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Hubert Forestier, Teppsy Beni, Henry Bails, François-Xavier Ricaut, Matthew Leavesley. Historic drill points in chert: a case study from MotuporeIsland, Papua New Guinea. Congress of the International Union for Prehistoric and Protohistoric Sciences, Jun 2018, PARIS, France. hal-01878535

HAL Id: hal-01878535

<https://hal.science/hal-01878535>

Submitted on 21 Sep 2018

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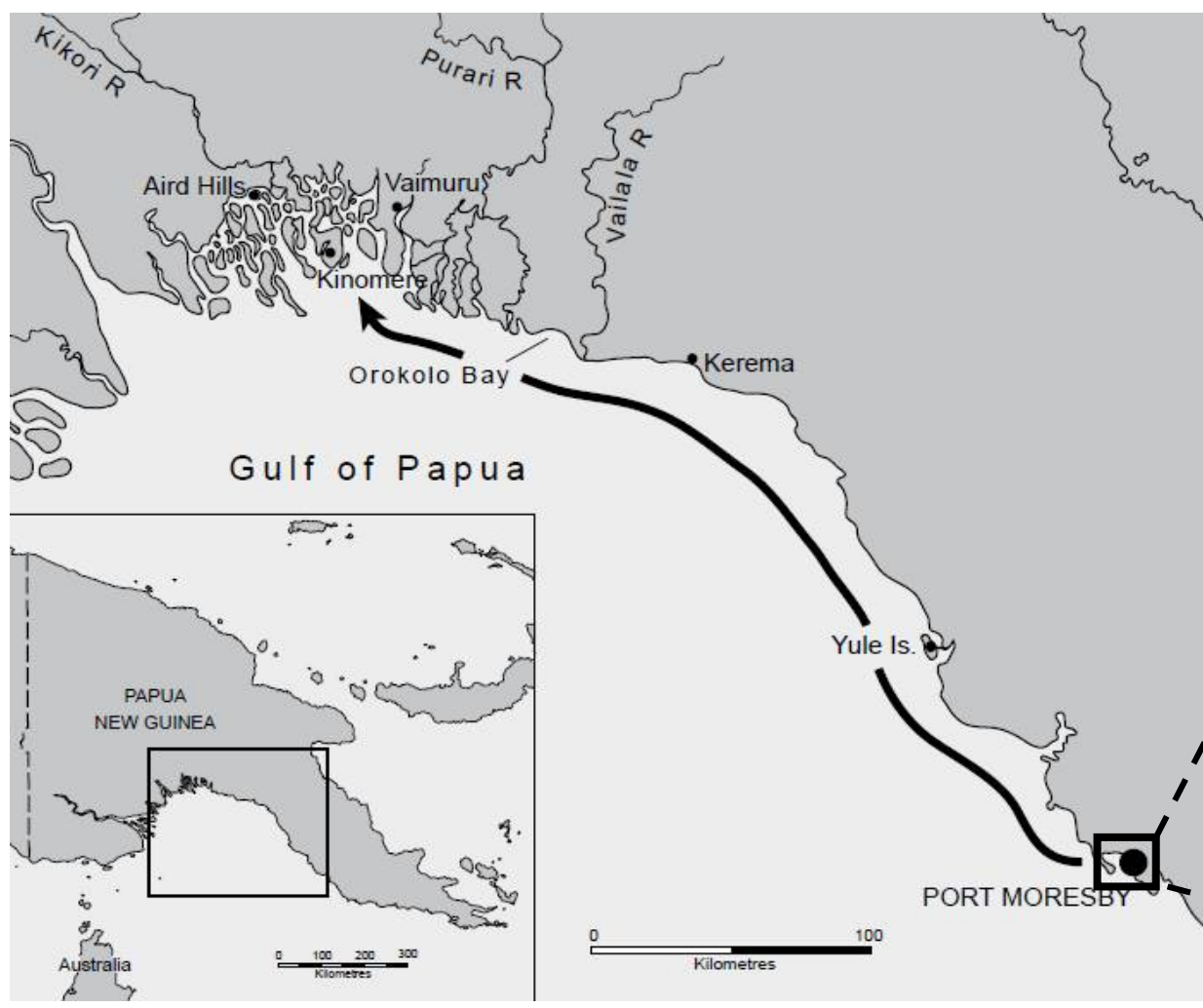
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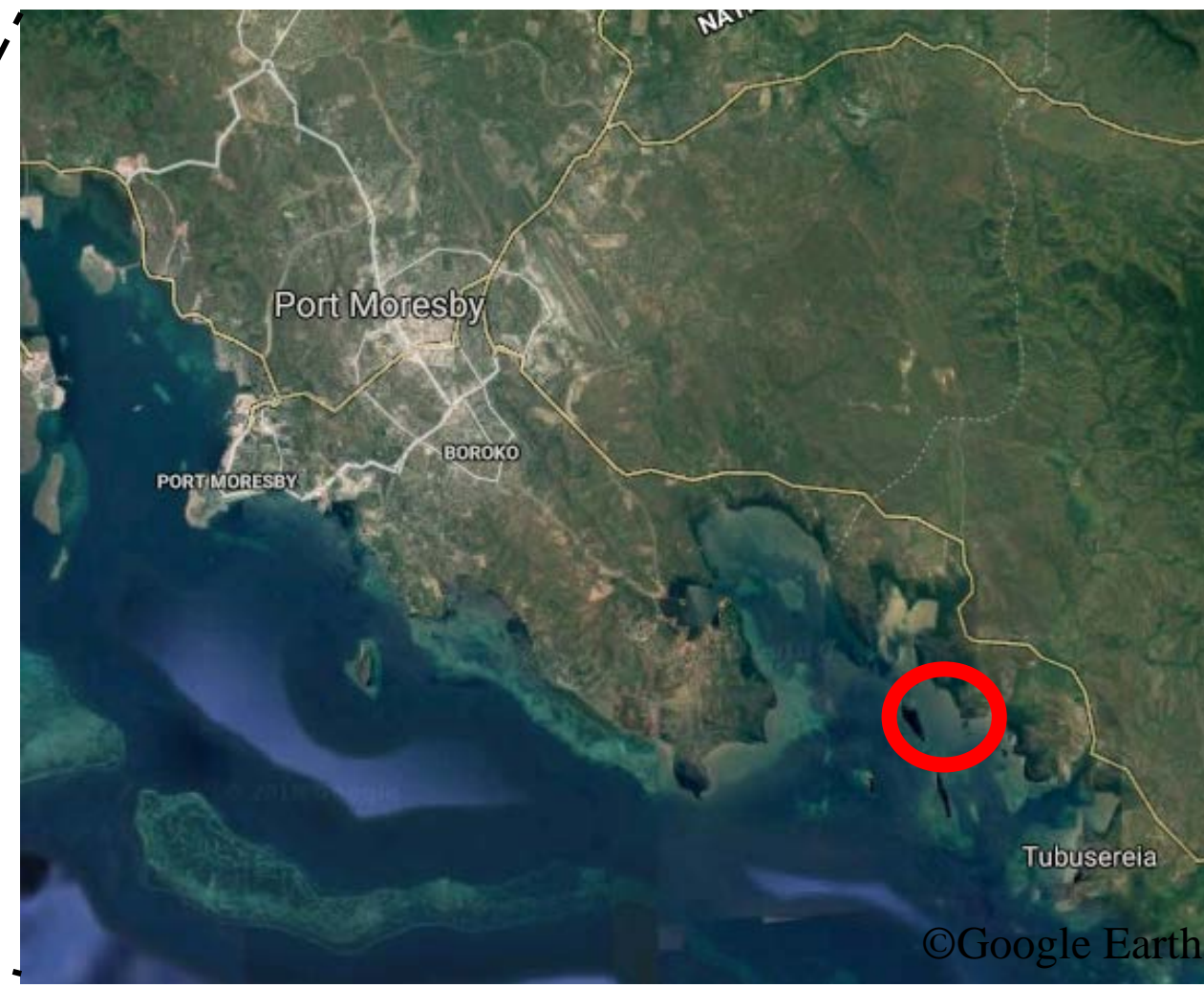
Historic drill points in chert : a case study from Motupore Island, Papua New Guinea

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Map of the Hiri maritime trade expeditions (from David et al 2010)

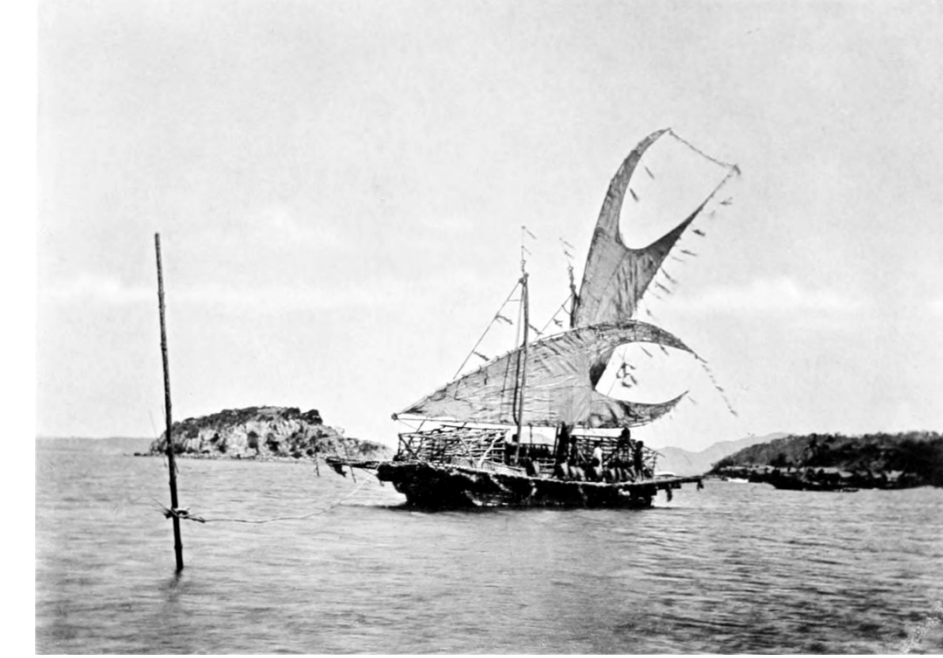


Motupore Island (red circle), in the Port Moresby area

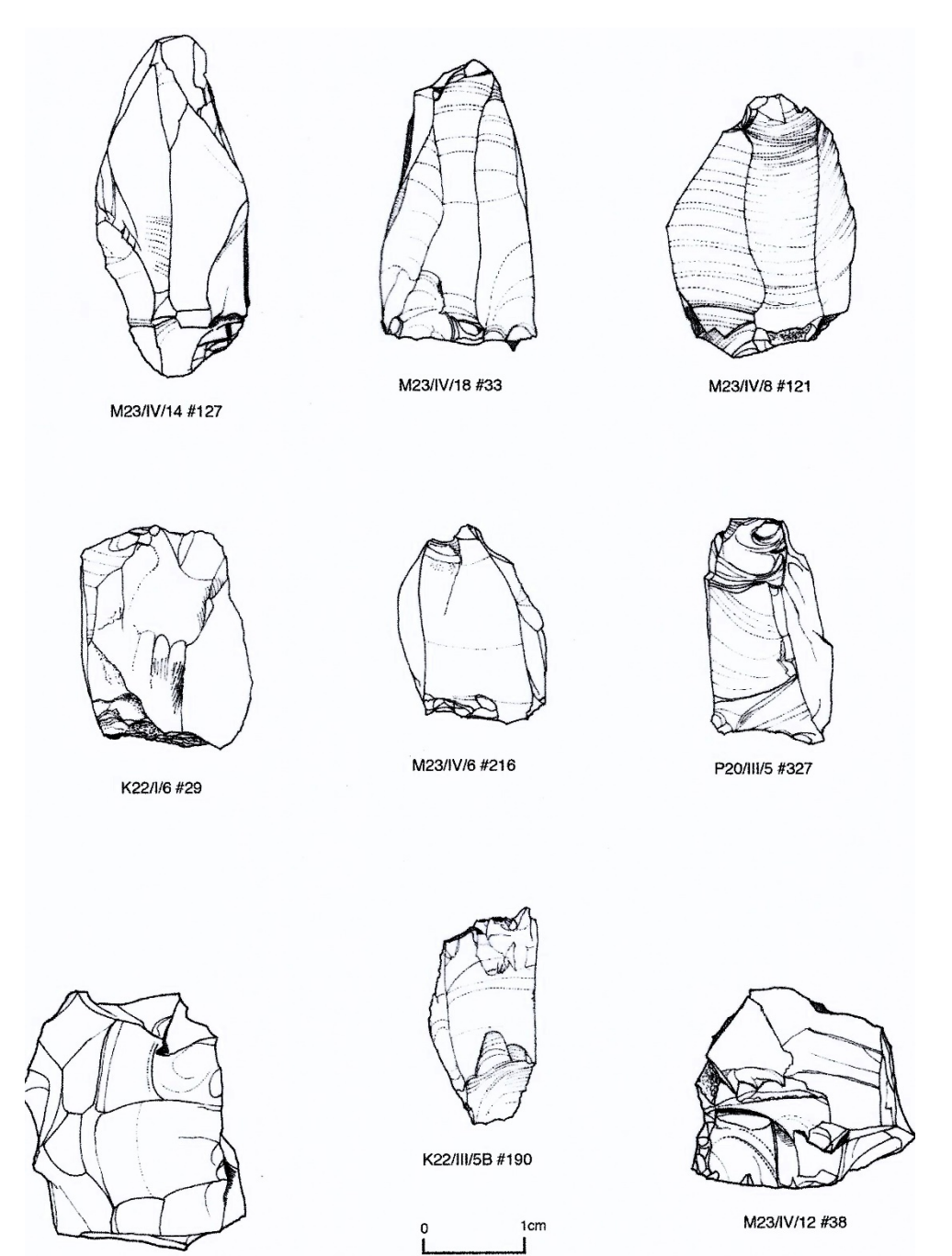
Hiri or 'Hiri trade circle' was a coastal long distance trading system around the Gulf of Papua, involving Austronesian-speaking people (principally Motu). It was reported at the end of the XIXth century by missionary people, but was interrupted after the Second World War. The *Hiri* circuit was organized over 400 km along the southern coast of New Guinea from the Port Moresby region to the Gulf of Papua, with boats of around 30 people. It was an authentic exchange network where pottery and other material items were exchanged for food and/or other goods. It can also be viewed as an ancestral and respectable 'fair-trade activity'. It is estimated that more than 10 000 pots and shell handicrafts (which included *Tridacna* shell ornaments, beads, *Conus* shell discs, bangles, etc.) were exchanged for sago (*rabia*) during each *Hiri* journey.



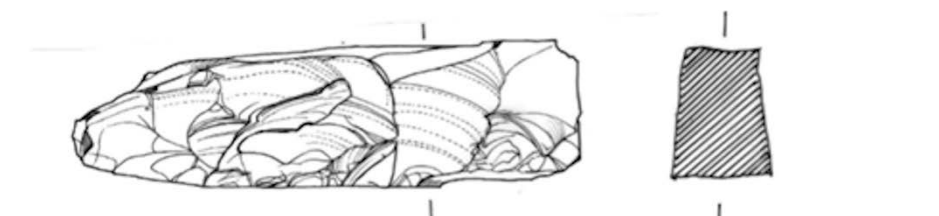
Handmade pottery for Hiri trade (J.W. Lindt, in David et al 2010)



The lagatoi: a traditional boat used for Hiri trade (©M.J. Mennis 2014)



Core types in local chert. 1970-1975 excavations (Drawing Allen, 2017)

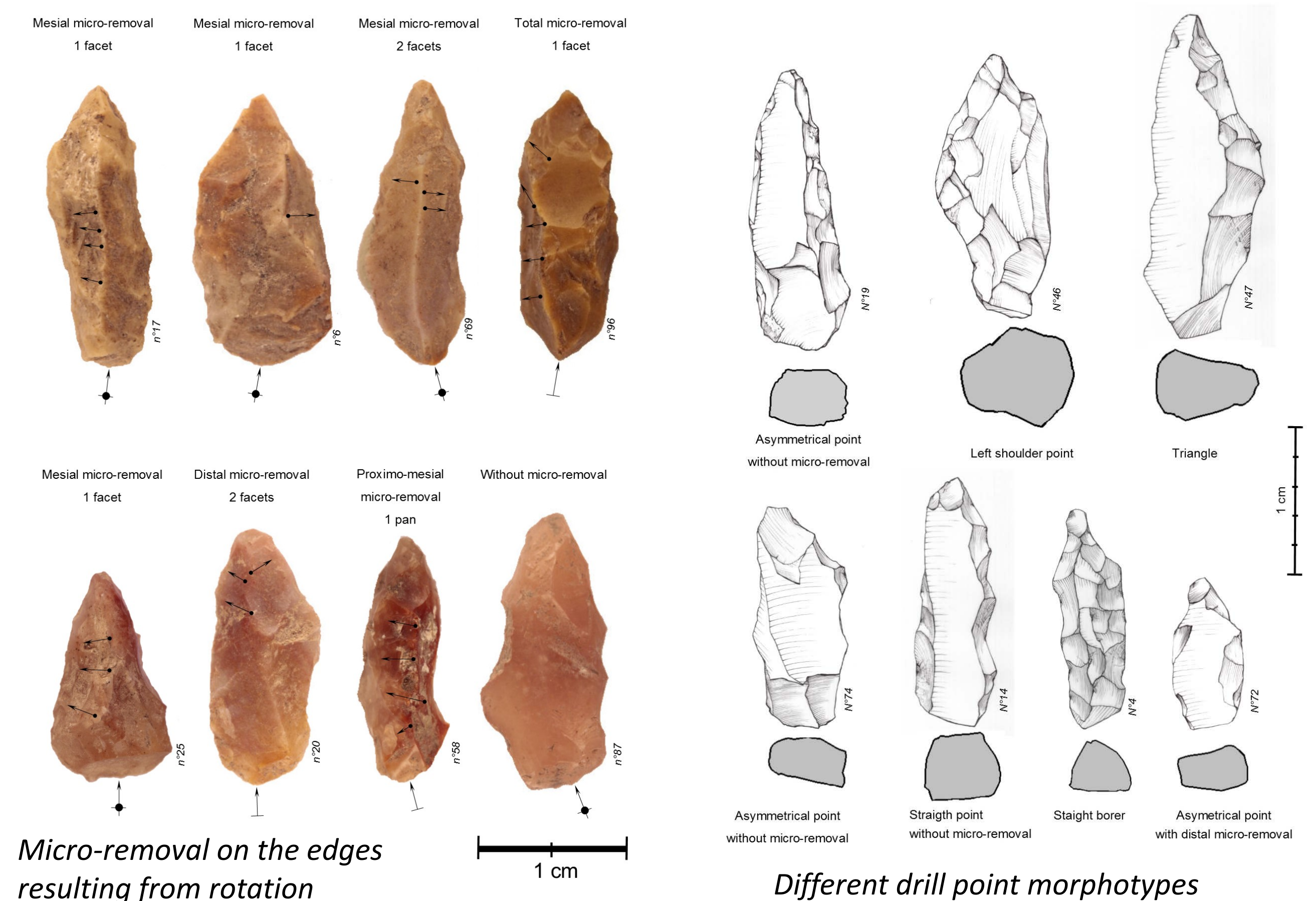


Typical core shape for making drill points. Excavations 1970-1975 (Drawing Allen, 2017)

This assemblage of 80 drill points from Motupore was made from small blocks of quadrangular sections in flint or jasper. Most of these raw materials probably come from the island's local environment, but some may have originated from the near mainland, transported via a regional network. It is clear that these supports have been selected for their overall morphology which is similar in style to that of the final piece.

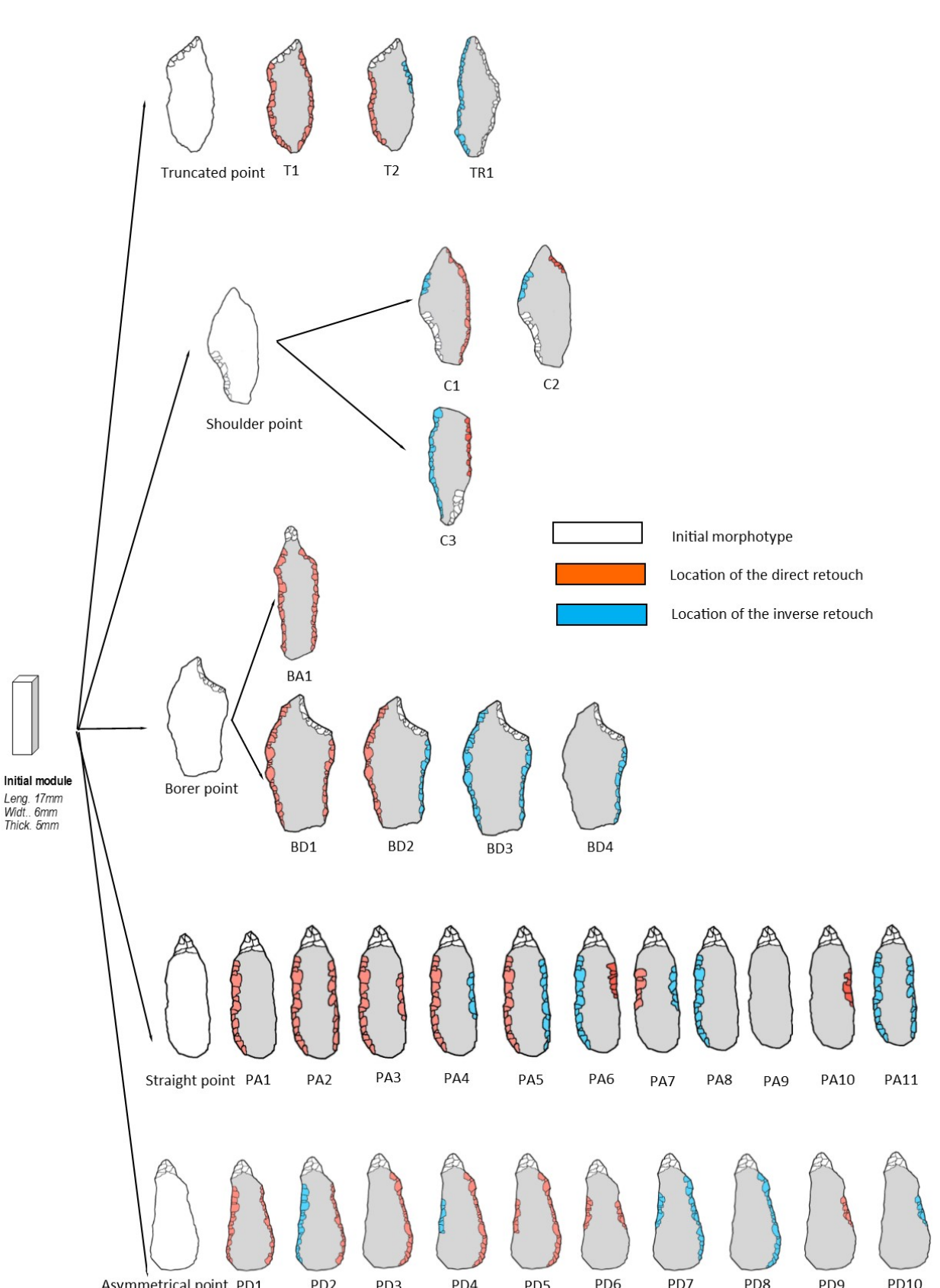
The edges were systematically worked by retouching in order to give these objects an elongated shape with rather standardized dimensions. The distal part of the object was finally pointed with a very localized bifacial fine retouch.

These points have not been used as light projectiles because they do not show characteristic fractures and accidents. However, they show micro-removals on their edges which resulted from utilisation (rotation) and also subcircular sections that were not initially present. Their global morphology and the micro-removals show that these drill points have performed rotating hand-work with a 'pump drill with stone point' (Leroi-Gourhan 1943; Allen 2017). These lithic pieces reveal their use as drill points associated with a stone tipped Papuan pump drill used for piercing shells.



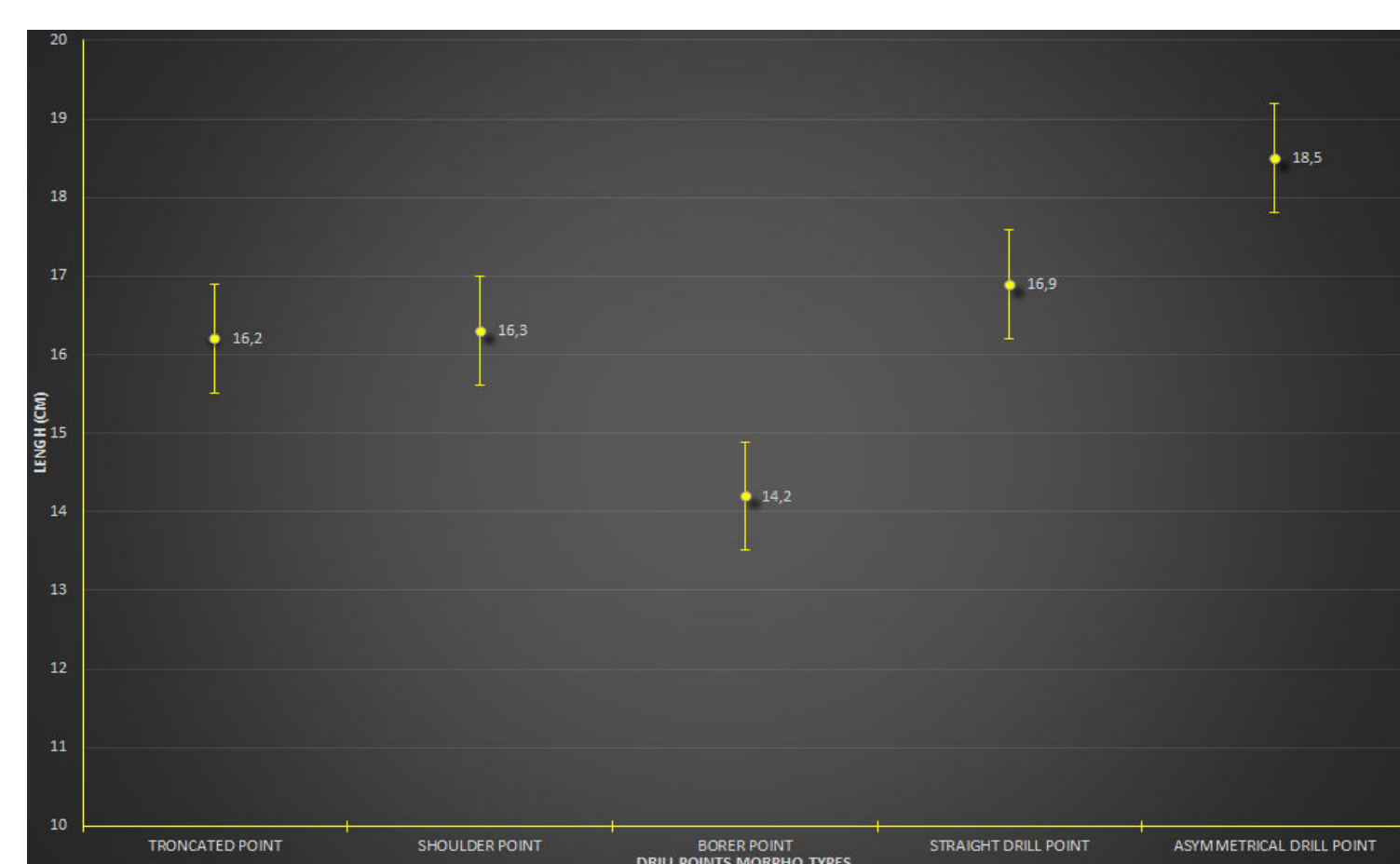
Micro-removal on the edges resulting from rotation

Different drill point morphotypes

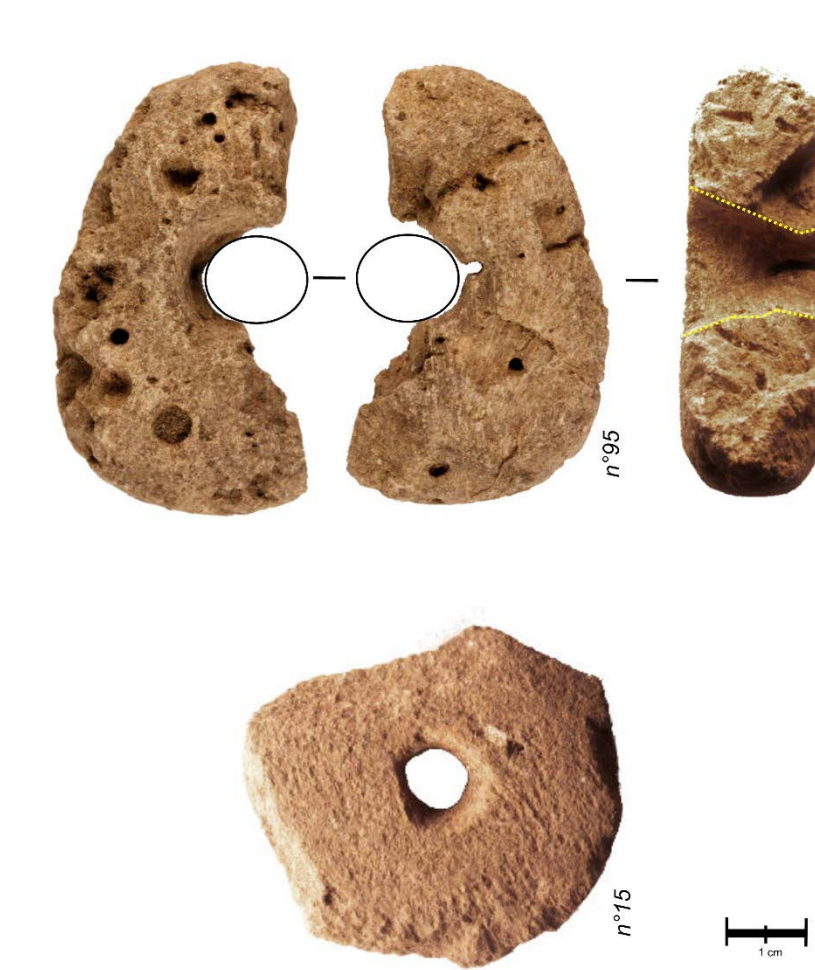


Drill point morphotypes

Based on the general morphology of the pieces, we characterized a set of 5 morphotypes at the Motupore site according to the nature and position of a particular retouch, such as a truncation [T], notch [C], beak [B] or point [P]. For the points and beaks, a comparison of the apex position and morphological axis of the piece allowed these morphotypes to be further categorized as an axial type: axial point [PA] or axial beak [BA], or a dejected type: dejected point [PD] or dejected beak [BD].



Length and standard deviation of the drill points showing their homogeneity



Flat beads in pumice stone or in pottery (Motupore)



Stone tipped pump drill (©Musée d'Ornagac Ardèche, France)



This preliminary study of the Motupore drill point assemblage identified five morphotypes related to the diameter of the perforation they might create. Further analysis (ie. micro wear analysis) will be undertaken to determine what materials were drilled

Reference: Allen J. 2017. Excavations on Motupore Island (Vol 1) (University of Otago Working Papers in Anthropology No. 4 (Vol 1)), Department of Anthropology & Archaeology, University of Otago. David B. et al. 2010. The Emo site (OAC), Gulf Province, Papua New Guinea: resolving long-standing questions of antiquity and implications for the history of the ancestral hiri maritime trade. Australian Archaeology 70, 39–54. Leroi-Gourhan A. 1973. Milieu et technique, ed. Albin Michel, 475 p. Mennis M. R. 2014. Sailing for Survival. A Comparative Report of the Trading Systems and Trading Canoes of the Bel people in the Madang area and of the Motu people in the Port Moresby area of Papua New Guinea. University of Otago, Working Papers in Anthropology, N° 2.

Acknowledgments: We thank the members of the Archaeological Laboratory of the University of Papua New Guinea for their help and support, and all the participants of this study from the University of PNG, the National Museum and Art Gallery. We also acknowledge support from various Papua New Guinea partners: National Research Institute, National Museum and Art Gallery, University of Papua New Guinea. This research is supported by the French National Research Agency, the French Ministry for Europe and Foreign Affairs (France), the French Embassy in Papua New Guinea, and the University of Papua New Guinea (PNG).

More information on <https://papuanpast.hypotheses.org/>
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