

Use and distribution of colourants in Western LBK sites

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Résumé

La présence de pierres semi-précieuses sur les sites d'habitat et de sépultures rubanés a fait l'objet d'une étude dans le cadre d'un mémoire de Master qui explore la question de savoir si l'utilisation des pierres semi-précieuses au néolithique ancien a été un phénomène autant régional que chronologique. Pour réaliser cette enquête, 168 sites d'habitat et 41 sites de sépultures attribués à la culture rubanée ont été observés dans la région germanophone, ainsi que dans le Nord de la France et les pays du Benelux. Par rapport aux sépultures, l'habitat rubané, lui, renfermait plus de pierres semi-précieuses. L'étude de la répartition des pierres a révélé une plus forte concentration et une utilisation plus intense sur les sites se trouvant à l'ouest la zone de fouille par rapport aux sites se trouvant à l'est.

Alors que la goéthite est exclusivement associée à l'habitat rubané, les minéraux tels que l'hématite, la limonite, le graphite, le manganèse et autres roches sédimentaires sont tout aussi présents sur les lieux d'habitat que dans les sépultures.

Mots-cles : Néolithique ancien, diversité de colorants, cimetières, habitats, étude comparative.

Keywords: Early Neolithic, colourant diversity, cemeteries, settlements, comparative study.

1. INTRODUCTION

Haematite and other colouring minerals are a regular part in Linear Pottery Culture (LBK) inventories, but synthetic publications of these artefacts are quite rare until now. A recently published master's thesis at the University of Hamburg examines the occurrence of colouring stones in the settlement and burial contexts of the Western Pottery Culture (Kitzig, 2013). The thesis paper considered the question whether there are regional emphases in the usage of colourants in Early Neolithic times, attributed to different traditions of colouring elements or to differences in access to resources.

While ceramics, rock and flint artefacts had functional significance in Early Neolithic life, colouring stones were primarily decorative objects. This implies that the observed colour scattering in graves could have happened for aesthetic reasons. This provides the opportunity to look at the life of Early Neolithic people from a different, creative perspective. The question of the significance of colourants can be investigated by showing their distribution.

The group of colouring stones is made up of those minerals and ores found in processed and unprocessed forms in LBK settlements and burials.

In total 37 different raw materials are mentioned in the primary publications¹ for the recorded settlements and cemeteries. They have been grouped into the mineral classes haematite, goethite, limonite, graphite, manganese and other metalliferous sediments.

2. USE OF COLOURING STONES IN THE LINEAR POTTERY CULTURE

During the Early Neolithic, colourants of different shapes and colours were used in everyday life as well as in funeral rites. Depending on the purpose of use they were utilised as whole pieces, crushed or pulverized. Pulverized and in combination with binders such as fat, colour pigments could be used for the decoration of ceramics (e.g. Löhr & Zimmermann, 1977; Ramminger, 2003; Ramminger, 2007). Such ceramic incrustations are present in white and red, with the former dominating in the Linear Pottery spectrum (Meier-Arendt, 1966). In addition to the creative component, colouring stones could also be used in the manufacture of ceramic vessels (e.g. Kloos, 1997; Clad-

¹ Information on the raw materials used is taken from the primary publications; own rock identifications were not carried out.

ders, 1997; Fröhlich, 2006; Mecking *et al.*, 2012). Recent studies on a series of Linear Pottery shards with potential haematite tempering have shown that this is most likely not an intentionally added tempering component, but rather natural iron concretions in the raw clay (Ramminger *et al.*, 2013). The use of graphite for tempering is also discussed, based on findings from the Austrian settlement of Rosenburg (Götzinger & Lenneis, 2009; Lenneis, 2009) and settlements of Bavaria (Brink-Kloke 1990: 443, Anm. 60; Prechtel, 2011). It was also utilised in the earliest LBK for the decorations on the outer vessel wall (Lenneis, 1977; Pieler, 2004; Götzinger & Lenneis, 2009).

Alongside the ornamentation of ceramics, red plaster may also have played a role in Early Neolithic wall paintings (Zimmermann, 1988). The usage of colouring stones or coloured powder for tanning and dyeing leather has been discussed (e.g. Kegler-Graiewski, 2007: 412; Krahn, 2006: 493). Colourants were even used for making jewellery. Several polished pieces with perforation suggest a function as pendants (Ramminger, 2007: 326; Kitzig, 2013: 7).

Ochre scatterings, alongside prepared colour stones and raw pieces, are known from Early Neolithic burial rites as was also the case for Mesolithic grave contexts (e.g. Sachs, 1999). The function and significance of these variations of ochre use may be symbolic. However, it could also have had a preservative effect (Schmidgen-Hager, 1993: 175). In addition, red powder was given as a grave good inside a vessel (Richter, 1969: 170; Schmidgen-Hager, 1993: 124), while other vessels were highlighted by scattering ochre (Modderman, 1970: 59; Schmidgen-Hager, 1993: 132).

The colouring stones were prepared for their intended purpose through different processes, aided by various devices. Across LBK settlements, two kinds of objects with corresponding colour traces are represented: milling/grinding stones and hammer stones, the former being recorded even from grave contexts (Kitzig, 2013: 9).

3. COLOURANTS FROM LINEAR POTTERY CULTURE CEMETERIES

Colouring stones are known from the majority of cemeteries in the Western Linear Pottery

Culture. Only 14 (34 %) of the examined 41 cemeteries do not have any colour residues. The distribution of burial sites did not show any noteworthy regionalization; rather, colouring stones occur in graves across the whole research area (Fig. 1). However, a lower incidence of cemeteries with colourants is recorded in the east compared to the west. In the east, there are 12 cemeteries with colouring stones against nine cemeteries without such objects. In contrast, in the western area the cemeteries with colourants dominate. 15 out of 20 cemeteries contained such items (Kitzig, 2013: 18). Regional differences are even stronger concerning the relative number of graves with colouring stones on burial sites. The percentage frequency of graves with colourants in the cemeteries of Rhineland-Palatinate, Baden-Württemberg and Bavaria varies from 3.7 % to 13.3 %. The exception is the site of Worms "Adler Berg" with 50 % (Kahlke, 1954: 97), due to low numbers of graves. In the north-eastern study area, the dead were given colourants even more frequently than at other sites. Whereas only 2.7 % of the graves in the cemetery of Halberstadt "Sonntagsfeld" contained colourants (Fritsch *et al.*, 2008: 132), between 10.3 % and 56 % of graves from other cemeteries in that area contained such items. With a share of 38.9 %, the burial ground of Kleinhadersdorf (Lebzelter & Zimmermann, 1936: 1) in Austria has a similarly high value. It is the only LBK burial site in Austria which had colouring stones in its inventory. At Niedermerz (28 %) (Schmidgen-Hager, 1993) and Elsloo (20 %) (Modderman, 1970) in the north-western part of the study area, almost every fourth or fifth grave has colourants. The highest frequency of colourants is in the south-western study area, with such objects found in six of the nine French burials grounds studied, in four cases in the form of colour scatterings only. This is in accordance to the study of Jeunesse (Jeunesse, 1997). At Rixheim, at least 88.9 % of the dead had colouring stones. While respectively 18 % and 20 % of graves from the sites of Hoenheim-Souffelweyersheim and Quatzenheim have colouring stones, Wettoldsheim is the only burial site without colourants in France.

3.1. Colour scattering

In addition to finds of colouring stones in form of fragments there are graves with colour scatterings, either over the entire grave or across

parts thereof. Colour scattering is documented in 14 of the 41 cemeteries. Consequently every third cemetery comprises graves with colour scattering. At six of these sites, only scatterings were present (Kitzig, 2013: 20). Four of the burial sites with exclusively scattered ochre are located west of the Rhine, in modern-day France (Fig. 1). In addition, the burial grounds of Mangolding (Nieszery, 1995: 161) and Halberstadt “Sonntagsfeld” (Fritsch *et al.*, 2008: 81) show analogous residues. The remaining eight cemeteries have both colour scatterings and colouring stones in their inventories and are distributed throughout the complete study area. Overall, there is a preference for the use of colour scatterings in the western study area located (Kitzig, 2013: 20). With the exception of the colour scatterings at Oberschaeffolsheim-Itterheim (Kahlke, 1954: 102) and Osthofen-Breuschwickersheim (Kahlke, 1954: 102) in Alsace, where the exact material is unknown, ochre and haematite were used for the scattering (Kitzig, 2013: 21).

3.2. Raw materials

The spectrum of colourants on each cemetery ranges from one to three raw materials (Kitzig, 2013: 23). The most widely used is haematite, which is present throughout almost the entire study area. Only in Southern Alsace and Picardy, where all colour scatterings are made using ochre or an unknown black material, is haematite not scientifically proven. It is usually found alone or in combination with the raw materials graphite, manganese, ochre and other metalliferous sediments. Ochre is known especially from the French archaeological sites (Kitzig, 2013: 23-24).

Together, the grey to black materials manganese and graphite have a wide distribution. Except for the western regions – the Rhineland, the Netherlands and France – manganese or graphite were documented in all areas; however, a division of the study area is observed. The boundary runs roughly from Berlin in the northeast to Munich

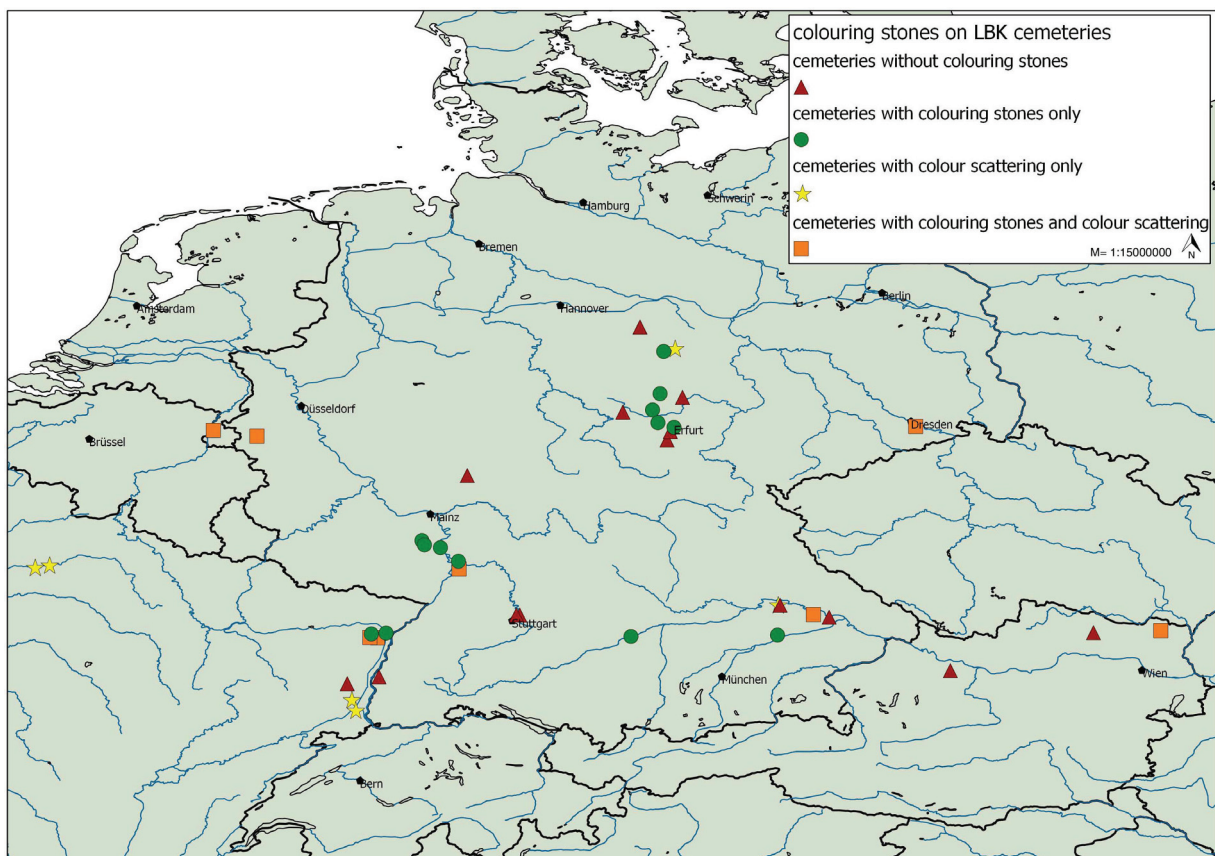


Fig 1 – LBK burial grounds with and without colouring stones and colour scatterings (Kitzig, 2013).

in the southeast. While cemeteries west of this line mainly use manganese as “dark” colouring stones, graphite is known almost exclusively from the eastern sites. Although no obvious regional groups were identified in the use of red-brown or gray-black colouring materials, the preferences postulated by Nieszery (1995), according to whom graphite was preferentially used in the East, can be already covered.

4. COLOURING STONES FROM LINEAR POTTERY SETTLEMENTS

168 settlements of the Linear Pottery culture were considered in this study². 121 (72 %) of them have colourants in their finds inventory. This comprises both processed and raw colouring

stones, as well as colour residues on stone tools. In the case of the remaining 47 sites (28 %) there were no finds indicating the response of colouring stones (Kitzig, 2013: 27). The geographical distribution of all LBK sites with and without colourants is shown on figure 2. Strong differences in the ratio between settlements with and those without colourants can be identified. Whilst the sites in the northern study area yielded no colourants, all sites in North Hesse did. A strong dominance of settlements with colouring stones is also observed in Southern Hesse. There are 44 settlements with colourants versus seven settlements without such finds. The use of colourants in the Linear Pottery sites of Rhineland-Palatinate and Luxembourg is also well marked. Whilst the excavations in Trier-Euren (Schmidgen-Hager, 2003) revealed no colourants, the other ten settlements in this region all have such items.

2 For this study well excavated and well publicized sites were included only and exceptionally some settlements that are known by surface finds for Hesse.

An ambiguous ratio in terms of colouring stone finds can be seen in the Early Neolithic settlements of the Rhineland and the neighbouring

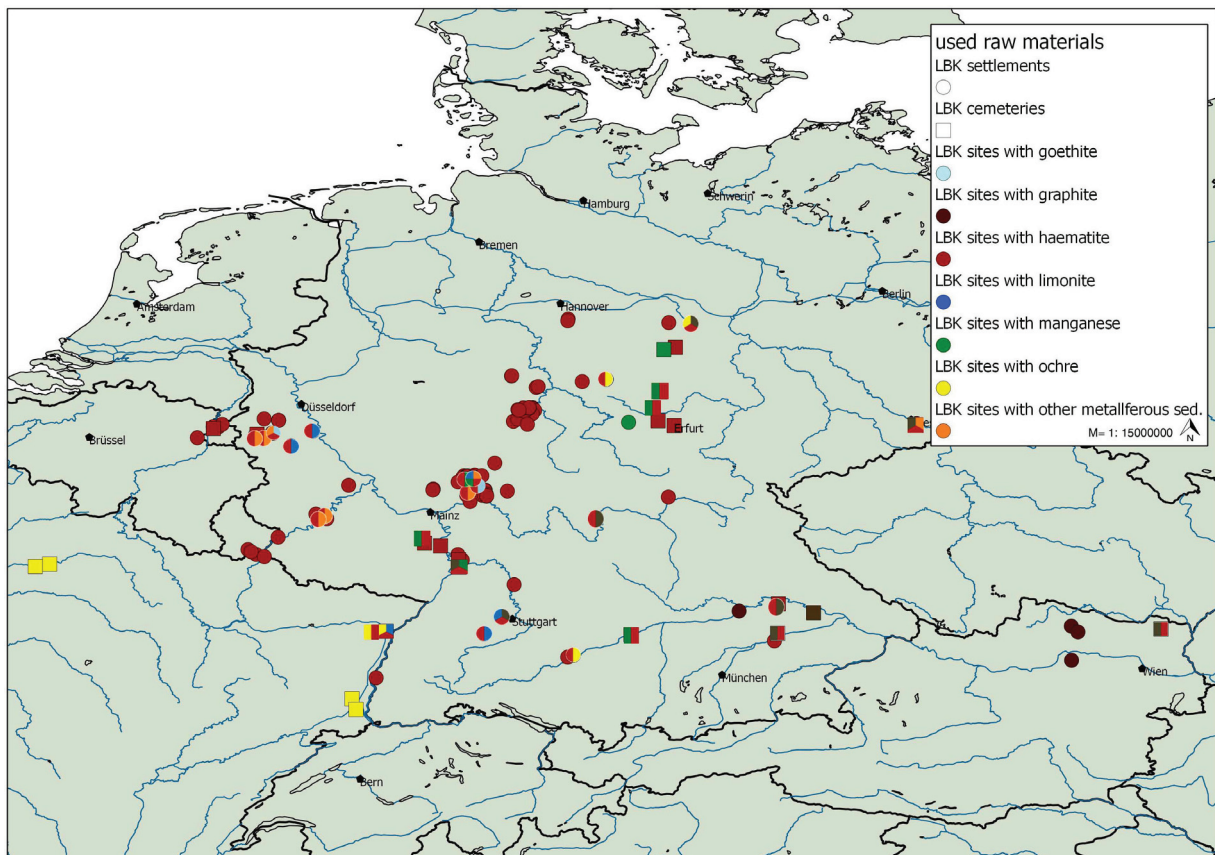


Fig 2 – On LBK sites used raw materials (Kitzig, 2013).

sites in the Netherlands and Belgium. Nearly two thirds of the 35 main sites had colouring stones. However, in the other study areas - South-East Germany and Austria -, there is a balance between settlements with and without colouring stones (Kitzig, 2013: 35).

Regional differences are also indicated by the raw material supply. Settlements in the western study area had more than three colouring stones per house on average. In contrast, the eastern sites have fewer than three colouring stones per house on average. Collectively, the settlements in Hesse were the best supplied with up to six colouring stones per house (Kitzig, 2013: 78).

4.1. Raw materials

Identifications of the raw material were carried out for 118 of the 121 settlements with colouring stone. The materials haematite, graphite and manganese are the only colour raw materials that were documented, either alone or in

combination with other minerals. In settlements, ochre, which in burial contexts can also occur on its own, is known exclusively in combination with other raw materials. In graves, ochre occurs pulverized as well as in pieces, while in settlements this material is only available as whole nodules. The haematite weathering products goethite and limonite are also exclusively found in connection with other raw materials. Goethite is always associated with haematite on four settlement sites. At Behringen, Wartburgkreis (Lörler, 2006: 122), manganese is the only raw material identified; in two other sites it occurs in combination with other colouring materials. Graphite has also been observed either individually or in combination with other raw materials (Kitzig, 2013: 35-36).

Haematite is documented from 113 (95.8 %) of the 118 sites with known colouring stones. As a consequence, this mineral is by far the most frequently attested material in the study area. A haematite mining site is known from Bad Sulzburg in the Black Forest (Goldberg *et al.*, 1998)

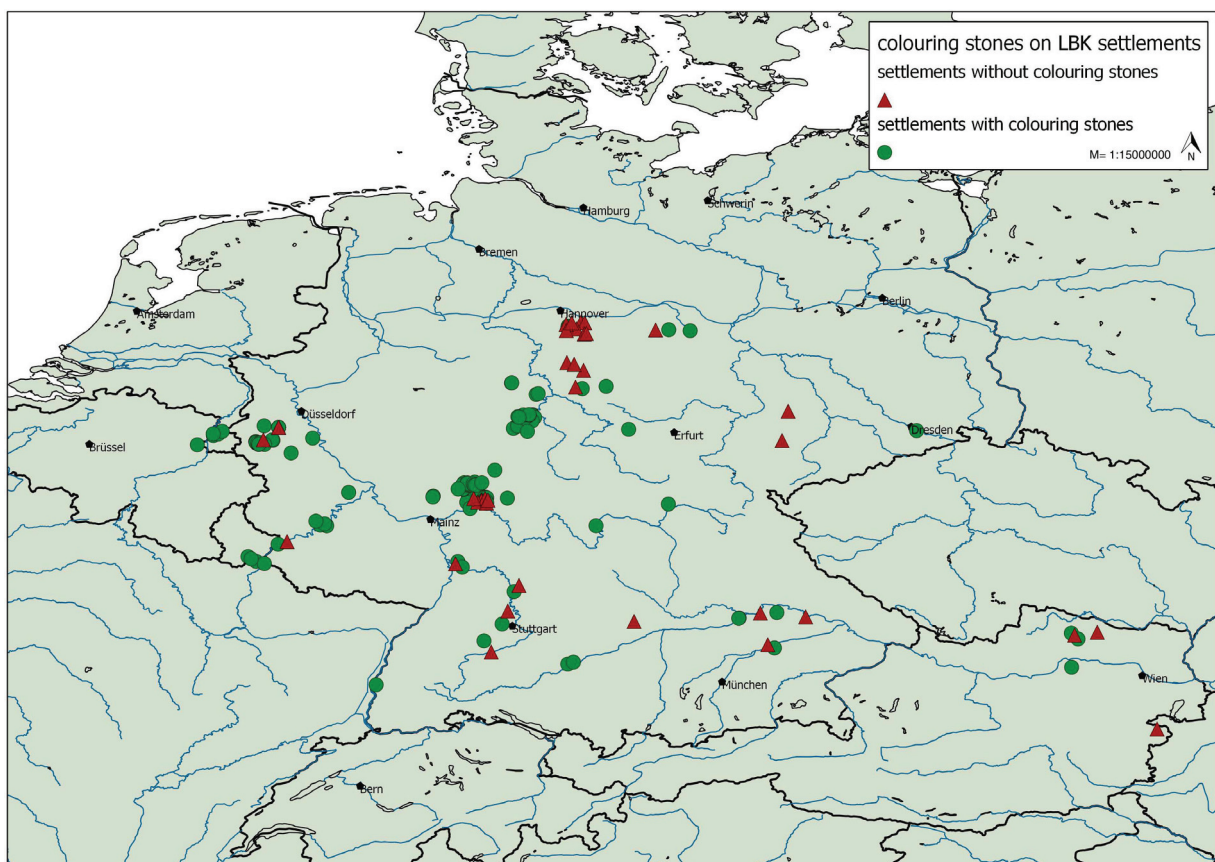


Fig 3 – LBK settlements with and without colouring stones (Kitzig, 2013).

and additional sources probably existed in the Lahn-Dill area and Hesse (Schade, 2004; Ramming, 2007). In contrast to the places of mining in Hesse to the mining site Bad Sulzburg approval of settlements are missing who can be placed unambiguously in connection with the mining site. Although the material from the 38 km distant site of Bischoffingen Kaiserstuhl is visually similar to the material from Bad Sulzburg, only future geochemical studies will be able to clarify whether the documented haematite does in fact come from this mine (Hoeper *et al.*, 2011: 74). In comparison to haematite, the use of other materials appears negligible. All remaining materials are represented less than ten times in the study area, so a general preference for haematite is evident.

Due to its popularity, it is not surprising that haematite is geographically widespread in the study area. With the exception of Austria, this mineral has been used in all regions of the western Linear Pottery culture. It is the only material which enjoys a comprehensive distribution, except for the extreme southeast. The Linear Pottery sites of the Netherlands, Belgium and Luxembourg invariably use haematite as a colouring stone. In addition, the use of graphite in Early Neolithic settlements reveals a pattern. Except for the graphite finds from Eilsleben, Kr. Wanzleben (Kaufmann, 1981: 185) in Saxony-Anhalt, this material has been exclusively observed on settlements in southern Germany and in Austria.

5. CONCLUSION

Throughout the study area, colouring stones are documented in settlements as well as burial grounds. There are regional differences. In the southwest, for instance, the Mesolithic burial ritual (e.g. Jeunesse, 1997) of ochre scattering continues in the Early Neolithic, as illustrated by the high frequency of graves with this kind of treatment. East of the Rhine, however, colour scatterings in the context of burials are an exception. It is possible that the archaeologically documented materials correspond to those available in the environs of the sites. If different raw materials of similar colour occurred around the same archaeological site, the different quality of the materials could have led to a preference for specific sources. The regional differences in the frequency of different

colouring stones could be attributed to differential access to existing sources, an aspect which remains to be discussed, in particular for the haematite-rich regions in Hesse. Furthermore, it must be taken into account that the consumption of colouring stones was more important than their preservation. Therefore, it is impossible to exclude that sites with a small amount of preserved colourants would actually have been as well supplied as those with larger assemblages. Conversely, it is also possible that sites with more finds in fact specialized in the mining and processing of colouring stones and supplied other settlements. This could indicate possible regional and supra-regional trade connections. Equally, this could have evened out regional supply shortages. To answer the exciting question of an exchange of colouring stones, a comprehensive investigation is required. For this purpose, a geochemical analysis of samples from natural deposits as well as from archaeological artefacts will be essential.

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