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PRELIMINARY INVESTIGATION OF THE  
TAHANGA BASALT, COROMANDEL PENINSULA

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Abstract

A source of basalt at Coromandel Peninsula has been used extensively for adze manufacture; adzes of this rock type are widely distributed in the North Island. The basalt has some easily recognised characteristics, and distinction from other widely used lithologies is discussed. Greater efforts should be made to locate major quarry sites and adequately describe their rock type.

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INTRODUCTION

A Maori quarry at Tahanga Hill, Opito (Site N40/8) was first described by Shaw (1963). Since then this important basalt quarry has received little attention, even though it was considered to have been the source of "most of the material for archaic adzes on the Coromandel coast" (Green, 1963, p. 64). Some preliminary results from a study of the Tahanga basalt are presented here to provide a basis for future work.

DISTRIBUTION

The physical characteristics of the Tahanga basalt are such that the rock type can be recognised among collections of adzes and flakes with some degree of confidence. A study of adze collections at the Auckland and National Museums has shown the basalt to be widely distributed (Figure 1), although, as would be expected, particularly concentrated within the Auckland region. However, since identification of Tahanga basalt can never be 100% certain, by macroscopic methods (thin-section study being ideally required for positive determination) adzes have been grouped into two zones, A and B (Figure 1). Adzes showing features typical of Tahanga basalt are common in Zone A (e.g., 20 adzes from Tauranga, and more than 30 from the Kaipara area),

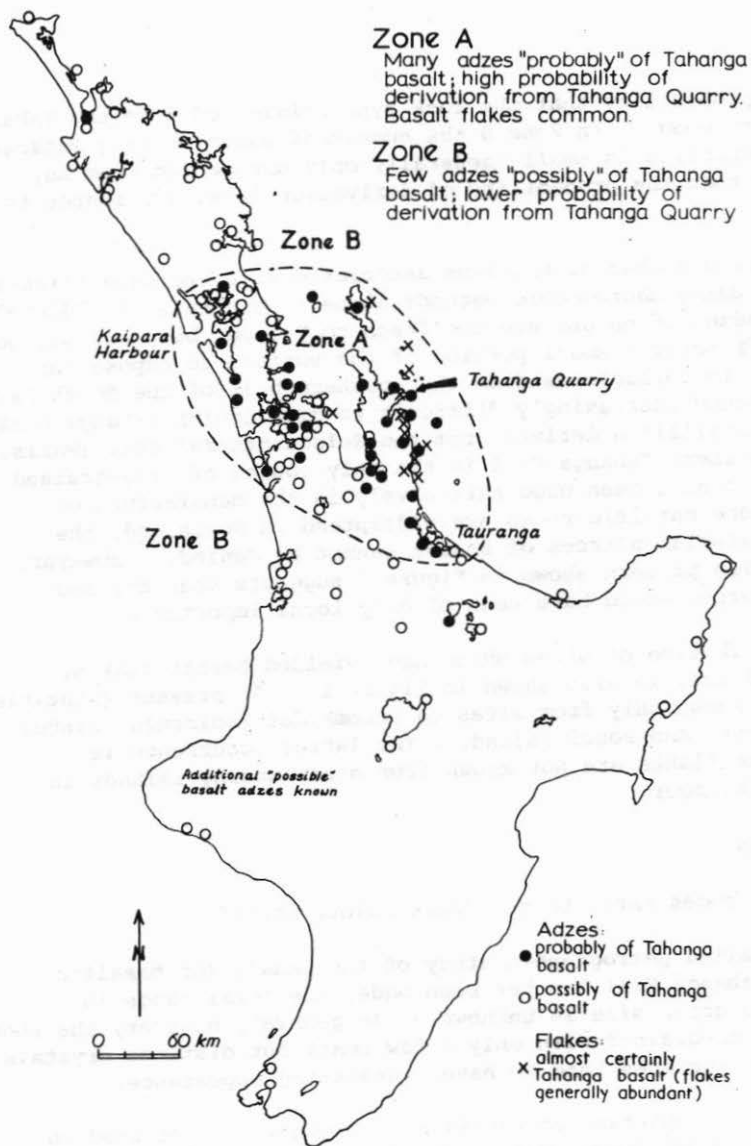


Fig. 1: Map showing the locations where adzes (circles and dots) and flakes (crosses) of basalt, considered to be from Tahanga Quarry, have been recorded.

so that the probability that the rock type originated from the Tahanga quarry is very good. In Zone B the number of adzes showing Tahanga-type characteristics is small (generally only one or two from any locality) so that the probability of derivation from this source is much less.

There are a number of problems associated with the identification of rock type using macroscopic methods alone. Weathered or "dirty" surfaces on adzes often obscure the fresh rock-type, but this may be overcome by grinding a small portion of the surface to expose the fresh rock. In collections from the southern half of the North Island it has been found increasingly difficult to distinguish Tahanga basalt from altered argillites derived from the Nelson Mineral Belt (Walls, 1974). At present Tahanga Hill is the only source of fine-grained basalt known to have been used extensively in the manufacture of adzes, but since basaltic rocks are widespread in Northland, the existence of similar sources of basalt cannot be denied. However, the distribution pattern shown in Figure 1 suggests that any such additional sources would have been of only local importance.

The distribution of sites which have yielded basalt flakes, often in abundance, is also shown in Figure 1. At present quantities of flakes are known only from sites on Coromandel Peninsula, eastern offshore islands, and Ponui Island. The latter occurrence is unusual because flakes are not known from other nearby islands in the Waitemata Harbour.

#### CHARACTERISTICS

(Note: colour codes refer to the "Rock colour chart")

As no detailed petrographic study of the basalt (or basaltic andesite) at Tahanga Hill has yet been made, the total range in composition and grain size is unknown. In general, however, the rock is extremely fine-grained with only a few small but distinct crystals visible; fresh surfaces tend to have a sparkling appearance.

Colour is an important characteristic since it can be used to distinguish from some greywackes. Fresh basalt is typically a medium dark to dark grey (N3-4) colour, rarely greyish black (N2); a "blotched" effect, in shades of grey, is a common feature and some basalt may show crude flow-banding. Weathered surfaces vary from light grey (N7) to medium grey (N5) and generally show a fine pitting due to preferential weathering of certain mineral grains. The soft

outer limonitised zone, varying from orange to reddish brown in colour, may be preserved on some flakes and cores.

Tahanga basalt is readily distinguished from the greywacke quarried at Motutapu Island, Auckland, by its bluish grey colour, as distinct from the greenish grey colour of the greywacke. Density differences are also very useful in distinguishing basalt from greywacke. Unfortunately few attempts have been made to accurately describe the lithology of stone flakes in Coromandel sites, and much Tahanga basalt has previously been lumped into the broad term "greywacke".

The basalt is not so easily distinguished from some argillites derived from the Nelson Mineral Belt (Walls, 1974). However, adzes collected from D'Urville Island show a wider range of colours, from light grey to black, and also various shades of green. Veining is common in some specimens but so far no veins have been observed in samples of Tahanga basalt. In general the argillites tend to be finer grained, often lack a sparkling appearance on fresh surfaces (which is typical of fresh basalt), and do not show the characteristic pitted surface of weathered Tahanga basalt.

#### DISCUSSION

The study of stone quarries used by the Maori has considerable importance in determining trading patterns and establishing a relative chronology of sites, as already shown by Green (1964) for Mayor Island obsidian. Description of the rock type of such sources also overcomes many of the problems pointed out by Mason (1963), particularly the extensive and time-consuming thin-section work required to establish provenance. If a quarry is known to have been used extensively it is easier to trace the rock type from the source (e.g., Chapell, 1966) rather than attempt to establish the source of unknown rock types. Hence it is suggested that efforts should be made to locate all major quarry sites, and then establish the distribution of the rock type. In this way certain lithologies can be eliminated in attempts to source adzes.

Mason (1963) has previously stressed the need for more adequate description of rock types. The use of standard colour codes (e.g., "Rock colour chart") has proved valuable in macroscopic description of adzes. Use of standard grain-size charts is also recommended. Adequate description of rock types used in adze manufacture should

reduce the amount of thin-section work necessary to determine provenance, and hence put "sourcing" back in the hands of archaeologists.

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