

TOKELAU ARCHAEOLOGY: A PRELIMINARY REPORT OF AN INITIAL SURVEY AND EXCAVATIONS.

*Simon Best  
Department of  
Anthropology  
University of  
Auckland*

BACKGROUND

Although many aspects of life in the Tokelau atolls have been studied over the last 20 years, it was not until late 1985 that an opportunity to conduct an archaeological survey in the group was made available. The proposal for such a venture was put to the Tokelau elders and was approved. Funding was provided by the United Nations Development Project, through the Office for Tokelau Affairs in Apia.

The fieldwork was carried out between 31st May and 17th August 1986. All three atolls were visited: Nukunonu between 4-9th June, Fakaofo 10 June - 12 July, and Atafu 13 July - 12 August. In all a total of 42 days was spent excavating; 22 on Fakaofo, and 20 on Atafu. A small test-hole was also put down on Nukunonu.

Site surveys were attempted in the eastern islets of all 3 atolls; 4 days on Nukunonu, 1<sup>1</sup>/<sub>2</sub> on Fakaofo, and a half day on Atafu. In the latter island 2 days were spent mapping the village and the excavations.

AIMS

The main aim of the project was fairly general: to conduct basic surveys and excavations in order to find out what, if anything, was there. Of the three atolls, two, Fakaofo and Atafu, were chosen for fieldwork. Fakaofo was selected because of its pre-eminence at the time of European contact, and the fact that Fale, the main village islet, is very small and obviously considerably altered. It was hoped that this might result in a concentration of artifacts, and in the probability of some depth of deposit, with the chance of separation by layers.

Atafu appeared to provide a strong contrast with the above situation. While it was recorded as being inhabited in the mid 1820's, and had some sort of occupation, probably temporary, in 1791, its European discoverer (Byron) in 1765 reported the atoll as being uninhabited. Oral tradition records the re-settlement of Atafu from Fakaofo seven generations ago; thus the possibility existed of locating this settlement area and comparing it with any older occupation.

The present settlement on Atafu is spread over some 140,000 m<sup>2</sup> (compared with c.45,000 m<sup>2</sup> for Fakaofo), and although some of the

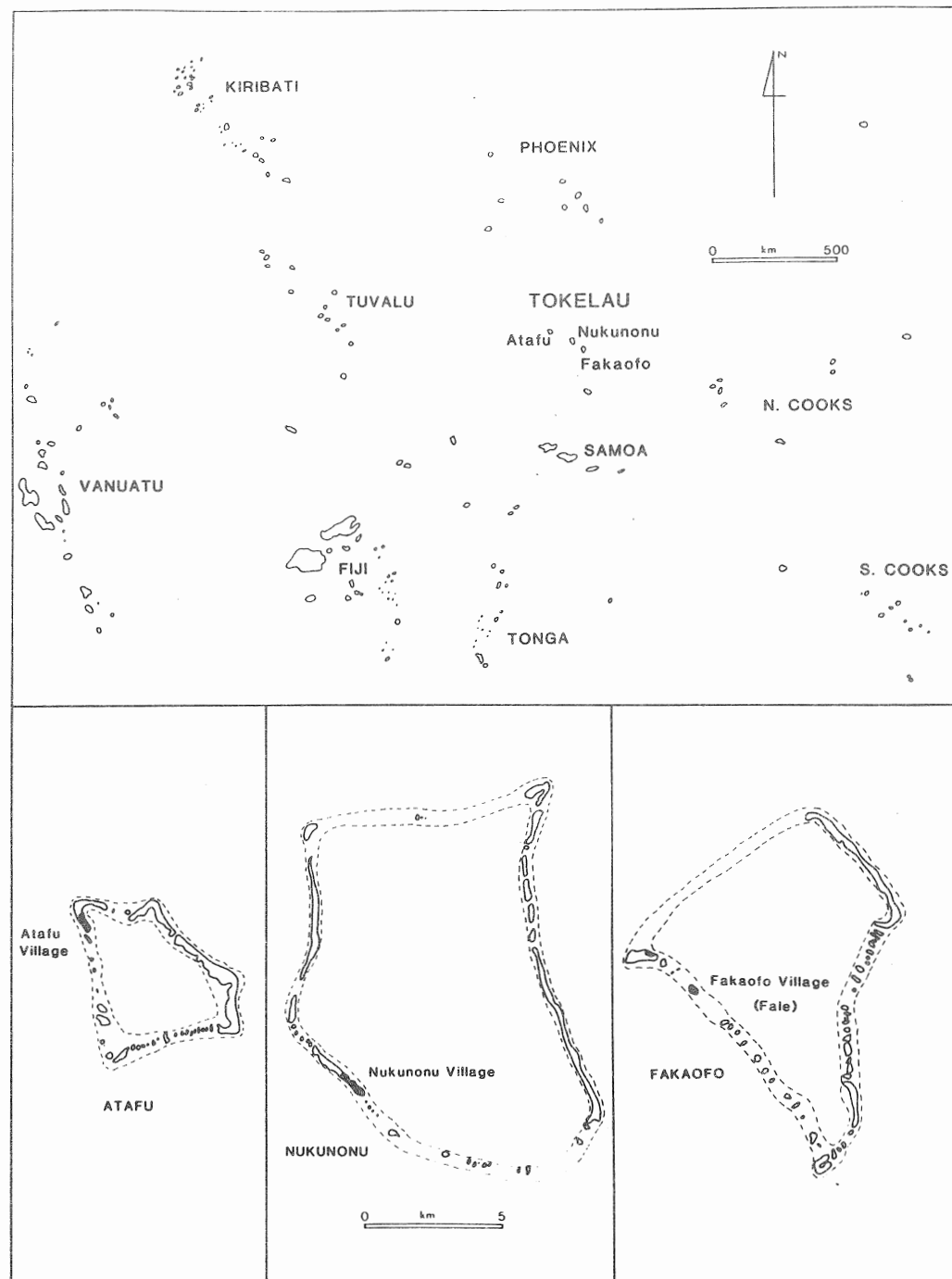


Figure 1. Tokelau in relation to neighbouring Pacific Islands, and detail maps of three atolls (Atafu, Nukunonu, Fakaofu).

former is on land formed by the sea since 1914, the two villages present different appearances in both density of occupation and in artificial build-up. Land accumulation in a southerly direction, as with the 1914 hurricane, may also have occurred on Atafu in prehistoric times, with the possibility of different stages of occupation in different areas. Atafu also contains the highest land above sea level in the group, and differs from Fakaofo in that there is little permanent underground water available.

#### PROCEDURE

The excavation strategy in Fakaofo consisted of estimating where the centre of the original islet of Fale might have been, and of putting down a line of five 2 x 2 m<sup>2</sup> squares to look for major topographical features, such as the lagoon ridge, the central hollow and the higher reef ridge, on the principle that early settlement would be either on the tops of such ridges, or sheltering on the lagoon side of them. The square in the central hollow was the last dug, mainly as an addition to providing a cross section of the island (Figure 2).

On the village islet in Atafu 14 excavation units were dug, nine 2 x 2 m<sup>2</sup> and the rest 2 x 1 m trenches. Eleven of these ran the length of the present day village up to the 1914 land edge. They were sited about 50 metres apart and some 40 metres from the lagoon shore, as it was this general area on Fakaofo that had produced the most artifacts. Information from these units resulted in another three being dug in a line across the islet where the occupation deposit was deepest, again in much the same areas as for Fakaofo (Figure 3).

Examples of an excavation section from each atoll are shown in Figures 4 and 5. In these the dark coloured occupation layers can be seen, and in the Fakaofo unit the row of flat stones at 1 m depth is part of a pavement which extended across the square, and which is part of a large structure.

#### SITE SURVEYS

The probability exists that there are earlier stages of occupation in Tokelau than those on the islets where the present day settlements occur. In an attempt to look for suitable alternative locations, brief site surveys of other islets were undertaken. However, lack of detailed knowledge of the local processes of atoll formation and landform change that might be expected to have occurred over a possible 2-3000 year timespan meant that such efforts stood virtually no chance of success, as the declining time spent on this activity during the project indicates.

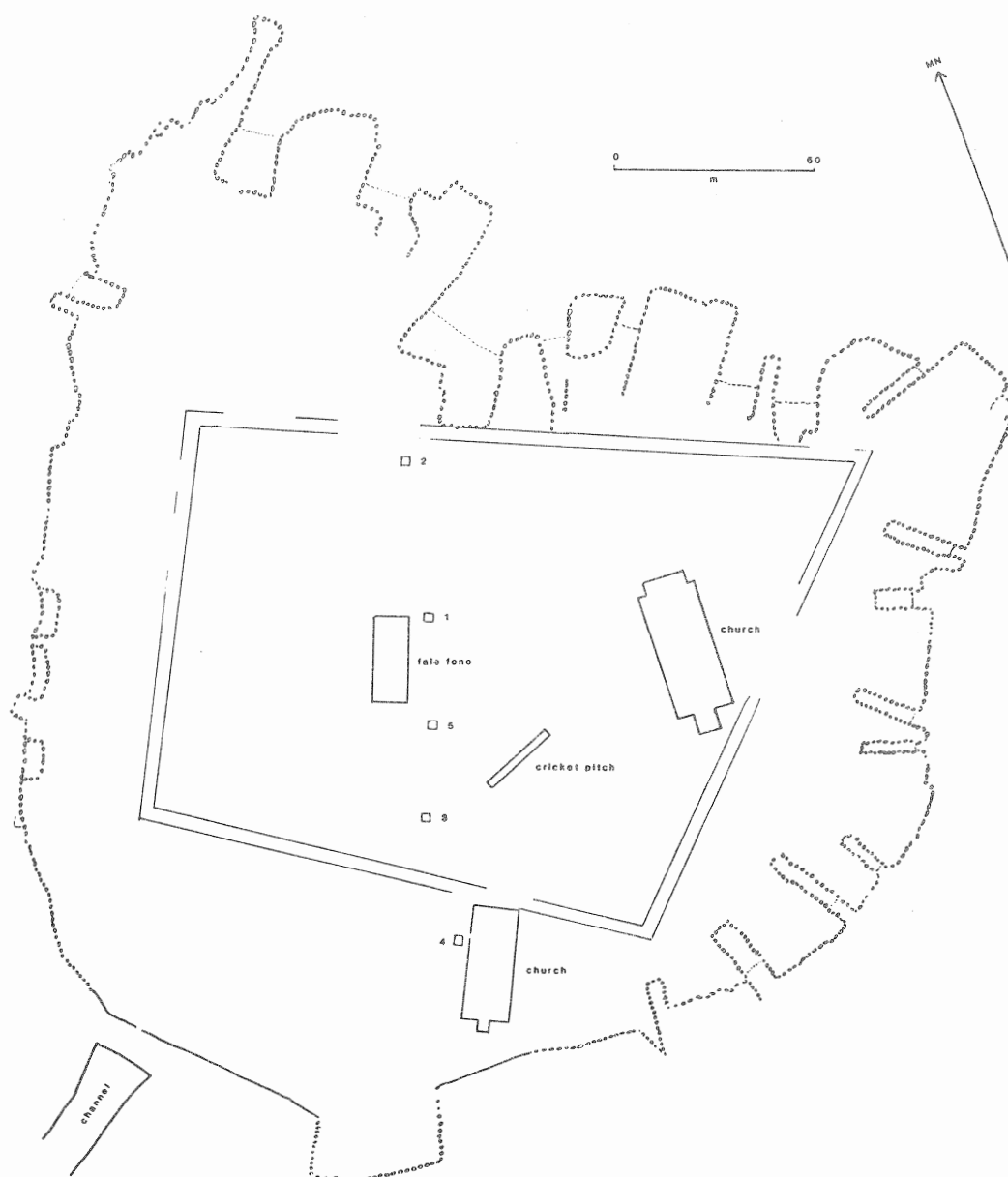


Figure 2. Plan of Fale islet, Fakaofu (after Hooper), and excavation locations. 1-5 are 2x2m excavation squares.

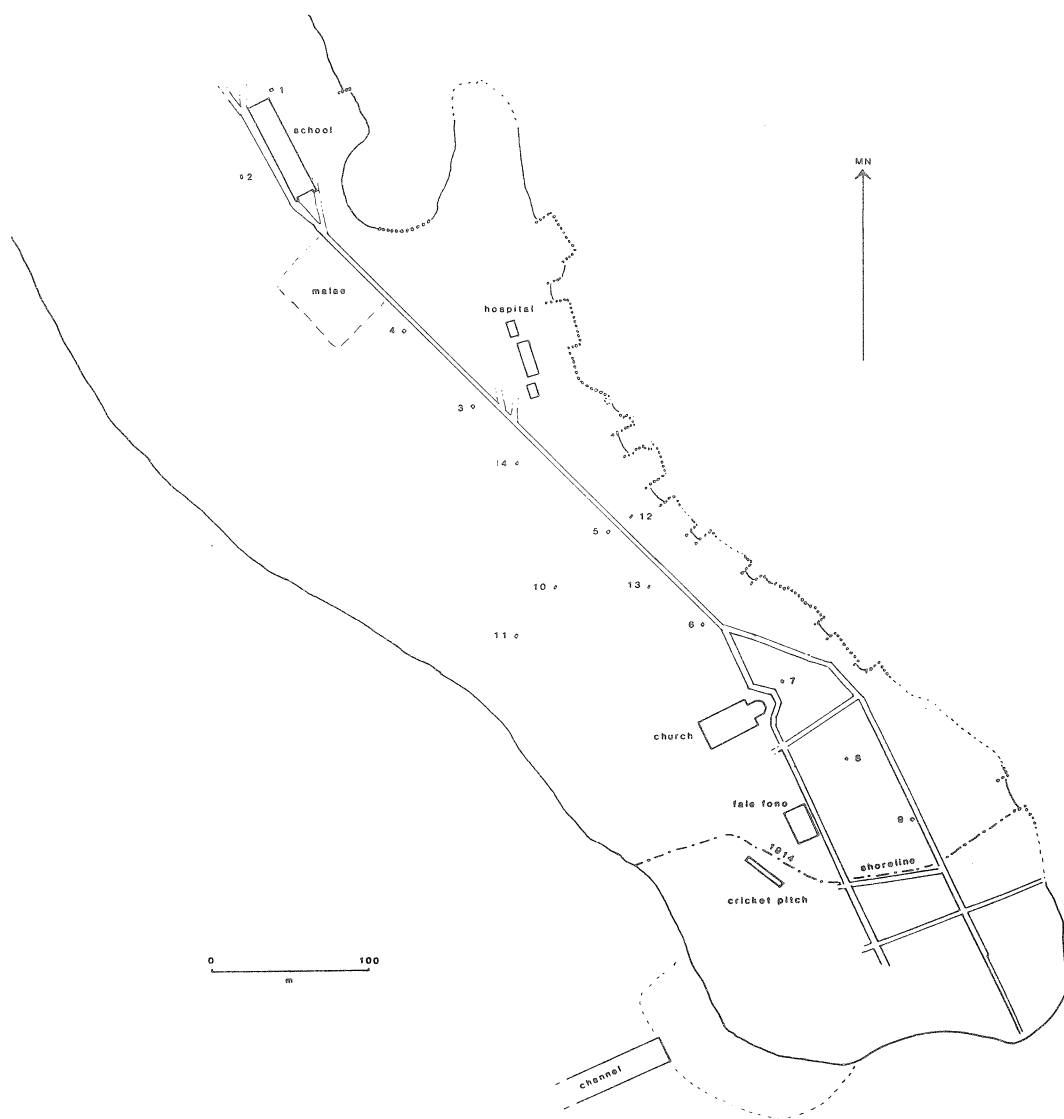


Figure 3. Plan of Atafu village and excavation locations.  
1-14 are excavation trenches.

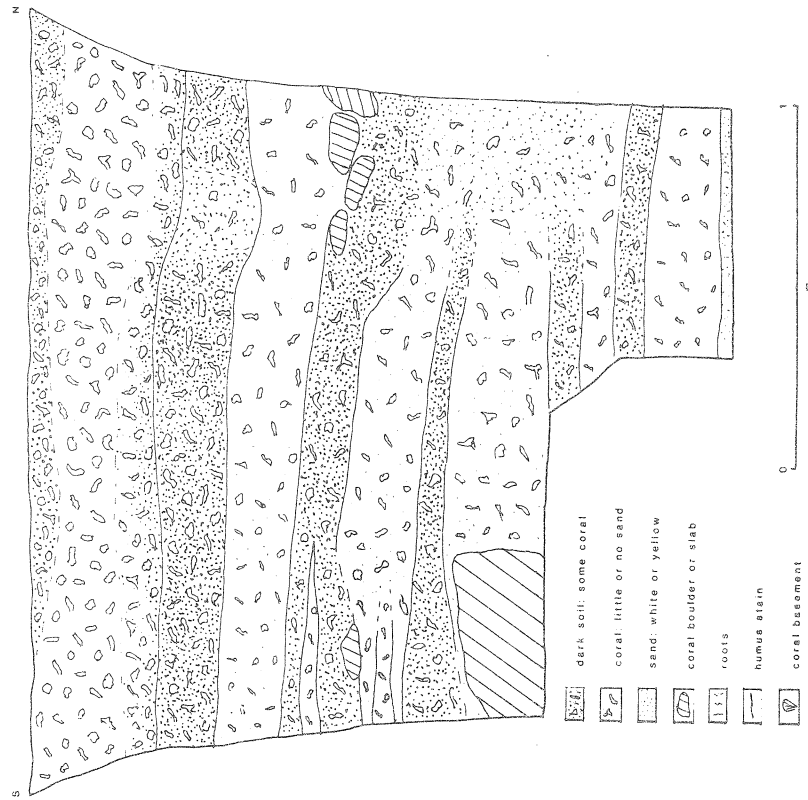


Figure 4. (left). Fakaofu, square 1, north section.

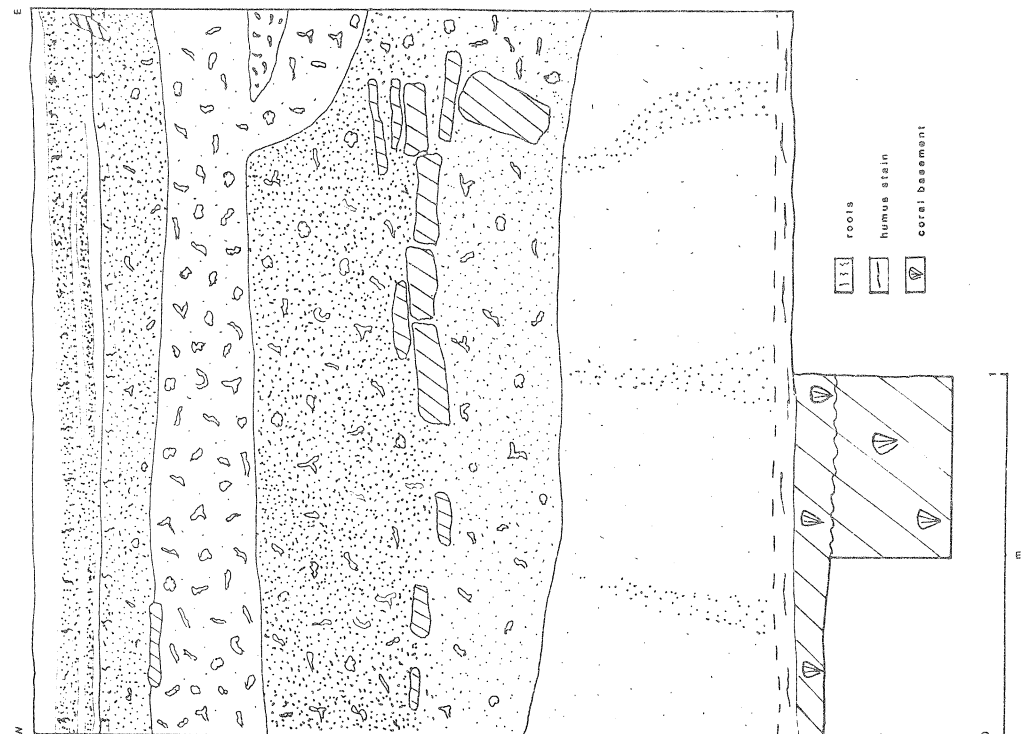


Figure 5. (above). Atafu, square 11, west section.

## ARTIFACTS

The following descriptions are preliminary and are not considered to be comprehensive.

### Fishing Gear

One complete pearl shell lure (pa) was found, and two lure hooks or points, one of pearl shell and one of bone (Figure 6, 2nd row, bone hook on left). Several pieces of probable lures were also recovered.

Five small shell objects resembling the small lures used today for catching malau were found. These are shown, along with two examples of the modern lure, in Figure 6, 1st row (modern lures on right). The archaeological specimens may, however, be ornaments, or may even have had a dual purpose, functioning as either.

No complete prehistoric fishhooks were found, but some of the fragments recovered give an idea of the variety of shapes and sizes involved, and of the lashing attachments (Figure 6). The various manufacturing stages were also present; an example of a pearl shell hook in the process of being made is shown in Figure 6, 3rd row (left), and a shaped section of bone (3rd row, right) is likely to have been prepared for producing either a lure point or one-piece hook.

### Adzes

Shell adzes were the most numerous artifacts found, both in surface collections and from the excavations. There appears to be two main types, both manufactured from the clam (fahua); those formed from large shells, either from the hinge area (Figure 7A) or from one of the valve ridges, and those from smaller ones, where practically the whole valve was used (Figure 7B).

Stone adzes were mainly found as fragments, with only one complete tool (Figure 7C). Three other whole examples from a private collection on Nukunonu were photographed and drawn. The cross-sections and chemical analyses of the basalt are expected to indicate that the tools came from Samoa.

### Flakes

Three large basalt flakes, showing evidence of being used as cutting or chopping tools, were found in the Fakaofu excavations (Figure 7D).

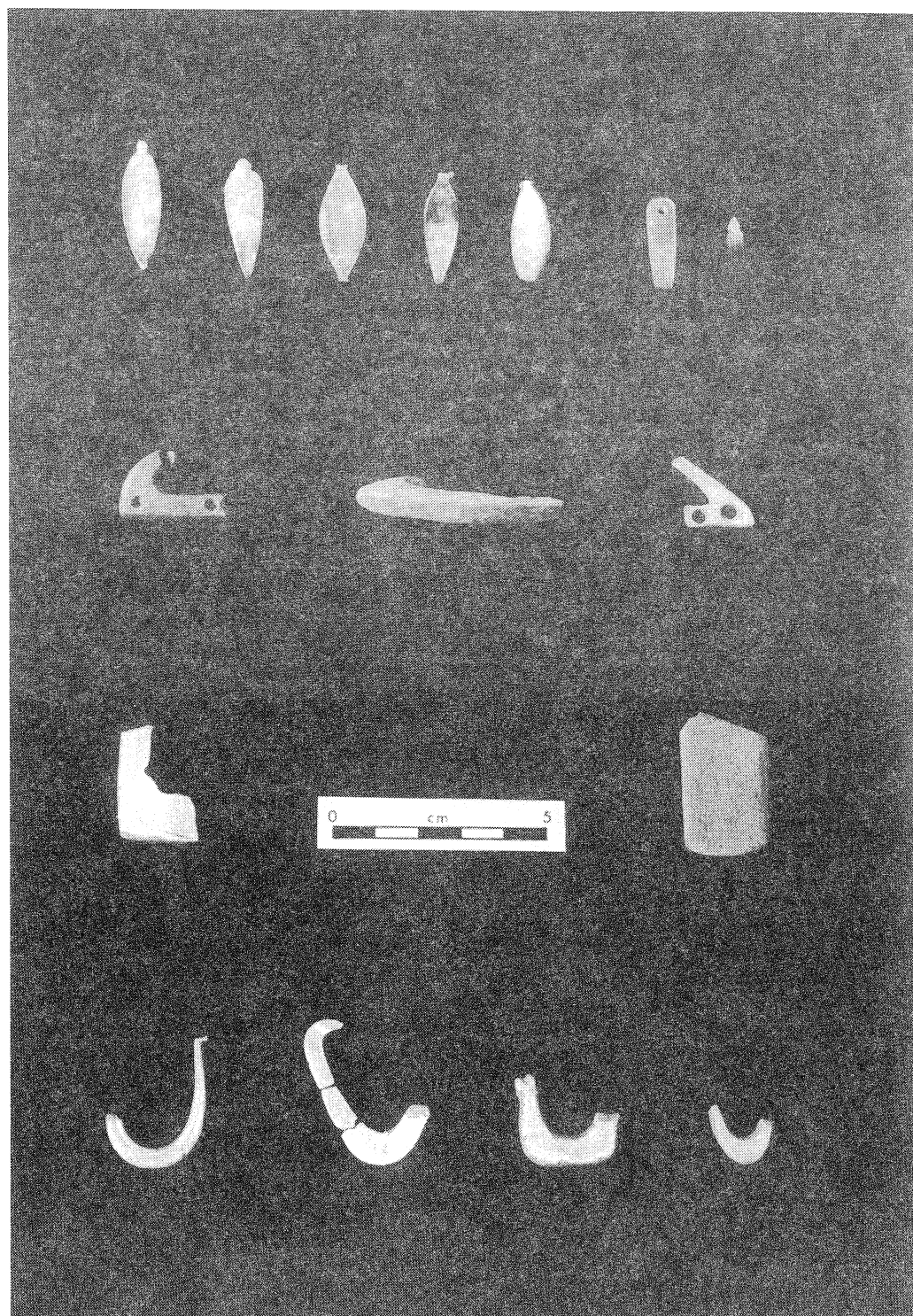


Figure 6. Tokelau fishing artifacts (see text).





Figure 7. Stone and shell tools from Tokelau sites.

### Chisels

A tool found in the excavations on both atolls was a type of chisel, made from the lip of a Cassia shell (Figure 7E). The blade end of a similar tool, but of basalt, was also recovered (Figure 7F).

### Other tools

A 'scraper' made from a Conus (kalea?) shell, and an awl or drill from a spindle shell are examples of other shell tools found (Figure 8A & B). Possible shell artifacts such as scrapers are probably present in the excavated material but await further study.

Two spines from the slate pencil sea urchin (kamutoa) had ground ends (Figure 8C), and were found in the lowest occupation level on Fakaofu.

Fragments of at least two grindstones (fuaga) were found, the rock type of one suggesting a source either in Fiji or the large islands to the west.

### Ornaments

Several pierced shark or stingray vertebrae were found, showing use as necklace units (Figure 8D). A jaw of a fish (Balistidae), probably modified to expose the unerupted tooth, seems to have been a pendant (Figure 8E), while a porpoise tooth, with two perforations, was part of a larger necklace (Figure 8F).

A pearl shell (tifa) valve, roughly chipped into an elongated shape and obviously in an early stage of manufacture, was found on the lowest sand surface in square 12 on Atafu. Its function is not clear. If pearl shell was rare in early times, then it may be an unfinished breast ornament; if plentiful, it may have been a more functional object, such as the blade of a digging tool, known ethnographically and found archaeologically in Fiji.

### Miscellaneous artifacts

Three small pieces of prehistoric pottery were found on Atafu. They are likely to have come from Fiji.

Pottery has recently been found to the west of Tokelau on Vaitupu atoll in Tuvalu. Excavations here by Jun Takayama in 1985 produced pottery from the lowest layer, associated with a date of A.D. 1080±70 (Takayama et.al. 1987:5). Six sherds were sent to W.R. Dickinson, who identified northeast Viti Levu as a probable source area.

An initial macroscopic examination of the Tokelau sherds indicates that the same source area in Fiji is possible for these sherds as well, although it may well be that their route to Tokelau

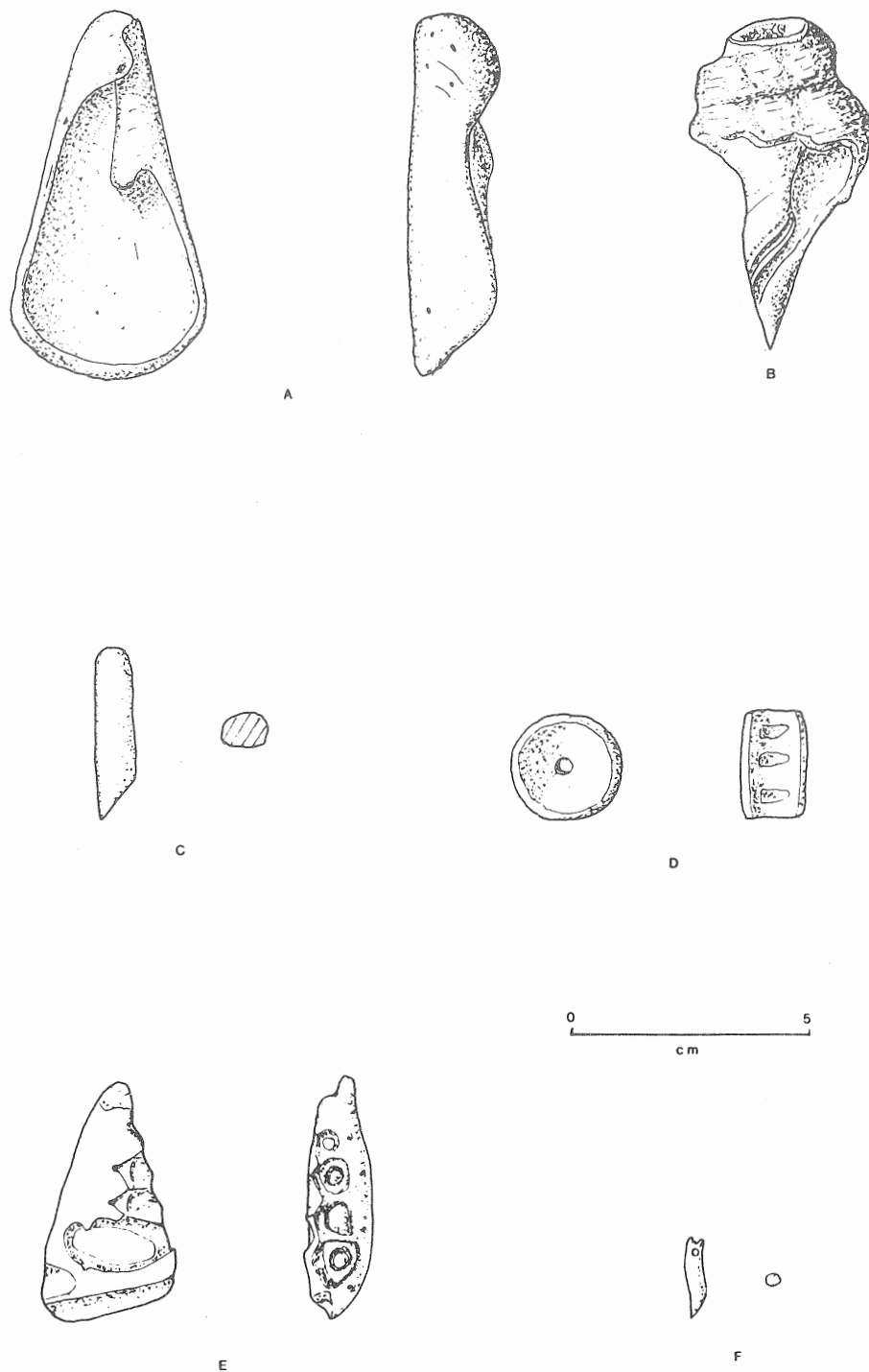


Figure 8. Shell tools and ornaments from Tokelau sites.

was not direct but via Samoa, associated in some way with the adze material from that country.

Apart from the pottery, some small fragments of a soft red rock were located near the base of the occupation deposits. These appear to be ochres, and would probably have been used for colouring purposes. The material was imported, the nearest likely source being Samoa.

#### RADIOCARBON DATES

Four samples have been submitted so far to the Institute of Nuclear Sciences, D.S.I.R., Wellington; three from Fakaofo and one from Atafu. The results are as follows (all dates are with old half-life).

The earliest cultural layer encountered on Fakaofo, in Square 4, was dated to 1090 $\pm$ 60 B.P. (NZ 7439). This was the square on the seaward edge of the atoll, the lowest layer of which contained a considerable amount of turtle bone, the material dated.

An equivalent age was obtained from the earliest sampled layer on Atafu. This was a charcoal sample from Square 5, giving a date of 1000 $\pm$ 100 B.P. (NZ 7462).

An attempt was made to date the emergence of Fale (Fakaofo) as an islet, by obtaining a sample of in situ coral from the base of one of the central excavations. A hole was dug with a crowbar to a depth of 40 cm below the water-table in the basement coral of Square 1 (see Figure 4), and the resulting sample (NZ 7449) gave a date of 2370 $\pm$ 65 B.P.

The last sample submitted was a large Conus shell, also from Square 1 on Fakaofo, found lying on the surface of the clean yellow-white sand which rested on the coral basement. It was hoped that the shell was part of the culturally-stained coral layer which overlay the sand, however the resulting date of 1620 $\pm$ 60 B.P. (NZ 7396) indicates that it probably was not.

#### FOOD REMAINS

The comments below are based on field examination only of the material.

Shell formed the bulk of the excavated material. All that can be said at this stage is that the upper levels in many of the squares contain more clam shell than do the lower levels, and that pearl shell is extremely rare at all levels. There will probably be difficulties in separating food shell from shell which occurs naturally among the coral deposits.

The bone is perhaps the most interesting of the excavated material, and consists mainly of fish, but with some turtle, bird, pig, dog, rat, human, and possibly whale. Three human burials were found, but only their extremities protruded into the squares, and the archaeological disturbance was minimal. A sample of bone from one of these was retained for dating and ageing purposes. Various other human remains, such as individual teeth and possibly foot and hand bones, were also found scattered throughout the excavations.

The fish remains appear to be mainly those of reef fish such as parrotfish (*laea*), and the expected quantity of deep sea fish such as tuna was not found. Bird remains were fairly rare throughout most of the squares, except for Square 9 on Atafu. At the present stage of analysis it appears that chicken is restricted to the modern layers in all places, and that the birds caught and eaten in earlier times were seabirds.

Bones of pig were restricted to the later levels, those which had evidence of European material such as glass and iron. However, remains of dogs were widespread throughout the two villages excavated. These were present from the earliest levels, but appear to have died out some time before contact by Europeans. Rat bones were found, but it is not certain whether these had died among rubbish or had actually been eaten.

Turtle bone was also common throughout the excavations, with one notable concentration in the earliest level of one square, where areas of burnt turtle shell plates were found lying flat on the sand surface. The presence of porpoise was demonstrated by the necklace unit. A large piece of bone may also have come from a whale.

#### SUMMARY

This is a preliminary report on the initial excavations on two archaeologically-unknown atolls; Fakaofo and Atafu. Any comments on the findings at this stage must be fairly general.

The artifacts from both atolls are similar, save for the shaped pearl shell valve and the prehistoric pottery of Atafu. The artifacts obtained from Nukunonu, the stone and shell adzes, are the same as those from the other two atolls.

All excavations show that pig is restricted to a late stage in Tokelau occupation, probably after contact by Europeans, as the historical accounts indicate. The excavations on both islands show also that dogs were numerous from the earliest occupation, and were apparently not present when Europeans arrived, again agreeing with the historical records.

The presence of a gap in time between the demise of dogs and the arrival of pigs is suggested by the material from Square 9 on Atafu. Here a deposit below the levels in which pig was found

contained no dog remains, despite the large amount of bone material present.

Whether or not chickens were brought in by Europeans is not yet clear, but all bones identified as chicken in the field were restricted to the same upper levels as the pig. It would seem that observations by early Europeans that dog, pig and chicken were absent may have been correct.

The apparent lack or paucity of pelagic fish remains may be due to a number of factors. Included in these is the possibility that trolling for tuna did not play such an important economic and social part in atoll life as it does today.

In the three central squares on Fakaofu traces of coral stone structures and pani floors were uncovered. The date of these features is not known, but they occur over half way down the excavations and an age in hundreds of years is possible. Such structures were not found on Atafu, probably because the equivalent areas of the old village were not located.

The radiocarbon dates indicate that the sites of the present day villages of Fakaofu and Atafu were both occupied approximately 1000 years ago, and there is no need to assume that the situation for Nukunonu was dissimilar. The two non-cultural dates from Fakaofu give an indication of the possibilities for earlier occupation. If the single date from the coral basement of Fakaofu can be applied to all three atolls, then it is possible that at the time of initial colonization of Fiji, Tonga and Samoa to the south, between 3500 and 3000 years ago, no Tokelau landfall existed for the occasional exploratory canoe. It must require a length of time for a newly emerged atoll to provide a hospitable environment for settlement, and by 1600 B.P. it would seem that Fakaofu had a back dune of considerable depth, possibly with vegetation. Some kind of settlement at that time or earlier in the group seems possible.

The main general inference to be drawn from the archaeology at this very early stage is that thriving communities existed in the Tokelau at least 1000 years ago, in conditions far more difficult than those of today. For instance, the islets on which the present-day villages of Atafu and Fakaofu are situated were between one and two metres lower than the present surface, and thus more vulnerable to storm waves. Food supplies differed from the present in that no breadfruit, pig and possibly chicken were available, and for a time no dog; the people existed mainly on fish, turtles and birds. Water supplies, on Atafu especially, must have been fragile. Canoes, on which survival depended, were constructed using only shell or stone tools and sennit (kafa).

Despite these factors, permanent settlements of some size were established and maintained. Contacts between these and other island

groups, such as Samoa and Fiji, show that Tokelau was not just three isolated atolls, but part of a wider Pacific community.

#### ACKNOWLEDGEMENTS

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#### REFERENCE

Takayama, J., Eritaia, B. and Saito, M. 1987. Preliminary observation on the origins of the Vaitupuans in view of pottery. In Cultural adaptation to atolls in Micronesia and West Polynesia (ed. E. Ishikawa), pp. 1-13. Tokyo: Tokyo Metropolitan University.