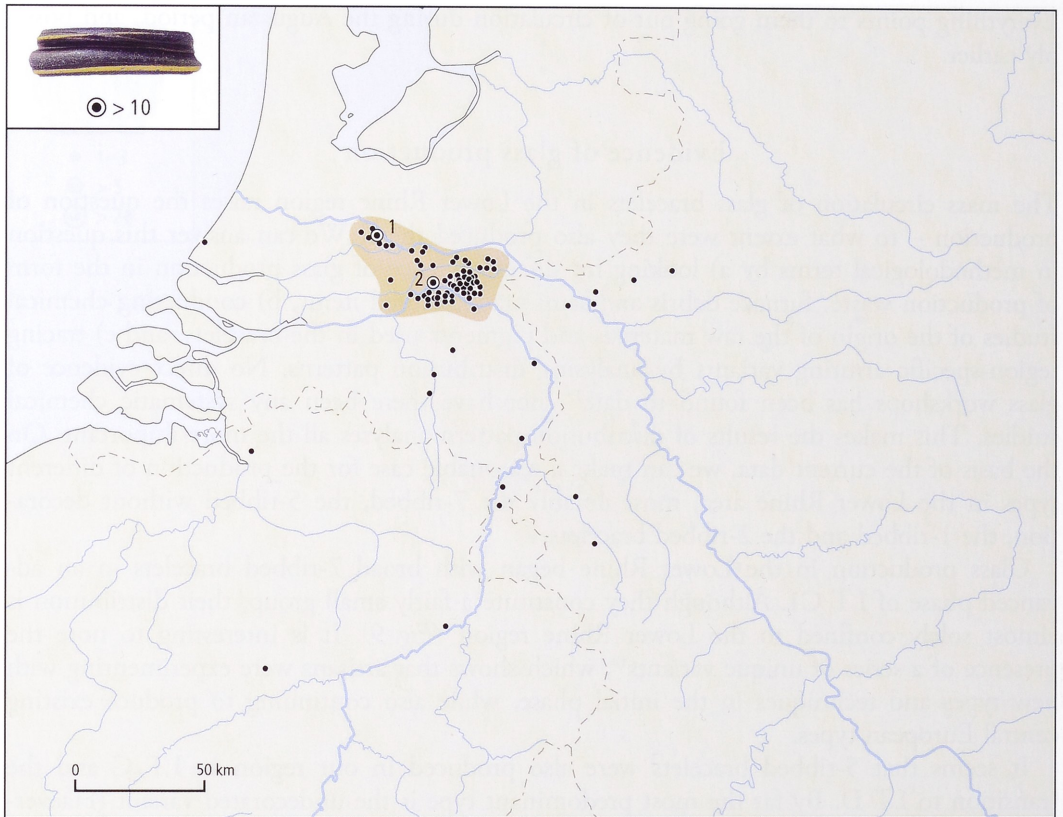


Fig. 10. Distribution of 2-ribbed glass bracelets, type Haevernick 7d. Large symbol: >10 examples. – 1 Werkhoven-De Klapproos. – 2 Maasbommel-Kattenheuvels.

Rhine region (Fig. 10). Like the 1-ribbed bracelets about half are purple, the dominant colour during LT D, and they belong to the youngest phase of Lower Rhine glass production.

The fact that bracelets were produced locally does not mean that the raw glass was also manufactured there. Semi-manufactured products in the form of glass bars may have been imported from elsewhere and then processed into finished products in secondary workshops.²² The nearest glass production centre was probably Bad Nauheim in the eastern Middle Rhine area (Fig. 14)²³. Future chemical research into bracelets from various glass-producing regions will undoubtedly shed new light on this matter.

In what kind of settlements were the Lower Rhine bracelets produced? Although no glass workshops have yet been found in central Europe, it is assumed that there glass production was localised in central settlements in the form of open settlements and *oppida*, including Manching, Stradonice and Nages (Fig. 13)²⁴. It is still too early to say whether this centralised production model also applies to the Lower Rhine lowlands²⁵. An alterna-

²² The first fragment of a purple glass bar was recently found in a settlement at Odijk in the Kromme Rijn area, but it is not clear whether this was produced locally or imported from elsewhere. Cf. SCHURING 2007.

²³ SEIDEL 2005, 11 ff.

²⁴ VENCLOVÁ 1985, GEHARD 1989; KARWOWSKI 2004, 146–148; SEIDEL 2005.

²⁵ We have confirmed the presence at Kessel / Lith of an important Late Iron Age settlement with

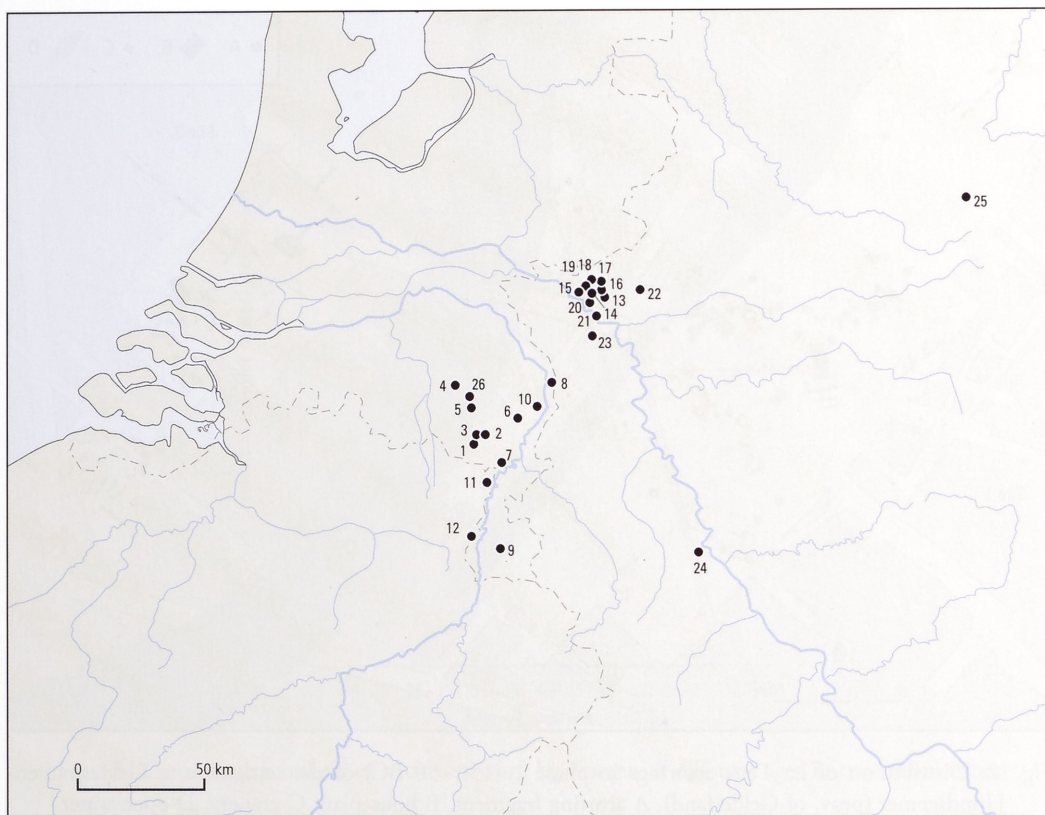


Fig. 11. Distribution of glass bracelets from Late Iron Age cremation burials in the Lower Rhine region. – 1 Weert-Molenakkerdreef. – 2 Nederweert-Wessemerdijk. – 3 Nederweert-Rosveld. – 4 Mierlo-Hout, Brandevoort. – 5 Someren-Waterdael. 6 – Panningen-Stokx. – 7 Wessem. – 8 Lomm. – 9 Valkenburg-Vroenhof. – 10 Blerick-Zaarderheike. – 11 Maaseik. – 12 Neerharen-Rekem. – 13 Haldern-Sommersberg. – 14 Haldern-Colettenberg. – 15 Haldern-Banningsberg. – 16 Haldern-Düne Jaumann. – 17 Haldern-Düne Bongardt. – 18 Haldern-Spelmannsberg. – 19 Haldern-Ebersberg. – 20 Haffen-Mehr, Lange Renne. – 21 Bislich-Düne Günz. – 22 Borken-Hoxfeld. – 23 Alpen-Veen. – 24 Wesseling. – 25 Lage-Müssen. – 26 Someren-Ter Hofstadlaan.

tive model is a further possibility for this region, one that presupposes decentralised production at several open settlements. Potential production sites would then be the find spots with high volumes of La Tène glass, such as Beuningen-De Heuve (401 pieces) and Werkhoven-De Klaproos (326 pieces) (*Fig. 3* and *Tab. 2*).

Based on the current figure of more than 5,000 finds of arming fragments, we can make a rough estimate of the scale of Lower Rhine glass production. If we assume that the vast majority were locally produced and that 2 % of them are known to us, this means that 250,000 bracelets were produced over a period of more than 150 years. Although this is no more than a rough estimation, we are clearly dealing here with mass production.

centre functions at a strategic location at the confluence of the rivers Rhine/Waal and Meuse. Cf. ROYMANS 2004, ch. 7. Unfortunately, this settlement has been thoroughly disturbed by riv-

er erosion and modern dredging work, making it impossible to establish whether it functioned as a production centre for glass bracelets.

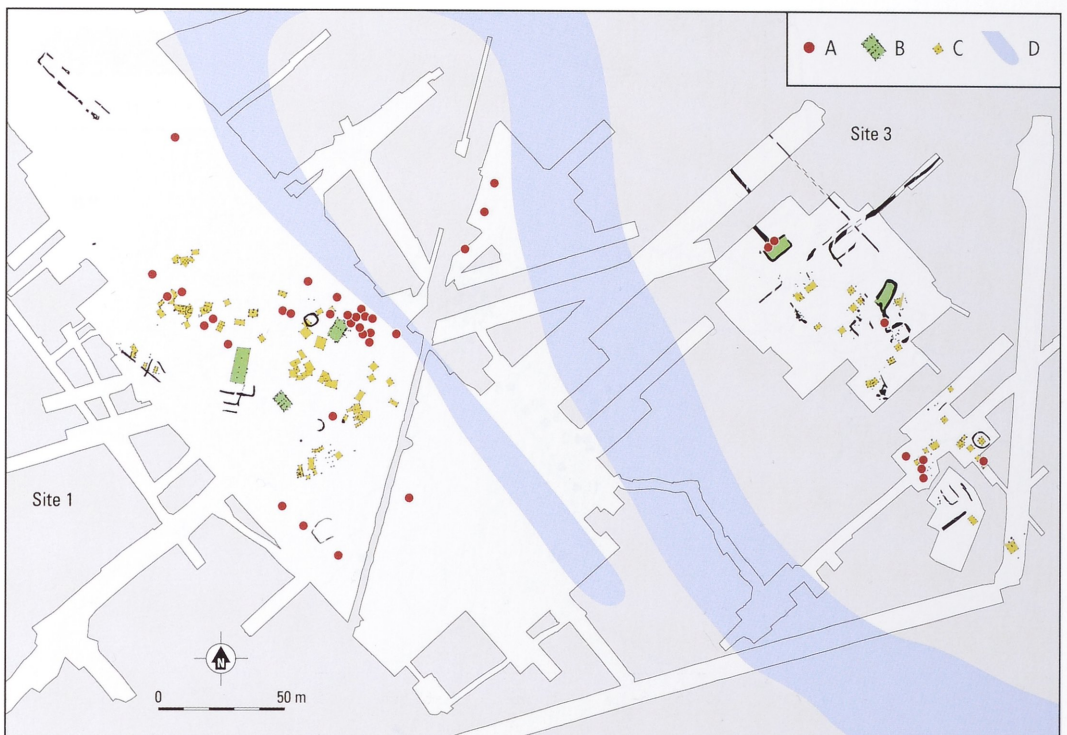


Fig. 12. Distribution of La Tène armrings in phase 1 (150–50 BC) of the settlement at Geldermalsen-Hondsgemet (prov. of Gelderland). A armring fragment. B houseplan. C granary. D open water.

Armings and the construction of identities

The multi-voicing of material culture is a mainspring of post-processual archaeology. Jewellery worn on the body can have several meanings and can play a role in the symbolic construction of an individual's multiple, partially overlapping identities.²⁶ This fundamental principle is relevant for the social interpretation of glass La Tène bracelets. The key questions relate to the kind of identity constructions in which bracelets were used and the kind of meaning associations that these objects had.

The functional use of glass La Tène bracelets as arm decorations for women is commonly accepted in Europe. This is based primarily on the diameter of complete examples and on their presence in LT C inhumation graves in central Europe, which shows that they were worn on the arm.²⁷ Until recently, we had almost no information on individual wearers of such jewellery in the Lower Rhine region. This changed, however, with the publication of a number of cemeteries yielding numerous graves with bracelets in combination with data on the age and sex of the deceased.

We now know, firstly, that bracelets played no role – at least not in the Lower Rhine region – in the symbolic expression of social hierarchies²⁸. We can infer this from their widespread occurrence: They were mass-produced items that were present in every local community, in every household even, and were therefore not associated with an elite identity. A case in point is the above-mentioned excavation at Geldermalsen (Fig. 12), where

²⁶ COHEN 1985; HODDER 1982.

²⁷ HAEVERNICK 1960, 72 ff.

²⁸ In contrast to VENCLOVÁ 1990, 157.

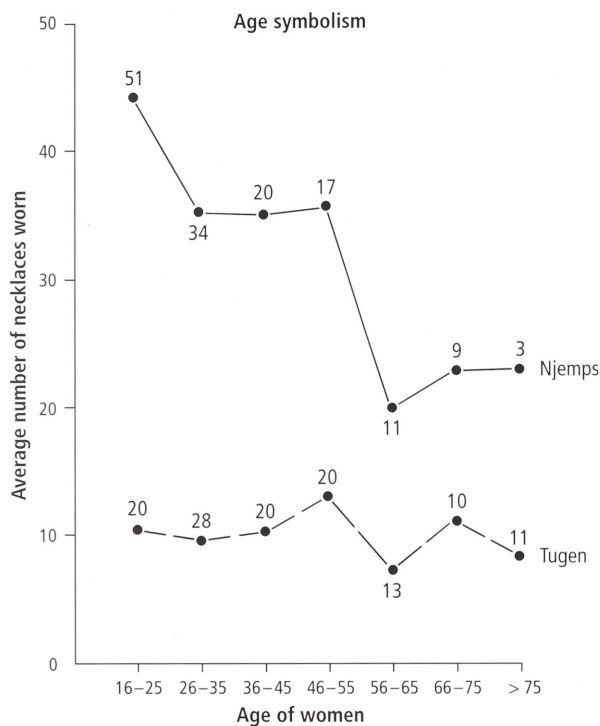


Fig. 13. The average numbers of necklaces worn by women of different ages in two Masai tribes.

more than 50 arming fragments were unearthed in the immediate vicinity of five farmsteads from the period 150–50 BC. This amounts to an average of 10 bracelets per farmstead²⁹.

Secondly, we know that glass bracelets are also typical of women's attire in the Lower Rhine area and are therefore clear markers of gender identity. This is illustrated in the table showing sex determinations of individuals in graves with bracelets (appendix 1). Conclusions about gender can be made in 22 cases, based on physical-anthropological studies of cremation remains and/or associations with gender-specific grave goods (bone needles, spindle whorls, several fibulae). In all but one case, these involved women.

As a further dimension of their gender association, we wish to highlight an important intrinsic feature of glass bracelets, namely their fragility. Unlike metal jewellery, they break easily, which means they have a relatively short life. It is significant in this regard that not a single complete arming is noted from the Netherlands. If we assume that glass arm jewellery was not intended to be passed on as heirlooms to successive generations but was inextricably linked to the individual female body³⁰, this provided the option of turning broken bracelets into pendants rather than simply throwing them away. While this secondary use may be rare, it has nevertheless been demonstrated repeatedly (*Fig. 1*). Converting

²⁹ Cf. VAN RENSWOUDE/VAN KERCKHOVE 2009, 90 ff. The true number of bracelets used per farmstead will have been higher, given that intact bracelets will have been deposited in women's graves; examples of such graves have yet to be found in Geldermalsen.

³⁰ This is apparent from the fact that women were often cremated and buried together with their bracelets, which suggests that it was not customary to pass the glass bracelets belonging to the deceased on to their next of kin.

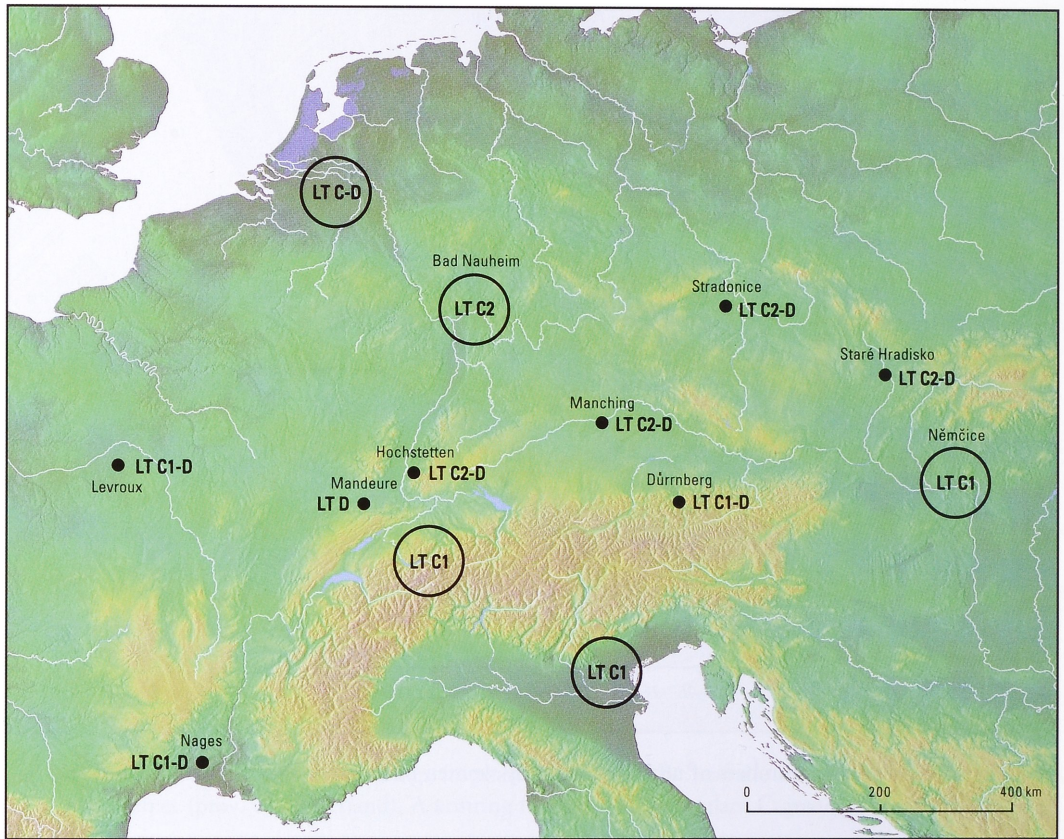


Fig. 14. Certain or probable production centres (with dating) of La Tène glass armrings in Europe.

them into pendants required little specialist knowledge and appears to have been carried out locally.

Thirdly, it is likely that bracelets also marked an age class identity³¹. The key question is: at what age did women start wearing them? Ethno-archaeological research tells us about neckring-wearing practices among Masai groups in Kenya and the ages of the women concerned (*Fig. 13*)³². The patterns can vary per group, depending on social strategies. It is significant, however, that in all instances this jewellery is first worn when girls are still juveniles. According to our grave data summarised in *table 3*, bracelets were generally associated with adult women aged between 20 and 40, and sometimes older. However, there are two instances of juvenile individuals, aged 5–15 and 12–16 years. For the time being we think it likely that girls started wearing bracelets between their 12th and 15th year. We suspect there was a link with the general life cycle of women and associated rites of passage (see below)³³. It is tempting to regard bracelets with a smaller diameter (5 to 6 cm) as ones made especially for this youngest group.

³¹ Almost every society makes a fundamental distinction between four more or less institutionalised age groups – children, adolescents, adults and the elderly. Cf. ERIKSEN 2001, 135–136.

³² HODDER 1982, 80 ff.

³³ Ethnographic research shows that the wearing of bracelets and neckrings by women is often associated with ideas about female fertility, or is believed to prevent ills which might damage a woman's reproductive capacity. Cf. SCIAMA 1998, 15 ff.

	sex	age
Panningen-Stokx, grave 13	–	5–15
Nederweert-Rosveld, grave 803	F??	12–16
Weert-Molenakkerdreef, grave 3	–	15–40
Weert-Molenakkerdreef, grave 57	F?	15–40
Weert-Molenakkerdreef, grave 69	f	15–40
Someren-Ter Hofstadlaan, grave 308	–	>19
Nederweert-Rosveld, grave 795	–	20–30
Nederweert-Rosveld, grave 807	F?	20–30
Nederweert-Rosveld, grave 805	f	20–34
Weert-Molenakkerdreef, grave 32	F? / f	20–40
Weert-Molenakkerdreef, grave 59	F	20–40
Weert-Molenakkerdreef, grave 74	F / f	20–40
Weert-Molenakkerdreef, grave 104	–	20–40
Nederweert-Rosveld, grave 706	–	20–40
Nederweert-Rosveld, grave 761	F? / f	20–40
Nederweert-Rosveld, grave 771	F / f	20–40
Nederweert-Rosveld, grave 775	F	20–40
Nederweert-Rosveld, grave 778	–	20–40
Weert-Molenakkerdreef, grave 99	F	24–40
Nederweert-Rosveld, grave 808	–	24–50
Weert-Molenakkerdreef, grave 23	F? / f	30–60
Weert-Molenakkerdreef, grave 66	–	30–60
Weert-Molenakkerdreef, grave 94	f	30–60
Nederweert-Rosveld, grave 1119	F	43–52

Tab. 3. Specification of sex and age of Late Iron Age cremation graves with glass bracelets in the Lower Rhine region. Based on the evidence presented in appendix 1.

Fourthly, bracelets were potentially significant as ethnic or cultural markers. For example, we know that beads, earrings and other women's jewellery denoted tribal identities among the Kenyan Masai and functioned as boundary markers for ethnic groups³⁴. We can confirm that certain societies in the Lower Rhine region distinguished themselves through specific women's attire involving bracelets, whereas neighbouring groups to the west and north, in the coastal area and north of the Rhine, used almost no bracelets (*Fig. 2*). Bracelets may have played a role here in cultivating ethnic differences. In border settings in particular, certain groups may also have used material culture to associate themselves with the ideas and values of the southern La Tène culture and to profile themselves in relation to groups seeking a highly inward-looking local identity³⁵.

We can conclude that the possession of glass bracelets was highly significant at all levels of society and was clearly associated with both individual and group identities.

³⁴ HODDER 1982; KLUMP / KRATZ 1993. EICHER (1998) reports that bead wearing among the Kalabari of Nigeria indicates clan identity. ³⁵ ROYMANS 2007, 323.

Armrings as exchange items

The above evidence shows that glass La Tène bracelets were mass-produced items that must have been exchanged in large numbers. Nevertheless, this aspect of exchange has barely featured in recent discussions, with researchers rarely going beyond simple interpretations in terms of 'trade'. Recent, anthropologically inspired theories on exchange in pre-modern societies show that archaeologists underestimate the complexity of this phenomenon. These societies had complex, partly ritualised forms of exchange that gave expression to leadership, the different stages in an individual's life cycle and relations with the supernatural world³⁶. Relevant here is Bloch and Parry's model of the articulation of two types of exchange, that of a short-term sphere aimed at individual gain and competition, and that of a long-term sphere in which the reproduction of collective values, norms and cosmologies was paramount³⁷.

We propose a model specifically for La Tène bracelets that distinguishes two stages in exchange. The first comprises the primary distribution of bracelets from production sites to local communities (consumption sites). This would have involved barter trade or commodity exchange in accordance with the down-the-line principle, that is diminishing use of armrings the further away one gets from the production centre (or centres) in the Lower Rhine area. We probably should envisage such exchange as part of a multi-centric economy in which different, more or less mutually exclusive spheres of exchange operated³⁸. Glass bracelets may have featured among the more mundane exchange items from the subsistence sphere such as iron tools, fibulae, millstones and salt.

For the Lower Rhine region, there is nothing to suggest that the intense exchange of bracelets was linked to the rise of markets and the beginnings of a monetarised economy. The Dutch archaeologist Willems has suggested, however, that bracelets were used primarily as primitive money, as uniform, almost standardised value objects that functioned as currency in intensified exchange relationships during the Late Iron Age³⁹. He also believes that bracelets were deliberately halved or quartered and used as a means of payment in this form. Willems' hypothesis comes up against major difficulties, however⁴⁰. The fragility of the bracelets severely compromised their potential as a means of payment. Significant too is the lack of hoards containing whole bracelets or fragments. If they had been used intensively as a form of currency we could expect to encounter such hoards. The large numbers of fragments found among ordinary settlement waste also suggests that they were not used as primitive money.

The second stage in the chain of exchange was the secondary distribution of bracelets within local communities. Reference to ethnographic parallels suggests that this would entail ritualised forms of gift exchange connected with the life cycle of women⁴¹. An attractive hypothesis is the link suggested above to rites of passage for young women in which they are given their first armring by relatives⁴². Other occasions when they might have received bracelets were on marriage or after childbirth. The colour and type of armring may also

³⁶ ERIKSEN 2001, 176 ff.; BAZELMANS 1999.

³⁷ BLOCH / PARRY 1989, 24.

³⁸ Cf. BOHANNAN'S (1955) study of exchange systems among the Tiv in pre-colonial Nigeria. For archaeological applications, see ROYMANS 1996, 45–47; CREIGHTON 2005, 71–76.

³⁹ WILLEMS 1983, 111.

⁴⁰ ROYMANS / VAN ROOIJEN 1993, 9.

⁴¹ Cf. CAREY 1998, 89–90, on the use of beads in Africa. 'As a girl grows up, her beadwork will increase in quantity and change its nature as she goes from one stage of life to the next.' The first beads come from her father, and once her first child is born, she starts to wear other beads.

⁴² This may have been the female equivalent of coming-of-age rituals for young men in Celto-

have had a specific significance⁴³, although the current data gives us little to go on here. What we do note is that the graves of adult women sometimes contain several bracelets of different colours, although always of the same type⁴⁴.

Discussion and conclusions

The circulation of glass bracelets began in the Lower Rhine region in LT C1, the time when the production of armrings also started there. This will have been triggered by the transfer of advanced technology – probably in the form of qualified craftsmen – from southern areas to the Rhine / Meuse delta. Distribution maps for the earliest armring types (the 7 and 5-ribbed variants) suggest that these artisans came from the south east, from the Mittelgebirgsraum in Germany. They soon began experimenting with new types, thereby imprinting their own stamp on Lower Rhine glass production. During LT C2 / D the Rhine / Meuse delta evolved into a major production region for bracelets, with roughly the present-day Netherlands, Belgium, the German Lower Rhineland and Westphalia as its broader market (*Fig. 14*). The present distribution suggests an extensive bartering network that operated in accordance with the down-the-line principle.

Through their exclusive status as women's jewellery, bracelets were prominent markers within the Lower Rhine region of gender and age class identities, and perhaps also ethnic identity. As such, they illustrate a core principle of post-processual archaeology – the active role of material culture in shaping social relations.

It is fascinating to observe the extreme popularity of glass bracelets in the Lower Rhine region, where almost every woman seems to have worn one or more items. How should we interpret this popularity within a European context? It is important to note that this region was situated on the periphery of the European La Tène culture. A process of 'laténisation' of the material culture, which began fairly late, was occurring here⁴⁵. It is precisely in cultural frontier zones that we often witness the strategic use of material culture to define cultural boundaries. Lower Rhine groups felt a need for visible cultural markers to set themselves apart from groups in the area between the Rhine and Weser rivers and in the Belgian-Dutch coastal zone. Archaeologists often explain these regional cultural distinctions in terms of an opposition between Germans and Celts. However, we need to ask ourselves the precise meaning of these macro-ethnic labels in the pre-Roman period. It is interesting to note that armring circulation in the Lower Rhine was clearly concentrated in the area inhabited by the Eburones, whom Caesar at the time of his conquests explicitly labelled *Germani*⁴⁶.

Another discussion relates to the rather abrupt disappearance of bracelets in the Lower Rhine area. How can this be explained? Some researchers suggest a direct link to the Roman conquest, which destroyed existing artisan traditions and exchange networks⁴⁷. Others, in particular German scholars, see primarily a connection with the southward expansion, or even migration, of Germanic groups to the Lower Rhine region during LT D. In their view, these groups had a different material culture in which there was no place for La Tène

Germanic societies, when men were given their first weapons by their father. Cf. ROYMANS / AARTS 2006, 354 ff.; BAZELMANS 1999, 168–172. See also Tacitus, *Germania* 13; Caesar, *bell. gall.* 6.18.3.

⁴³ HAEVERNICK 1960, 74.

⁴⁴ Cf. appendix 1, Weert-Molenakker, grave 69 and 74; Nederweert-Rosveld, grave 706.

⁴⁵ For a recent synthesis, see ROYMANS 2007.

⁴⁶ Caesar, *bell. gall.* 2.4.10, 6.32.1. Cf. ROYMANS 1990, 12 ff.

⁴⁷ PEDDEMORS 1975, 108. We can think specifically here of Caesar's annihilation of the Eburones in the years 53–51 BC.

bracelets⁴⁸. It is clear that whichever explanation you support depends very much on the *terminus ante quem* for the end of the Lower Rhine glass production. Was production already on the wane before Caesar's conquest and therefore entirely unconnected with it? Or did this process not get underway until after the Roman conquest, which suggests a link with the new social and cultural relationships in the early post-conquest period?

Lastly, we wish in brief to suggest possibilities for future research. There are three key areas. Firstly, we have to try to pinpoint the production sites for glass bracelets in the Dutch Rhine / Meuse delta. The focus should be on find spots that have yielded large numbers of glass fragments. We need to look there for evidence of production waste. Secondly, we need to launch a systematic chemical analysis programme for Lower Rhine bracelets and glass from other regions. This should yield new understanding of both the production and exchange of glass or specific raw materials. Thirdly, we should press ahead with research into the distribution of specific type and colour variants. The potential for such studies as a tool in tracing local production sites is far from exhausted. Finally, we need to vigorously pursue research into bracelets from funerary contexts. Cremation remains should be dated using the ¹⁴C-method and should be analysed to identify age and sex. This will both refine the typochronology of La Tène bracelets, and provide more information about their individual users. We will then be in a position to test the above ideas on the social use of bracelets and their symbolism.

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⁴⁸ Cf. REICHMANN 1979, 145 ff., 165 ff.; SEIDEL 2008, 110; JOACHIM 2007, 50.

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Appendix 1. Specification of date, sex and age of cremation graves with glass armrings in the Lower Rhine region. The sex determinations are based on physical anthropological studies of cremation remains. * = dating primarily based on ^{14}C -dating of cremated bone. Sex determinations on the basis of physical anthropological studies of cremation remains (= F, M) and / or on the basis of associations with gender-specific grave goods (= f, m).

	type arming	related finds	date	sex	age	reference
Weert-Molenakkerdreef, grave 3	2 x 5-ribbed, blue			–	15–40	HIDDINK 2003, 285
Weert-Molenakkerdreef, grave 23	5-ribbed, colourless	bone needle		F? / f	30–60	HIDDINK 2003, 301
Weert-Molenakkerdreef, grave 32	5-ribbed, colourless	iron needle, 3 bronze armrings	LT C / D	F? / f	20–40	HIDDINK 2003, 307
Weert-Molenakkerdreef, grave 57	5-ribbed, blue		LT C / D	F?	15–40	HIDDINK 2003, 328
Weert-Molenakkerdreef, grave 59	indet., blue	fibula fragm.		F	20–40	HIDDINK 2003, 330
Weert-Molenakkerdreef, grave 66	1-ribbed, purple	fibula fragm.		–	30–60	HIDDINK 2003, 335
Weert-Molenakkerdreef, grave 69	3 x 5-ribbed, blue, purple, colourless	bone needle	LT C2 / D1*	f	15–40	HIDDINK 2003, 338
Weert-Molenakkerdreef, grave 74	2 x 1-ribbed, blue, purple	armband, bronze fibula fragm.	LT C / D	F / f	20–40	HIDDINK 2003, 342
Weert-Molenakkerdreef, grave 94	1-ribbed, purple	bone needle, armring, bronze		f	30–60	HIDDINK 2003, 357
Weert-Molenakkerdreef, grave 99	1-ribbed, purple	belt hook, MLT fibula	LT C2 / D1	F	24–40	HIDDINK 2003, 361
Weert-Molenakkerdreef, grave 104	1-ribbed, brown	fibula fragm.		–	20–40	HIDDINK 2003, 365
Nederweert-Rosveld, grave 706	2 x 1-ribbed, brown, purple			–	20–40	HIDDINK 2006, 95
Nederweert-Rosveld, grave 727	1-ribbed, purple			–	adult	HIDDINK 2006, 95
Nederweert-Rosveld, grave 761	indet., blue	bone needle	LT C*	F? / f	20–40	HIDDINK 2006, 120
Nederweert-Rosveld, grave 771	5-ribbed, blue	2 iron MLT fibulae	LT C1 / early C2*	F / f	20–40	HIDDINK 2006, 125
Nederweert-Rosveld, grave 775	5-ribbed, blue			F	20–40	HIDDINK 2006, 127
Nederweert-Rosveld, grave 778	7-ribbed, blue		LT C*	–	20–40	HIDDINK 2006, 128
Nederweert-Rosveld, grave 795	5-ribbed, blue			–	20–30	HIDDINK 2006, 133–134
Nederweert-Rosveld, grave 803	5-ribbed, blue		early 1st century AD?	F??	12–16	HIDDINK 2006, 137
Nederweert-Rosveld, grave 805	indet., blue	3 MLT fibulae	LT C1 / early C2*	f	20–34	HIDDINK 2006, 138
Nederweert-Rosveld, grave 807	indet., blue	MLT fibula belt hook	LT C1 / early C2*	F?	20–30	HIDDINK 2006, 140–141
Nederweert-Rosveld, grave 808	5-ribbed, blue			–	24–50	HIDDINK 2006, 141
Nederweert-Rosveld, grave 809	indet., blue			–	adult	HIDDINK 2006, 142
Nederweert-Rosveld, grave 1119	7-ribbed, blue		LT C1 / early C2*	F	43–52	HIDDINK 2006, 155
Nederweert-Rosveld, grave 1102	1-ribbed, blue			–	adult	HIDDINK 2006, 146
Someren-Ter Hofstadlaan, grave 308	5-ribbed, green?			–	>19	DE BOER / HIDDINK 2009, 128

	type arming	related finds	date	sex	age	reference
Mierlo Hout-Brandevooft, grave R-32	5-ribbed, colourless	MLT fibula iron	LT C / D1	–		TOL 1993, 118
Mierlo Hout-Brandevooft, grave R-55	5-ribbed, blue	fragm. wire fibula, iron	LT C / D	–		TOL 1993, 125
Panningen-Stokx, grave 13	5-ribbed, blue			–	5–15	HIDDINK 2008, 66
Panningen-Stokx, grave 8	5-ribbed, blue			M	20–35	HIDDINK 2008, 63
Maaseik, grave 53	indet., purple indet., colourless	wire fibula, iron	LT D	–		JANSSEN 1977, 15
Maaseik, grave 82	indet., blue	wire fibula, iron	LT C / D	–		JANSSEN 1977, 21
Maaseik, grave 86	indet., brown		LT D	–		JANSSEN 1977, 21
Neerharen-Rekem, grave 85–80	3-ribbed, blue	belt hook, iron	LT C1?*	F	25–35 15–20	TEMMERMAN 2007, 365
Haldern-Sommersberg, grave 35	5-ribbed, blue	3 MLT fibulae, iron	LT C / D1	f		REICHMANN 1979, 392
Haldern-Sommersberg, grave 63	5-ribbed, blue	2 MLT fibulae, iron	LT C / D1	f		REICHMANN 1979, 396
Haldern-Colettenberg, grave 6	1-ribbed, with zigzag trail	2 spindle whorls		f		REICHMANN 1979, 403
Haldern-Colettenberg, grave 17	5-ribbed, blue	MLT fibula, iron	LT C / D1	–		REICHMANN 1979, 404
Haffen-Mehr Lange Renne I	2 × 5-ribbed, colourless	2 fibulae fragm., bronze	LT C / D	f		REICHMANN 1979, 425
Haldern-Banningsberg, grave 1	indet., blue	2 bone needles		f		REICHMANN 1979, 429

Zusammenfassung: Latènezeitliche Glasarmringe vom Niederrhein. Typologie, Chronologie und soziale Interpretation

Innerhalb der europäischen Latène-Kultur fällt die Region des Niederrheins aufgrund ihrer extrem dichten Vorkommens von Glasarmringen auf. Das erstaunlich reichhaltige Material bringt eine Reihe an interessanten Fragen auf: Welche Faktoren bedingen die dichte Verbreitungsmuster? In welchem archäologischen Kontext werden diese Armringe hauptsächlich gefunden? Wurden sie aus südlichen Gebieten importiert oder weitgehend am Niederrhein selbst hergestellt? Was wissen wir über die soziale Funktion der Armringe und ihre Rolle in der Konstruktion der Identitäten bezüglich sozialem Geschlecht, Alter und Ethnizität? In diesem Beitrag wird versucht, Antworten zu den aufgeworfenen Fragen zu finden.

Abstract: Glass La Tène Bracelets in the Lower Rhine Region. Typology, Chronology and social Interpretation

Within the area of the European La Tène culture the Lower Rhine region attracts attention because of its extremely intensive occurrence of glass La Tène bracelets. The amazing rich evidence raises a series of interesting questions. Which factors have determined the dense distribution pattern? What are the major archaeological contexts in which the armings have been found? Were they imported from southern regions, or largely produced in the Lower Rhine region itself? What do we know about the social use of the arm-rings and their role in the construction of identities related to gender, age class and ethnicity? In this paper we will try to answer the above questions.

Résumé: Bracelets laténiens en verre du Rhin inférieur. Typologie, chronologie et interprétation sociale

La région du Rhin inférieur se distingue dans l'Europe laténienne par une concentration élevée de bracelets en verre. Ce matériel étonnamment riche pose toute une série de questions intéressantes: Quels facteurs conditionnent cette concentration? Dans quels contextes apparaissent généralement ces bracelets? Ont-ils été importés de contrées méridionales ou fabriqués sur place? Que savons-nous de la fonction sociale des bracelets et de leur rôle dans la construction des identités relatives à la catégorie sociale, l'âge et l'ethnicité? Cet article tente d'apporter des réponses à ces questions.

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References of figures:

Fig. 1-7; 9-11; 14: by the authors. – *Fig. 8:* Bureau Archeologie en Monumenten, municipality of Nijmegen. – *Fig. 9:* after ROYMANS 2007, fig. 10, with additions. – *Fig. 12:* after VAN RENSWOUDE / VAN KERCKHOVE 2009, maps 1; 23. – *Fig. 13:* after HODDER 1982, fig. 41.