

Excavation of the Ara Metua (*Ara Nui o Toi*) at Arai te Tonga

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Jane Downes, Jacqui Mulville, Colin Richards & Kate Welham, with Tenga Mana and Paul Maoate.



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1. Introduction: the *Ara Metua* or *Ara Nui o Toi* at Arai te Tonga

Raratonga is the largest of the Southern Cook Islands, which are located within central eastern Polynesia. The date of its initial colonization is far from clear. From oral accounts and genealogical sequences a date of around 1250 AD has been postulated (e.g. Campbell 2002, 148) for the earliest settlement by Polynesians arriving from Tahiti and Samoa. More recently, the settlement of the Cook Islands has been suggested to have been after Polynesian expansion into the 'core' areas of Easter Polynesia (e.g. Society Islands), which seems to occur c. 900 AD. Walter (1998) postulated a colonisation phase between c. 950 – 1250 AD. However, given the limited archaeological research conducted on Raratonga, especially a lack of a clear radiocarbon chronology, initial colonization and subsequent social developments remain temporally obscure.

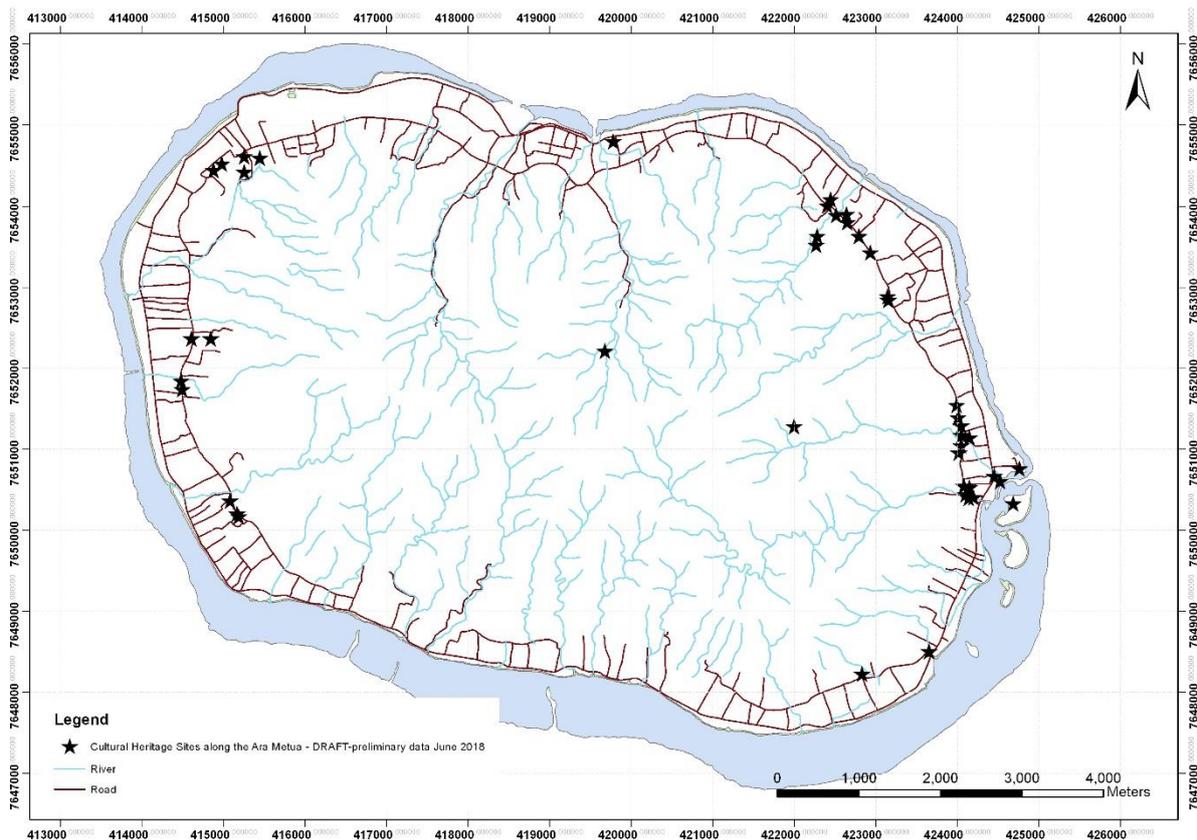


Figure 1. The circuit of the Ara Metua on Rarotonga.

Although characterised as a ‘typical high island’ (Campbell 2006, 103), the topography of Rarotonga is unusual in having a continuous low coastal belt encircling central highlands. It is around this coastal zone that one of the largest ‘monuments’ in Polynesia was constructed: the Ara Metua (parent road) or great road of Toi (*Ara nui o toi*) (Fig. 1). Actually, prehistoric encircling roads and paths are present in other Eastern Polynesian contexts, for instance, the Ala Loa is known to have run around the coastline of the Big Island, Hawai’i, and its ritual circuit was a feature of the Makahiki ceremony (Mills 2002). Equally, recent survey on the Phoenix Islands has found clear evidence for a curbed circuit road running around the coastline. Kathleen Routledge (1919) observed the remnants of a prehistoric circuit path on Rapa Nui (Easter Island), although today virtually no trace remains.

However, what served to make the Ara Metua on Rarotonga outstanding among Polynesian roads was the reputed nature and scale of construction. For instance, in the *Material Culture of the Cook Islands* Peter Buck describes this monument:

‘the subject of stone-work cannot be dismissed without reference to the famous road in Rarotonga known as Te Ara-nui-a-Toi, The Great Road of Toi. This road runs completely around the island, and stands further inland than the present Government road’ (1927, 211).

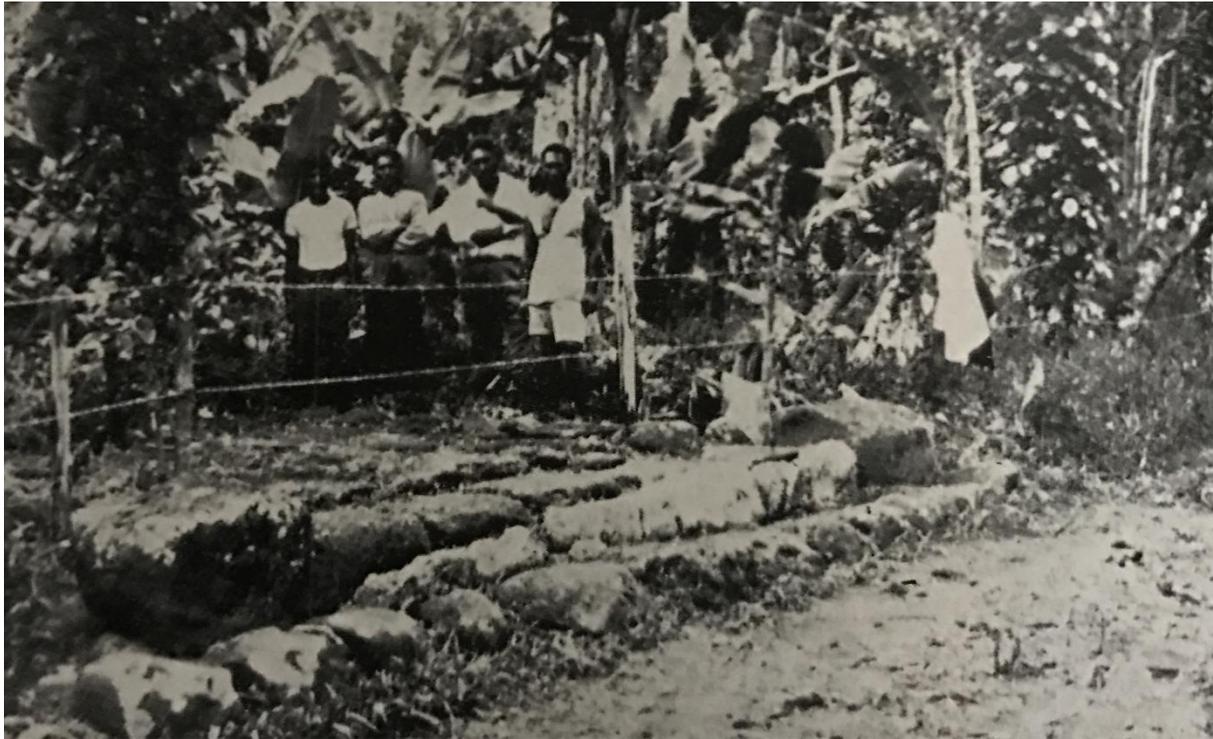


Figure 2. Photograph of the Ara Metua at Arerangi in 1926 (from Buck 1927).

The latter observation is demonstrated by an illustration of a section of the road near the *marae* of Arai te Tonga (Fig. 2). Here the southern curb of the Ara Metua creates a step, behind which a narrower paved road leads back towards ‘the site of a house known as *Harerangi*’ (ibid, 212). This location is now known to be the *marae* of Arerangi, which according to Percy Smith did contain a house ‘where the *ariki* or high chief (some member of the Makea family) of the island usually lived’ (1903, 219). However, as Buck (1927, 212) points out, Percy Smith in a published sketch of the Arerangi mistakenly described the stepped curb of the Ara Metua where it met the Arerangi entrance to be a series of stone seats. Overall, the accounts of both Percy Smith (1903) and Buck (1927) contain crucial early descriptions of the Ara Metua that have been followed and reproduced by subsequent researchers (e.g. Parker 1974; Campbell 2006), consequently a critical re-assessment is required.

Upon closer reading of the various accounts there is a degree of ambiguity surrounding several aspects of the Ara Metua. First is the question of whether it was a continuous road forming a complete circuit of the island. Percy Smith describes the road encircling the island following ‘generally the foot of the hills, cutting across the mouths of the valleys, and leaving the level flat that encircles Rarotonga outside or seaward of it. It is about 22 or 23 miles in length’ (1903, 218).

Buck (1927, 211) also states that the Ara Metua encircled the entire island, a view that has been restated by later researchers (e.g. Parker 1974, 63; Campbell 2006, 103). Indeed, one of the aims of the fieldwork undertaken by the Canterbury Museum team in the 1960s was to

address this question, nonetheless, it remained unresolved (1974, 67-9). However, it was concluded that it was highly likely that the Ara Metua did originally completely encircle the island on the basis that cultivation had probably obliterated sections of the road in the south (ibid., 63).

The second area of ambiguity surrounds the construction and appearance of the Ara Metua. Observed in the late 1890s, Percy Smith noted that for about two thirds of its length the Ara Metua was paved with flat volcanic or corals stones and 'its width is about 15 to 20 feet. At several places, at the sites of the old villages (or *oire*) are to be seen the stone seats (1903, 218). Stephen Savage, who lived on the island between 1894-1941, also describes the *ara-nui-o-Toi* as being 'originally paved with stones the whole of its length' (1961, 37).

Buck tends to concur with this description:

In the neighbourhood of the villages the road is completely paved, with a raised edge of larger stones at both sides and flatter stones between. It is after the style of a cobbled road, except that the stones are not cut to fit against one another. In some places the stones have been removed for other purposes, but in spite of this a considerable portion of the stonework is intact, though overgrown with vegetation.

Any part where the soil was wet was paved. Hollows and depressions were filled in and the road raised over them. Culverts were built by making two walls and laying flat stones over the top. At some points cobbled roads lead back to the house site of some important chief or priest (1927, 211).

We will return to these observations below, but suffice to note that Buck's description in particular describes a road that is remarkably similar to 'western' forms of road construction even to the extent of including culverts for drainage. Indeed, the word *ara* (Hawaiian *ala*) translates as pathway, and *Ara nui o toi*, translates just as easily to the great pathway of Toi. Equally, such a description could refer to the length of the road as much as an allusion to its construction.

The third area of ambiguity concerns the chronology of the Ara Metua. The construction date of the Ara Metua is uncertain. Mathew Campbell (2006, 103) discusses the road as a materialization of the route of a founding ancestor Tangi'ia Nui as he travelled around the island establishing *marae* and their guardians in a process of land subdivision. The relationship between the road and Tangi'ia Nui is ambiguous as other authors, drawing on the alternative name *Ara nui a Toi*, have posited an earlier date of construction (e.g. Parker 1974, 67).

2. Previous archaeological investigations of the Ara Metua

The first archaeological investigations of the Ara Metua were undertaken by R. H. Parker as part of a series of fieldwork seasons conducted throughout the 1960s on the Cook Islands by teams from the Canterbury Museum, New Zealand. By this time very little of the great road, as reported by Buck after his visit in 1926, remained as a visible monument. The Canterbury

Museum team identified a number of research questions concerning the Ara Metua to be addressed by fieldwork:

1. Whether or not the road at any period ran “completely round the island” as identified by Buck.
2. Whether or not the road was paved throughout its circuit.
3. The date of its initial construction.
4. The purpose of its construction ‘and its relations both in function and in order of building to the import marae which flank it and which it seems designed to link’ (Parker 1974, 63).

Because of time constraints and the limited or ‘scant’ evidence of the Ara Metua, none of the above questions were conclusively answered by fieldwork. Nonetheless, Parker felt able to make certain statements based upon their observations in the field:

1. It seems certain that the road did completely encircle the island and no evidence indicating substantial gaps was found except possibly in the instance referred to in the next paragraph.
2. With a much lower degree of certainty evidence was found indicating that the kerbing at least may have been continuous throughout the length of the road. In spite of the almost total destruction there were only relatively short sections in which no evidence for kerbing was found. The main gap was between the eastern end of the Arorangi district and the western end of the Takitumu district where a longish section of the presumed course of the old road crosses agricultural land. As might be expected, virtually no trace of the road was found here. At this point, the presumed course of the Ara Metua crosses a patch of deeply gullied and scrub covered land where it proved impossible to locate the road at all.
3. It was clear that the final form of road was contemporary with the final phase of the various *marae* which adjoin it. It is possible (but could not be conclusively established nor conclusively rejected) that the earliest reconstruction of the *marae* were similarly linked by earlier versions of the road.
4. It is highly plausible that the road was built to link the groups of *marae* which adjoin it and that its functions were ceremonial and related to the functions of the *marae*. This is suggested by its physical relationships to the marae and the number of other probable ceremonial features associated with it, especially the seats and wells.
5. The most interesting conclusion suggested by the very existence of so elaborate a construction is the implication of a fairly substantial degree of political hegemony which seems virtually a necessary condition for its building. With a fuller knowledge of Raratongan pre-history this may very well give reasonably firm indications of a probable date since there can have been relatively few periods during which such conditions existed.

At the time of the Canterbury Museum team’s fieldwork in the 1960s, much of the Ara Metua was represented by three ‘discontinuous sections of dirt road usable by motor traffic’ (Parker 1974, 64). Consequently, far less damage had been incurred than is evident today where

sections of road following the course of the Ara Metua are of upgraded metalled construction, with associated drainage ditches and services and utilities such as water and sewage pipes.

It is in the context of this modern upgrading that the most recent survey of sections of the Ara Metua were undertaken, thirty years after the Canterbury team, by Matthew Campbell in 1997. Very little of the long stretches of curbing reported by Parker remained visible, and his conclusion was ‘it remains likely that many sites recorded by Duff have been destroyed, and that the Ara Metua itself, as a prehistoric site, is also largely destroyed, although it continues as a fully functioning road’ (Campbell 2001, 99). Nearly ninety years after the first detailed (but short) account by Buck in 1927, through the various surveys it is possible to trace the gradual deterioration and destruction of the Ara Metua.

Given that the Ara Metua holds such a prominent position in Rarotongan traditions and its ‘monumental’ construction has been employed to interpret the presence of centralised political authority (Parker 1974, 69), it was decided to investigate the road further.

3 Excavations at Arai te Tonga

Today the island circuit of Ara Metua, known as the ‘back road’, is buried beneath layers of modern ash felt. After a survey conducted in 2017, it was concluded that the only section of the Ara Metua accessible to archaeological investigation is a short stretch of road directly adjacent to the *koutou* at Arai te Tonga and to the east the *marae* of Arerangi. In this section the Ara Metua should survive as it was until the ‘back road’ was moved away to the north of the *marae* in the 1980s. The line of the old Ara Metua is still partially visible as a convex surface adjacent to Arai te Tonga although part of it has been destroyed to the east where a side road joins the diverted modern ‘back road’. The presence of the Ara Metua was also confirmed through geophysical surveys conducted in 2017.

Excavations proceeded in 2018 with a 2m x 6m trench cut laterally across the Ara Metua located to the west of Arai te Tonga (Figs. 3 & 4). This position was selected because it was felt that the best-preserved section of road would lie in front of the *koutou*. Furthermore, an old sketch published by Percy Smith in 1903 shows the location of the Ara Metua as it ran between the opposed stone seats.

The 2018 excavation trench was positioned to section the Ara Metua at a location slightly to the west of the *koutou* adjacent to two stone seats [003 & 004] (Fig. 5). Here the stratigraphy of the trench will be described in reverse order (bottom/oldest – top/most recent).

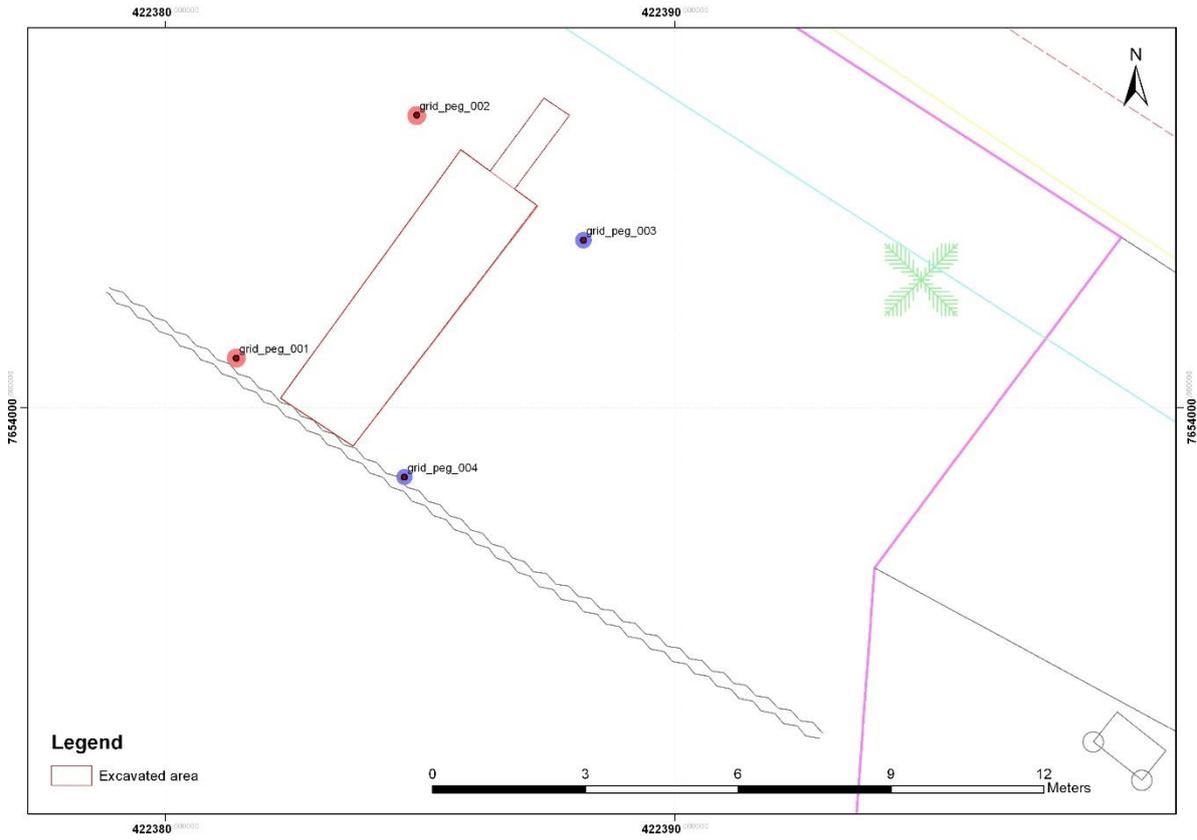


Figure 3. Location of the excavation trench.



Figure 4. The excavation trench from the east.

3.1 Features adjacent to the *koutou* of Arai te Tonga

The oldest deposit encountered within the trench, which predates all the features encountered, including the initial Ara Metua, is a thick layer of very ‘sticky’ orange-brown mottled silty loam [008], containing occasional flecks of charcoal. This is clearly an old land surface (OLS), which slopes down gradually from the *koutou* to the north, following the general topography of the surrounding area. At the southern end of the trench, set into the OLS adjacent to the line of basalt stones [005] forming the front of the *koutou*, is a vertical basalt pillar [021] standing to a height of c.0. 27m (Fig 6). This was erected in a circular socket [022], which was filled/packed with loam and coral fragments (*kiri-kiri*) [023]. A second small pit or stone socket [014] filled with *kiri-kiri*-rich loam [015] was situated 0.53m to the west of basalt pillar [021] (Fig. 7). This may well have once held an upright stone similar to the basalt pillar [021]. A third basalt stone [030], measuring 0.23m lay slumped at an angle further to the north.



Figure 5. The two stone seats at the northern end of the trench.



Figure 6. The basalt pillar [021] set into the old land surface [008] directly in front of the *marae* facing stones [005].



Figure 7. Pit/socket [014] with a *kiri-kiri* rich fill [015] at the southern end of the trench.

3.2 Excavation of the Ara Metua

The 'back road' was shifted away from Arai te Tonga in the 1980s and now occupies a situation c. 6m to the north of the old route of the Ara Metua that originally ran along the front of the *Koutou* of Arai te Tonga and *marae* of Arerangi. Excavation commenced with the removal of the thin topsoil [001], which revealed a broad road surface [002] with a width of c. 4.5m. This is undoubtedly the final mid-twentieth century road that was 'metalled' by hard-packed basalt and coral cobbles (some of which were visible before excavation commenced projecting through the ground surface). As may be expected, the road surface was extremely compact and hard and displayed a convex camber (Fig. 8).



Figure 8. Upper road surface [002] from the NW, note the convex camber of the surface.

After the removal of the latest road surface [002], a series of coral sand layers and dumps [007] were revealed, particularly underlying the southern section of road [002]. This material clearly represents the foundation material deposited to enable road-widening. Excavation of this material exposed the earlier (secondary) road, which was narrower, measuring c. 3.5m in width. Significantly, the lower road was surfaced entirely with rammed coral pebbles and blocks (Fig. 9). The only remains of basalt curbing were found on the northern edge of the road where a single upright [028] remained *in-situ* (Fig.11).

There are several interesting features of the lower road surface. First, there was some form of irregular disturbance or cut [017] running down the centre of the road and no obvious function could be ascribed. Secondly, the northern and southern areas of the road appeared to be formed from different 'types' of coral; the southern area being surfaced with more rounded coral pebbles [011], whilst the northern section was composed of larger coral blocks [012]. However, a discrete patch of coral paving existed in the north-eastern area of the road, which may be interpreted as an episode of re-surfacing, an event that would be expected.

Thirdly, the central area of the road displayed extensive wear with a disparity in height of the surface between the internal and external coral surface, which was particularly evident along the northern side. Indeed, this discrepancy in height was initially interpreted as an upper curb-surface [012] and lower secondary surface [009]. However, it is now favoured to represent a general wear pattern with the central area of the road experiencing greater foot traffic.



Figure 9. The intermediate narrow road surface paved with coral blocks from the NW. Note the central disturbance and different coral forming the southern and northern sides of the road.

The disturbed and truncated central area of the secondary road (see Fig.9) appears to also be a product of both wear and disturbance by the later cut [017] and its fill [016]. In places, the wear had actually revealed the road-surface make-up [024], which consisted of hard-packed and angled coral with occasional basalt lumps.

With considerations of preservation in mind, the excavation of the second road surface and its make-up [024] was restricted to a 1m wide slot adjacent to the west baulk of the trench. Here it was found that the make-up/foundation [024] of the secondary road covered a compact layer or surface of smaller horizontally laid basalt and coral stones [025], which on further cleaning was found to be a partial (central) resurfacing episode of an older, underlying road surface. Directly beneath resurfacing layer [025], a spread of variable thickness c. 0.06m thick, of *kiri-kiri* [026], formed a primary road surface. The edge of this road was defined by a raised bank of *kiri-kiri* [027], c. 0.12m high (Fig. 10).



Figure 10. View of the primary *kiri-kiri* road surface [026] of the Ara Metua, showing the base of the higher cut [017] to the right and the original raised bank or curb [027] to the left.

Because the entire secondary road surface, and its foundation material, were not completely removed, the exact width of the oldest road remains unknown, although it ranges between 2.6 – 3.4 metres. Interestingly, the original road surface reveals a slightly concave profile. The primary *kiri-kiri* road surface [026] was deposited directly on the old ground surface [008] and no bedding or foundation material had been employed. Bulk samples of the old land surface [008], directly beneath the road surface were taken for C14 dating.

4. Discussion: the Ara Metua

Overall, the main objective of locating the original Ara Metua was achieved. In achieving this objective a fascinating story was revealed of a road that appears to have remained in consistent use from pre-contact times through to the 1980s. Significantly, no soil or turf horizon was observed between surfaces to demonstrate any period of abandonment or disuse during its three main phases.

The original *Ara Metua* was built directly on an old turf-line by laying a c. 6cm thick spread of *kiri-kiri*. Beneath the road surface the soil [008] had substantial depth (at least 25cm), but its composition is currently unknown (a micromorphological soil column for subsequent analysis was taken). However, this soil profile definitely contained charcoal flecks and fragments demonstrating anthropogenic activity. Consequently, activities involving burning had already occurred before the Ara Metua was built (see next section).



Figure 11. The single *in situ* example of the basalt curbing [028] on the northern edge of the phase 2 road.

The earliest Ara Metua was defined along its edges by a raised heap or low bank of *kiri-kiri*, which also served as a form of curbing (Fig. 10). The profile of the original road was slightly concave, a feature paralleling the profile of the *Ara Moai* on Rapa Nui. The duration of the initial Ara Metua is difficult to know, suffice to note it had been resurfaced at least once by laying a deposit of small chunks and chips of basalt and coral.

The primary Ara Metua was substantially ‘monumentalised’ in its second phase, as represented by the thick foundation/make-up deposit [024]. This served to elevate the road and emphasise its hard packed surface of coral pebbles and blocks (Fig. 9). Certainly, as it passed Arai te Tonga, the Ara Metua appears to have been curbed along its northern edge by basalt uprights, of which unfortunately only a single example was found *in situ* (Fig. 11). In this form the Ara Metua must have been a truly spectacular construction displaying a white coral surface with black basalt curbing. It is almost certainly this phase of the Ara Metua that was seen and described by Percy Smith (1903) in the 1890s, and Peter Buck (1927) in the

1920s. As revealed by excavation, this surface had suffered considerable wear which indicates a relatively long life, consequently we can be confident that it stood in this form over a substantial period of time, and may have been quite old when seen by Smith in the 1890s. Judging from the photograph taken by Buck in the 1920s, the road surface at the adjacent *marae* of Arerangi, had become covered by soil (see Fig. 3).

Finally, the road was widened and resurfaced in its third phase of use. This can be attributed to greater traffic, particularly the introduction of motorised vehicles in the 1950s and 1960s.

5. Discussion: Arai te Tonga

The excavation of the Ara Metua at Arai te Tonga not only provided evidence for the sequence of road construction, but also information regarding the relationship between the road and *Koutou*, and the different phases and chronology of the latter. In 1974 Parker wrote that:

It is clear however that the road [Ara Metua] in its final form is associated with the final reconstructions of the major *marae*, none of which can be older than the immediate pre-contact century.....it may well be that the earliest reconstructions of the *marae* can be matched with earlier versions of the Ara Metua, but this could only be determined by extensive critical excavation, sectioning the road and linking the section to the phases of *marae* construction (1974, 68).

While the 2018 excavations did not extend into the Arai te Tonga *koutou*, the trench did continue to the outer boundary stones on its western side (Fig. 12). These were clearly set on a layer of *kir-kiri* that ran downslope to conjoin with the primary *kiri-kiri* surface of the Ara Metua.



Figure 12. The basalt boundary [005] stones of the western section of the Arai te Tonga *koutou* set on a layer of *kiri-kiri* [006], overlying the OLS [008], which ran down to the first Ara Metua.



Figure 13. The basalt boundary stones at the east sector of Arai te Tonga lying in front of what appears to be earlier vertical coral facing slabs.



Figure 14. The eastern sector of Arai te Tonga from the north.

From this stratigraphic relationship it is possible to suggest that this phase of *koutou* construction relates to the earliest Ara Metua. The basalt blocks that form the outer boundary of Arai te Tonga, as revealed in the excavated area, continue east across the front of the *koutou*. However, in the eastern sector of the monument the basalt blocks are situated directly in front of a line of vertically set coral blocks (Fig.13). Although without excavation it is not possible to assign a definite chronological relationship between the basalt blocks and coral uprights, nonetheless, it appears that the coral uprights represent a facing for an elevated platform. Moreover, this may well pre-date the addition of the basalt blocks. Under these circumstances, the eastern section of Arai te Tonga would be older than the Ara Metua. Of course, excavation is the only method necessary to determine the exact relationship between these structural elements, however, the possibility of the architecture of the eastern part of Arai te Tonga (Fig. 14) being extremely old is quite strong. Hopefully, future seasons of archaeological investigation at Arai te Tonga will resolve this fascinating possibility.

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Appendix 1: Context List

- 001 Topsoil
- 002 Upper road surface
- 003 Seat structure (horizontal and vertical stones)
- 004 Seat structure (horizontal and vertical stones)
- 005 Line of basalt blocks in south running E-W (marae)
- 006 Layer of loam and kiri kiri adjacent to [005]

- 007 Sand layer – foundation for later road widening
- 008 OLS beneath stone blocks [005]
- 009 Coral layer – earlier road surface in N of trench – same as [012]
- 010 Kiri kiri layer beneath 007 in S
- 011 Coral coble lower road surface in S and centre of road
- 012 Upper coral surface in N – original road
- 013 Yellow-brown sub soil adjacent to edge of road in N
- 014 Circular cut in S of trench, adjacent to [005]
- 015 Fill of [014]
- 016 Fill of [017]
- 017 Trench/cut through surface [012]
- 018 Same as [009]
- 019 Upper coral surface of central portion of secondary road
- 020 Large coral stone wedged in cut [017]
- 021 Upright stone in SE corner of trench adjacent to [005]
- 022 Cut for [021]
- 023 Fill/packing of [021]
- 024 Make-up for secondary road surface [011]
- 025 Resurfacing coral and basalt ‘cobbles’ over surface [026]
- 026 Kiri-kiri surface of primary road
- 027 Raised kiri-kiri edging of surface [026]
- 028 Basalt outer edging of coral surface [012] in N of trench
- 029 Interface between topsoil [001] and [008] in N of trench
- 030 Angled basalt stone in S. of trench.

Appendix 2: Drawing List

1. Plan of road [002]
2. Plan of surface [009]
3. Section of [014]
4. Plan of [014]
5. Plan of [025]
6. Section – W. facing
7. Section – E facing
8. Plan of [026]

Appendix 3: Sample List

1. Bulk fill of [015]
2. Bulk fill of [015]
3. Bulk (C14) [008] southern area
4. Bulk (C14) [008] central area
5. Micromorph sample [008]