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II. Papers

The Curious History of the Talgai Skull

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In the Australian winter of 1886 William Naish, a shearer in summer and a fencing contractor in the winter, erected a farm fence along Dalrymple Creek on East Talgai Station, c.125 km southwest of Brisbane. Work was interrupted by six days of torrential rain. On returning to the site Naish found that the rain had extended an erosion channel which he now had to cross walking to work, and from the extended section he retrieved a skull, heavily encrusted in carbonate, but clearly of human origin.

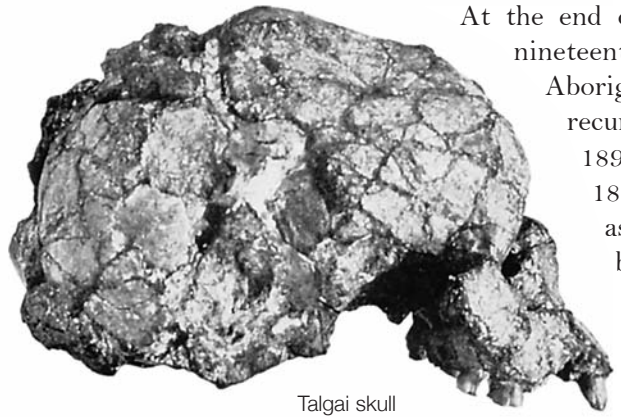
Although it would take three decades to recognise and a further five to confirm, Naish had discovered the first direct proof of the Pleistocene antiquity of humans in Australia. Details of this history of Talgai are taken principally and extensively from Macintosh (1963, 1965, 1967a, 1967b, 1969), Elkin (1978), Gill (1978) and Langham (1978).

Aborigines and Colonial Curiosity

To understand the history of the Talgai skull first we need to digress to a brief history of scientific enquiry as it developed in colonial Australia in respect of Aborigines.

Rousseau's (1762) conceptual development of an ideal noble savage occurred only six years before Cook sailed for the Pacific and objective ethnological observations of Aboriginal Australians began. Cook's writings countered the earlier attitudes of repulsion and intrigue about Aborigines shown by seventeenth century explorers such as Carstenz and Dampier (Dampier 1927 [1697]: 312; Heeres 1899: 39). Cook offered detailed descriptions of the people he encountered and their material culture, tempered with an explorer's curiosity about them (Beaglehole (ed.) 1955; Mulvaney 1958). Importantly it was Cook who first considered the origin of the Australian Aborigines, arguing that the linguistic differences between them and the New Guineans, and an apparent lack of contact between them – whereby coconuts and other fruits 'proper to the support of man' had not crossed Torres Strait – argued for different origins (Beaglehole (ed.) 1955: 397–398).

As European sailors, settlers and explorers encountered a continent of hunter-gatherers, abstract philosophy and dispassionate observation was tempered by the immediate experience of cultural difference. In Tasmania with the Baudin expedition in 1802, Péron (1809: 181) initially recorded his 'inexpressible pleasure' at observing the happiness and simplicity of people living in a state of nature, but after two short months, he railed against the Tasmanians, describing them as treacherous, untrustworthy, unattractive, dirty and miserable (1809: 197). At the same time and more dispassionately, Péron considered the physical and cultural differences between Tasmanians and mainland Aborigines as a basis for the ancient separation of the two land masses, and also developed a evolutionary scale of complexity between their respective technologies and those of Timor (Jones 1988: 63–64) – a forerunner to the widespread use of Tasmanians and mainland Aborigines and their material culture as proxies for Palaeolithic humans in Europe (e.g. Lubbock 1869 [1865]: 416; Tylor 1878 [1865]: 196, 1894; Sollas 1924 [1911]: 107, 258; Roth 1899: ix; Bonwick 1870: 221–222; Spencer 1922: 13).



Talgai skull

At the end of the eighteenth century and throughout the nineteenth century the twin colonial interests about Aborigines, as social and scientific curiosities, became recurring themes (see for examples reviews by Roth 1899: 221ff; Howitt 1904: 1–33; Mulvaney 1958). In 1823 W. C. Wentworth could poetise Aborigines as 'untutor'd children, fresh from Nature's mould' but at the same time ask the pertinent scientific question: 'Say – whence your ancient lineage, what your name/ And from what shores your rough forefathers came?' (cited by Mulvaney 1958: 52. Wentworth, then at Peterhouse College, was runner-up for the Vice Chancellor's medal at the 1823 Cambridge Commencement with this poem, 'Australasia'). In 1827 Cunningham could place Aborigines at 'the very zero of civilization' while being captivated by their 'wild, roaming life' and simultaneously drawing on the differences between mainland and Tasmanian Aborigines to propose a theory where the latter were exterminated by the former on the mainland (Cunningham 1827 – an idea that implied cultural succession and time depth, even if bounded by a biblical chronology). Almost a century later Sir Arthur Keith (1925) would propose that Talgai was one such Tasmanian.

In 1859 when Darwinian theory broke the shackles of the short biblical chronology, humans in Australia were quickly and more directly related to other areas of natural scientific research. Before Darwin, Mitchell (1838: 347) could explain the absence of the dingo from the fossil bones he had discovered in the Wellington Caves in New South Wales in 1830, in that it had obviously been introduced into Australia by humans, whose similar absence from the record was a product of belief and thus unremarkable. But under the new orthodoxy the more vexed question was soon raised about whether humans might have co-existed with the extinct megafaunal species, such as those found by Rankin and Mitchell in the Wellington Caves in 1830 and later described by British anatomist Richard Owen (1843; see Horton 1991: 28, 55 and *passim*). As in Europe, it was perceived that a demonstrated association of megafauna and human remains, or of megafauna and discarded stone artefacts, was proof of a long human history. Unlike Europe, where, by the end of the nineteenth century, such associations were commonplace, in Australia this association remained elusive despite the systematic analysis and description of megafauna from various localities (e.g. Wilkinson 1887; Anderson 1889; Jack and Etheridge 1892; Stirling 1900). Indeed, by the early twentieth century the dingo argument had been turned around: if the dingo could be shown to be contemporaneous with the extinct megafauna then humans must also be contemporaneous with the megafauna because humans introduced the dingo into Australia (Edgeworth David 1924; *The Mercury* 9.10.1923).

Inevitably tenuous claims for human cut marks on megafauna bones (e.g. De Vis 1883, 1899; Spencer and Walcott 1911) and deeply buried stone artefacts (see a review of claims between 1855 and 1896 in Howitt 1904: 15ff.) came and went. Although systematic collections of Aboriginal stone tools were being made by the end of the nineteenth century, the anthropological view that Aborigines were part of a 'crude and quaint' fauna that elsewhere had 'given place to higher forms' (Spencer and Gillen 1927) was transferred to appraisals of their tools as well (Mulvaney 1957: 34–35). The view that Aboriginal stone tools could not document cultural difference across space or through time was dominant (e.g. Kenyon and Mahony 1914: 4–7, 13) and persisted well into the second half of the twentieth century (see review by White 1977).

By the time of the unveiling of Talgai in 1914, two defining markers of the European Upper Palaeolithic, megafaunal associations and cultural sequences, reflected in stone artefact typologies, were still missing in Australia. To his question 'has man a geological history in Australia?' Etheridge (1890) suggested the answer was a resounding no. The intellectual view of Aborigines and their

works and origins into which Talgai was introduced was one described by Mulvaney as a 'doctrine of hopelessness'.

Talgai overturned this view.

The Talgai Skull Before 1900

Upon finding the skull William Naish gave it to the station owner, G. J. E. Clark and by 1896 it had passed into the ownership of E. H. K. Crawford, the husband of Clark's niece, who lived in northern New South Wales. Thinking that the fossil might have monetary value, Crawford sought information on its worth, apparently both through his brother studying medicine in England, and directly, by sending a photograph of the skull to the British Museum. At the same time Crawford sent the skull to Sydney where it was exhibited in the window of a firm of city stationers. While in Sydney, and at the request of the curator of the Australian Museum in Sydney, Robert Etheridge, the skull was submitted for assessment by the museum's trustees. According to the recorded minutes of the relevant meeting, the trustees present included J. T. Wilson, Professor of Anatomy at Sydney University and Tannatt William Edgeworth David, Professor of Geology at the same institution. The trustees were interested in the fossil and determined to try to acquire it for the museum if an acceptable price could be set. Despite a flurry of correspondence over the next few months no arrangement was reached and the fossil was returned to Crawford's possession.

Several times during this correspondence Etheridge sought details of the skull's discovery to attempt to determine if the object had a 'geological history'. Crawford's knowledge of its recovery was both vague and inaccurate and this may have contributed to the lapse in negotiations, since Crawford's account suggested that the fossil was not datable and thus was of diminished scientific worth. As well, Crawford by this time might have received the surprising view of an unnamed scientist at the British Museum, that the skull was evidently that of an animal and of no value. Although Crawford was certain this was incorrect, failing to achieve this stamp of authority may also have induced him to let the matter drop.

What Etheridge must have realised, however, since he had recently co-authored a work on the palaeontology of Queensland which mentioned the locality of Talgai on multiple occasions (Jack and Etheridge 1892), was that the skull came from the same general area as a famous fossil megafauna locality, then known for more than half a century and with fossils from it described by the British anatomist Richard Owen in 1844.

The Talgai Skull 1914

Subsequently, the Talgai skull slipped from scientific view for a further eighteen years. While it is puzzling that nothing came of this first interaction between Australian scientists and the fossil, its later rediscovery and representation to the public was even more curious. This was less so for the fanfare of its unveiling and the scientific and public curiosity it aroused, than because its two presenters, Edgeworth David and Wilson, aired it as a new discovery and not one which they had seen at the museum trustees meeting eighteen years earlier. As both Macintosh (1969: 195) and Langham (1978: 209–210) state, it is inconceivable that both of these university scientists could fail to recognise this distinctive fossil, if they had seen it in 1896. Macintosh questioned whether or not they were actually at the trustees meeting, even though they were recorded as present, while Langham imputed more sinister motives.

Piltdown

The big palaeontological event that separated the first and the second Sydney appearances of the Talgai skull was the discovery and extensive discussion of 'Piltdown man', with its apparently modern braincase, ape-like jaw and associated but separate large canine tooth. These remains, found in a Sussex gravel pit in Great Britain in 1912, were considered to be a plausible 'missing link' between

humans and their more ape-like ancestors, but were shown to be a forgery in the early 1950s (Weiner 1955).

One central protagonist in the scientific argument that immediately ensued about Piltdown was Australian-born anatomist and anthropologist, Grafton Elliot Smith, at that time Professor of Anatomy at Victoria University in Manchester. Elliot Smith had been an undergraduate at the University of Sydney where Wilson quickly recognised his talent and made him a prosector, the beginning of a distinguished academic career. Elliot Smith and Wilson remained close colleagues and when Elliot Smith moved to England they maintained a frequent and continuing correspondence (Langham 1978).

Elliot Smith saw that Piltdown confirmed a theory that he had developed before the discovery of that fossil, that the human brain evolved before gracile facial features. Thus he argued for the validity of the unity of the skull and mandible and for a Pleistocene rather than Pliocene age for the fossil, in strong opposition to Arthur Keith, who argued for the longer antiquity and questioned the reconstruction that made the braincase modern.

Among the many scientists to view the Piltdown fossil in Britain in 1913 was J. T. Wilson, in company with Arthur Keith (Spencer 1990: 218).

The British Association Meetings in Australia

On April 1, 1914 Crawford, still living in northern New South Wales, wrote to Edgeworth David, again seeking an expression of the value of the Talgai skull. What prompted this new move is unknown. It seems unlikely that he knew that Edgeworth David was one of the original trustees who had pronounced on the skull in 1896. There is no clear indication why he chose this time to renew his attempt to sell the skull; nothing suggests that he was responding to a new approach from Sydney. It is possible that the publicity surrounding the discoveries at Piltdown may have encouraged this second attempt to sell this fossil. In any case Edgeworth David showed Wilson the photograph of the skull that Crawford included in his letter. According to S. A. Smith (1918: 351), the brother of Elliot Smith and the person who first described the Talgai skull in detail, Wilson immediately perceived the scientific implications of such a fossil and urged that it be brought to Sydney for investigation. If Wilson had seen Talgai in 1896 and remembered it, his greatly increased interest was likely fostered by his knowledge of the Piltdown discovery, his first-hand examination of the Piltdown fossil, and the arguments surrounding it in which his ex-student was currently involved.

Edgeworth David appears to have been less interested, as well as preoccupied with other things, one of which was the organisation of the British Association for the Advancement of Science, due to attend a series of meetings in Australia later in the year. He did not respond to Crawford's letter for nearly four months, but immediately after he did reply, Crawford forwarded the skull to him. Within a week Edgeworth David responded to Crawford a second time, saying that Wilson and he had examined the fossil and considered it of scientific value, but they sought to know the conditions of its discovery, and whether other bones were in the neighbourhood or directly associated with it. Again, Crawford replied that he believed the skull had been washed a considerable distance down the creek in which it was found, and thus was not found in a context of primary deposition.

Several weeks later Edgeworth David and Wilson unveiled the fossil at the Sydney session of the British Association meeting on 21st August 1914, to the considerable surprise of the assembled international scientists, and to extensive subsequent newspaper coverage. The following year *Nature* labelled it the most significant event of the Australian meetings.

Wilson spoke first, identifying the skull as probably that of an adolescent male and stressing its primitive characters, particularly the prognathous face and the protruding canines. Edgeworth David then took up the theme of its age, suggesting that the Talgai youth and the extinct giant marsupials may have been contemporaries, but that an exact age depended upon obtaining further evidence.

However, he concluded 'if we are asked, Is man a geological antiquity in Australia? we can reply, Yes, he is.'

Grafton Elliot Smith, predisposed to Talgai being ancient, spoke from the floor. He observed that the occasion was momentous, moving not only the history of humans in Australia back to such a remote period, but also the history of navigation. This reference to the fact that human entry into Australia and New Guinea required the crossing of a significant water barrier, was seen by Elkin (1978: 99) as an example of Elliot Smith's 'remarkable instant insight', but since Elliot Smith had arrived in Australia nearly two months earlier, in the beginning of July, it is probable that he was aware of the existence of the fossil and its characteristics. Langham (1978) argues, with examples, that Elliot Smith had a propensity for producing such apparent 'insights' where in fact he had prior knowledge. It is even possible that Elliot Smith had seen the photograph of the skull in July and prompted Edgeworth David to reply to Crawford, after his nearly four month procrastination. On the same evening as the announcement, Elliot Smith gave a public lecture at the Sydney Town Hall where he immediately linked Piltdown and Talgai. Referring to the doubt that some authorities had, as to whether the braincase and the huge canine tooth found at Piltdown even came from the same individual, Elliot Smith observed that Talgai, with 'its great dog teeth' settled the issue for once and all.

As Langham (1978: 203) observes, it was not merely Elliot Smith's enthusiasm for this comparison, but also the general air of scientific excitement about Piltdown at these Australian meetings that carried the day for Talgai. Of twenty-eight papers delivered in the Anthropology section of the Association meetings, ten were directly or indirectly concerned with Piltdown. W. J. Sollas, Professor of Geology at Oxford, discussed Piltdown in the context of Palaeolithic hunters being correlated with modern hunters, such as the Australians, and in an earlier newspaper interview on his arrival in early July, Elliot Smith, when asked what kind of life the Piltdown race might have led, immediately compared them to the Tasmanian Aborigines. To now have the fossil of a 'proto-Australian' which appeared, superficially, to be so supportive of the Piltdown reconstruction, must have seemed a godsend to Elliot Smith.

East Talgai Station

However, opinion remained divided among those scientists present in Sydney, as to whether such antiquity, as Edgeworth David claimed for Talgai, could be accepted on the evidence available. Edgeworth David acted quickly. The following week the British Association met in Brisbane and Edgeworth David took the opportunity to travel to East Talgai Station. There he met William Naish, by then seventy-six years of age and crippled, and was guided by him to the spot where Naish had discovered the skull. They travelled by car, but for the final part of the trip Naish was carried by two men. The son of one of these men was also present, and fifty-three years later he would guide anthropologist and anatomist, N. G. W. Macintosh to the same spot.

Although physically weakened, Naish was mentally alert, and was able to give Edgeworth David a detailed account of the circumstances surrounding the find, and an accurate description of the location and stratigraphy. The skull had not been in the bottom of the erosion channel, as Crawford believed, but in the wall a few feet above it. The new scour at this place was about 10 feet deep and about 25 yards in width. The flood had stripped the overlying black alluvium down to a layer of brown clay containing whitish nodules of carbonate of lime, in which the skull was embedded. Naish was confident that it had not shifted far, if at all, from its original location during the 1886 flood. Edgeworth David was able to confirm this general stratigraphy from a nearby location and since this duplicated the formation from which extinct megafauna had been found in Kings Creek, an adjacent creek to Dalrymple Creek, he was satisfied that general contemporaneity of the Talgai fossil and megafauna could be accepted. Edgeworth David was in no doubt of his findings and he and his colleague communicated them in print a few weeks later (Edgeworth David and Wilson 1914).

The Talgai Skull After 1960

1963–72: East Talgai Station

In 1955 Macintosh became Challis Professor of Anatomy in Sydney University, by which time he had already published important works on the Talgai fossil and a second human skull from Cohuna in Victoria. By this time Talgai had undergone mixed fortunes.

In 1914 it was purchased by Sydney philanthropist and politician Sir James Joynton Smith for £150 and donated to the University of Sydney; but perhaps, partly because of World War 1, scientific interest in the Talgai skull gradually diminished. Both Wilson and especially Edgeworth David saw military service that took them away from academia, and in 1920 Wilson left Australia to take up the chair of Anatomy at Cambridge, where Talgai was apparently forgotten.

Thus it was left to Elliot Smith's brother, a lecturer in the Anatomy Department in Sydney University, to describe the skull (Smith 1918). In this monograph, Smith concluded that the primitive features of the skull were sufficient evidence of its Pleistocene antiquity, but cast doubt on its geological and historical background. In August 1918 Smith gave a lecture on Talgai to the Royal Geographical Society in Brisbane that prompted a flurry of responses in the Brisbane newspapers (Johnson 2000) where Heber Longman, director of the Queensland Museum, was left to defend the scientific value of Talgai against suggestions by Archibald Meston, who was Protector of Aborigines in southern Queensland from 1898 to 1903, that the skull was that of an Aborigine shot in 1848.

A similar set of arguments was defended by Edgeworth David in the columns of the *Sydney Morning Herald* in 1925 (e.g. *SMH* 21.2., 25.2., and 4.3.1925). Edgeworth David continued to promote Talgai's scientific importance in a minor way throughout the 1920s, for example in the R. M. Johnston Memorial Lecture to the Royal Society of Tasmania (Edgeworth David 1924; *The Mercury* 9.10.1923) but by this time he was immersed in his comprehensive study of the geology of Australia. However the second edition of Arthur Keith's *The Antiquity of Man* (1925) also provided a detailed review of 'Talgai Man'.

Smith's monograph was given critical attention by the international scientific community, sometimes questioning Smith's reconstruction and conclusions, sometimes questioning the fossil's age and importance. Macintosh (1969: 190) summarised the former set:

> Dubois in 1920, Campbell in 1925 and 1930, and Burkitt in 1927, showed that Smith's interpretation of the teeth could not be sustained. Hellman in 1924 [read 1934] showed that Smith failed to take into account fractures of the jaw and palate and so Smith's interpretations of these needed modification also. The saving comments by Dubois, Burkitt and Hellman that nevertheless the teeth, jaw, and palate were of a generalised primitive human type, tended to be overlooked or ignored. The significance of the cranium was therefore not only reduced, but reduced excessively (see also Macintosh 1965: 48–49; Elkin 1978: 100–101).

Macintosh was dissatisfied with the ambiguous status of Talgai, both because he recognised its robusticity and thus its general importance in Australian and world debates on human evolution, and also because of the general paucity of human fossils known in Australia at that time with which to pursue such enquiries. The Australian corpus could not afford to lose Talgai without good reason (Macintosh 1967a: 97). Frustrated that David had spent only one day at the Talgai site he rediscovered in 1914, Macintosh embarked on a series of ten field trips between 1963 and 1972 to locate it yet again. These trips he reported in various articles and they are summarised by Elkin (1978: 95–117). By 1967 Macintosh began bulldozing trenches to examine stratigraphy and by 1972 he was satisfied that he had determined within a radius of 20 surface metres the spot where David and Naish had stood in 1914. There the carbonate nodule layer occurred between 3.4 m and 4.3 m below the surface. A radiocarbon date on a carbonate nodule at 3.4 m provided a date of 11,650±100 BP (Elkin 1978: 116) which now calibrates to 13,539±157 calBP (Weninger and Jöris 2008). Although the extensive dating

program associated with this research produced some anomalous results, this figure stands solid as a minimum age for the Talgai skull (Gill 1978). Given that its history before lodging in the carbonate nodule layer is unknown, a maximum age for Talgai is equally unknown.

Macintosh's research was an epic in the annals of Australian historical reconstruction and archaeological fieldwork that deserves longer telling, but the final salute goes to E. D. Gill, Geologist of the National Museum, Melbourne, who worked with Macintosh at Talgai. His memorial paper for Macintosh on the geology of Talgai (Gill 1978) is a geomorphological and palaeontological delight which finally unfolds the scientific story. *Inter alia*: Gill describes the stratigraphy of the site; verifies the Naish account; explains the fracture patterns of the skull as the montmorillonite clay inside and outside the skull expanded and contracted with changing moisture regimes; how the limestone nodules contributed at first to these fractures; how the skull fragments stabilised as their carbonate coating grew and protected them from further damage; how the skull was not found in the same layers which contain extinct megafauna in Kings Creek; and how the skull, although within the nodule stratum when found by Naish, probably had already moved from its point of primary deposition.

Curiosities

Macintosh was fascinated by the history of Talgai. In 1965 he asked:

> Why did David and Wilson not pursue investigation on the cranium which had such a tumultuous welcome? Why are accounts of the discovery so variable and vague? Why is enthusiasm tempered with doubt about status in each article? Why does total work on the site consist solely of that done on 30th August 1914? Why in particular did Smith, having the extra advantage of seeing, during 'development', that the cranial content of brown clay and calcareous nodules (Smith, 1918: 355) matched the unique formation from which the cranium was said to come, repeat original doubts? (Macintosh 1965: 47).

In 1969 as a direct result of Macintosh's enquiries, Alex Ritchie, curator of fossils in the Australian Museum, Sydney, discovered in that museum's archives, the set of documents which provided the 1896 history of the Talgai skull outlined earlier. These simply astounded Macintosh who could adduce no satisfactory explanation for them. However, in 1978 Ian Langham proposed that a case could be made to suggest that Elliot Smith was implicated in the Piltdown forgery and that Talgai may have acted as a model for that forgery.

This premise rests primarily on the claimed physical similarities between Piltdown and Talgai, such as the modern braincases, primitive dentitions including interlocking canines (later shown to be incorrect for Talgai – see Macintosh 1965: 48) and thick crania. Langham suggested that Elliot Smith may have learnt from Wilson about Talgai from the 1896 examination, an explanation that also implicated Wilson as a witting or unwitting accomplice. An alternate Langham (1978: 215) theory, also implicating Elliot Smith, involved the unnamed scientist at the British Museum who had rejected the skull as non-human – itself a patently absurd conclusion. Langham suggests the unnamed scientist may have been Arthur Smith Woodward, who became assistant Keeper of Geology in the Natural History section of the British Museum in 1892, and Keeper in 1901, and who subsequently had a primary role in excavating the Piltdown fossils. However these theories were based mostly on coincidence and floundered on a lack of evidence beyond the circumstantial.

Before his untimely death, Langham had shifted his suspicions of the Piltdown forger's identity away from Elliot Smith (see Spencer 1990). Notwithstanding that his original solution did not hold, Langham's paper throws the inconsistencies of the history of the Talgai skull into stark relief. It is impossible to believe that the anatomist Wilson, if not the geologist Edgeworth David, did not recognise Talgai in 1914, assuming that they had seen it in 1896 as the evidence suggests. For Wilson, his recent experience of Piltdown was the likely catalyst in recognising Talgai's scientific importance. No glory was to be gained from acknowledging that eighteen years earlier he had not recognised that

importance. We do not require any greater explanation for Wilson's behaviour other than scientists are human and subject to the same frailties of ego as the rest of us.

The history of the Talgai skull is intriguing, not merely because it offered the first strong proof of a Pleistocene antiquity for humans in Australia, but also because it touched upon many debates about early humans in the continent which continue today, including morphological arguments about the Australian human fossils, the association of humans and megafauna, the behavioural implications of the necessary water crossing into Australia, ethnographic hunter-gatherers as models for prehistoric hunter-gatherers, and, of course, the antiquity of humans in Australia. Indeed, Talgai, via its roles in both the Piltdown debate and the more general questions of the evolution of humans, also put Australian archaeology on the world stage. Talgai separates the period of absolute speculation before it from the period which followed, where the rigour of scientific theory building and testing has been increasingly imposed. The history of Talgai in the 1960s is itself a prime example of this change.

References

Anderson, C. 1926. 'The Wellington Caves'. *Australian Museum Magazine* 2(11): 367–374.

Beaglehole, J. C. 1955. *The Journals of Captain Cook on His Voyages of Discovery*, Vol.1. Cambridge: Cambridge University Press for the Hakluyt Society.

Bonwick, J. 1870. *Daily Life and Origin of the Tasmanians*. London: Sampson Low, Son, and Martin.

Cunningham, P. 1827. *Two Years in New South Wales*. London: Henry Colburn. (Australiana facsimile edition, Libraries Board of South Australia, Adelaide, 1966).

De Vis, C. W. 1883. 'On tooth-marked bones of extinct marsupials'. *Proceedings of the Linnean Society of New South Wales* 8:187–190.

— 1899. 'Remarks on a fossil implement and bones of an extinct kangaroo'. *Proceedings of the Royal Society of Victoria* 12(1): 81–90.

Edgeworth David, Sir T. W. 1924. 'Geological evidence of the antiquity of man in the Commonwealth, with special reference to the Tasmanian aborigines (sic)'. *Papers and Proceedings of the Royal Society of Tasmania for 1923*. Hobart: Mercury Printing Office, pp. 109–150.

Edgeworth David, Sir T. W. and J. T. Wilson, 1914. 'Preliminary communication on an Australian cranium of probable Pleistocene age'. *Report of the 84th Meeting of the British Association for the Advancement of Science*: 531.

Elkin, A. P. 1978. 'N. W. G. Macintosh and his work'. *Archaeology and Physical Anthropology in Oceania* 13(2 & 3): 85–142.

Etheridge, R. 1890. 'Has man a geological history in Australia?' *Proceedings of the Linnean Society of New South Wales* 5(2): 259–266.

Gill, E. D. 1978. 'Geology of the Late Pleistocene Talgai cranium from S. E. Queensland.' *Archaeology and Physical Anthropology in Oceania* 13(2 & 3): 177–197.

— 1978 'Palaeoecological changes in Victoria and Bass Strait as a backdrop for the marsupial megafauna and Aboriginal colonization'. *The Artefact* 3(2): 67–75.

Heeres, J. E. 1899. *The Part Borne by the Dutch in the Discovery of Australia*. London: Luzac and Co.

Horton, D. R. 1991. *Recovering the Tracks. The Story of Australian Archaeology*. Canberra: Aboriginal Studies Press.

Howitt, A. W. 1904. *The Native Tribes of South-East Australia*. London: MacMillan and Co.

Jack, R. L. and R. Etheridge, 1892. *The Geology and Palaeontology of Queensland and New Guinea*. Brisbane: Government Printer.

Johnson, M. 2000. '"Cranial connections": Queensland's "Talgai Skull" debate of 1918 and custodianship of the past'. *Aboriginal History* 24: 117–131.

Jones, R. 1988. 'Images of natural man'. In J. Bonnemains, E. Forsyth and B. Smith (eds) *Baudin in Australian Waters*. Melbourne: Oxford University Press, pp. 35–64.

Keith, Sir A. 1925. *The Antiquity of Man* (second edn). London: Williams and Northgate.

Kenyon, A. S. and D. J. Mahony, 1914. *Guide to the Stone Implements of the Australian aborigines* (sic). Melbourne: National Museum of Victoria.

Langham, I. 1978. 'Talgai and Piltdown – the common context'. *The Artefact* 3(4): 181–224.

Lubbock, J. 1869. *Pre-Historic Times as Illustrated by Ancient Remains and the Manners and Customs of Modern Savages*. Second Edn. London: Williams and Norgate.

Macintosh, N. W. G. 1963. 'Origin and physical differentiation of the Australian Aborigines'. *Australian Natural History* 14: 248–252.

— 1965. 'The physical aspect of man in Australia'. In R. M. and C. H. Berndt (eds) *Aboriginal Man In Australia. Essays in Honour of Emeritus Professor A. P. Elkin*. Sydney: Angus and Robertson Ltd, pp. 27–70.

— 1967a. 'Fossil man in Australia'. *Australian Journal of Science* 30(3): 86–98.

— 1967b. 'Recent discoveries of early Australian man'. *Annals of the Australian College of Dental Surgeons* 1: 104–126.

— 1969. 'The Talgai cranium: the value of archives'. *Australian Natural History* 16(6): 189–195.

Mitchell, Sir T. L. 1838. *Three Expeditions into the Interior of Eastern Australia*. London: T. and W. Boone.

Mulvaney, D. J. 1957. 'Research into the prehistory of Victoria: a criticism and a report on a field survey'. *Historical Studies – Australia and New Zealand* 8(29): 32–43.

— 1958 'The Australian Aborigines 1606–1929: opinion and fieldwork'. *Historical Studies – Australia and New Zealand* 8(30): 131–151 and 8(31): 297–314.

Owen, Sir R. 1843. 'On the discovery of the remains of a mastodontid pachyderm in Australia'. *Annual Magazine of Natural History* 11: 7–12.

Péron, M. F. 1809. *A Voyage of Discovery to the Southern Hemisphere*. (English edn published 1975 by Marsh Walsh, Melbourne.) London: Richard Phillips.

Plomley, N. J. B. 1983. *The Baudin Expedition and the Tasmanian Aborigines 1802*. Hobart: Blubber Head Press.

Roth, H. Ling 1899. *The Aborigines of Tasmania*. Second Edn. Halifax (England): F. King and Sons.

Rousseau, J-J. 1968 [1762]. *The Social Contract or Principles of Political Right*. London: Penguin Books Ltd.

Smith, S. A. 1918. 'The fossil human skull found at Talgai, Queensland'. *Philosophical Transactions of the Royal Society of London* B208: 351–387.

Sollas, W. J. 1911. *Ancient Hunters and Their Modern Representatives*. Third Edn (1924). London: MacMillan and Co.

Spencer, B. 1922. *Guide to the Australian Ethnological Collection Exhibited in the National Museum of Victoria*. Third Edn. Melbourne: Government Printer.

Spencer, B. and F. J. Gillen, 1927. *The Arunta: A Study of a Stone Age People*. London: MacMillan and Co.

Spencer, B. and R. H. Walcott, 1911. 'The origin of cuts on bones of Australian extinct animals'. *Proceedings of the Royal Society of Victoria* 24(1): 92–123.

Spencer, F. 1990. *Piltdown. A Scientific Forgery*. Oxford: Natural History Museum Publications.

Stirling, E. 1900 . 'The physical features of Lake Callabonna'. *Memoirs of the Royal Society of South Australia* 1: 1–15.

Tylor, E. B. 1878. *Researches into the Early History of Mankind*. Third Edn. London: John Murray.

— 1894. 'On the Tasmanians as representatives of Palaeolithic man'. *Journal of the Royal Anthropological Institute* 13: 141–152.

Weiner, J. S. 1955, *The Piltdown Forgery*. Oxford: Oxford University Press.

Weninger, B. and O. Jöris, 2008. 'A 14C age calibration curve for the last 60 ka: the Greenland-Hulu U/Th timescale and its impact on understanding the Middle to Upper Paleolithic transition in Western Eurasia'. *Journal of Human Evolution* 55: 772–781.

White, J. P. 1977. 'Crude, colourless and unenterprising: prehistorians and their views on the stone age of Sunda and Sahul'. In J. Allen, J. Golson and R. Jones (eds) *Sunda and Sahul. Prehistoric Studies in Southeast Asia, Melanesia and Australia*. London: Academic Press, pp. 13–30.

Wilkinson, C. S. 1885. 'The presidential address to the Linnean Society of New South Wales'. *Proceedings of the Linnean Society of New South Wales* 9: 1207–1241.