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THE CHANGE FROM ARCHAIC TO CLASSIC ADZE FORMS REVISITED

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Since the time of Haast, New Zealand prehistorians have been aware of 'differences' between the stone adzes of early (i.e. Moa-hunter or Archaic) and late (Classic Maori) occupants of pre-European Aotearoa. The wide acceptance here of a unilineal cultural model has led to the differences being interpreted as a function of internal change. Although the change may not have been regionally contemporaneous, it is generally accepted that it affected all parts of the country, despite the existence of regional distinctiveness in some other aspects of material culture. Invoking the usual adaptational and environmental factors is clearly insufficient. It is not surprising therefore that the change has remained under active review and debate (e.g. by Best 1975,1977; Jones 1984; Leach 1990; Kronqvist 1991; Turner 1992).

Recent explanations have utilized multiple rather than single causes, though usually emphasizing one as a prime mover. Thus Best (1977) preferred a functional explanation, that a decline in canoe building relative to forest clearance for agriculture led to the abandonment of the specialist adze kit of the Archaic rendered in highly flakeable rock types like meta-argillites, in favour of the more robust and generalized Duff Type 2B adzes made from rock types like gabbro. A similar functional explanation had been proposed by Groube (1970: 164). Leach's (1990) model emphasized the economics of production, suggesting that increasing costs of obtaining Archaic adzes flaked by specialists at isolated quarries led to a shift to low-risk domestic adze production by hammer dressing and sawing. These increasing costs included transportation from the quarries to evermore distant locations as the country was settled, and the diminishing accessibility of the high quality rock in the quarry areas. The resulting change in production location and technique explained the absence of Classic Maori quarry-manufactories in the archaeological record. It also led to the dominance of smaller adzes made from generally coarser local materials whose preforms had been shaped by simple bilateral flaking and extensive bruising.

These explanations attempted to account for two changes simultaneously: firstly the change in adze rock choice from highly flakeable sorts vulnerable to transverse fracture during manufacture, to materials that were harder to shape but more robust and long-wearing; secondly the change in formal adze types from the diversified Archaic kit to the Duff Type 2B. But these attempts posed a danger that association of factors could be misinterpreted as a causal relationship. In the above cases, the explanations for change gave the

impression that Archaic adze types could not be made in the coarser greywackes or gabbros and that Duff Type 2Bs were not made in the highly flakeable meta-argillites or fine basalts. Hence the change in adze material (whether driven by functional or production factors) came to be seen as the immediate 'cause' of the typological changes through the materials' effects on adze technology.

In fact, Archaic types of adzes were sometimes made in materials that flaked poorly and were better shaped by hammer-dressing or sawing, including nephrites and coarse greywackes. In Wairarapa and Hawkes Bay collections, there are examples of Duff Type IA and 4A adzes rendered in coarse greywacke (e.g. K. Prickett 1979: Fig.5A, B, C). Although the reduction processes have led to more convex surfaces, the adze type remains recognizable. In the South Island, spectacular examples of nephrite 1As (some with lugs), and 4As are known (e.g. Mead 1984: 182, Plate 24).

In addition it is now clear that the later occupants of the regions where Archaic quarry-manufactories were prominent continued to use meta-argillites and fine-grained basalts for the manufacture of untanged adzes. Significantly, however, they did not continue to make the full range of Archaic types. Aidan Challis (1978: 66, 68; 1991: 122 - 4) has noted that in Nelson new types were made from local argillites, including 'agricultural' adzes, and that coarse hammer-dressing was much more obvious as a shaping and finishing technique. For the same region, Ian Barber (pers. comm.) has found that in later period sites river-bed argillite sources were used rather than the *in situ* sources of the Archaic. As well there is evidence for the reworking of Archaic adzes, in some cases of specimens retrieved from Archaic sites. To some extent these sources would have constrained the size of the Nelson Classic Maori argillite adzes relative to the early Archaic forms, but this is only apparent at the larger end of the range.

In the North Island, at Oruarangi, Tahanga basalt continued in use as an adze material throughout the long occupation of the site (Best 1977: 320, 322; Furey pers. comm.). Inspection of the Oruarangi collections shows that in contrast to the Nelson situation, many of the Tahanga basalt Duff Type 2Bs were extremely small and that some had been progressively reduced from tanged Archaic types (e.g. Duff Type 1A). Marianne Turner has recently reported to the Archaeological Association Conference that reworking of Archaic types in argillite and basalt is evident throughout Northland. In an earlier contribution, Nigel Prickett (1989: 143) interpreted the presence of Nelson meta-argillite 2Bs in the Far North as a sign of on-going exchange. It will be difficult to determine just how many of these argillite 2Bs were brought north as 2Bs, and how many arrived at an earlier period as Archaic types, and were refurbished locally. Prickett used an indirect argument: if refurbishment was dominant, the proportions of distinctively early argillites such as that from the Ohana source would remain the same. This was not the case with his sample, hence his support for on-going exchange.

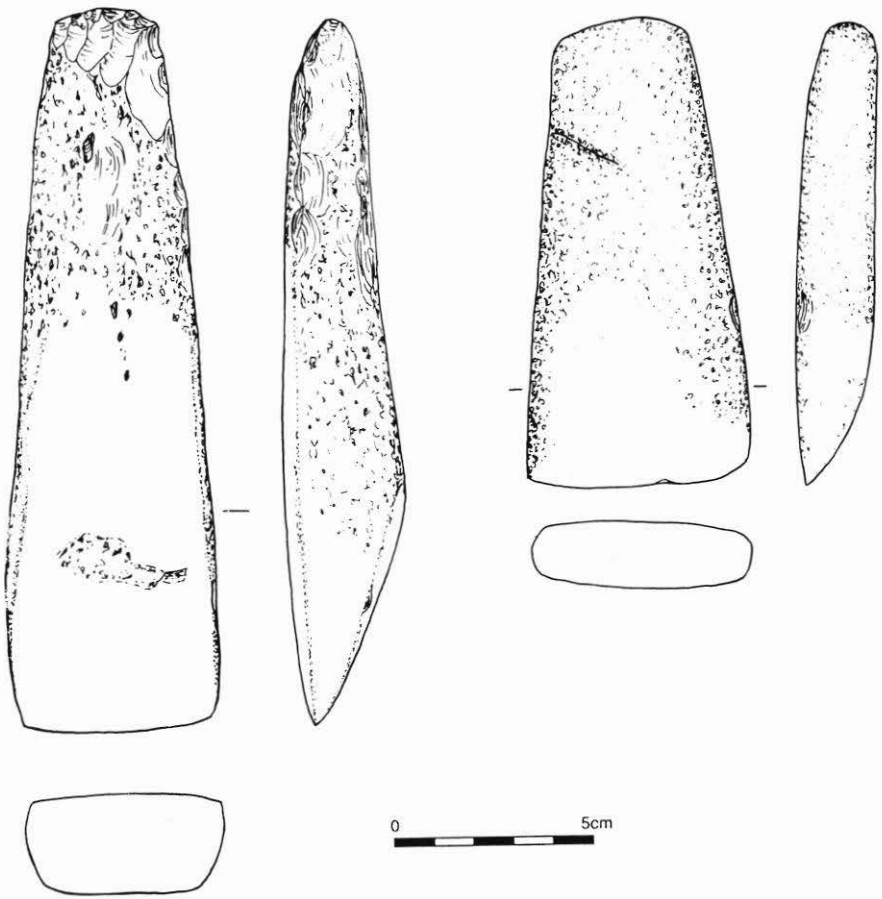

Figure 1. Left : meta-argillite(?) adze of Archaic form (intermediate between Duff Types 1 and 2A); front, bevel and lower sides ground, tang hammer-dressed, poll left in flaked condition; National Museum ME12379. Right : green greywacke(?) adze of Classic 2B form; lower front, sides and bevel ground, all remaining surfaces including poll well hammer-dressed; National Museum 7688.

Whatever the relative roles of new production *viz a viz* reworking, it is clear that the change in material was never complete, but always proportional. Nephrite adzes were made in the Archaic just as meta-argillite adzes were produced in the Classic Phase. Clearly then, material cannot serve as a 'prime cause' for the differences between Archaic and Classic adzes, although it has been a contributing factor.

Traditionally we have concentrated on two variables that display the Archaic-Classic differences quite plainly, namely material and type. Having 'demoted' material, we need to re-examine type. Duff types are primarily based on cross-section and presence/absence of tang. Certain other features deserve closer attention, in particular the treatment of the poll as distinct from the butt area taken as a whole. In the past, we have asked only 'is this butt reduced as a tang by frontal and/or lateral reduction?'. From this question we have learnt that Classic adzes are generally untanged, while at the same time ignoring the fact that it is the poll area (that region of the adze which is furthest from the cutting edge) that displays one of the most distinctive differences between Archaic and Classic adzes, that of degree of finish. Put simply, most Archaic adze polls were left rough, while Classic adze polls were dressed. The two Wairarapa adzes appearing in Figure 1 illustrate this difference.

Archaic adzes are notable for the progressive reduction of finish from bevel to poll. In general, the bevel was polished along with the front and sides over about one third to two thirds of the adze length. The butt of medium to large adze types such as Duff Type IA and 4A, was left in a hammer-dressed state, presumably to enhance the grip of the lashings. In contrast, the poll was usually left in its original flaked condition, sometimes with a small area of cortex intact indicating that it had remained unaltered since the very beginning of the adze reduction sequence. We can assume from the poll's rough state (often with quite sharp flake scar edges) that the adze lashings did not actually make contact with it, but were positioned around the adjacent hammer-dressed butt surfaces (front and sides).

In marked contrast, Classic Maori adzes have polls that were shaped by hammer-dressing and grinding to a symmetrical curve or to a rectangular shape with rounded corners. They were not left in a rougher condition than the adjacent surfaces. It is possible that the extra work invested in them was for aesthetic reasons, but we should remember that the butt of a hafted adze was normally unseen. Under these conditions why should Classic Maori adze-makers invest more effort than their Archaic forebears?

A technological explanation makes more sense: that the poll of the Classic Maori adze had to be shaped and smoothed for reasons related to the method of hafting. I suggest that unlike the Archaic adzes, Classic adze polls must have been in contact with their hafts, and posed some danger to them if left in a rough flaked condition. Setting the adze blade into a socket (within the haft foot itself or into a composite helve) is clearly a hafting technique which

required a smooth adze poll. An irregular projection from the poll could initiate a split in the haft timber during heavy work, by transmitting the force of the impact into the timber behind the adze like a spike or wedge.

A change in hafting technique from predominantly open ended to socketed may explain the change in poll finish, but itself needs further explanation. What was wrong with the Archaic combination of tang, lashings and one-piece helve? One obvious difficulty is that certain adzes cannot be easily or safely tanged, especially those too thin from front to back for frontal butt reduction, and too narrow from side to side for lateral reduction in the form of spade shouldering. These untanged forms were thus more prone to slide back in their lashings. The slender Duff Type 2A and the small flake adzes found on most Archaic sites are the most likely types to have caused hafting problems through their lack of tang. We know from observations of haft polish on the backs of these adzes that they were hafted in a similar way to the larger tanged adzes. With their rough flaked polls, they were unsuitable for socketing; so they must have been held in place through the friction of lashings covering a large proportion of their blade. While this may have been satisfactory for a newly made Duff Type 2A with reasonable length, the progressive shortening of the adze with each re-sharpening and bevel rejuvenation, led to insufficient surface area being available for the lashings to be in contact with. A desire to keep a good quality adze in working condition as long as possible may well have provided the impetus to change to a socketed haft.

Discussions of the value of composite helves have stressed the fact that they can compensate in length and weight for a reduced stone adze head. Provided it had appropriate cutting edge and bevel characteristics, a small adze set in a heavy composite helve could behave like a larger and heavier Archaic adze. It would not require a reduced tang since it would be fitted into a purpose-made socket. The small size of many Classic adzes would make socketing essential to hold them in place, and composite hafting preferable if any heavy work was to be done. Poll finishing simply reflects the increased incidence of socketing.

Socketed hafting has a long history in East Polynesia, having been identified in the form of a one-piece adze helve at the Vaito'otia-Fa'ahia site on Huahine, dated to the close of the Ist millennium A.D. (Sinoto 1982: 176, Fig.3d), and in pre-European composite hafts found in New Zealand (Wallace 1982). In both forms of inset hafting, the adze poll is in contact with the wood and would require dressing. The practice of socketing was not therefore a Classic Maori innovation but was probably applied to chisels and gouges in the Archaic period. Socketing may also have been the hafting method for reverse-triangular Duff Type 3 adzes which have a ridged back incompatible with a flat haft sole; however they may have been accommodated within an open-ended groove, such as that on one of the Huahine adze helves (Sinoto 1982: Fig.3b), a method which still requires a substantial area of contact with the lashings. Whatever the range of hafting techniques used in Archaic Maori

sites, the scene was set for the change at an early stage in New Zealand's prehistory as Archaic communities attempted to keep their high quality adzes functional in the face of length reductions with each refurbishment of the cutting edge and bevel. After a period of experimentation which in Murihiku involved adding spade shoulders to Type 1A 'stubs' or pecking a groove below the old tang, the trend seems to have been towards modifying the adze haft rather than the adze head. Once the compensatory hafting technique (i.e. socketing) was in regular use, the easier-to-make untanged adzes replaced the old Archaic forms and the Type 2B was born.

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