

## THE MELE BURIALS (VANUATU): SALVAGE EXCAVATIONS AND BIOLOGICAL RELATIONSHIPS

Graeme K. Ward\* and Philip Houghton\*\*

### ARCHAEOLOGICAL INTEREST

When Mele, on the northwestern side of Port Vila and previously an area of coconut plantations and gardens, was being developed in the early 1970s as a residential area, landscaping activities on the Taplin's property uncovered pottery vessels and a fragmented cranium. Initial excavations at the two rock shelters were undertaken over two days in May 1973 by archaeologists from the Australian National University who were *en route* to fieldwork elsewhere in the archipelago. An opportunity to complete work at the Taplin's shelters came the following year when Ward was marooned in Port Vila on his way to the Banks Islands to continue his doctoral fieldwork. A total of eleven person-days was spent at the site and at a makeshift field laboratory at the "British Rest House". The skeletal material excavated from the Taplin's sites was analyzed by Houghton at the University of Otago Medical School. Ceramic and other material from Mele was investigated along with Banks Islands' assemblages (Ward 1979, 1989). The salvage excavations and analyses of excavated materials are discussed in greater detail elsewhere (Ward and Houghton 1988).

Mele is an area of mainly Polynesian habitation on the outskirts of Vila. The Mele Plain is known to have been a major locus of Polynesian settlement in the protohistoric period and there is some linguistic support for the argument that the Polynesian settlements/influences on or around Efate have greater antiquity than the immediate pre-contact period. Were, then, the people buried in the shallow graves in the rock shelters at the Taplin's sites of Polynesian affinity? If they were, then dating of the remains could throw some light upon the antiquity of Polynesian contact with central Vanuatu. In his analyses, Houghton sought evidence of the Polynesian skeletal phenotype.

The pottery recovered from the site was the linear incised and applied type described by Garanger (1972/1982) as "Mangaasi Ware"; it clearly was associated with the burials. But the many (second millennium AD) burials excavated by Garanger elsewhere on Efate lacked any associated pottery; moreover, the evidence from several sites in the central

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\* Canberra ACT, Australia

\*\* Medical School, University of Otago, Box 56, Dunedin, New Zealand

islands of Vanuatu confirmed that pottery had ceased to be used before contact with Europeans. Ward has re-interpreted this evidence to indicate that pottery was made only up until about AD 1200, if not restricted to a period ending in the first millennium AD (Ward 1989). Were the burials at Mele therefore relatively ancient?

Against this, the burials were neither deep nor covered by several layers of deposit. The pottery lacked the characteristics of the earlier Mangaasi variety identified by Garanger. These factors and certain traditional evidence elicited from local people during the excavations suggested that the burials could be recent. Thus there was a conflict of interpretation that needed investigation.

#### Salvage Excavations of the Taplin's Rock Shelters

Efate, including the small islands off its northwestern coast, has an area of less than 1000 km<sup>2</sup>. The interior, rising to 650 m above sea level, is rugged and heavily wooded and is now uninhabited. Efate is essentially volcanic, with a Recent raised fringing reef now 5 m above sea level around much of the island's coastline (Ash *et al.* 1978). The outlier of the coralline limestone escarpment in which the Taplin's 1 and 2 sites are situated is several hundred metres from the present coastline (from which they are separated by the road between Mele and Devils Point) and approximately 40 m from the escarpment itself. The outlier is approximately 15 m in length and 4 m high. The archaeological deposits were found at the foot of the outlier in a narrow overhang on the southern side and a deeper shelter on the eastern side.

Excavation was conducted with the aim of exposing the burials and other materials and, ultimately, of salvaging all cultural content since the floors of both shelters were to be emptied as part of the development. Larger rubble was moved by hand, then the matrix was towelled and screened. Most cultural materials had to be removed immediately, being bagged and their locations recorded against the datum established at the southern end of the outcrop. Articulated or semi-articulated long bones were exposed and photographed *in situ* before removal. The deposits were largely disturbed. The pottery was fragmentary; no major bone of any of the burials was unbroken. Skeletal material, pottery and other items were removed from the sites along with any adhering matrix in labelled plastic bags. They were carefully washed and sun-dried, re-bagged and packed for shipping. Matters relating to burial orientation and grave furnishings are discussed elsewhere (Ward and Houghton 1988).

#### Dating

Nitrogen analyses confirmed that all burials in Taplin's 2 shelter were roughly contemporaneous. Subsequently, a radiocarbon analysis (NZ 4463) of the organic fraction of bone from Individual C2 provided an age estimate of 2800±75 bp (70.6±0.7 percent of modern: R5497; Melhuish, personal communication). Reducing the bp value by 30 years for a southern hemisphere value, extending the error range to 100 years as a better estimate of total error factors involved in applying the secular age corrections of

Pearson and Stuiver (1986), and using the new half life for radiocarbon of  $5730 \pm 40$  years, the age of the bone is estimated to fall between 2985 and 2775 BP (1035 and 825 BC).

#### THE SKELETAL MATERIALS FROM TAPLIN'S 1 AND 2

The bone is in generally poor condition, being incomplete and grossly fragmented without an intact long bone. Some pig bones were among the material. The human material as presented to the laboratory comprised five groups representing probably nine individuals.

Taplin's 1 consists of a few skeletal fragments of a robust male and, from the texture, gave the impression of being from a rather different era to the rest of the material.

The four burials of Taplin's 2 comprised remains of eight other individuals. Individual A1 is a sixteen-year old, probably male; A2 is a male in his mid-twenties. B1 is a child aged about 20 months; B2 is a male in his twenties; and B3 is an older male, probably in his thirties. C1 is a female probably in her twenties and C2 is a male probably in his thirties. F consists of the remains of a female aged about 30 years whose bone texture suggested a date of interment different from others of the group.

A standard skeletal analysis was carried out but conclusions are limited by the scanty and fragmented nature of the material. An individual census is provided elsewhere (Ward and Houghton 1988).

#### Biological Relationships

In trying to establish a picture of the evolution of *Homo sapiens* within the Pacific, the dating of any materials is of central importance. Skeletal material from more than two thousand years ago is very limited, but it is from such early material that consideration must start. Herein lies a major importance of the Taplin's material.

Comparative data exist for Watom (Houghton 1989), Sigatoka (Visser n.d.), Lakeba (Houghton 1983) and Taumako (Houghton n.d.). Certain other groups were also used in the assessment of the dental data, those deriving from Bougainville (Bailit *et al.* 1968), Tonga (Anderson 1978) and Hawaii (Snow 1974).

A biological model of aspects of human movement and settlement in the Pacific has recently been presented (Houghton 1990, 1991). In summary, the model proposes that, as *Homo sapiens* moved into Island Melanesia, the wider movements and migrations came to be dominated by a people whose large and muscular body form, and other biological characteristics, favoured survival in the harsh Oceanic environment. Standard climatic data for the tropical Pacific tend to conceal the fact that the Oceanic voyaging environment is effectively the coldest to which *Homo sapiens* has adapted and, appropriately, this large and muscular body form is biologically the supreme cold-climate adaptation. These large-bodied voyagers evolved *within* Island Melanesia, for this body form is inappropriate for the hot wet geographic environment further west (Weiner 1977). Time depths of some 30,000 years now being obtained for settlement in the western fringes of island Melanesia (Groube *et al.* 1986; Allen *et al.* 1988) give ample time for such selective adaptation to take place. These nascent voyagers were of an overall body phenotype akin to the Polynesian.

Subsequently, smaller-bodied people, always dominant in numbers in the west, accompanied or followed these large-bodied strandloopers across much of geographic Melanesia. The smaller people were biologically unsuited voyagers and soon confined themselves again to the warmer land and littoral, resuming their accustomed existence as cultivators, reef foragers and fishers of inshore waters. Implicit also in this model is the rejection of the term "Melanesian" as a human biological label. Against this model the human material from Taplin's is considered.

In general, the Taplin's individuals are of modest build. An adult male stature could be estimated at 1670 mm, as well as, with more surety, that of a 16-year-old male at 1650 mm. The mandibular rami are robust, suggesting (along with the moderate advance of tooth wear with age) a rather tough and fibrous diet. But the rami are low, reflecting a small mid-facial region and airway and thus a rather slight overall body size. The malar (cheek) bones are small, particularly vertically, again indicating a small mid-face and airway. The shoulder girdle skeletons are gracile. Only one adult showed a minor first rib groove on a (right) clavicle, a feature that, in its pronounced form, has been associated with the consistent action of paddling canoes (Houghton 1980).

Second metacarpals were available from Individuals B2 and C1. The radiological Nordin's score (Barnett and Nordin 1961) averaged from these was 53 (similar to that of prehistoric New Zealanders), indicating a reasonable bone structure and implying an adequate diet.

Reconstruction of vault fragments of Individual B2 enabled sagittal chords of frontal and parietal bones to be measured. The parietofrontal index of 103.4 indicates a relatively long parietal bone. These proportions are reflections of the cranial index, which in turn possibly has environmental connotations (Beals *et al.* 1983). This individual from Taplin's had a rather long vault form, one perhaps inappropriate to the cold voyaging environment.

The only femora preserved (Individual C2, young adult female) are most unlike those of the other Oceanic series (Watom, Sigatoka, Lakeba), being very round in the upper shafts with a platymeric index of unity and large round foveae on the heads. The biological basis for these differences is yet to be established, but it will be related to the degree of muscularity around hip and thigh, and the bony differences will reflect biomechanical differences. Ultimately, the extent of muscularity reflects the extent of adaption to the Oceanic environment.

A comparative dental analysis showed the teeth of the Taplin's people to be large and in the range of Australian Aboriginal groups. However caution is needed here in interpreting such data. Apart from the small sample size a variety of factors, from nutrition to body/tooth size allometric relationships, may contribute to resemblances or differences in tooth size.

Although fragmented and scant, the Taplin's remains are sufficient to establish the presence on Efate about three thousand years ago of a rather gracile people of modest stature, probably largely land-orientated and land-exploiting, and distinct from the large-bodied voyagers widespread in the Western Pacific in that era. There is no evidence to

suggest that the small body size of the Taplin's people was consequent on an unfavourable environment; rather, it was genetically determined. While bearing in mind the caveat given above regarding generalizations on body form in Melanesia, the Taplin's body phenotype seems more characteristic of many recent peoples of Melanesia.

#### CONCLUSIONS

The nine individuals at the Taplin's site were derived from five separate burials. Most bones were broken following inhumation and prior to excavation. Some burials were accompanied by pottery.

While there is evidence from their condition that two individuals (Taplin's 1 and Taplin's 2F) were buried at an earlier time, nitrogen analyses suggest that all deaths happened within a relatively narrow time span. Dating of the Taplin's skeletal materials to the beginning of the first millennium BC and their direct association with Mangaasi Ware tends to confirm the early dating of that tradition, but is incongruent with the ceramic evidence in other ways. Firstly, other later burial sites in central Vanuatu are not securely associated with any ceramics and, secondly, the applied and incised pottery from the Taplin's shelters lacks indicators of the "Early Mangaasi Ware" defined by Garanger. These observations suggests the possibility of a problem with the dating at Taplin's 2.

The early dating of the Taplin's shelter burials lessened the likelihood that they represented a group of Polynesians, immigrants to the Mele area. Comparison of the skeletal evidence from the Taplin's burials with Polynesian data and other samples from a comparable period required rejection of the null hypothesis that they were of Polynesian body form. The Taplin's individuals, where estimates could be made, were considerably shorter than their Polynesian counterparts, more gracile, and lacking evidence of muscular development characteristic of their large-bodied counterparts which allowed the latter to survive long ocean crossings in adverse climatic conditions. People resident on the reef-fringed shores of Mele Bay three millennia ago were probably culturally and genetically ancestors of the present-day Melanesian communities.

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## REFERENCES

- Allen, F.J., C. Gosden, R. Jones and J.P. White 1988. Pleistocene dates for the human occupation of New Ireland, North Melanesia. *Nature* 331:707-709.
- Anderson, A.J. 1978. Archaeological explorations on 'Ata Island, Tonga. *Bulletin of the Royal Society of New Zealand* 17:1-21.
- Ash, R.P., J.N. Carney and A. MacFarlane 1978. *Geology of Efate and Offshore Islands*. Port Vila: New Hebrides Condominium Geological Survey (Regional Report).
- Bailit, H.L., S.J. DeWitt and R.A. Leigh 1968. The size and morphology of the Nasioi dentition. *American Journal of Physical Anthropology* 28:271-288.
- Barnett, E. and B.E.C. Nordin 1961. The radiological diagnosis of osteoporosis: a new approach. *Clinical Radiology* 11:166-174.
- Beals, K.L., C.L. Smith and S.M. Dodd 1983. Climate and the evolution of brachycephalization. *American Journal of Physical Anthropology* 62:425-438.
- Garanger, J. 1972. *Archéologie des Nouvelles Hébrides*. Paris: Publication de la Société des Océanistes 30.
- 1982. *Archaeology of the New Hebrides* (Translation by Rosemary Groube). University of Sydney, Oceania Monograph 24.
- Groube, L.M., J. Chappell, J. Muke and D. Price 1986. A 40,000 year-old occupation site at Huon Peninsula, Papua New Guinea. *Nature* 324:453-455.
- Houghton, P. 1980. *The First New Zealanders*. Auckland: Hodder and Stoughton.
- 1983. The human remains from Lakeba. Appendix 5 of S. Best, *The Prehistory of Lakeba*. Unpublished PhD thesis, University of Auckland.
- 1989. Watom: the people. *Records of the Australian Museum* 41: 223-233.
- 1990. The adaptive significance of Polynesian body form. *Annals of Human Biology* 17:19-32.
- 1991. The early human biology of the Pacific: some considerations. *Journal of the Polynesian Society* 100:167-196.
- n.d. Selective influences and morphological variation amongst Pacific *Homo sapiens*. *Journal of Human Evolution*, in press.
- Pearson, G.W. and M. Stuiver 1986. High precision calibration of the radiocarbon time scale, 500-2500 BC. *Radiocarbon* 28(2B):839-862.
- Snow, C.E. 1974. *Early Hawaiians*. Lexington: University Press of Kentucky.
- Visser, E.P. n.d. The people of Sigatoka. Unpublished data, University of Otago doctoral thesis in progress.
- Ward, G.K. 1979. *Prehistoric Settlement and Economy of a Tropical Small Island Environment: The Banks Islands, Insular Melanesia*. Unpublished doctoral dissertation, The Australian National University, Canberra.
- 1989. The Mangaasi Pottery and the Mangaasi Site. In D.G. Sutton (ed.), *Saying So Doesn't Make it So*, pp. 153-67. Auckland: New Zealand Archaeological Association Monograph 17.
- Ward, G.K. and P. Houghton 1988. The Mele burials: salvage excavation and skeletal analyses. (TS, 48pp., October 1988)

Weiner, J.S. 1977. Human ecology. In G.A. Harrison, J.S. Weiner, J.M. Tanner and N.A. Barnicoat (eds), *Human Biology*, pp. 401-508. Oxford: Oxford University Press.

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