SOURCES OF AXES FROM LOLOATA ISLAND, PAPUA NEW GUINEA

Michael A. Worthing, Dept. Geology, University of Papua New Guinea

J. Peter White, Dept. Anthropology, University of Sydney

Loloata Island is a small island lying just south of Motupore Island in Bootless Bay, to the southeast of Port Moresby. Like Motupore it is narrow and steep, with a sandspit and beach at the northeast end. Pottery and shells occur across the whole sandspit and beach. On the east side, close to the higher ground, the beach is stony, and among the stones are many broken and a few whole stone axeheads. In August 1984 JPW took 12 of these to the Papua New Guinea National Museum; four have now been sourced by MW.

Given the location of the island and the nature of the pottery, we might predict that the material from this site would be closely related to that from Motupore (Allen 1977a, 1977b, 1984). Oral traditions, however, suggest that the occupants of the two islands feuded constantly, and that Loloata's links were with Tupusereia, a village of the Eastern Motu population. Motupore, on the other hand, is commonly regarded as the source of the present Western Motu population of Hanuabada (Murray 1912:153-4).

At present, more is known of prehistoric trade among the Western than the Eastern Motu. Allen (1977a:404) notes that the Western Motu acquired axeheads from two sources, the Koiari people of the interior and the Hula people who lived c.90 km southeast, on Hood Bay into which the Kemp Welch River flows. However, no sourcing of axes used in the nineteenth century is known to us, and the only statement concerning prehistoric examples is by Allen (1977b:443-4), who says that Motupore axeheads are made from a "non-local green diorite", an identification which is now superseded (pers comm., Jan. 1985). A detailed analysis of Motupore axehead sources will be published in his excavation monograph.

From the above evidence, it might be considered that axeheads on Loloata could derive from different sources to those on Motupore, or by different routes. Our sourcing was undertaken with this in mind.

Four broken axes were analysed: their morphology and petrology are detailed in the Appendix. Axes 1-3 most probably come from the Emo metamorphics which outcrop along the top of the Owen Stanley Range, within which some of the sources of the Kemp Welch, Brown and Vanapa Rivers lie (Figure 1). An alternative source could be in a thrust slice within the Kagi metamorphics, although this is less likely. Axe 3, of glaucophane cordierite schist, is especially interesting, since the only known outcrop of this unusual rock occurs

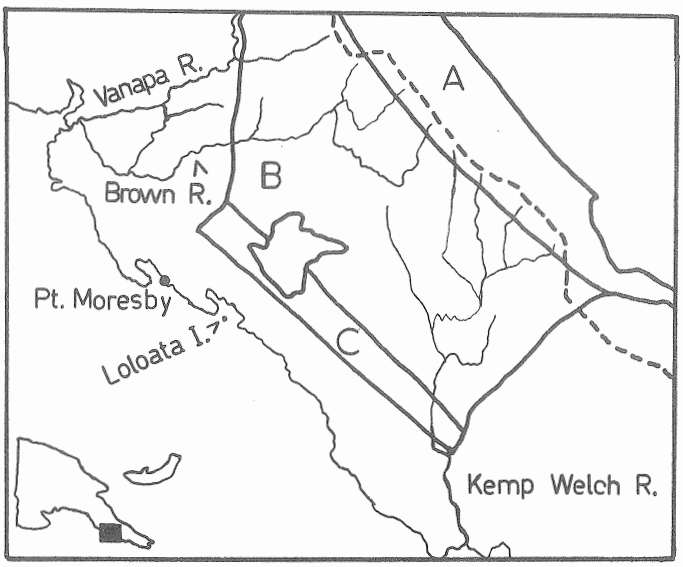

Figure 1. Simplified geological map of the Port Moresby region. A: Emo metamorphics; B: Kagi metamorphics; C: Sadowa Intrusive Complex. The main watershed is marked with a broken line. After Peterson and Green (1964).

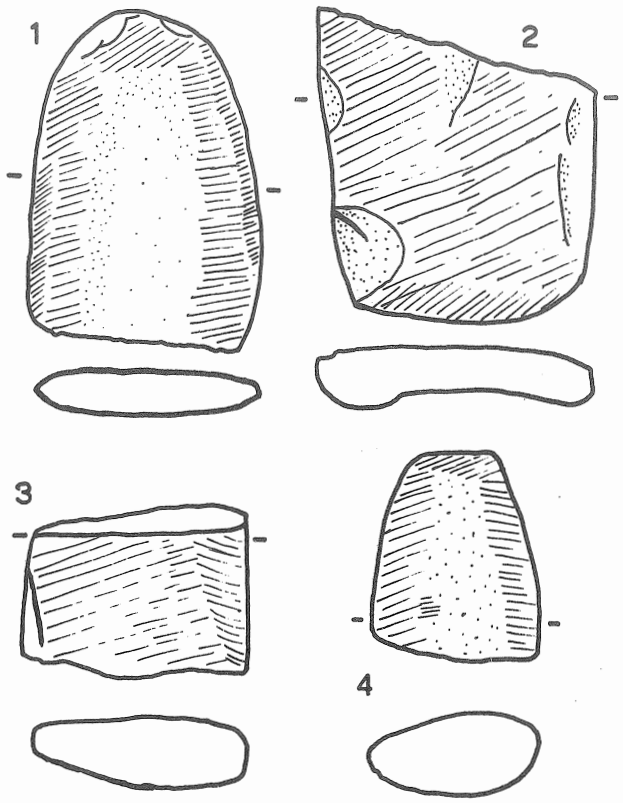

Figure 2. Loloata axes whose sources have been determined.

on the northern side of the watershed (Peterson and Green 1964). This increases the chances that it was traded over the range, rather than being collected as a pebble from the lower reaches of one or other south-flowing river. Axe 4, which contains pumpellyite, could have come from either the Owen Stanley metamorphics or from the Sadowa Intrusive Complex (Rogerson et al. 1981), although the degree of re-crystallisation in the latter is probably lower than in the axe fragment. Nonetheless, the source for this axe could have been relatively close to Port Moresby, among the pebbles of the Laloki River.

All of the potential sources for the Loloata axeheads lie within Koiari territory, but whether the stone was mined or collected from river gravels cannot now be determined. Further investigation of morphologies along the lines suggested by Wise (1981) may help resolve this question. Axeheads could have arrived at Loloata either directly, through exchange with Koiari, or indirectly, via Hula. It is interesting to note that in 1910 Seligman (1910:115) found that "nobody knows here [Hanuabada] where they [axeheads] come from originally". This suggests that sources were well up into the Owen Stanley Range.

REFERENCES

Allen, J. 1977a. Fishing for wallabies: trade as a mechanism for social integration and elaboration on the central Papuan coast. In The evolution of social systems, (eds. J. Friedman and M.J. Rowlands), p.419-455. London: Duckworth.

Allen, J. 1977b. Sea traffic, trade and expanding horizons. In Sunda and Sahul (eds. J. Allen, J. Golson and R. Jones), pp.387-418. London: Academic.

Allen, J. 1984. Pots and poor princes: a multidimensional approach to the role of pottery trading in coastal Papua. In The many dimensions of pottery (eds. S.E. van der Leeuw and A.C. Pritchard), pp.407-464. Amsterdam: University of Amsterdam Press.

Murray, J.H.P. 1912. Papua, or British New Guinea. London: T.Fisher Unwin.

Peterson S.J. and Green, P. 1964. Petrography and petrology. In Lands of the Buna-Kokoda Area, Territory of Papua and New Guinea (ed. H.A. Haantjens). C.S.I.R.O. Land Research Series, 10.

Rogerson, R., Haig, D.W., and Nion, S.T.S. 1981. Geology of Port Moresby. Geological Survey of New Guinea, Report 81-16.

Seligman, C.G. 1910. The Melanesians of British New Guinea. Cambridge University Press.

Wise, T. 1981. Archaeological artefact dispersals: a new way to test them for evidence of prehistoric trade. In Archaeological studies of Pacific stone resources (eds. F. Leach and J. Davidson), pp.225-237. BAR International Series, 104.

ACKNOWLEDGEMENTS

We thank Dik Knight, Manager of Loloata Island Resort for permission to remove the axes, and Nick Araho, Papua New Guinea National Museum, for loaning them to us for study.

APPENDIX: PETROLOGY OF LOLOATA AXES

Axes 1,2: Plagioclase, glaucophane, chlorite, pumpellyite, stilpnomelane, ?sphene. Both rocks are glaucophane schists formed by high pressure metamorphism of basic igneous rocks.

Axe 3: Quartz, plagioclase, ?pumpellyite, glaucophane (very sparse), stilpnomelane, chlorite, muscovite, iron ore, cordierite. This is a difficult rock, but it appears to be a polymetamorphic pelite. The glaucophane suggests a high pressure regional event, the cordierite a thermal event. Possibly the rock comes from the contact of an intrusion which has been introduced into high pressure regional metamorphic pelites.

Axe 4: Plagioclase (shows relict subophitic texture), quartz, pumpellyite, chlorite, trellised iron ore probably after olivine. This is a metabasite showing some relict igneous texture. The mineralogy suggests metamorphism in the Prehnite Pumpellyite Facies of the High Pressure Facies Series. It is similar to 1 and 2 but shows a lower degree of recrystallisation.