

# Prestige Stone Items in Island Melanesia: assessment of the enigmatic biconical picks, drilled plaques and stone clubs from New Caledonia

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## ABSTRACT

Museum collections from Melanesia preserve a number of enigmatic stone objects whose antiquity and use have been debated by ethnographers for a long time. Rarely have these items been studied from an archaeological perspective, although comparisons with other remains and geological provenance studies can help disentangle questions about these objects. This paper presents the case of finely polished biconical picks and associated drilled stone plaques and clubs from New Caledonia. The study of their production technique and the identification of the use of greywacke as source material allow for a hypothesis as to the chronological period of production of these unique items of the Melanesian prestige goods repertoire.

*Keywords:* Melanesia, New Caledonia, Stone artefacts, Biconical picks, Stone clubs, Lapita, Greywacke.

## INTRODUCTION

One of the main peculiarities of the rich and diverse material culture of Melanesia is the presence in museum and private collections of a series of archaeological objects, mainly in stone, without clear chronological origin or easily identifiable function. These objects are often in relatively low numbers and appear to have, at least for some of them, a restricted geographical distribution (see Specht 2007). The emblematic case for northern Melanesia is certainly the diverse types of stone mortars and pestles discovered in the New Guinea and Bismarck Archipelago area, some of very fine and complex production that appear from recent studies to be mainly of early to middle Holocene age (Swadling 2004; Swadling and Hide 2005; Torrence and Swadling 2008).

The distinctive originality of some stone artefacts in Melanesia is readily highlighted when compared to the more standardized and less diversified lithic implement types identified in archaeological collections in Micronesia and Polynesia. To highlight this ‘Melanesian specificity’ (see McNiven and von Gnielinski 2004) that was often eagerly debated with Herman Mandui during our late evening conversations at conferences or in Port Moresby, the case of biconical picks (Note 1) and of a series of other polished stone implements collected over the last 150 years in New Caledonia, the southernmost archipelago

of Island Melanesia, will be presented in this paper. A number of these objects are in private collections, but the present study has been completed mainly using published and accessible museum collection specimens. Those in the Museum of New Caledonia have been observed and drawn, those in Museum databases or in books and articles having been studied to a lesser degree. The description of these items – nearly all from ethnographic and surface collections – will show their uniqueness in Pacific artefact typology. After a short summary of oral traditions, the study of their geological composition will allow for a discussion on possible chronological links, while Pan-Pacific comparisons will point towards a puzzling geographical direction, something that Herman would certainly have liked.

## BICONICAL STONE PICKS: TYPOLOGICAL CHARACTERISTICS

The biconical pick receives its name from its unique shape: it is characterized by a double pointed pick of rounded or oval section, the centre of the object having a grooved gorge with two parallel outer reliefs (Figures 1–2). Tables 1 and 2 list the biconical picks: this study consists of seven complete specimens, four specimens with one of the two points still well preserved, and four broken fragments (Note 2). A related type, of which further analysis has not determined whether the form was the original profile planned or resulted from reworking of more pointed items whose ends were broken, has more rounded ends (Figure 3). Also, aside from the immediately recognisable

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biconical picks with a central groove discussed in Tables 1 and 2, ethnographer F. Sarazin collected a double pick 280 mm long with a central groove but not the two parallel reliefs in New Caledonia at the beginning of the 20th century (Sarazin 1929 (2009), illustration 73–4) (Note 3).

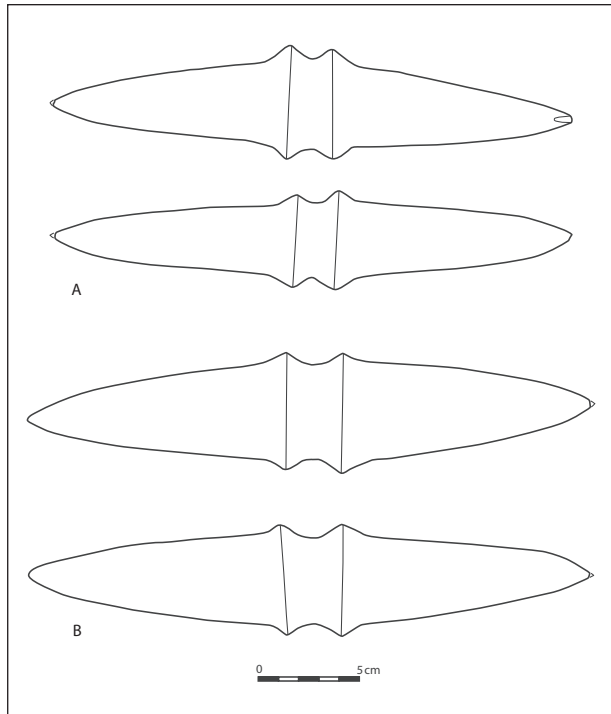


Figure 1. Biconical picks (A) MNC86.5.1374 and (B) MNC86.5.184 from the New Caledonia Museum collections.

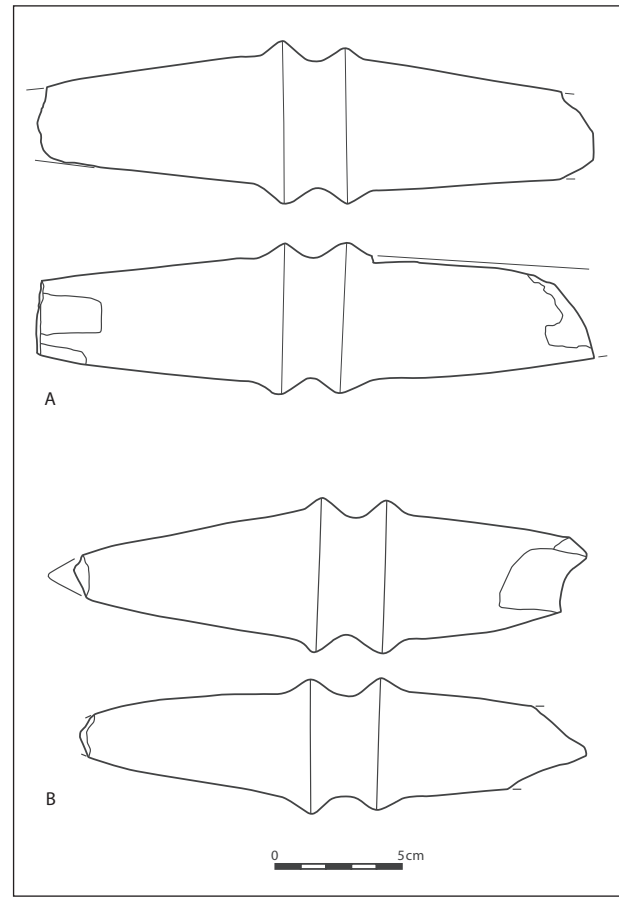


Figure 2. Partly broken biconical picks (A) MNC86.5.1375 and (B) MNC86.5.1376 from the New Caledonia Museum collections.

Table 1. Examples of sizes and provenance. Information for a set of biconical picks in Museum collections (Europe and New Zealand) and surface collection.

Length (mm)	Reconstructed length (mm)	Maximum diameter (mm)	Central groove diameter (mm)	Collection region	Comments	Catalogue number
290		42	36	Houailou, Boréaré, Koula	One point chipped	CH-BAL.Vb.2244
372		65		Northern Grande Terre		FR-BOX-A.13107
300		38	33			FR-POS.69.1.241.NC
160	235	33	30		One point broken	FR-POS.69.1.242.NC
300		50	28		Flattened, light green stone	FR-TOE.MHNT.ETH.AC.NC.138
340				Lifou	Hafted	Te Papa OL000671
82	230	41	34	Houailou	Central part present	Leenhardt 1930, planche XXVI-3
128	290	57	40	Houailou	Only one half present	Leenhardt 1930, planche XXVI-5
144	314	70	54	Isle of Pines	Central part present	Lagarde and Ouetcho 2008:53–54

Table 2. Examples of sizes and provenance. Information for the biconical picks stored in the New Caledonia Museum (Noumea).

Length (mm)	Weight (g)	Reconstructed length (mm)	Maximum diameter (mm)	Central groove diameter (mm)	Collection region	Comments	Catalogue No.
255	566.3		54	45		Oval. Points chipped	MNC86.5.1374
278	921.6		60	45	Possibly Canala (C. Hedley)		MNC86.5.184
220	906.2	270	64	50		Two points broken	MNC86.5.1375
200	675.6	250	61	46		Two points broken	MNC86.5.1376
166	649.5	180	58	48		Oval. One point broken	MNC86.5.1373b
142	515.0	170	58	51		Oval. One point broken	MNC86.5.1378

The complete and partly broken pointed picks whose total size can be confidently reconstructed (excluding the examples with more rounded ends), range in length be-

tween 230 and 372 mm. These measurements show a fairly significant diversity in overall length, although over 70% (8 out of 11) of the picks fall between 250–300 mm, indicating a rather restricted range for the majority of the collection. From the complete, as well as the broken examples studied, the maximum diameter of the outer raised bands ranges between 33–70 mm, with the inner central groove being between 28–54 mm wide.

The technique used to shape the pick appears to have been mainly hammer dressing (pecking) on slab preforms, before final polishing by grinding. The often slightly oval section of the objects is probably linked to the original shape of the preform. The surface of most items is very finely polished, although some preserve a few traces of hammering. This is especially the case for the parts that must have been the most difficult to produce, amongst them the central gorge. Some of the raised bands have a marked angular summit, others are more rounded. The difficulty in achieving a symmetrical sculpturing of these grooves is identifiable in the often partly misaligned axis of the raised bands compared to the long axis of the pick. In some cases, such as on items MNC86.5.1373b and MNC86.5.1375, the outer basis of the raised bands preserves a micro-groove, possibly indicating that the manufacturer worked out this part of the object in a peculiar process, in order to be able to align the surface to the rest of the tool. In these two cases, the final polishing did not need to be brought as deep as the hammered grooves. Discrete polishing flats on the overall rounded surfaces, also clearly visible on the more oval-shaped items, as well as in some cases the presence of polishing striations in different directions, have been recorded. Most points have at least some micro-flaking due to breakage during manipulation, but the few completely preserved ends show a smooth extremity, indicating that these items were not meant to have a sharp point.

Only two examples of hafted biconical picks are recorded in the literature for early ethnographic collections (Note 4). The first is stored in the Te Papa Tongarewa collections of Wellington (OL000671) (O'Reilly 1948). The

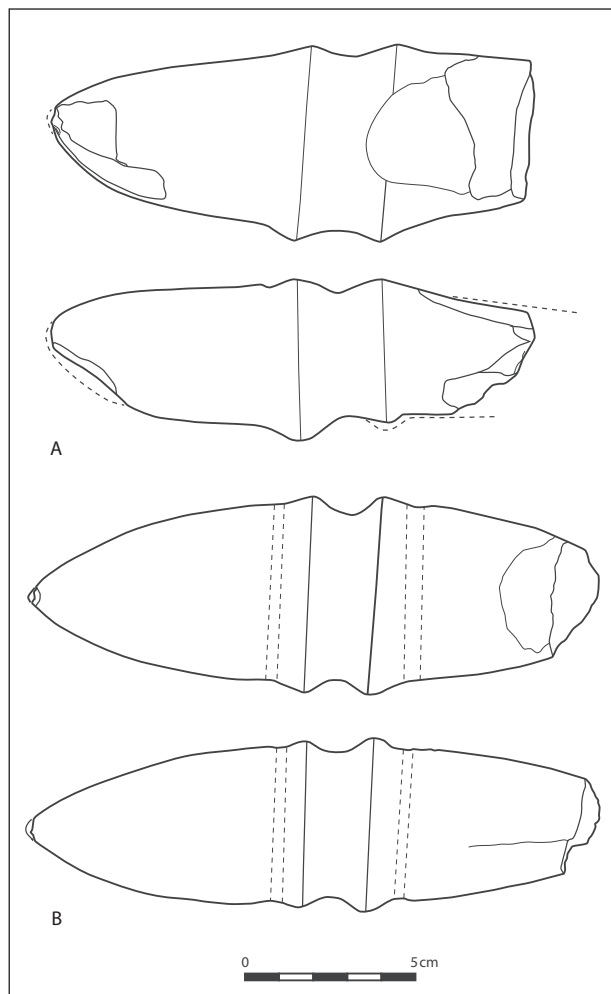


Figure 3. Biconical picks with rounded ends (A) MNC86.5.1378 and (B) MNC86.5.1373b from the New Caledonia Museum collections.

web information describes the lashing, which ‘appears to be authentic’, as ‘firmly and finely executed’ (Figure 4). The second is one of the picks of the New Caledonia Museum (MNC86.5.1374), which was crudely hafted on a stick until the 1950s (SMP files).



Figure 4. The hafted biconical pick OLO00671 from the Te Papa Tongarewa Museum (Photograph Te Papa Tongarewa Museum online collection. Oldman Collection. Gift of the New Zealand Government 1992).

### DRILLED LITHIC PLAQUES

A number of finely polished lithic plaques with a central perforation, mostly of elongated form, have been identified in different museums (Table 3). Unfortunately, these are usually poorly catalogued items of ethnographic collections, appearing rarely in publications and online museum catalogues. The examples presented here are only a fraction of the possible number of these items. The plaques are loosely described in the catalogues as ‘net sinkers’, although their high surface polish appears to suggest that this is a secondary use. The size of these implements is variable, ranking from 300 mm to >575 mm in total length, 70–96 mm wide, with a thickness between 18–26 mm (Table 3). The items studied from the New Caledonia Museum Collection are all of dark gray to green color, with clear veins in the geological matrix. All the holes are bipolar, and most appear to have been at least partly produced by hammering in conjunction with drilling. Although polishing is complete on all the items studied visually, a few traces of hammering marks can be identified on item MNC86.5.1410. The long sides of the plaques mainly have a rounded bevel or have preserved the different flat faces of the polishing process. Only the two extremities have more flattened sides and an angular bevel approaching sometimes what is known for small flat Lapita adzes (Sand 2010:173–176). The final polish of the surface was finely done, even in the concave parts of the uneven surfaces that could not be totally obliterated. On some examples, striations have been recorded occurring in different directions.

Three sub-categories of plaques can be identified. The first is characterised by the presence of a drilled hole from the two opposite directions, positioned in the central part of the long axis of the plaque, but purposefully not in the centre of the short axis (Figure 5). This may be an indication that the plaques were fixed on a string, as the hole probably prevented the hectic movement of the stone once attached. The second sub-category is also characterized by a set of long plaques, but with a nubbin protuberance preserved above the upper rim of the object that also has a hole drilled through it (Figure 6A). A probably typologically similar implement, based on what remains of the drilled perforation area made in a short nubbin extension

Table 3. Sizes of some drilled lithic plaques from different Museum collections.

Length (mm)	Weight (g)	Reconstructed length (mm)	Width (mm)	Thickness (mm)	Hole diameter (mm)	Catalogue number
570	1594.2		83	25	10	MNC86.5.1410
351	1320.5		95	25	6	MNC86.5.1408
215	556.9	410	70	25	13	MNC86.5.1407
301			90	18	12	FR-TOE.MHNT.ETH.AC.NC.146
485			85	15		FR-NIS.E922
163	1144.2		163	24	18	MNC86.5.1233

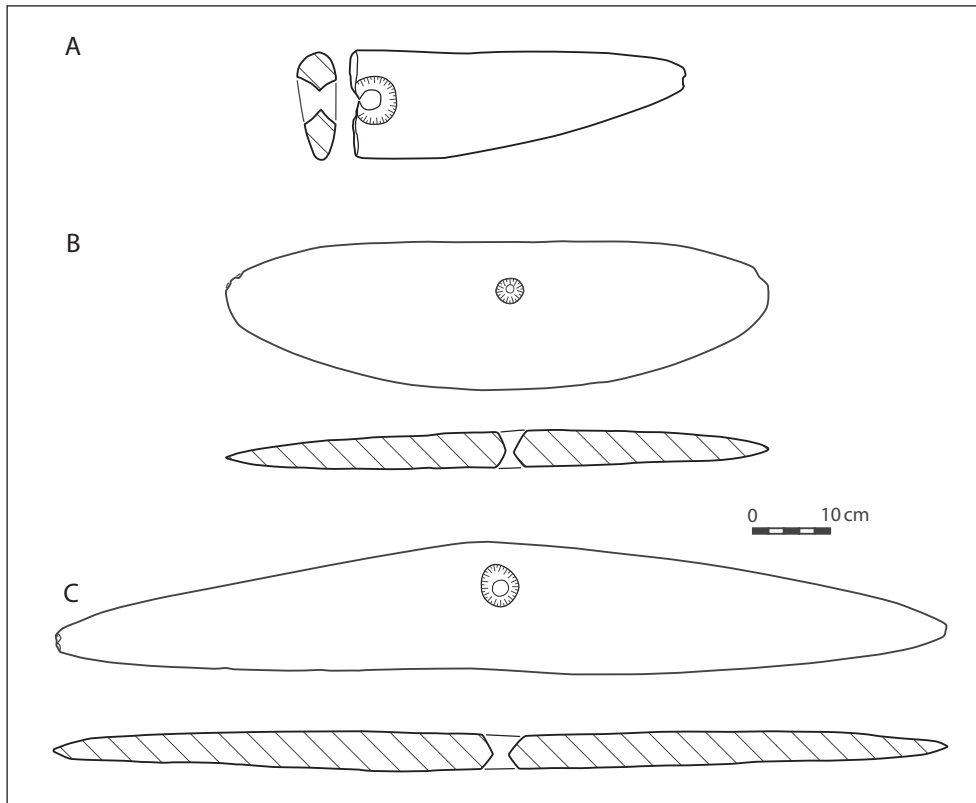


Figure 5. Examples of drilled lithic plaques from the New Caledonia Museum collections. (A) MNC86.5.1407; (B) MNC86.5.1408; (C) MNC86.5.1410.

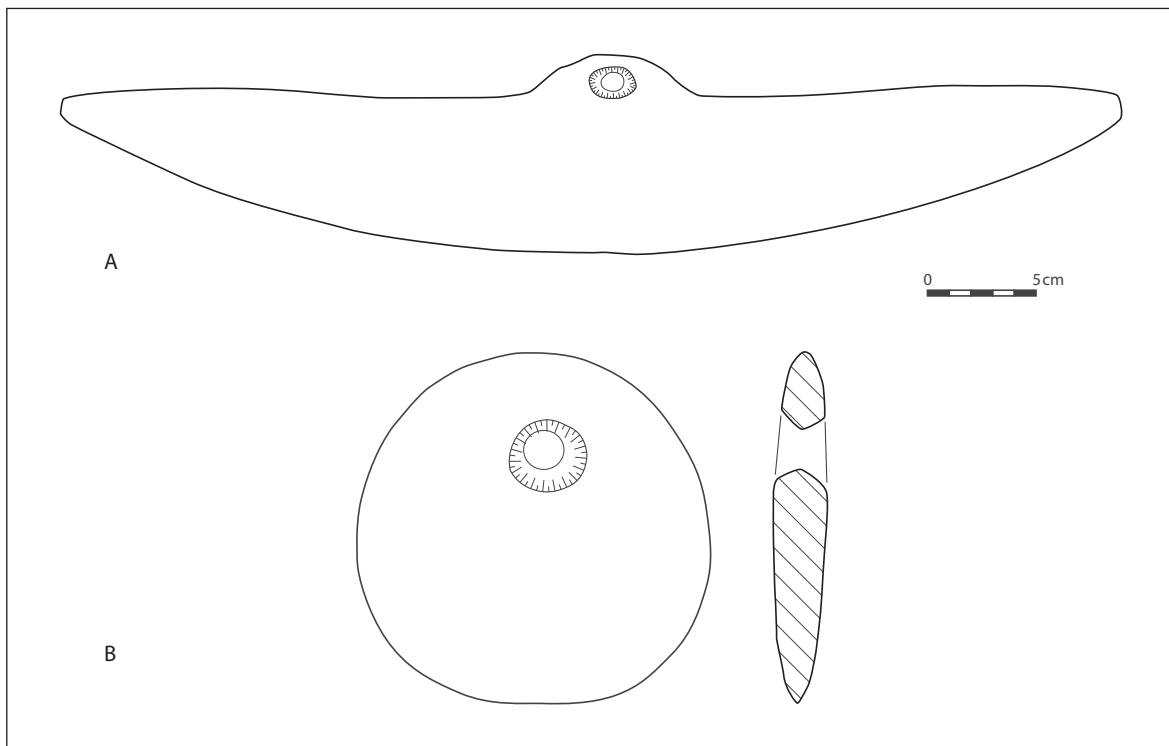


Figure 6. (A) Lithic plaque with a drilled upper nubbin (FR-NIS-E922) from the Nimes Museum; (B) Drilled rounded item (MNC86.5.1233) from the New Caledonia Museum collections.

of a long and narrow stone implement, was collected by Leenhardt in Houailou (1930, Plate xxvi-5). The creation of the nubbin meant a long process of flaking and picking of a significant amount of one side of the stone preform, with the permanent risk of breakage of the protuberance. The last possible type, included here because of the same stone nature as the plaques, is a rounded disc 163 mm in diameter and 25 mm thick, with a perforation (Figure 6B). The outer bevel is at an angle, apart from the side near the hole, where it is more rounded.

### STONE CLUBS

A set of unique individual objects from New Caledonia present in Museum collections can be classified as stone clubs. Item 71.1944.18.1 in the Musée du Quai Branly in Paris is 300 mm long, with a height of 85 mm at the nubbin protuberance and a maximum rounded diameter section of 40 mm (Figure 7A). The item has a form reminiscent of a mining pick, one end being pointed and the other more rounded. A perforation 10 mm wide and drilled

from the two opposite directions is positioned off-centre of the item over a stem, separated from the main body of the artefact by a relief-band encircling it. The object was probably hafted to a handle by a string passed through the hole. Another stemmed object that can be classified as an axe and found in Isle of Pines (south of Grande Terre), was described and named 'Ita axe' by Father J.M. Dubois (1976). The object is 178 mm long and 116 mm in the widest part of the cutting front, with a width of 35 mm in the central part of the axe and 23 mm at the stem, which is itself 53 mm wide (Figure 7B). A hole was drilled near the centre of the stem, probably to allow proper hafting of the axe to a wooden handle (Note 6).

A proper stone club, also in the collections of the MQB and found in Poya, is 780 mm long, with a mainly rounded section 49 mm in diameter (Figure 8A). A ring-like relief band has been kept over the base, as well as before the top of the stone handle. The top part of the object is formed by two protuberances pointing at 60° angle in opposite directions, one being 130 mm long and 70 mm wide, the other only 100 mm long and 50 mm wide. It appears to have

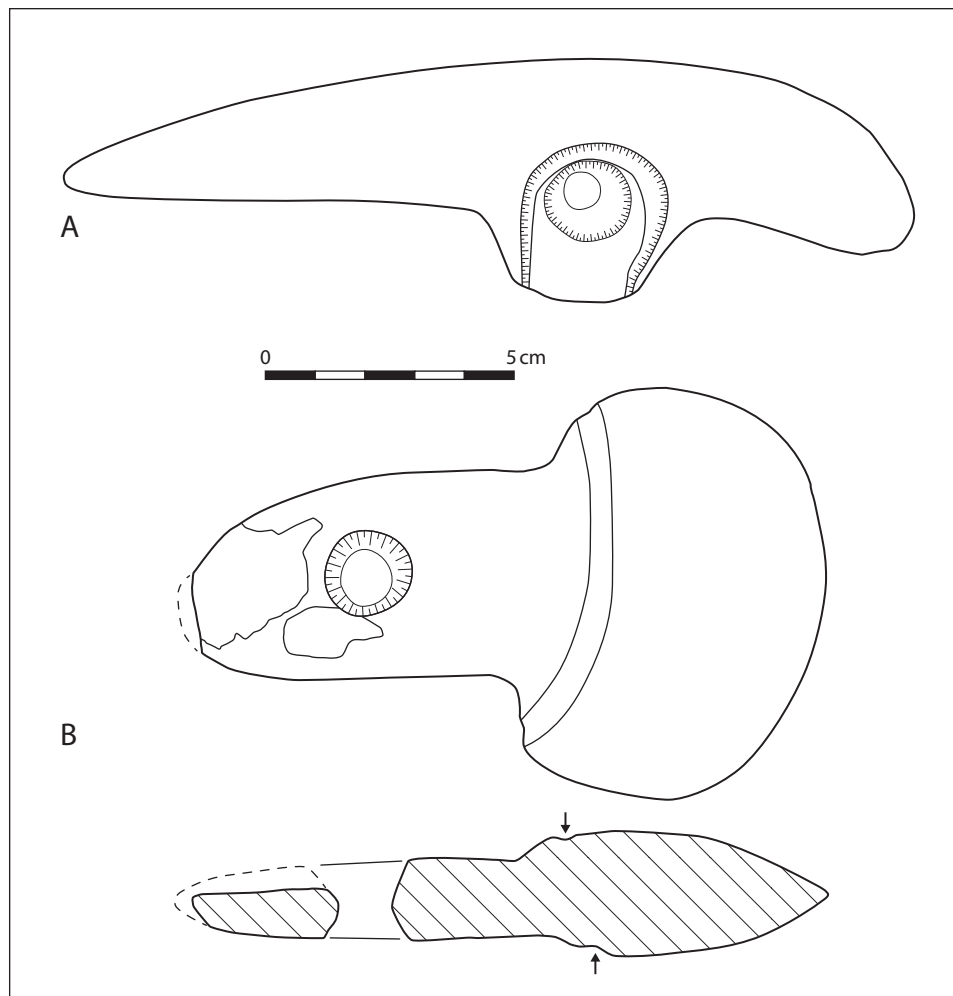


Figure 7. (A) Drilled pick (71.1944.18.1); (B) The 'Ita axe' from Isle of Pines (MNC86.5.780).

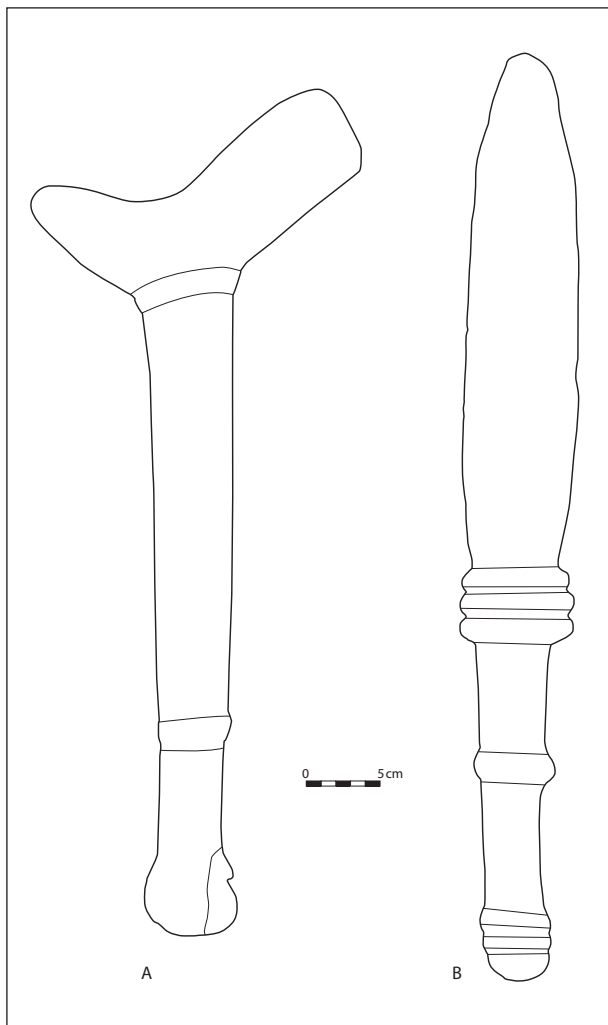


Figure 8. (A) The Poya club; (B) The Koumac 'spear'.

been produced in the same type of stone as a spear-like club, 606 mm long, divided between an oval-section 'blade' 336 mm long and 77 mm wide, and a rounded-section haft (Figure 8B). The haft is carved into three parts: a thickened rounded extremity with two grooves, a central outer relief reaching 53 mm in diameter, and an upper part, reaching the start of the 'blade', with a succession of three reliefs separated by grooves, reaching 74 mm in maximum diameter. This object was collected in the Koumac area in northern Grande Terre, and is in a private collection.

#### GEOLOGICAL SOURCING AND AREAS OF DISCOVERY

The geological nature of the biconical picks and other rare stone implements has been confusing for a long time, with authors using terms such as jade (Lambert 1900: 295), hard green stone (Sarazin 1929 (2009): 261), and serpentine (Leenhardt 1930: 26). Geologist J. Avias defines these objects as being made from 'andesitic microbreccia' and

locates one source near Sarramea (Avias 1949: 32). To my knowledge, it was a curator from the Te Papa Tongarewa Museum in 1997 who was the first to mention the use of mudstone (Greywacke) as a source material for the biconical pick. This identification was confirmed by A.L. Baranger (2012) during her work on the geological diversity of archaeological objects from New Caledonia.

Greywacke is a type of sedimentary rock, mostly of dark gray colour with a greenish shine. It is found in the 'Central Range Geological Unit' formation of the inner mountain chain of the complex continental shelf that composes the 400km long and 50km wide Grande Terre Island, oriented North/Northwest to South/Southeast (Figure 9). Greywacke is limited in the north-west to the area of Touho and in the south-east to Kouaoua-La Foa, being present mainly in the hinterland regions of these two municipalities around the central and western sides of the island. In Houailou, Pohnériouen, Poindimié and Touho municipalities, it extends from the central range to the coastal areas on the eastern side of the island. A small outcrop is present north of the Noumea peninsula. The layered nature of the geological formation of greywacke explains the clear presence of identifiable micro-strata on the surface of the archaeological objects, some breakages being positioned at the location of the contact-zone.

The restricted geological source areas for the raw material used to produce at least some of the biconical picks and clearly some of the other stone items discussed in this paper (Note 7), contrasts with the extensive spread of the locations where these objects are said to have been found (Figure 8). Starting from the south, biconical picks are clearly present in Isle of Pines (Lagarde and Ouetcho 2008), as well as the drilled Ita axe (Dubois 1976). The origin of some of the drilled plaques is the Païta region (SMP files). Other biconical picks come from the central region of Grande Terre, especially around La Foa (Brou 1977: 94), Canala (Avias 1949: 31 and fig. 12.4), Houailou and Poya (Sarazin 1929 (2009), plate 73.3–4; Leenhardt 1930, plate xxvi. 3 and 5), which is also where the Poya stone club was found. The northern end of the archipelago is part of the distribution sphere (Lambert 1900: 295 and the Koumac 'spear'), and the biconical picks are also present in the Loyalty Islands, where they were evidently traded (O'Reilly 1948).

#### ORAL TRADITIONS ABOUT THE USE OF BICONICAL PICKS IN THE ETHNOGRAPHIC LITERATURE

The first description of a biconical pick was probably published in the 1890s by Father Lambert, a Catholic priest, in a French Missionary Bulletin, which was subsequently reproduced in his synthesis book published in 1900. The drawn item (A.13107, Bordeaux Museum, collected in the northern part of Grande Terre), is described in oral traditions as given to the missionary as a magic stone used to kill (Lambert 1900: 295–296) (Note 8). Swiss ethnographer

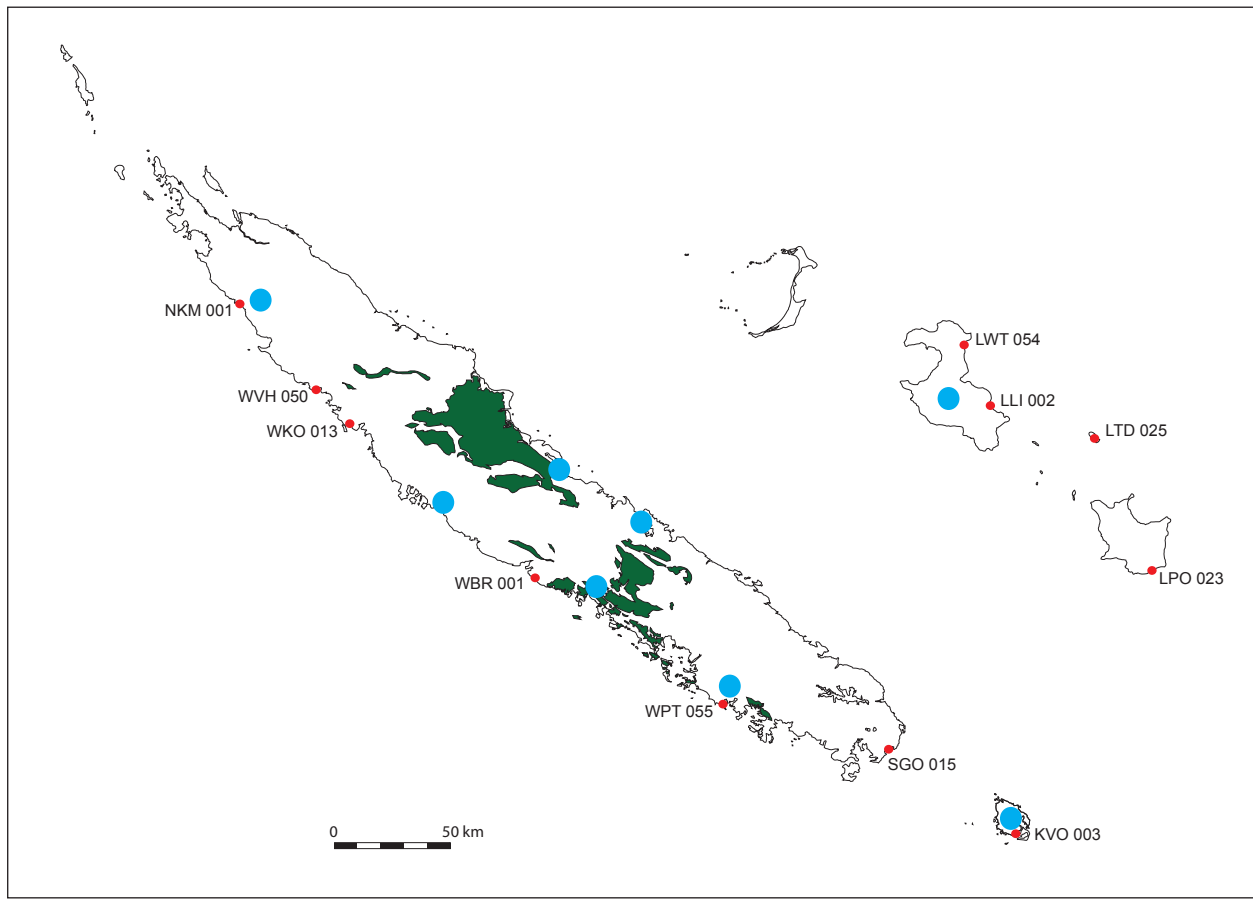


Figure 9. Location of the Greywacke geological regions (green areas) and of the main Lapita sites of New Caledonia (red dots). The blue dots identify the discovery areas of the items discussed in the text.

F. Sarazin, who did an extensive survey of New Caledonia at the beginning of the 20th century, collected a biconical pick without raised central bands in Houaïlou, on the central east coast of Grande Terre (BAL.Vb2244). His informant told him that the stone was used for fertility purposes, the two partners having to touch the stone, as part of a prayer to the spirits, to allow the woman to get pregnant (Sarazin and Roux 1917:194; Sarazin 1929 (2009):261). Sarazin relates that a similar explanation was given for a biconical pick stored in the Toulouse Museum (probably item MHNT.ETH.AC.NC.138). In the 1930s, Protestant Missionary M. Leenhardt published two fragments of biconical picks found in Houaïlou, without giving details of their use (Leenhardt 1930:28, plate xxvi, 3 and 5). J. Avias described a fragment of biconical pick from Bogota (Canala) as being a ‘malefic (*doghi*) stone’ used to kill or provoke accidents when the proper ritual is fulfilled (Avias 1949:31).

A set of oral traditions mention the use of a rounded polished stone disk with a hole as part of a Kanak ritual to ask the sun ‘to eat the clouds’ (Lambert 1900:296–297). Sarazin mentions that some of these magic sun-stones had ‘bright veins’ (1929 (2009):264), a geological characteristic present on the rounded stone MNC86.5.1233 (Figure 6B).

#### CHRONOLOGICAL AND TYPOLOGICAL COMPARISONS

No biconical picks have been found in proper datable stratigraphic contexts. M. Leenhardt located the site of discovery of the double headed stone club (former Archambault collection) (Figure 8A), which was found buried on the bank of the Poya river under about 70cm of black soil (1930:28–29 and Figure 11). Some of the broken picks from the New Caledonia Museum bear signs of burial or erosion. Item MNC86.5.1373b exhibits on its broken side clear marks of erosion, indicating that at one time the pick was partly buried in the ground. Partly broken specimen MNC86.5.1378 is weathered all around by picking marks, present on the preserved outer surfaces as well as in the central groove and on the broken extremity, suggesting that it was rolled during a long period in a stream-bed before being collected.

There is therefore no direct archaeological data to allow a firm positioning of the biconical picks and the other stone items discussed here, at any precise period in the 3000 years of New Caledonia’s human history (Sand *et al.* 2003). Therefore, it is only by analogy at this stage



that some hint at the definition of a production period can be hypothesized. The main avenue of study is the use of greywacke as raw material for at least some of these items. Considering the standardized typological form of these picks and their widespread distribution across the archipelago, as well as the discovery of the stone club of Poya under 70cm of alluvium, we can hypothesize a probable significant antiquity for the production of these items. Greywacke is known to have been the main stone type used to produce the Lapita and immediate post-Lapita adzes in New Caledonia (Baranger 2012; Lagarde and Sand 2015). These adzes were of various shapes and forms, but appear to have all been produced by hammering before final polishing. Most of the adzes show a smooth finishing. Post-Lapita, greywacke was abandoned as a raw material for tool making, replaced by siliceous chert types and then nephrite for adze production (Sand 2001). This limited data suggests as a first working hypothesis that the biconical picks were possibly produced during the first half of the first millennium BC. If these items were produced long after Lapita times, it would need to be explained why this specific geological material was exploited at that time only for the making of the biconical picks and associated drilled lithic plaques/stone clubs.

Another avenue of analysis of the cultural relationships of the biconical pick type and related items is through regional comparisons. In this regard, the only similar Kanak item is a rare form of double-pointed wooden club (see Marchal *et al.* 1990, fig. 92; Sarazin 1929 (2009); plate 54–11). A general correspondence can also be identified with a series of 'shaft-hole stone implements' collected in the Bismarck Archipelago (see Specht 2007). These double pointed items, possibly of middle Holocene age, can loosely be compared to some of the drilled objects from New Caledonia (see Avias 1949, fig. 11.1) and relate more widely to perforated clubheads of different forms known from Northern Melanesia. But aside from very general correspondences, in all these cases, it is the presence of a hole that mainly allows some typological association between these different categories of remains.

The only clear typological similarity that can be unquestionably identified in terms of form and size for some the biconical picks from New Caledonia, is with the Dokko-ishi (defined as 'stone bar with constricted middle section' by Melichar 1964:12) and the Dokko-Jyo-sekki of Jomon period in Japan (see Leroi-Gourhan 1946; Okamoto 1999). This unexpected typological link was identified long ago by J. Avias, who used the similarity to propose a direct influence of north-eastern Asians on one period of New Caledonia's cultural chronology (1949: 47). Archaeological studies have shown that the Dokko-ishi of Japan were mainly produced during the last part of the Jomon era (4000–2300 BP). The numerous Jomon picks discovered in Japan show wide regional diversity of sizes and forms that has not been identified to date in the small New Caledonian collection.

## DISCUSSION

The production period and original purpose of the biconical picks and other stone implements made from greywacke that have been discovered in New Caledonia for well over a century remain poorly understood. Sarazin made the hypothesis that the picks were remains from a remote past (in Sarazin 2009, plate xvii by Boulay), as did later M. Leenhardt (1930: 30) and R. Grünwald (1945). More recently, E. Kasarherou has proposed that the biconical pick are an ancestral ceremonial form to the nephrite Kanak rounded prestige axes known as the 'ostensoir axes' (Kasarherou and Boulay 2013: 53). Archaeological data has not yet allowed us to disentangle questions of chronology, cultural relationships and use of these unique set of remains. The pointed form of the biconical picks clearly does not allow for their use as cutting tools. These highly polished stone items, of fragile nature because of their long picks, appear to have been originally meant to be bound by an elaborate string/belt or hafted, as this is the most logical use that can be given to the central groove. Use-wear analysis of this part of the objects would help confirm this hypothesis. Significantly, there is no mention in any of the ethnographic accounts described by 19th century Kanaks of the biconical picks as being a prestige good. Their possible association with the Lapita and/or immediate post-Lapita period proposed in the paper, considering the geological material used, allows the proposal that contrary to ethnographic times, biconical picks were conceived as prestige items when they were produced. The uniqueness of the form, the non-utilitarian nature of the tool, and the highly polished finish of all the objects known, all point to an implement that was used as a prestige/ceremonial item for specific events. These biconical picks, as well as at least some of the clubs that use a drilled hole to attach to a haft and the stone clubs, were probably mainly intended for use in ceremonies, special ritual events or as prestige items, multiple examples of 'patu', 'ostensoir axe' and related chiefly symbol items being well documented ethnographically around the Pacific. The few ethnographic examples of biconical picks that are known with a wooden haft – some possibly mounted only for curios to sell in the 19th century—are probably closely alike to the general form of the object when it was first used.

The general symmetry of the biconical picks as well as the high polishing lustre present over the entire object's surface, may have allowed for a conversion of these items to ritual uses after their initial purpose—meaningful only in the specific cultural setting in which they were created—had been lost. At European contact, biconical picks were considered as rare and sacred objects by Kanaks, and were apparently used for different magical purposes but not for display as prestige items. Their status in this regard is comparable to a number of other natural stone forms that were used by Kanaks (see Lambert 1900: 292–304; Leenhardt 1930: 243–245) and more widely by Melanesians, for all

sorts of charms, fertility, black or white magic purposes (Bulmer and Bulmer 1962).

Whatever the period of production of the biconical picks from New Caledonia and their intended use, certainly one of the most puzzling mysteries surrounding these objects is their typological similarity with the Dokko-ishi picks from the late Jomon culture of Japan. It can be asked if any link exists between these two identical pick-types, one in use in the north-western Pacific between 4000–2300 years ago, the other produced in the south-western Pacific necessarily less than 3000 years ago. In Japan, the purpose of the picks is still not known and it is probable that the New Caledonian biconical picks had a prestige function as their original goal. Could there be a direct historical connection between these two classes of so typologically similar objects, produced in two archipelagos separated by 7500km of ocean in a straight line? If so, why has there never been any discovery—in the numerous archipelagos in between—of other similar items? At this stage, the data at hand forces us to analyze the question in a pragmatic way. Nothing prevents the hypothesis that a similar type of object was invented by two cultures in two different parts of the world, without any connection between these two inventions. This is fairly banal in human history, from pottery to petroglyphs or horticultural terracing, and we cannot demonstrate a direct link between late Jomon and the early New Caledonian cultural phase.

## CONCLUSION

The assessment presented in this paper about the enigmatic biconical picks and stone implements made mostly of greywacke found in a number of places in New Caledonia (Note 9), has shown our still poor understanding of the period of production, use and cultural relationships of these unique items from the Melanesian prestige-objects repertoire. Their rarity, typology and the quality of the finishing polish clearly indicate that these items were not intended as everyday tools. Future functional studies should be able to give some clues as to the main use of the two points of the picks, if any, and systematic geological characterization will have to be fulfilled to confirm the use of greywacke for all objects of these types. The circulation of the biconical picks well afield of the source regions of greywacke in the central part of Grande Terre, highlights the archipelago-wide extent of the tradition, including up to the coral islands of the Loyalty Archipelago. Herman Mandui would certainly have disliked if I had concluded on a direct link between the late Jomon tradition of Dokko-ishi picks and the New Caledonia biconical picks, but even if it might look tempting to push the case towards a 'grand scenario' explanation, much more data needs to be collected before we can give some credit to this old hypothesis of J. Avias. At this stage, I have to conclude at least temporally that the unique stone objects studied in this paper are a specific Southern Melanesian tradition.

## Acknowledgments

I would like to acknowledge the help of M. Tissandier, curator of the New Caledonia Museum, who provided access to the collection and permission for its study. She also provided access to the database of the 'Patrimoine Kanak dispersé'. The final computer drawings for this paper were completed by J.M. Wadrawane of the IANCP. Dear Herman, we will miss you.

## Notes

1. These picks are published in the French literature with the names 'pic à gorge' (Avias 1949) or more recently 'pic biconique à gorge' (Kasarhérou and Boulay 2013: 53). The example from the Te Papa Tongarewa Museum is labeled 'Ceremonial pick'.
2. Two biconical picks are published by B. Brou (1977: 93–94), but the absence of a scale does not allow for them to be included in the present analysis.
3. J. Avias has published a reconstructed double pointed item (1949, fig. 10–3) out of a stone fragment found at the site of Anse Vata in Noumea, but this appears to be a fragment of a Lapita or early post-Lapita period adze.
4. A hafted pointed pick has recently been bought in an online auction (L. Lagarde, pers. com. 2015) and is under a conservation process at the New Caledonia Museum (M. Tissandier, pers. com. 2015).
5. Item FR-TOE.MHNT.ETH.AC.NC.138 stands out as being of a clear green color. The pick is flattened and has a large and not well polished central groove. All these characteristics place it apart from the rest of the biconical picks.
6. The 'Ita axe' was found by J. Douepere in a burial rockshelter of Koutomo Island (Dubois 1976: 239 and fig. 1.2).
7. No systematic geological characterization analysis has been completed to date on the objects studied for this paper.
8. The details of the process are described in Lambert (1900: 296), involving two stones, different leaves and grasses, the help of the wind to spread the killing magic, and the use of the mullet fish.
9. Other enigmatic stone objects have been recently recorded in Museum collections and would certainly, in conjunction with the material published in this paper, contribute to a better understanding of the tool tradition assessed here.

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