

# **La parure en callaïs du Néolithique européen**

Sous la direction de

Guirec Querré, Serge Cassen  
et Emmanuelle Vigier

Préface d'Yves Coppens



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Collier en callaïs du Tumulus St-Michel, Carnac, Morbihan - France.  
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Callaïs necklace from the Tumulus St-Michel, Carnac, Morbihan - France.  
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*Ce volume est dédié à la mémoire de Marie-Pierre Dabard*

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## Rings and axeheads of Alpine jades: imports to and exports from the Gulf of Morbihan during the 5th millennium and the beginning of the 4th millennium

Pierre Pétrequin, Anne-Marie Pétrequin, Mauro Cinquetti, Michel Errera, Ramón Fábregas Valcarce, Estelle Gauthier, Frédéric Jallet, Yvan Paillet, Frédéric Prodéo, Alison Sheridan

**Abstract.** During the 5th millennium BC, the gulf of Morbihan played a major role in the circulation of socially-valued goods, especially those made from Alpine jades (jadeite, omphacite, eclogite, some serpentinites and, more rarely, nephrite), in the form of disc-rings and polished axeheads. This contribution begins with a review of the findspot contexts of these exotic objects which had circulated over hundreds of kilometres before being deposited and consecrated. It then uses a cartographic approach to demonstrate the role played by the Morbihan area in the processes of attracting, transforming and (in some cases) rejecting these precious social signifiers. In following the circulation routes of Alpine axeheads and rings, taking into account their typology and chronology, one can identify connections between Morbihan and the western Iberian peninsula, where objects made from variscite were also involved in impressive long-distance exchanges, while the presence of ‘Carnac-type’ polished axeheads illustrates the diffusion of new forms of mythology that had originated in Morbihan. Finally, we shall consider jewellery made from Alpine paragonite (which visually resembles variscite) which appears not to have reached as far as Morbihan, even though beads and pendants made from Iberian variscite were accumulated and hoarded in that region, some of them travelling onwards towards the Alps, along the routes that had been taken by the Alpine axeheads.

*Key-words:* Alps, disc-ring, jade, Neolithic, paragonite, polished axehead

**Résumé.** Pendant le V<sup>e</sup> millénaire, le golfe du Morbihan a joué un rôle primordial dans la circulation de biens socialement valorisés, en particulier des jades alpins (jadéite, omphacite, éclogites fines, certaines serpentinites ou plus rarement des néphrites) mis en forme d’anneaux ou de haches polies. Après un rappel des contextes de découverte, où la plupart de ces objets exotiques circulant sur des centaines de kilomètres ont été déposés et consacrés, une approche cartographique permettra de préciser le rôle du Morbihan dans les processus d’attraction, de transformation ou de rejet de ces signes sociaux précieux. En suivant les axes de circulation des lames polies et des anneaux alpins, selon les types et leur chronologie, des rapports seront soulignés entre Morbihan et ouest de la péninsule Ibérique, où la variscite a également soutenu d’impressionnants transferts à longue distance, tandis que les lames polies de type carnacéen illustraient la diffusion de nouvelles formes de mythologie nées en Morbihan. Enfin, on s’interrogera sur certaines parures en paragonite alpine (visuellement proche de la variscite) qui semblent ne pas avoir atteint le Morbihan, tandis que perles et pendeloques en variscite ibérique ont été accumulées et thésaurisées dans cette région, certaines d’entre elles reprenant en sens inverse les pistes d’arrivée des haches alpines.

*Mots-clés :* Alpes, anneau-disque, hache polie, jade, Néolithique, paragonite

### Introduction

In western Europe during the 5th millennium BC, the gulf of Morbihan acted as a magnet for exotic, rare and precious objects that had circulated over considerable distances, of the order of 800–1000 km as the crow flies (fig. 1), namely:

– beads and pendants of variscite, of definite Iberian origin (fig. 1, n° 4) (Errera, 2000; Cassen, Pétrequin



Fig. 1: Examples of long-distance imports to Morbihan. N<sup>os</sup> 1–2 and 4–5, Locmariaquer/Mané er Hroëck; N<sup>o</sup> 3, Brehan-Loudéac/Tymadeuc. The inventory numbers are those from the JADE general inventory of large axeheads. Cliché P. Pétrequin.

*et al.*, 2011; Querré, Dominguez Bella *et al.*, 2012); – polished axeheads of fibrolite (fig. 1, n<sup>o</sup> 1) that is probably of Iberian origin, although this has not been definitively proven (Cassen, Pétrequin *et al.* 2011; Cassen, Boujot *et al.*, 2012; Fábregas Valcarce, De Lombera Hermida *et al.*, 2012); – disc-rings of Alpine jades (jadeitite, omphacitite and nephrite) (fig. 1, n<sup>o</sup> 3) (Herbault, Paillet, 2000; Pétrequin, Cassen *et al.*, 2015a, 2015b), whose source is certainly the Mont Viso massif in the Italian Alps (Pétrequin, Pétrequin *et al.*, 2012) and Valais (Pétrequin, Croutsch *et al.*, 2012); – and finally, polished axeheads of Alpine jades (jadeitite, omphacitite, fine eclogite and nephrite) (fig. 1, n<sup>os</sup> 2 and 3), coming mostly from the massifs of Mont Viso and Mont Beigua but also, occasionally, from the Valais in the case of the jade-nephrite examples (Pétrequin, Cassen *et al.*, 2012a; Pétrequin, Croutsch *et al.*, 2012; Pétrequin, Pétrequin *et al.*, 2012).

However, the accumulation of these exotic goods – which travelled across Neolithic cultural boundaries – was not simply a matter of down-the-line exchange along networks of economic contacts, ending in hoarding by individuals

in Morbihan. In contrast, we are dealing with the manipulation of object-signs with a high social and religious value, which were deposited in hoards or under gigantic mounds. Moreover, the large polished jade axeheads frequently featured among the repertoire of mythological signs carved onto standing stones in and around Carnac (Cassen, 2012; Cassen, Boujot *et al.*, 2012; Pétrequin, Cassen *et al.*, 2012). The only way to account for this situation in Morbihan is by positing that society was markedly inegalitarian, with communication between people and supernatural powers being effected through special individuals ('divine kings'), and using material signs of considerable religious value, in order to ensure the ideological reproduction of the world: in other words, this was a theocratic society (Cassen, 2012; Pétrequin, Cassen *et al.*, 2013). It is within this context of marked social inequality and shared religious beliefs that we shall try to make a comparative evaluation between the imports coming from the Alps and the imports from Iberia; in Morbihan, jades and variscite were integrated within the same social system, based on the religious and the sacred.

We shall begin by seeking to identify the Alpine imports, which comprised polished stone axeheads and also, above all, stone arm-rings, which are less well known. We shall then address the question of other items that had been left out of the equation, namely the arm-rings, beads and pendants made from Alpine paragonite which, though they are well represented in northern Italy, seem not to have reached Morbihan, even though the material bears a certain resemblance to variscite. We shall conclude by considering the various possible ways in which there had been a reciprocal movement from Morbihan back towards the Alps and Iberia, thus maintaining long-distance circulation over an arc extending a thousand kilometres around the epicentre at Carnac.



**1. The importation of polished axeheads of Alpine jades**

The chronology and the circulation of the large polished axeheads of Alpine jades are sufficiently well-known for it not to be necessary to present them again here in detail (Pétrequin, Cassen *et al.*, 2012a et b). Let us focus solely on that which is germane to our hypothesis.

In the Italian Alps, the outcrops of jades are exclusively limited to the massifs of mont Viso and mont Beigua, where they were subjected to intensive exploitation from the last third of the 6<sup>th</sup> millennium BC; indeed it is possible that the jades of mont Beigua – a massif that dominates the Ligurian

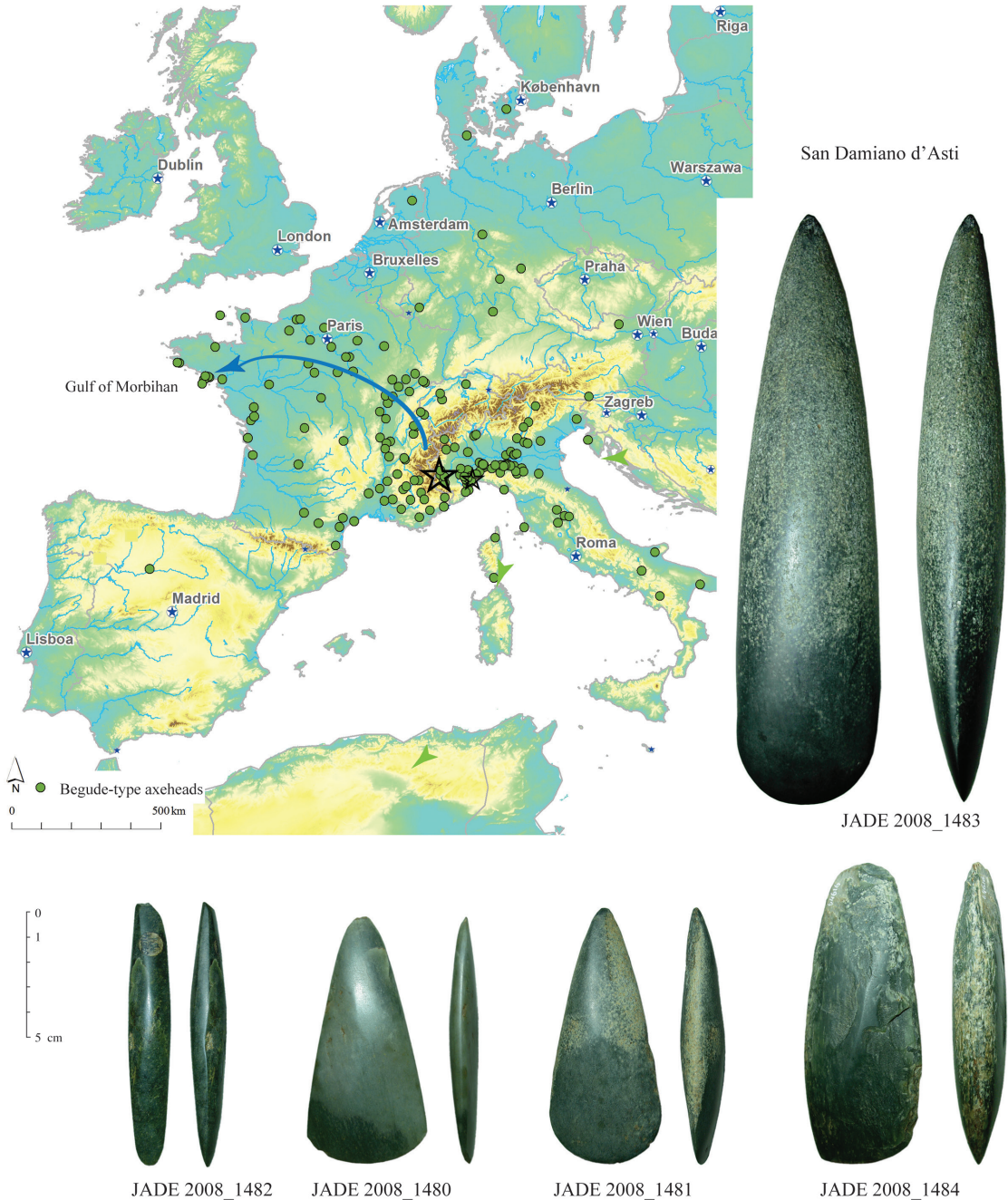


Fig. 2: Distribution of Alpine axeheads of Bégude type and hoard from San Damiano d’Asti (Piedmont, Italy). Documentation December 2015. CAD F. Prodéo, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. A.M. and P. Pétrequin.

coast – had been known before then. The rarity of jades in this mountainous terrain, their extraordinary toughness and their considerable aesthetic qualities rapidly led to the production of special versions of certain wood-cutting tools, and in particular oversized examples that were disproportionately large for any simple, utilitarian use. Around 5000 BC, a number of these polished axeheads, in particular those of Bégude type (fig. 2), were diverted away from their primary function, being treated instead as socially-valued object-signs, and they circulated over long distances as far as the Paris Basin from the time of the Villeneuve-Saint-Germain/Augy-Sainte-Pallaye cultures, in the first centuries of the 5th millennium. It is likely that some of these imports reached as far as Morbihan at this time, or slightly later.

The Bégude type, which was the first type of Alpine jade object to travel beyond the Alps in the direction of the Atlantic coast, was a typical example of an Italian style of artefact that can be associated with the early Neolithic of the Pô region, specifically to the Vhò group and the earliest phase of the Square-Mouthed Pottery culture (henceforth VBQ, for ‘Vasi a Bocca quadrata’) (Bernabò Brea, Errera *et al.*, 2012). With the intensification of the demand for object-signs in the Paris basin, however, the production of axehead roughouts – and particularly those of Durrington and Altenstadt/Greenlaw type – changed hands and increased. These types of axehead, which are virtually unknown in northern Italy, were produced specifically for export beyond the western Alps, and their makers preferentially selected light-coloured jadeitites above the other varieties of jades, and also used specific techniques of working the material, including sawing. These new centres of specialist production, to the north and north-west of mont Viso, were definitely in direct contact with the closest importers on the western slopes of the Alps. Shortly before the middle of the 5th millennium, the polished axeheads made from jadeite or fine eclogite and obtained from sawing blocks of the raw material travelled as far as the Paris basin, with some of these subsequently travelling yet further, as far as Morbihan. This phenomenon of attraction to Morbihan is underlined by the fact that people there wished to create specific and inimitable versions of these axeheads by means of re-polishing them. Thus we see the appearance of a Carnac type of axehead, with splaying blade and (in some cases) a perforated butt. The elites of the gulf of Morbihan – at the time when their most powerful individuals were interred under gigantic mounds – were thus procuring fine axeheads from the Paris basin and the middle Loire valley and treating them not only as exotic objects made from an exceptional raw material but also objects to re-think and to re-shape.

It is also clear that in Morbihan, this importation of Alpine jades was contemporary with the importation of Iberian variscite at this time.

Shortly after the 43rd century, the society in Morbihan underwent profound changes – not least in the cessation of building enormous monuments – and the importation of jade items decreased, even though elsewhere the movement of Alpine axeheads became more intense, now in the direction of Germany with the expansion of the Michelsberg culture and, from around 4000BC, to Britain and Ireland.

## 2. Disc-rings of regular shape made from Alpine jades

The manufacture of a single polished axehead of jade would have required several hundred hours of work, a fact that would have no doubt increased its value. However, it would also have taken hundreds of hours to create even the smallest disc-ring type of arm-ring of jadeite. Such rings, with a medium-width or wide hoop and a flattened triangular section, are particularly rare: only around 30 have been definitively identified between Italy and Brittany (fig. 3) (Tanda, 1977; D’Amico, Ghedini *et al.*, 2000; Thirault, 2004; Pétrequin, Cassen *et al.*, 2015b). No centre of production has been identified; on the contrary, it seems that the roughouts were worked up individually some 100 km to 200 km away from the source areas, as demonstrated by the roughout with pecked-out central hollows discovered at Bobbio (Rossi, Errera *et al.*, 2008) (fig. 3).

The diameter of the oldest disc-rings of jade is generally less than 10 cm. These examples are typically the products of early Neolithic individuals working in northern Italy, prior to 5000 BC (Micheli, 2012a; Pétrequin, Cassen *et al.*, 2015a). Their distribution extends over northern and central Italy, but also reaches to the

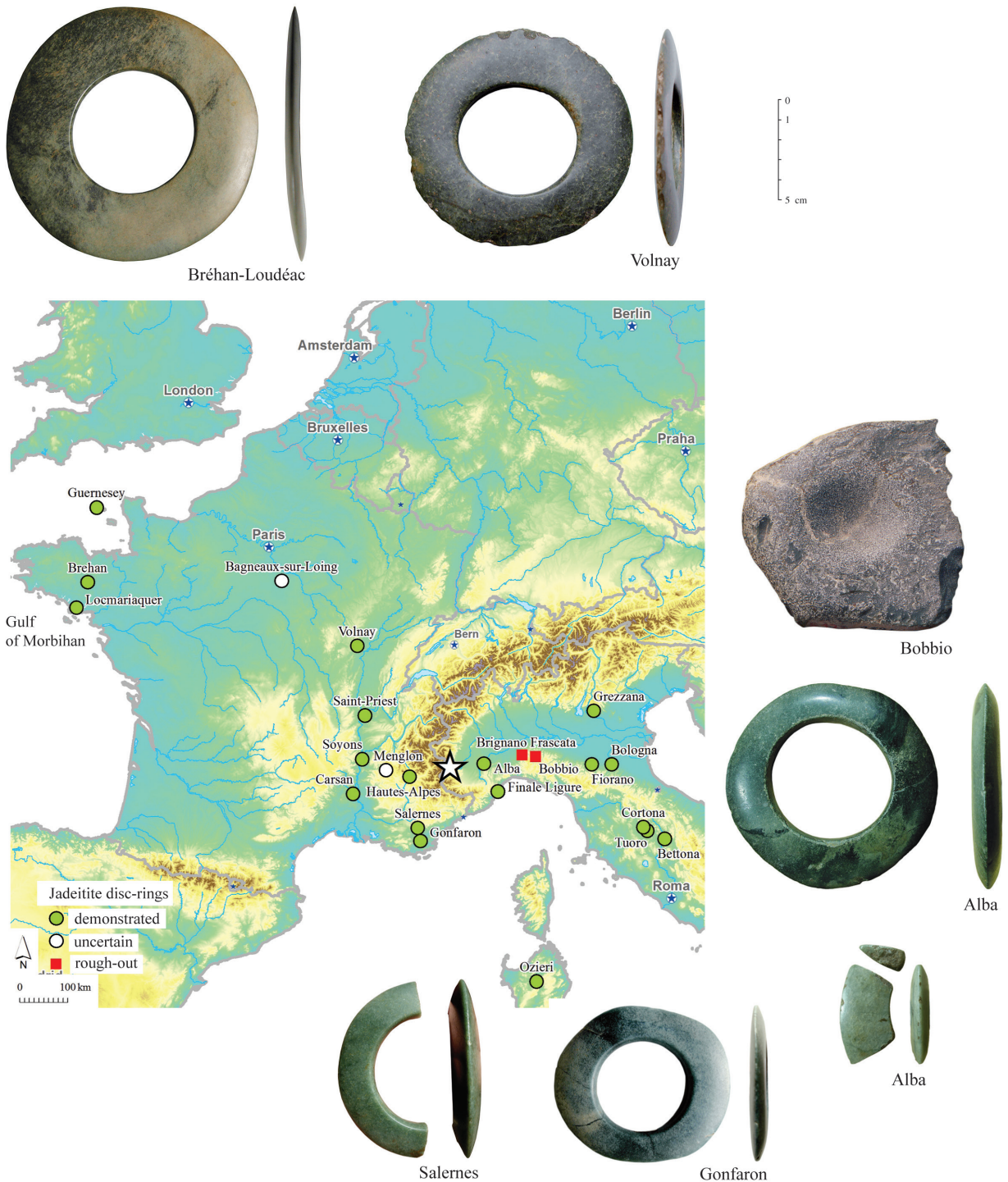


Fig. 3: Distribution of disc-rings made from Alpine jades (jadeitite, omphacitite and eclogite). Documentation December 2014. CAD F. Prodéo, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. A.M. and P. Pétrequin.

French side of the western Alps, to Provence and the valleys of the Rhône and the Saône (fig. 3). It does not seem to have extended beyond the Paris basin to Brittany at this time, and this is characteristic of other Mediterranean and Italian influences at the transition between the 6th and 5th millennia. That said, four disc-rings of jadeitite have been identified in the Morbihan (Herbaut, Pailler, 2000). Three of these were found together at Bréhan-Loudéac/Thymadeuc, while the fourth formed part of the set of

grave goods found in the central chamber of Locmariaquer/Mané er Hroëck. These four Breton disc-rings are all considerably larger, and have a broader hoop, than the Italian examples.

While spectroradiometric analysis and macroscopic inspection leave no doubt about the Alpine origin of these disc-rings in Morbihan – with mont Viso being the probable source – nevertheless their attribution to an Italian 6th millennium episode of production is not possible. The example from Mané er Hroëck must have been deposited a little before 4500 BC (Cassen, Pétrequin *et al.*, 2011; Cassen, Boujot *et al.*, 2012), long after the production of arm-rings in Italy had ceased (Micheli, 2012a).

The typological specificity of the rings in Morbihan and their later dating than the north Italian examples therefore allow us to suppose – as we have done above in the case of jade axeheads – that there had been another area of production, close to the French side of the Alps and in direct contact with the first importers. Thus, as regards both the polished axeheads and the disc-rings of jade, while the original production was based in Italy and dated to the second half of the 6th millennium, a secondary and later centre (or centres) of production must have been established, manufacturing objects exclusively for export to the Paris Basin and the gulf of Morbihan. The fragment of arm-ring found at Les Fouaillages on Guernsey could belong to this production.

### 3. Disc-rings and regularly-shaped bangles of serpentinite

It had long been hypothesised – thanks to the similarity between the distribution of all types of rings (fig. 4) and that of Bégude-type jade axeheads (fig. 2) – that the regular-shaped rings of serpentinite had an Alpine origin. Recent confirmation that this is indeed the case comes from new discoveries in a Villeneuve-Saint-Germain (VSG) context (Praud, 2014). It should however be noted that the types of serpentinite ring found in France are different from their counterparts found in northern Italy, and that non-Alpine sources of serpentinite could have been exploited, in addition to Alpine sources (Fromont, 2013).

Nevertheless, it seems to us that we are dealing with a situation similar to that seen with the jade arm-rings (as described above in section 2). In effect, the Italian serpentinite arm-rings are universally smaller than their French counterparts, and there is no doubt that the Italian examples date to before 5000 BC (Micheli, 2012a; Pétrequin, Cassen *et al.*, 2012a, 2015a, 2015b). They were demonstrably produced at the north of the Beigua massif, for example at Brignano Frascata (fig. 4), where several roughouts for small disc-rings were found.

There are few formal similarities between these Italian early Neolithic arm-rings and the French examples. The latter are generally of medium diameter, with a narrow hoop, and are most commonly found in VSG contexts, that is to say, dating to the beginning of the 5th millennium. As for larger examples with a wider hoop, such as the one from Quiberon/Fort Saint-Julien (fig. 4), their association with Bégude-type axeheads – within what could be the earliest manifestations of Carnac-type mounds – suggests an even later date, within the first half of the 5th millennium.

The Alpine origin of the large, wide-hooped examples is not in doubt if one compares them with the five examples from the hoard found at Chambéry/Ferme des Combes (fig. 4) (Thirault, 2004). These were brand new objects, which attest to their regional production in Savoie or possibly around Lyon; according to this hypothesis, unworked blocks of serpentine or large rough-outs could have been imported from the Alps, among other raw materials or partly-made objects that were circulating at this period.

Thus, despite the fact that no actual roughouts for regular-shaped arm-rings of serpentinite have yet been found in the western Alps, the Alpine origin of the majority of the French examples seems highly likely (Pétrequin, Cassen *et al.*, 2012a). An initial influx, before 5000 BC, will have had an Italian origin, but it was not until the beginning of the 5th millennium that secondary production centres became established, to manufacture regular-shaped, narrow-hooped arm-rings destined mainly for VSG communities. And in the case of the wide-hooped arm-rings, which circulated as far as the area around Carnac in Morbihan, we must be dealing with relatively late production in Savoie (as seen in the disc-rings of Chambéry).

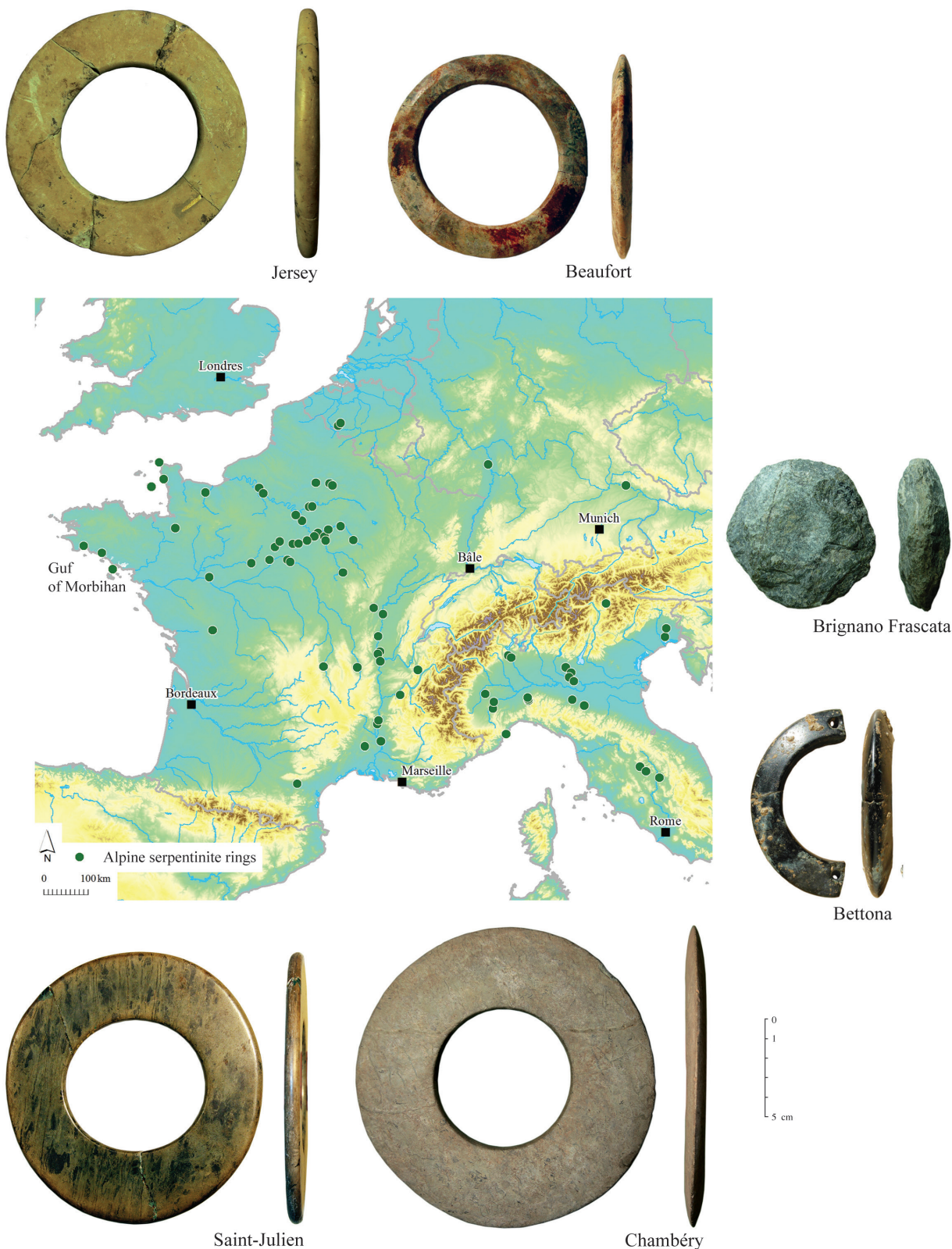


Fig. 4: Distribution of rings made from serpentinite (of all types excepting irregular-shaped Alsatian examples). Documentation December 2015. CAD F. Prodéo, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. A.M. and P. Pétrequin.

Both in northern Italy and in France, the evolution in design and the chronological parallelism between Alpine jade disc-rings and those made from serpentinite is clear, as is the fact that the Morbihan was the ultimate destination of the largest and latest arm-rings. This lends support to the hypothesis that there had been an ideological relationship between these arm-rings and polished axeheads of Alpine origin – as indicated by the fact that at Mané er Hroëck the butt of the finest polished axehead, with its central crest, was found projecting through a large disc-ring of jadeitite (Cassen, Boujot *et al.*, 2012; Pétrequin, Cassen *et al.*, 2013).

#### 4. Disc-rings of irregular shape

Until recently it had been supposed that the fashion for wearing irregularly-shaped disc-rings, their shape imitating the Linearbandkeramik bangles made from spondylus shell (Müller, 1997), was limited to Alsace and to the north of Franche-Comté, where they are found mainly in Grossgartach and Rössen contexts, dating to the whole of the first half of the 5th millennium (Denaire, Jeunesse, 2008). A production site for these so-called Alsatian disc-rings has been identified at Säckingén, in the Rhine valley upriver of Basel, where flat cobbles of serpentinite and of metagabbro had been collected from the riverbed (Pétrequin, Cassen *et al.*, 2015).

Following a reconsideration of French disc-rings, it is clear that the situation is significantly different (Pétrequin, Cassen *et al.*, 2015b). A second centre of production has been identified at Lyon/Isaac (fig. 5, bottom) and, thanks to isolated examples, the distribution has been enlarged to cover the Paris Basin, with fragments found in a VSG context (Fromont, 2013), and also to extend as far as Brittany, as shown by examples from Lannion, Guidel and Quiberon. As for the irregularly-shaped disc-ring from Groix (fig. 5, top left), it is not yet possible to determine whether this is really an example made in Alsace or a locally (and badly)-made specimen.

Whatever the case may be, it is certain that irregularly-shaped arm-rings had reached Brittany by the beginning of the 5th millennium, probably coming within the principal current of jade axeheads that were circulating between Piedmont and Morbihan (fig. 2). The same is probably true of the Stichbandkeramik pot (of possible Bavarian style, or even originating further east) that was found in the cist of Kerhuen at Belz in Morbihan (Cassen, 2003). This remarkable pot had travelled over 1000 km as the crow flies from east to west, at the very beginning of the 5th millennium.

#### 5. Axeheads and arm-rings of jade-nephrite

As we have seen, then, in addition to a diffusion of polished axeheads of Alpine jade from Piedmont to Brittany, there was an additional axis of movement, from east to west, from the High Alsace to Morbihan. The study of object-signs made from jade-nephrite allows us to confirm this axis of circulation, since it demonstrates the movement of artefacts of exceptionally high quality from the Swiss Alps to their places of final deposition in Morbihan.

Our recent field investigations have enabled us to identify and characterise three sources of nephrite that had been exploited during the Neolithic: one in Valais/val de Bagnes and val de Moiry (fig. 6 top), one in Grisons/Oberhalbstein (Pétrequin, Pétrequin *et al.*, 2012), and one in the Pyrenees (Vaquer, Pétrequin, 2015). The application of spectroradiometric analysis, and macroscopic comparisons, permit us to rule out the Pyrenees and the Grisons as the source areas for the artefacts found in the Morbihan. As for the axeheads from the hoard of Arzon/Bernon (fig. 6, bottom left) (Cassen, Boujot *et al.*, 2012), like the large regular-shaped disc-ring from Languidic (fig. 6, bottom right) (Herbaut, Pailler, 2000), there is every chance that the nephrite had been extracted from high-altitude outcrops in the Valais. This source had also been exploited to produce artefacts using the technique of sawing, in the region around Sion (Thirault, 2004; Pétrequin, Croutsch *et al.*, 2012).

The disc-ring from Languidic is not unproblematic, however, since no evidence has been found in Switzerland for the production of arm-rings, nor has any fragment of such an object been found.

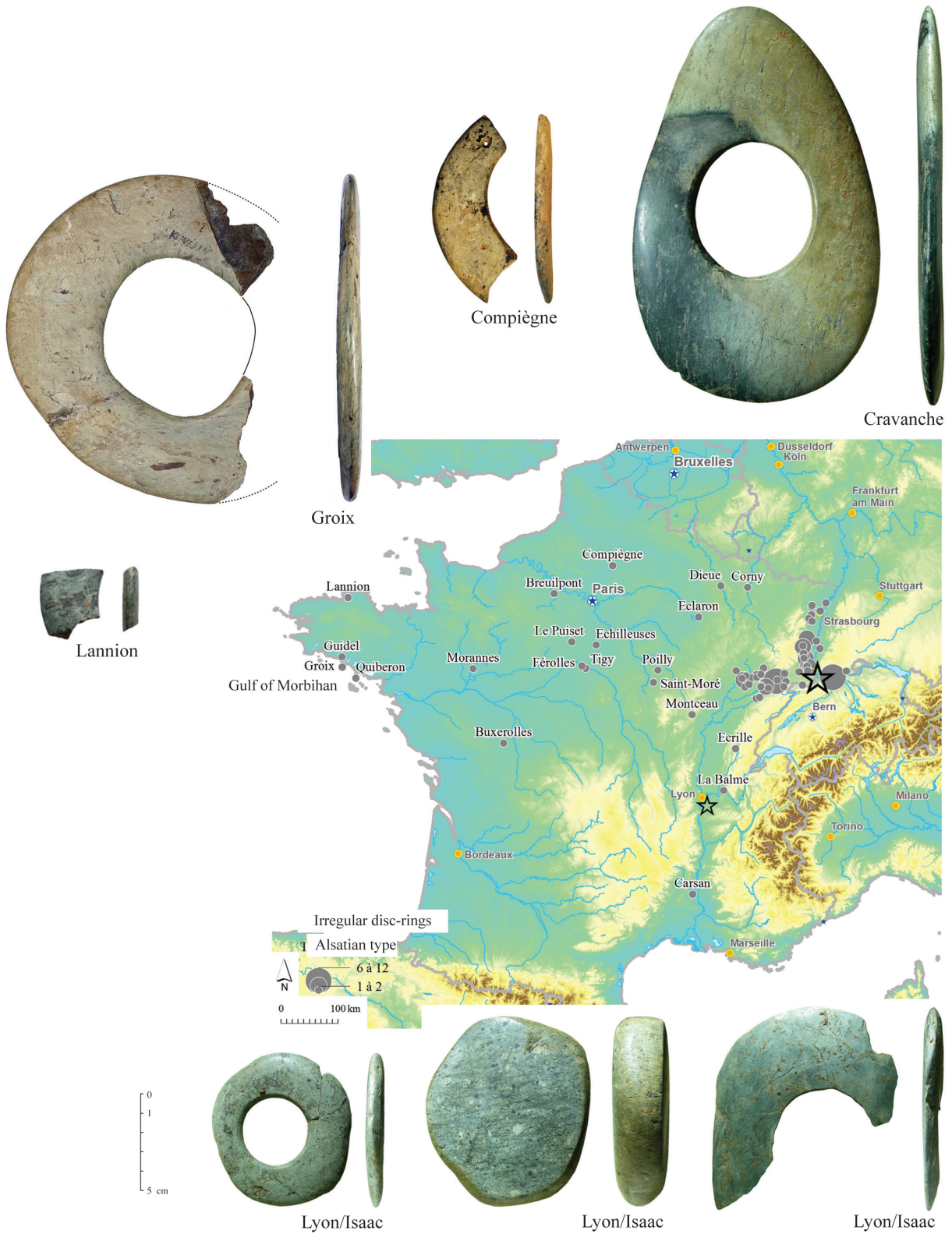
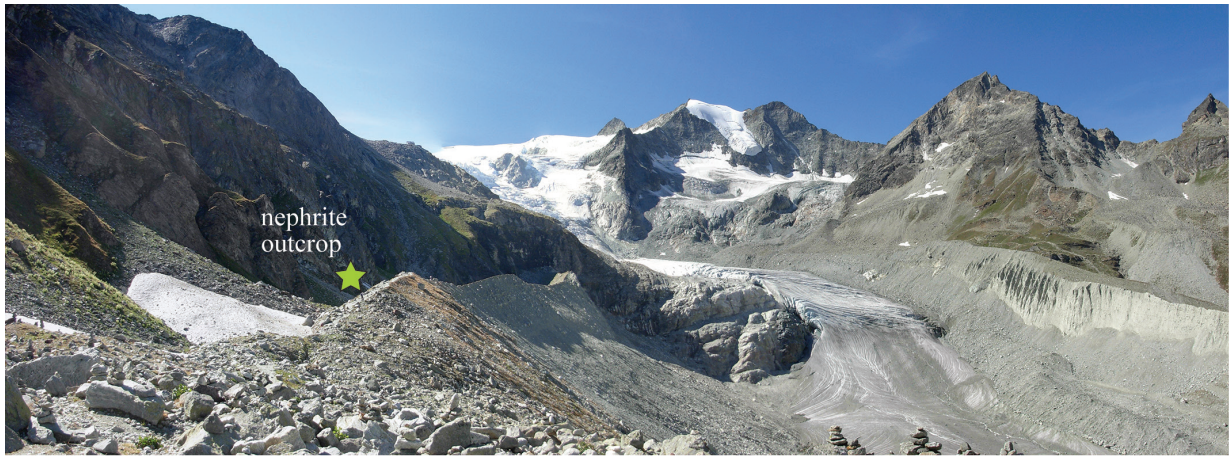


Fig. 5: Distribution of ring-discs of Alsatian type. Documentation December 2015. CAD F. Prodéo, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. A.M. and P. Pétrequin and S. Cassen.



Moiry



Fig. 6: Top: the nephrite outcrop at Grimontz/Moiry (Valais, Switzerland). Bottom: imported Valais nephrite objects in the Morbihan. Cl. A.M. Pétrequin, P. Pétrequin and Musée de Carnac/N. Mather.



Nevertheless, the determination of its origin (through spectroradiometric analysis and macroscopic examination) is beyond doubt. We must therefore suppose that unworked plaques of nephrite (fig. 6, top) had circulated to production areas that lay outside the Alpine arc proper, in the region of Lyon or in northern Italy. The same issue relates to two further fragments of nephrite disc-rings found at Pozzuolo del Friuli/Sammardenchia (Pessina, D'Amico, 1999). Such movements of blocks and slabs of raw material – not only of nephrite but also of Alpine jades and of serpentinites – confirm the high value placed on these rocks, even in their 'raw', unworked state.

## 6. Items that had been left out of the picture: jewellery made from paragonite

Having retraced the long-distance exchange links between the Alpine world and the Gulf of Morbihan, it is now necessary to introduce certain nuances, since it appears that not all of the socially-valued Alpine artefacts travelled as far as Brittany. In considering the contents of the hoard from San Damiano d'Asti (fig. 2), which contains high quality polished jade objects of VBQ style, one cannot but be struck by the absence from Morbihan of long chisels made in Italy and of small polished axeheads of Collecchio type, made from a fine, translucent jadeitite (fig. 2, bottom and centre). The Collecchio type seems to have been particularly popular in Piedmont and western Emilia-Romagna, where it is mostly found in graves of the VBQ Culture, dating to the first half of the 5th millennium (Bernabò Brea, Errera *et al.*, 2012). However, not a single example has been found outside of the epicentre of the VBQ world. From this one might conclude that it was only the production centres along the Alpine edges of the overall area of jade working that were supplying products for transalpine exchanges – unless, of course, the Collecchio type axeheads were exclusively produced for the elites of the VBQ Culture.

Jewellery made of paragonite, a mineral that represents the extreme sodic form of muscovite, offers us some other interesting examples of socially-valued objects that are typical of the Neolithic in northern Italy. This is a greasy-looking translucent mineral that occurs in various shades of luminous green (fig. 7, bottom). The only outcrops that have been identified lie in the valley of Chisone and the high Susa valley, in particular Val Thuras, close to the frontier with Queyras (fig. 7, top). Since paragonite occurs as small nodular inclusions within quartz in calc-schists (fig. 7, top), the only way to collect it is by sorting through cones of scree; even then, it occurs in small amounts (Gastaldi, 1874; Piolti, 1888). However, it is possible that schists with paragonite are also to be found in the South-East of the Voltri group, near Genoa (fig. 8) (Liborio, Mottana *et al.*, 1970).

The disc-rings of paragonite, such as those from Turin, Alba and Pozzuolo del Friuli/Sammardenchia (fig. 9), are rare pieces, emblematic of the early Neolithic (Pessina, D'Amico, 1999; D'Amico, Ghedini *et al.*, 2000; Micheli, 2012b). There is also a small triangular pendant from val Grana/Tetto Chiapello, in a VBQ II context, and small beads that crossed the Alps to end up in tomb 87 at Lausanne/Vidy (Moinat, 2007) and Geneva/Les Eaux Vives (Geneva, Musée d'art et d'histoire, unpublished) during the second half of the 5th millennium and the beginning of the 4th. Later again, paragonite – in the form of perforated plaques and spherical faceted beads – occurs at Cuorgne/Boira Fusca and Tigliole in Piedmont (Traversone, 1996), at lac du Bourget (Chambéry, Musée savoisien, unpublished) and at Saint-Vallier-de-Thiey/tumulus III de Caillaissoux (Roscian, Claustre *et al.*, 1992). In each case these objects have been found in collective tombs dating to the end of the Neolithic.

The inhabitants of Morbihan do not seem to have been interested in importing paragonite jewellery, despite the fact that it travelled long distances in Italy: the Early Neolithic disc-rings found at Pozzuolo del Friuli had come nearly 400 km from their probable source in the Voltri Group (fig. 8). Thus, before 5000 BC, exports from Piedmont do not seem to have travelled any further in France than Burgundy (as attested there by the jade ring found at Volnay: fig. 3). Later on during the 5th millennium, Italian beads of paragonite will have been circulating concurrently with those made of Iberian variscite, and also with beads and pendants made from sericite schist – a light green stone with a silky sheen, whose source could have been in the area around Nantes. The two pendants of sericite schist found at Orville (Loiret)/Les Fiefs demonstrate the



Fig. 7: Outcrops and working debris of paragonite from the Cottian Alps (Piedmont, Italy). Cl. P. Pétrequin.

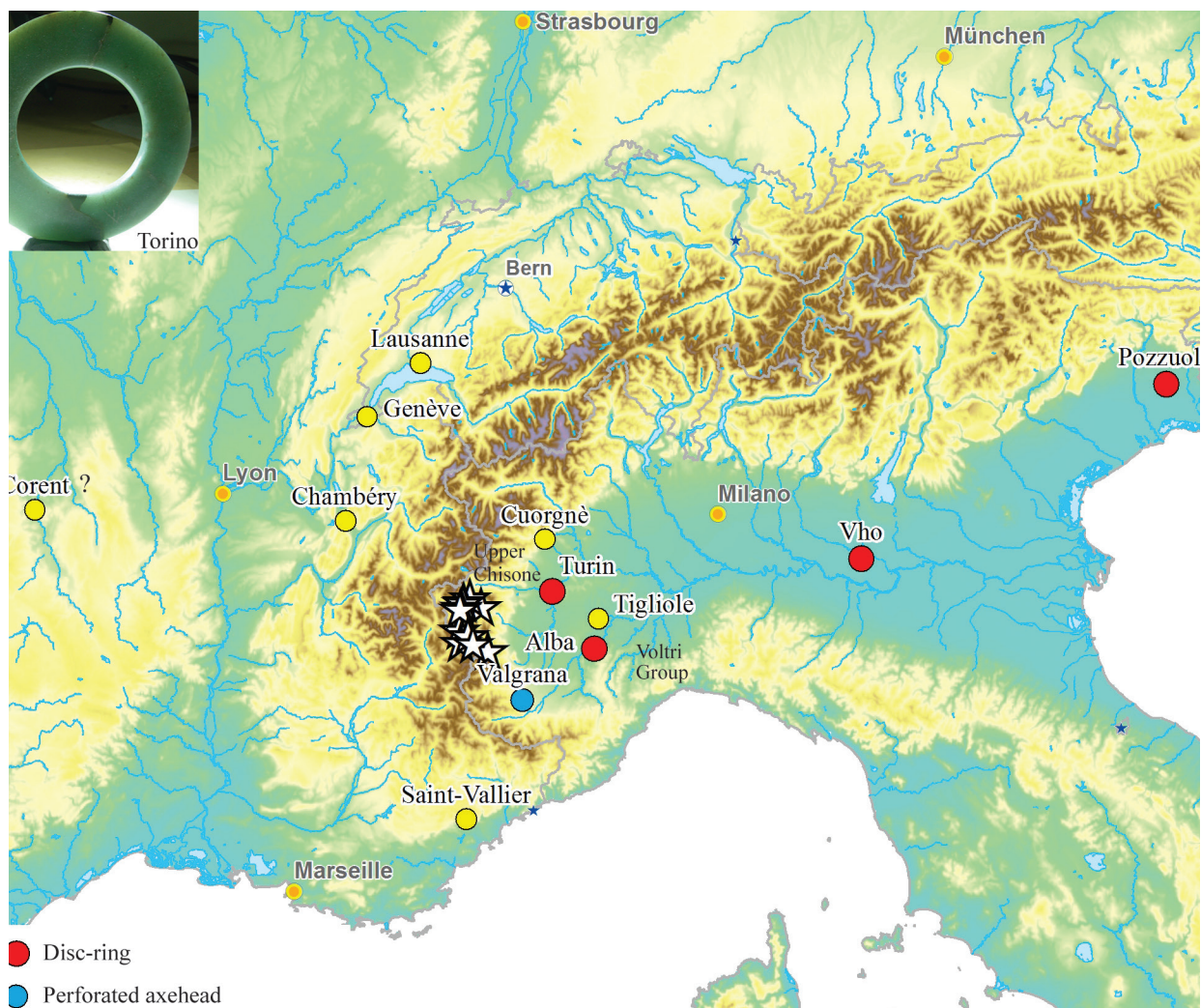


Fig. 8: Distribution of rings, pendants and beads of paragonite. Documentation December 2015. CAD F. Prodéo, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. P. Pétrequin.

diffusion of this jewellery, with its western French origin, up to the Paris basin. They also show how easy it is, from macroscopic inspection, to confuse this material with Alpine paragonite.

The pendant made from Iberian variscite from the cist at Aime (Savoie)/Le Replat (Rey, 2009), a hundred kilometres north-west of mont Viso, is likewise a striking demonstration of the circulation of certain Iberian variscites away from Carnac along the routes taken by Alpine jade artefacts.

## 7. Flux and reflux to and from the gulf of Morbihan

From the western Alps in Italy and Switzerland, object-signs made from Alpine rocks circulated westwards as far as the Atlantic fringe of Europe (fig. 10), carried by the dynamics of inter-elite gift exchange. In France, the earliest manifestations of this phenomenon date to the end of the 6th millennium, even though the objects travelled no further in France than Burgundy. This flow of precious objects intensified at the beginning of the 5th millennium, extending to cover the whole of the area occupied by the VSG Culture, where we see – with the creation of imitations of Alpine arm-rings in local stone types – the temporary establishment of a system of ‘primitive money’ that formed part of exchanges and compensation payments (Pétrequin, Cassen *et al.*, 2015b). After this value system collapsed around 4700 BC, we see polished jade axeheads – which were contemporary with the last large arm-rings with broad hoops made from serpentinite – acquiring a social value, as status symbols for the elite and



Fig. 9: Disc-rings, pendants and beads made from paragonite. Cl. A.M. and P. Pétrequin, except Lausanne/Vidy, which is from the Cantonal Archaeology Museum, Lausanne.

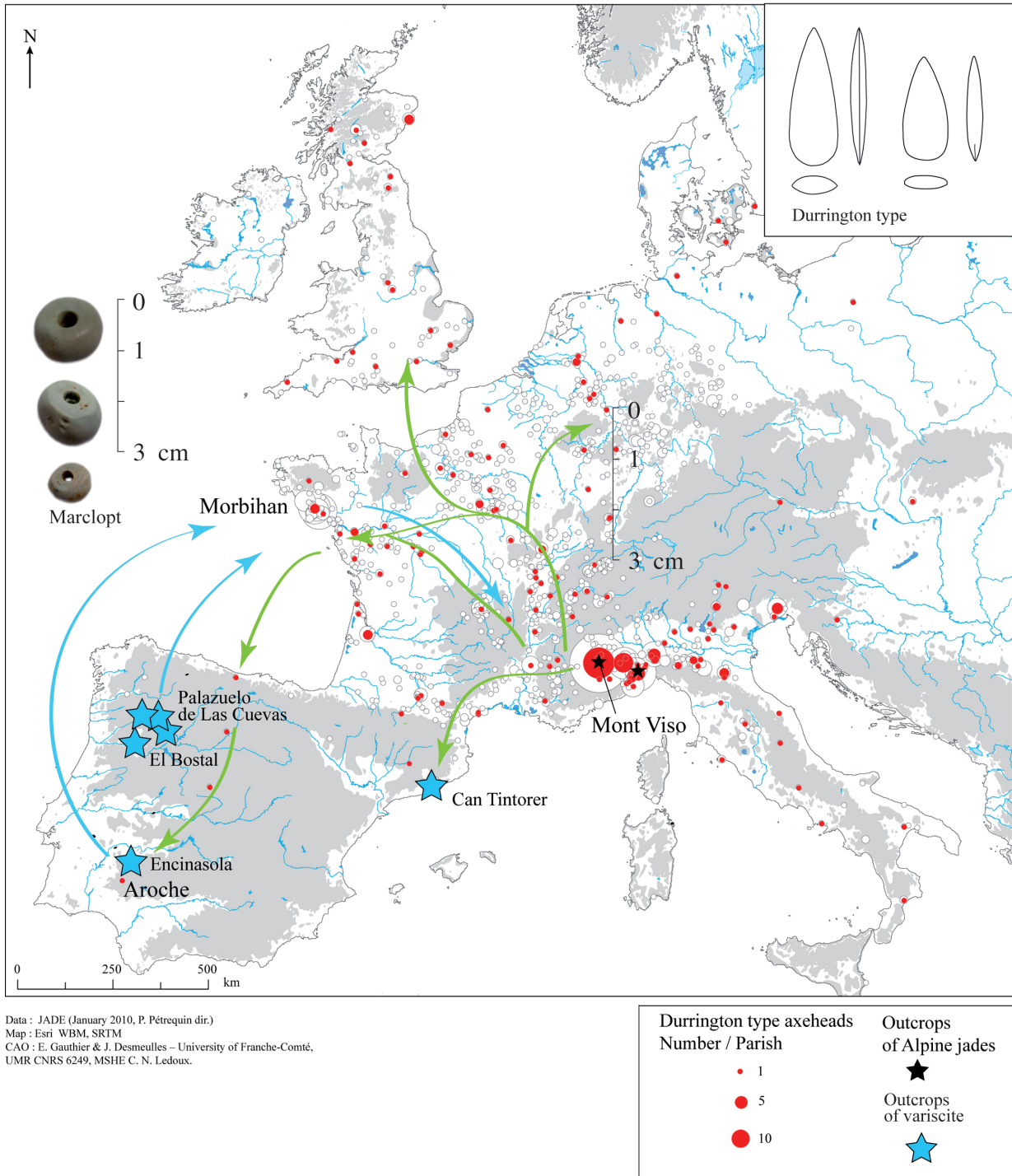


Fig. 10: The Morbihan region between the Alpine world and the Atlantic world: comparative distribution of axeheads of Durrington type and beads and pendants of Iberian variscite. Documentation December 2010, with additions. CAD E. Gauthier and J. Desmeulles, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. P. Pétrequin.

as luxury items destined to be deposited as offerings and to be consecrated. This flow of polished axeheads of jade, like the earlier flow of precious objects of Alpine rock, led to the creation of local imitations in Brittany, in particular with the manufacture of certain axeheads made from metadolerite (from Plussulien) and of fibrolite (from Plouguin). It also entailed the circulation of other socially-valued objects, this time from central Europe and

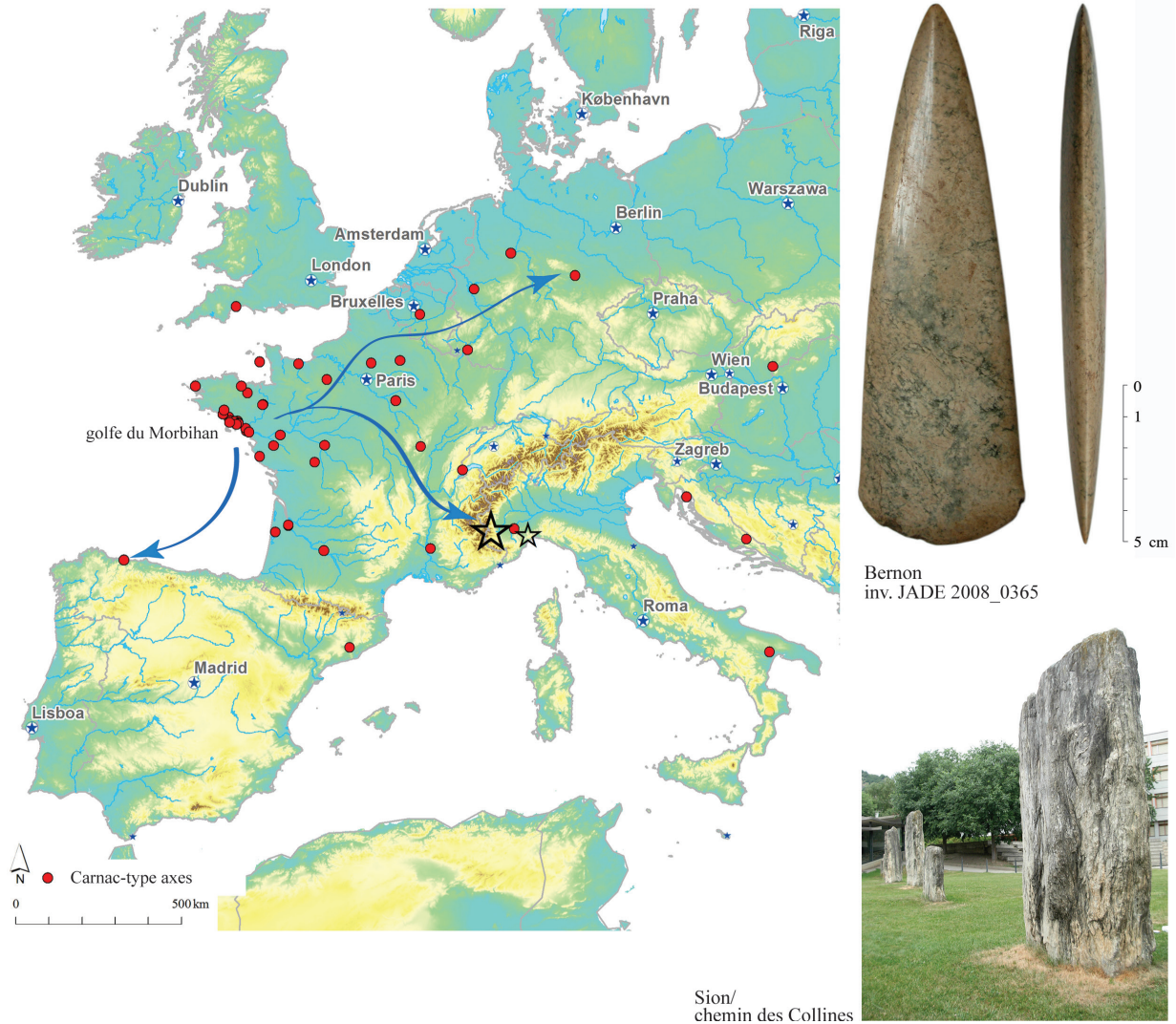


Fig. 11. Exports from Morbihan: Carnac-type axeheads of jade, rows of standing stones and mythological signs. Documentation December 2014. CAD F. Prodéo, using base map ESRI Data & Maps, under licence MSHE Ledoux and NASA-SRTM. Cl. A.M. and P. Pétrequin.

the Balkans, such as certain products of the earliest copper metallurgy that inspired the people who were making axeheads in Piedmont or were re-polishing them in Morbihan (Klassen, Cassen *et al.*, 2012).

Thus, it was a part of these object-signs, carried along in this continental flow, that the elites in Morbihan harnessed for their own advantage. One assumes that the production of sea salt could have been one of the materials that had been offered in exchange (Cassen, Labriffe *et al.*, 2008). This westward movement of jades formed part of the same complex phenomenon that was responsible for the circulation of variscite jewellery and also probably of fibrolite axeheads from the Iberian peninsula to the Morbihan, this time via a maritime route (fig. 10) (Cassen, Boujot *et al.*, 2012). However, the elite in Morbihan were not content simply to take some of the jade axeheads that were circulating: they sought out the hardest Alpine rocks, the most luminous ones, the most translucent ones – that is to say, the light-green jadeitites – and moreover they re-shaped them by re-polishing them, in order to create original Carnac-type axeheads, before integrating these objects into the domain of the sacred and into their mythological universe (Cassen, 2012; Pétrequin, Cassen *et al.*, 2012b).

The release of a certain number of these Carnac-type Alpine jade axeheads back into circulation has been interpreted as a reflux phenomenon from the Gulf of Morbihan, along the Atlantic coast and towards the

centre of the Continent (fig. 11). Examples of these axeheads, which had been imported from the Alps and remodelled in Morbihan before being re-injected into the exchange system, have been identified in Spain (Fábregas Valcarce, De Lombera Hermida *et al.*, 2012; Pétrequin, Errera *et al.*, 2012) – including findspots in the vicinity of the variscite outcrops at Encinasola (fig. 10) (Dominguez Bella, Cassen *et al.*, 2015); in the Paris basin and Germany (fig. 11); and far away to the east, in the direction of Piedmont and the jade working areas, as at Alba (fig. 11) (Pétrequin, Cassen *et al.*, 2012b).

The value of the jade Carnac-type axeheads that flowed out from the Morbihan was such that imitations in local rock types were made, including the Cangas type axeheads of the Iberian peninsula (Fábregas Valcarce, De Lombera Hermida *et al.*, 2012) and the Zug type axeheads in Switzerland and South-West Germany (Pétrequin, Cassen *et al.*, 2012b). It should not be surprising to find that these two regions of Europe were the source areas for the two principal imports to Morbihan, namely the jades and serpentinites of the western Alps and the Iberian variscites.

These exports of Carnac-type axeheads from the Morbihan are simply one manifestation of a much more important phenomenon that allows us to grasp the role played by the elite in the Carnac area at the scale of western Europe. Another key aspect of this phenomenon is shown by the diffusion of some of the mythological signs that had been used in the Carnac area, and by the architecture of standing stones (stelae), towards the Iberian peninsula, the Paris basin and the western Alps, probably along the same routes as had been taken in the opposite direction by the variscites and the jades.

Evidence for this phenomenon includes the discovery of Carnac-style signs (albeit in a modified form, taking into account the distances involved) in the Paris basin, in Burgundy (Cassen, 2012) and possibly also as far away as the Aosta valley at Montjovet/Chenal (Arca, Daudry *et al.*, 2014). The same goes for the rows of standing stones identified in western Switzerland and in the high Rhône valley as far as Valais (Pétrequin, Cassen *et al.*, 2012b), including the monuments dating to the final centuries of the 5th millennium at Saint-Aubin/Derrière La Croix (Wüthrich, 2003). With the discovery of the monument at Cavaglià at the mouth of the Aosta valley in Piedmont (Cassen, 2014), the limit of the distribution of these stone rows has come to within 100 km of mont Viso.

Within the sphere of long-distance links based on the functioning of inegalitarian societies, the role of the gulf of Morbihan during the 5th millennium is becoming increasingly clear, as an epicentre of a 'Europe of jade', symmetrical to Varna as an epicentre in the 'Europe of copper'. In both cases, the strategic location of these centres of power (between the sea and the continent), the role of salt in the exchanges and the power of religious beliefs could have been some of the primary conditions – albeit not sufficient conditions – for the success of these societies with their unequally-distributed riches.

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