

**T12/221, 1201 Hikuai Settlement Road, Pauanui  
(HNZPTA authority 2017/754):  
final excavation report**

**report to  
Heritage New Zealand Pouhere Taonga  
and  
Watts Group**

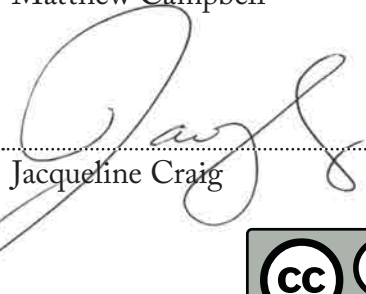
**Matthew Campbell and Danielle Trilford**



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# T12/221, 1201 Hikuai Settlement Road, Pauanui (HNZPTA authority 2017/754): final excavation report

Matthew Campbell and Danielle Trilford

Watts Group are undertaking a 16 lot residential subdivision at 1201 Hikuai Settlement Road, Pauanui (Lot 1 DPS 19581). A shell midden is recorded on the property in the New Zealand Archaeological Association (NZAA) Site Recording Scheme (SRS) as site T12/221 (Figure 1). The subdivision was initially assessed by Matthew Campbell of CFG Heritage in 2003. Subsequently, a test investigation was carried out under authority 2011/56 granted by the New Zealand Historic Places Trust under section 18 of the Historic Places Act 1993 (Campbell 2010). The 2003 assessment was updated in 2017 in light of the new subdivision proposal and the Heritage New Zealand Pouhere Taonga Act 2014. Watts Group applied to Heritage New Zealand Pouhere Taonga (HNZPT) for an archaeological authority to modify the site under section 44 of the Heritage New Zealand Pouhere Taonga Act 2014, and authority 2017/754 was granted on 17 May 2017.



Figure 1. 1201 Hikuai Settlement Road, showing recorded archaeological sites in the vicinity.

The archaeological site was originally recorded in 1974 by Gabrielle Johnston and John Coster and in more detail in 1978 by Larryn Diamond as an extensive series of middens covering 400 x 300 m, which we would now refer to as a midden complex rather than a single site. Much of this complex has since been destroyed without archaeological investigation by housing and golf course development and the corner of the site remaining on 1201 Hikuai Settlement Road is potentially the last in situ remnant. This remnant is in low lying, swampy soil and will be covered with up to 1.4 m of fill. This will not directly affect the midden and will preserve it in the medium to long term, but will indirectly affect it through compaction. A limited archaeological investigation of the site was undertaken by Matthew Campbell and Danielle Trilford of CFG Heritage Ltd on 13–14 December 2017, and earthworks were monitored by Danielle Trilford on 27 September 2018 and 21 January 2019.

## Archaeological background

The lower Tairua Valley provided a variety of ecosystems for pre-European Maori to exploit, including forest, swamp and coastal environments. The coastal environment includes estuarine, sandy and rocky shores. The best known and most significant archaeological site in this landscape is the Tairua site (T11/62), located on the tombolo connecting Paku to the mainland, which was excavated over several seasons in the late 1950s and early 1960s. Sea mammal, bird (including moa), fish and shell fish remains showed that all these habitats were exploited. The early period is represented by Layer 2, dating to the mid-13th to 14th centuries (Schmidt and Higham 1998). This layer was where a pearl shell lure was found during the 1964 excavations (Smart and Green 1962; Green 1967), which was at that time the only known artefact from tropical Polynesia found in New Zealand excavations. Shell was dominated by rocky shore species with a significant component of *Cellana denticulata*, in contrast to the dense Layer 6 pipi-cockle midden (Davidson 1964).

Most archaeological sites in Pauanui were first recorded during a site survey by Larryn Diamond in 1978 (Diamond 1979). Following this were smaller surveys usually driven by residential subdivision, infrastructure and forestry. Thirteen HNZPTA authorities have been granted in Pauanui for archaeological investigation and monitoring since 1994 (Kiri Sharpe pers. comm.) but only two have had final reports prepared.

Warren Gumbley investigated a kainga, T12/1028, on the hillside overlooking the Tairua Harbour as part of a subdivision (Gumbley 2003: 1). The excavation recorded post holes on a terrace, midden, and previously unrecorded terraces running over 50 m. The shellfish species indicated people were primarily exploiting the harbour and sometimes the sandy shoreline (Gumbley 2003: 3). Also recorded during analysis were red gurnard (kumu, *Chelidonichthys kumu*), mackerel (hauture, *Trachurus* sp.) and a small unidentified lizard. Dating suggested occupation was within a few decades either side of AD 1600 (Gumbley 2003: 4).

An exploratory investigation of T12/221 was undertaken by Matthew Campbell in 2010. While it had been intended to excavate 0.5 x 0.5 m test pits to closely examine the midden and its associated stratigraphy, field work took place during a very wet late winter/early spring, just after a major storm and the ground was very wet. Shovel test pits rapidly filled with water and could not even be photographed, so the proposed methodology was abandoned. Instead the midden was probed on a number of radiating transects at roughly 0.5 m intervals until no further shell was encountered. Test pits showed that midden extended 1 or 2 m beyond the area where it was detected by the probe but not much further.



Figure 2. Looking north east towards the area where the midden was located, 18 January 2017.

Site T12/221 was first recorded by Larry Diamond in 1978 as in “Fair condition; many [concentrations] intact, many cut by drains, farm roads, lines of pine trees and the main road.” At the time it consisted “of a large number of distinctly separate concentrations of shell; most roughly circular... Area of site: 400 x 300m” (see also Diamond 1979: 52). The landowner had found an adze on site although Diamond did not examine this. The site was clearly visible on a 1971 aerial photo (4395/17) although this photo has not been accessed for the current report. A 1944 aerial photo (292/976/34) does not show the midden (Figure 3), nor does one from 1978 (2975/M/9) (retrolens.nz). The site record form says that “two people examined and taped site”, but if this means a tape and compass map was made, this is not part of the available record. The site record form for pa T12/223 includes a map that shows the extent of T12/221 (Figure 4).

The remnant of T12/221 at 1201 Hikuai Settlement Road is part of a larger dune midden landscape which originally would have covered much of the Pauanui sand spit, now largely destroyed beneath the modern township (Campbell 2010). Sites within this landscape include T12/45, 400 m to the north of T12/221, recorded by John Coster as “extensive heavy midden patches, covering an area at least 100 x 300 m.” In 1991 Neville Ritchie and Warren Gumbley recorded T12/806 as “small patches of shell and charcoal” over about 25 m, 300 m west of T12/221 and 600 m south west of T12/45. Other middens were recorded at the same time on the edges of the canal development and at the north end of Pauanui Peninsula. T11/512 was originally recorded by Sheridan Easdale and Chris Jacomb in 1982 running along the beach for over a kilometre and containing several stratigraphic layers, but a later site visit by Louise Furey and Rachel Darmody confirmed that it is now very disturbed and largely destroyed.

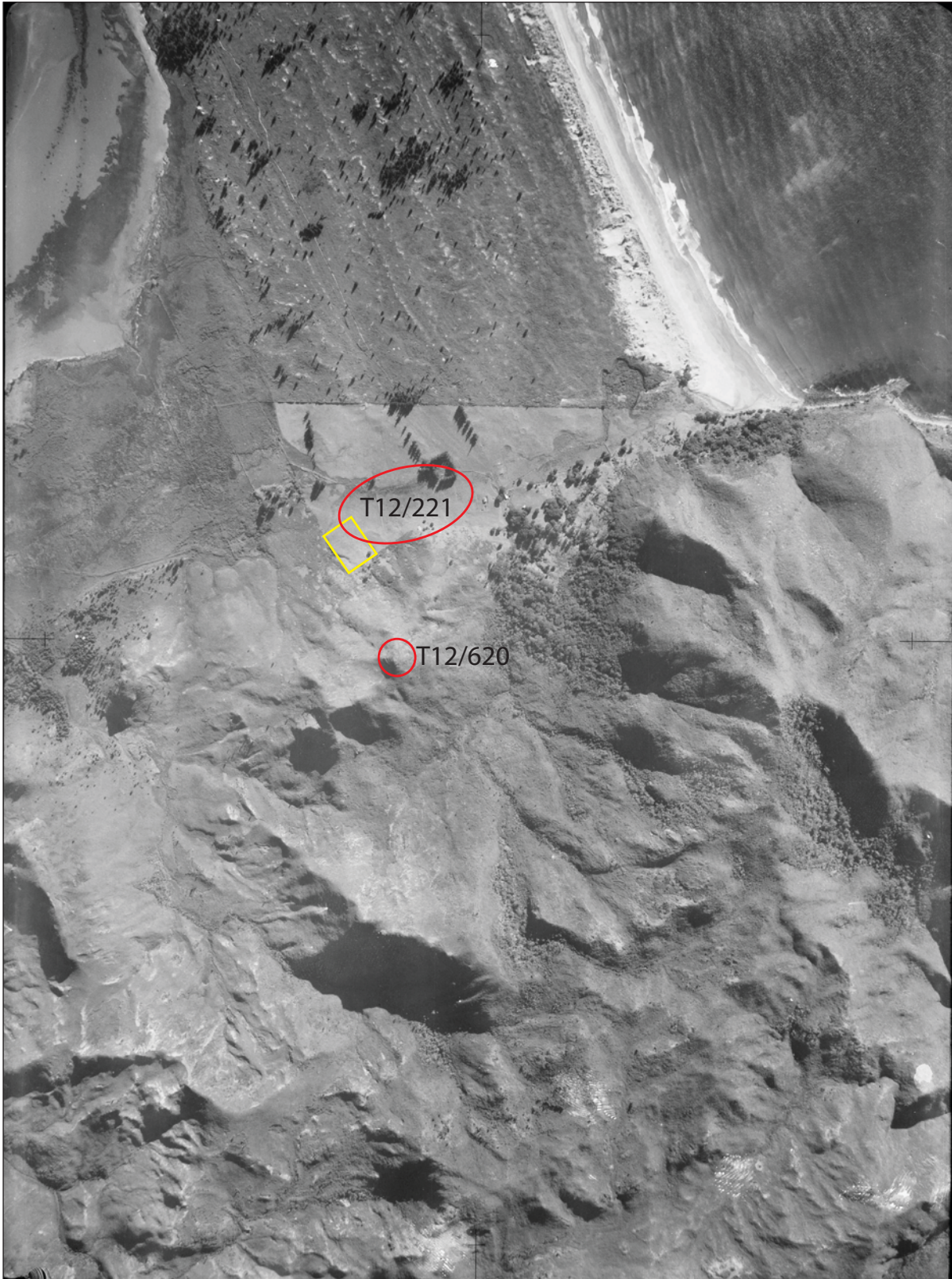


Figure 3. Aerial photo 292/976/34 (retrolens.nz), dated to 1944, showing the approximate location of Lot 1 DPS 1958 and the approximate extent of T12/221 at the time it was recorded by Diamond. It may be assumed that the dunes to the north contained numerous similar sites. Also shown is the location of pa T12/602, which is clearly visible at higher magnification.



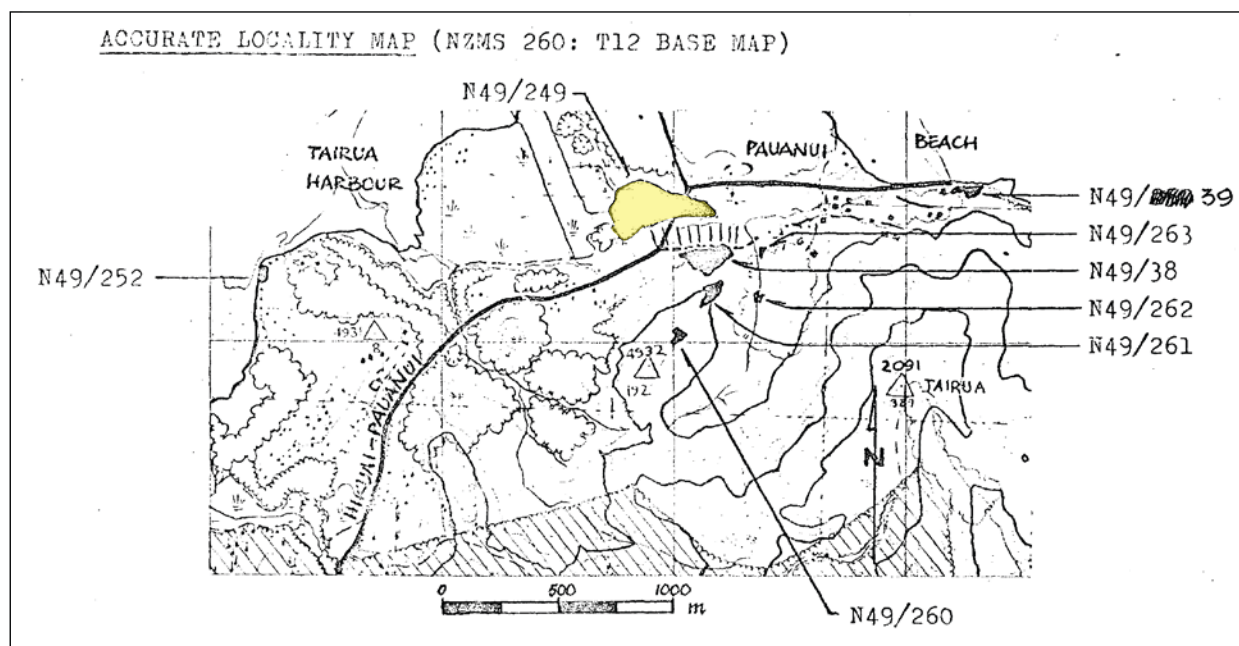


Figure 4. Location and extent of T12/221 (originally recorded on the Imperial NZMS1 map series as N49/249), from site record form for pa T12/223 (N49/252).

There is a cluster of sites, mostly middens and/or terraces but including a pa (T12/602) on the hill to the south of T12/221, on the other side of Hikuai Settlement Road, currently for the most part under pines. This is recorded as 34 separate sites over an area of 900 x 300 m, which is really a single site or site complex based around the pa. Together with the dune midden complex these form a significant archaeological landscape, though much of it has now been destroyed.

### Summary

Nearly the whole surrounding area has been earthworked to a greater or lesser degree since Diamond recorded it and the original landform can only be reconstructed with difficulty. Most of the 300 x 400 m site described by him has probably been destroyed by golf course and residential development, although remnant patches may remain. Diamond describes a “small fresh water creek [passing] through the site.” This may be the channelled stream between the property and the golf course. The southern part of the property is on higher ground than the corner containing the site but in places seems to have been substantially modified. To the south the small orange grove seems to have been levelled – it is not clear how old the orange trees are but 30 or 40 years seems a reasonable estimate. Along the northern boundary of the property there seems to be a truncated dune and the ground rises to the west boundary which may be another dune. The whole property rises toward the road to the south but this seems to have been benched. Diamond described the landform in 1978 as “a broad alluvial plain ... 5–8m a.s.l. ... made up of a 30cm layer of black soil (from vegetable matter in old swamp, and dune covering) underlain by fine grained orange river silt.” Putting this current landscape together with Diamond’s description, the site was probably located in a swampy swale between dunes, where the golf course is now located. Such a situation may have been sheltered from the wind but probably indicates a summer (dry season) occupation.

## Method

A 16 m long trench was excavated down to the surface of the midden, between 150 and 350 mm below the surface, using a 3.5 tonne hydraulic excavator equipped with a 1200 mm weed bucket, running east–west from the eastern property boundary, exposing the midden which was excavated in 1 x 0.5 m units. All deposits were initially sieved through a 3 mm screen but, when it became clear that there was very little material in the midden other than shell, sieving was discontinued. A 10 litre bulk sample was taken from each layer in each excavation unit. The site was photographed before and after excavation and a profile of the excavation was drawn.

Topsoil stripping prior to importation of fill was monitored adjacent to the recorded midden location on 18 September 2018. Auguring of postholes for the retaining walls around Lots 6 and 7 was monitored on 21 January 2019.

## Results

Up to the 4 m mark from the property boundary the midden was very disturbed, probably by works associated with the golf course. From 4 m to 8.5 m the midden was in good condition, beyond which it was very patchy and disturbed, and excavation was limited to this length.



Figure 5. Location of the excavated trench.

## Stratigraphy

There were two layers of midden separated by a layer of black sandy swamp alluvium. The upper layer, Layer 1, was a relatively clean layer about 30 mm thick with whole and crushed shell, mainly tuangi (*Austrovenus stutchburyi*), pipi (*Paphies australis*) and tuatua (*Paphies subtriangulata*) in a fairly consolidated dark sandy / organic matrix. Beneath this was a black sandy / organic layer of swamp alluvium up to 100 mm thick. The lower midden layer, Layer 2, was about 20 mm thick, was more crushed and was not as dense, and contained generally the same species as Layer 1, as well as more small fire cracked rock. It was sitting on an irregular base, possibly a natural hummocky swamp surface.

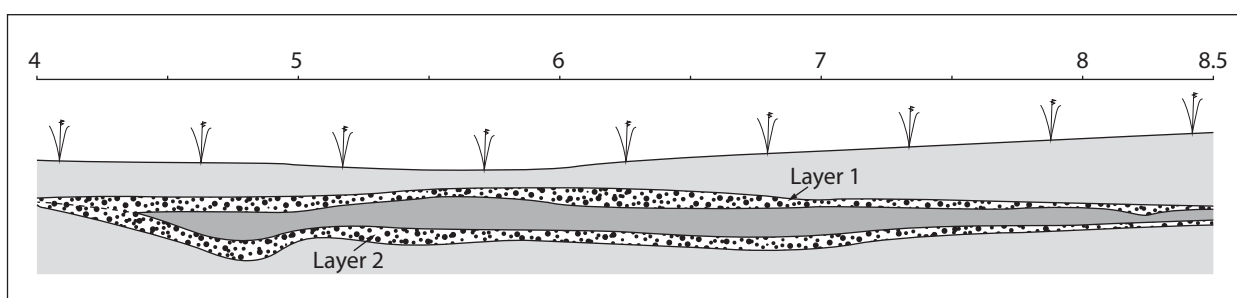


Figure 6. North profile of the excavated trench between the 4 and 8.5 m marks.

## Chronology

Pipi valves from two samples were submitted to the Radiocarbon Dating Laboratory at the University of Waikato for dating. Layer 2 dates to the mid-16th to mid-17th centuries, while Layer 1 dates to the late 16th to early 18th centuries (Table 1).

Context	Lab no.	CRA BP	cal AD 68%	cal AD 95%
Layer 1 Sq. 7	Wk 47730	628 ± 28	1574–1718	1535–1816
Layer 2 Sq. 6	Wk 47729	691 ± 28	1547–1660	1491–1695

## Monitoring

Topsoil stripping in Lot 7, in the north east corner of the property, exposed the surface of the midden in places but most of it remained undisturbed (Figure 9). During auguring for the retaining wall, midden was visible in most augur holes (Figure 10). The midden appeared to be the same as the midden that had been excavated and no further samples were taken.



Figure 7. North bank of Sq. 4.5 after excavation. Scales = 0.5 m, 0.25 m.



Figure 8. Trench after excavation, looking west. Scale = 1 m.



Figure 9. (9727) T12/221 exposed after topsoil stripping for fill.



Figure 10. (0458) View of the augur holes, facing south.

## Analysis

Bulk samples taken from midden features were analysed by Samantha Agnew of CFG Heritage following standard archaeological methods, with species identification based on Morley (2006). All bivalves were counted based on hinges, all gastropods were counted based on aperture, apex, or operculum. The minimum number of individuals (MNI) were based on the half of the total NISP for bivalves. The MNI for gastropods was the highest NISP from the aperture, apex or operculum.

### Shellfish

In Layer 1 there was a greater number of species recorded but in general the shell assemblage in each layer was dominated by pipi with lesser numbers of tuangi and tuatua (Table 2), with occasional gastropods. These are almost all soft shore species that could easily have been gathered from the Tairua Harbour and the open beach, each a little over 1 km distant. Three white rock shell (*Dicathais orbita*) in Layer 1 indicate that the rocky shore may also have been visited but not to the same scale as the harbour and open sandy shoreline – there are rocky reefs around 2 km distant.

Table 2. Shellfish species MNI by layer.

	Layer 1	Layer 2
<b>Bivalves</b>		
Pipi ( <i>Paphies australis</i> )	3558	529
Tuangi ( <i>Austrovenus stutchburyi</i> )	614	33
Tuatua ( <i>Paphies subtriangulata</i> )	69	22
<b>Gastropods</b>		
Cat's eye ( <i>Turbo smaragdus</i> )	1	
Cat's eye ( <i>Turbo smaragdus</i> ) (opercula)	2	
Lined whelk ( <i>Buccinulum vittatum</i> )	7	
Speckled whelk ( <i>Cominella adpersa</i> )	1	1
White rock shell ( <i>Dicathais orbita</i> )	3	
<b>Total MNI</b>	<b>4255</b>	<b>585</b>

### Fishbone

There was very little fishbone and most of it was very fragmented and much of it was burnt. From Layer 2 a single red gurnard (kumu, *Chelidonichthys kumu*) vertebra and a single trevally (araara, *Pseudocaranx dentex*) opercular were identified, and from Layer 1, six snapper (tāmure, *Chrysophrys auratus*) teeth. While these three species were probably caught on a baited hook, little can be said about the assemblage.

## Discussion

The remnant of T12/221 that was investigated was part of an originally larger midden deposit that extended onto higher ground to the east now destroyed by development of the adjacent golf course. The excavations took place in formerly swampy ground. The main occupation would have been on the higher ground and the midden excavated at 1201 Hikuai Settlement Road would have been an incidental deposit. Two periods of occupation separated by perhaps

50 years were identified. In both the main resource being targeted was shellfish from the nearby harbour, with some from the open beach, while a small fish assemblage demonstrated that other resources were also being targeted.

Pauanui township is built on a barrier dune complex covering 2.5 x 1.5 km which can be assumed to have originally had numerous similar midden deposits across it although only 10 are recorded (Figure 1). The limited data presented in this report is from the only reported investigation of one of these sites, but it would seem probable that the original dune midden landscape would have represented a much more varied set of occupation and subsistence strategies. A similar sized dune midden landscape at Omaha in northern Auckland, for instance, recorded nearly 300 midden deposits of varying size and complexity (Bickler et al. 2003). T12/221 cannot stand for the whole Pauanui landscape and the loss of so much of it without investigation represents a wasted opportunity. Any future investigations in Pauanui should seek to fill this gap.

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