

Supplementary Information

for

Aboriginal Australian technologies and human efficiency

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Including

Figure S1: Position of retro-reflective markers and inertial measurement units on human body for biomechanical assessment.

Table S1: Wooden technology recovered from Australian contexts to date.



Figure S1. Position of retro-reflective markers (white text) and inertial measurement units (orange text) on human body for biomechanical assessment. **Left:** Anterior view. **Right:** Posterior view. Markers were placed on the sternum (STN), spinous process of the 7th cervical vertebra (C7), and the left and right acromion (SH), anterior superior iliac spine (ASIS), posterior superior iliac spine (PSIS), lateral humeral epicondyle (LHEP), medial humeral epicondyle (MHEP), styloid process of the radius (RAD), styloid process of the ulnar (ULN), lateral femoral epicondyle (LFEC), medial femoral epicondyle (MFEC), medial malleoli (MMAL), lateral malleoli (LMAL), distal phalanx of first toe (TOE), 1st metatarsal phalangeal joint (MTP1), and calcaneus (CAL). Inertial measurement units were placed on the head (not shown), sternum (STN), pelvis (PELV), and left and right shoulder (SH), upper arm (UARM), forearm (FARM), hand, thigh (ULEG), shank (LLEG), and foot. Inertial measurement units were placed on the head (not shown), sternum (STN), pelvis (PELV), and left and right shoulder (SH), upper arm (UARM), forearm (FARM), hand (HAND), thigh (ULEG), shank (LLEG), and foot (FOOT).

Table S1. Wooden technology recovered from Australian contexts to date.

| AGE | ARTEFACT/S | SITE | REFERENCE |
|--|--|--|---|
| No date available / Surface Find | Digging stick | Diamantina National Park, QLD | Nugent 2015 |
| No date available / Surface Find | Numerous boomerangs, a throwing stick, hafted adze, a club, a digging stick, a tjurunga. | Mulligan River, QLD | Kelly 1968 |
| No date available / Surface Find | Hafted adze | Wollemi National Park, Blue Mountains, NSW | Kelleher 2009 |
| No date available / Surface Find | Firestick | Wollemi National Park, Blue Mountains, NSW | Nugent 2015 |
| No date available / Surface Find | Boomerang and club | Blue Mountains, NSW | Attenbrow 2009 |
| No date / Contact Period | 54 wooden artefacts associated with processing skins - bark slabs and wooden pegs | Victoria Rang, Gariwerd, VIC | Gunn 2009 |
| Less than 1,000 years (based on multiple C14 dates through stratigraphy) | >38 wooden artefacts including wood shavings barbed and unbarbed points, fire sticks | Anbangbang I, NT | Allen and Brockwell 2020; Clarke 1985; Jones and Johnson 1985 |
| No date available | Thousands of wood shavings, some 20 broken fragments of wooden technology including spear points, shafts, fire sticks | Djuwarr 1, NT | Allen and Brockwell 2020; Clarke 1989; Jones and Johnson 1985 |
| No date available | Hafted adze | Argaluk Hill, Site 2, NT | Attenbrow 2008; Setzler and McCarthy 1950 |
| No date / Contact Period | 11 wooden implements including points, a message stick, a link shaft, and fire sticks, along with numerous wooden shavings | Parbari Midden, Arnhem, NT | Schrire 1982 |
| Direct date: 224±50 BP (NZA 10301) | Digging stick | Namadgi National Park, ACT | Argue 1995; Argue et al. 2001 |
| Direct date: 281-157 cal. BP (140±70 BP; GaK 1299) | Boomerang | Clarence River, NSW | McBryde 1977 |
| Direct date: 480±70 BP | Boomerang and spear point - possibly from a multi- pronged fishing spear | Trial Bay Creek, NSW | McBryde 1977 |
| Direct date: 670±20BP (S-ANU 43337) | Boomerang tip | Riwi, Kimberleys, WA | Langley et al. 2016 |
| Associated date: 940±60 cal. BP | Digging stick | Mordor Cave, Cape York Peninsula, QLD | David 1992 |
| Associated date: 2,151-1,894 cal.BP (Beta 28188) | Bipoint | Nara Inlet 1, Hook Island, QLD | Barker 1989, 1996, 2004 |

| | | | |
|---|---|------------------------|----------------------------|
| <p>Associated dates: 12,398-11,270 cal. BP (10,200±150 BP; ANU 1292) and 10,375-9.628 cal. BP (8990±120 BP; ANU 1293); Direct date: 9,430±150 BP (ANU 1490)</p> | <p>25 pieces of wooden technology, including boomerangs, one-piece spears, barbed spear, digging sticks, pointed stakes.</p> | <p>Wyrie Swamp, SA</p> | <p>Luebbers 1975, 1978</p> |
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