

## Subjective Impression of Australmelanesian Dentition

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Jackie and Christy Turner were in Australia from May 17 to August 17 collecting data on Australian and Melanesian dental morphology and pathology through the aid of a grant from the Wenner-Gren Foundation for Anthropological Research. These observations will be used to assess various existing and new hypotheses about Australmelanesian origins, numbers of migrations, intra- and inter-group affinity, and microevolution. One unusual prior dental finding was a close relation between Australmelanesians and Africans. A total of 1,421 individuals were studied in the Queensland Museum (Michael Quinnell and Richard Robins), Shellshear Museum (Jonathan Stone), Australian Museum (Jim Sprecht), Macleay Museum (Susan Davis), Australian Institute for Aboriginal Studies (Colin Pardoe), and South Australian Museum (Graeme Pretty). Data are now being entered in computer files for analysis.

In the meantime, a subjective impression of Australmelanesian teeth seems to show that on the whole, Australian teeth seem to be very similar to those of Melanesians, although impressionistically there are two minor differences: (1) Australian teeth seem to be generally larger and more complex than those of Melanesians, and (2) Melanesian teeth seem to have a slightly stronger Asian quality. However, both Australians and Melanesians are more like each other, than either is like Southeast Asians.

With respect to the African versus Southeast Asian affinity issue for Australmelanesians, it is impossible to predict precisely how the quantitative analysis will turn out. But subjectively, we suspect a slightly closer Asian alignment because of the very low Australmelanesian occurrences of lower cusp 7 and Bushman canine (both African characteristics). On the other hand, strong incisor shoveling, three-rooted lower first molars, and one-rooted upper first premolars (Asian characteristics) are also very common.

As for specific traits, Australians can be preliminarily characterized as follows:

1. Upper central incisor winging is uncommon.
2. Incisor shoveling occurs, but mainly in the weak grades (1-2), seldom 3, almost never grade 4
3. Incisor double-shoveling occurs, but always in the weakest grade (1).
4. Maxillary canine mesial ridge (Bushman canine of Morris) is extremely rare and never occurs in the strong grade.
5. One Uto-Aztecan premolar was found. This is the first example I have seen outside North and South America. It must represent an independent mutation.
6. The upper molar hypocone is generally present, and usually large on all three molars.
7. All upper molars have a very high frequency of cusp 5, and often in the marked grade or larger. On third molars, cusp 5 may exceed the size of the tooth's hypocone.
8. Carabelli's trait occurs in a fairly high frequency, with many examples of grade 5 (attached cusp).
9. Upper molar buccal enamel extensions are uncommon.

Austalmelanesian dentition (continued)

10. Two-rooted upper first premolars are very common.
11. Three-rooted upper second molars are very common.
12. Congenital absence of third molars is rare.
13. There is a high frequency of maxillary torus, usually of the weak to moderately strong grades.
14. There is some reduction in a number of upper lateral incisors.
15. Relative to molar size and complexity, upper canines are very small and simple.
16. The lower second molar usually has more than four cusps.
17. All grades of the first lower molar protostylid are very rare.
18. Cusp 7 of the lower first molar is uncommon.
19. Two-rooted lower canines are extremely rare.
20. Three-rooted lower first molars are extremely rare.
21. One-rooted lower second molars are uncommon.
22. Mandibular torus is extremely rare.
23. Rocker jaw occurs, but only infrequently.

These characters seemingly are about the same in each of the Australian regional samples. There seems to be no evidence, at least impressionistically, for marked inter-regional dental differences as occur between Southeast and Northeast Asians. As things stand at this point, without formal statistical analysis, our impression of Australian dental variation seems to favor a single migration hypothesis, rather than models of multiple migrations as proposed on biological or archaeological grounds by various other workers.

Finally, we collected data on oral pathology, wear, and behavioral considerations. As mentioned, wear was severe, even after European contact. With contact, as in the American Arctic, dental caries became much more common, and so did the associated alveolar abscesses. We were surprised at the fairly large number of adults with severely damaged osteoarthritic temporal-mandibular joints, a condition common in the Roonka crania studied by L.C. Richards. Dental ablation of one or more upper incisors was fairly common, but not universal, across the continent. A behaviorally-induced grooving of the distal (mainly) and mesial surfaces of molars and premolars was rather common, more so in identifiable males than in females, and never in children or adolescents. These grooves have been generally attributed as due to the habitual use of toothpicks, although more recently Tasman Brown has pointed out that they could be due to string manufacturing. Whatever the cause(s), they indeed characterize older adults, mainly males.

In sum, we sampled in three months a fair amount of the eastern and southern Aborigine population, as well as enlarging our Melanesian series, most importantly with observations for southern New Guinea. We did not have time to adequately sample central or western Australia. This will have to be done in the future. In the meantime we will proceed with our formal statistical analysis which will address a number of biohistorical and microevolutionary problems. These include questions we knew of before the project, and several issues we learned about from the many workers who generously gave us the benefit of their experiences and ideas about Australian and Melanesian origins, adaptations, microevolution, and affinities.