The Discovery of the Site of the Legendary House of Alfred Russel Wallace in Ternate

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Alfred Russel Wallace’s house in Ternate has become legendary as the site where he penned his *Ternate Essay* outlining his theory of evolution by natural selection and posted it to Charles Darwin in March 1858. Marzuki & Andili (2015) conclude, “Wallace’s house in Ternate is the most important science history site in Indonesia”, because this is where he was living when he penned his *Ternate Essay*. Earlier searches for Wallace’s house concluded that the site was at the Santiong house, based on the presence of an old, deep well and oral history. These findings would have been convincing had there not been any more old, deep wells in the Santiong district where Wallace had lived. This study hypothesized that other old, deep wells might exist within the district. A census was undertaken to identify all such wells - seven were located. The site of one, newly identified, well matched Wallace’s clues most convincingly. This we named the Oranje site. The evidence strongly suggests that Wallace lived on the southern corner of Jalan Merdeka and Jalan Pipit overlooking the southwest bastion of Fort at the Oranje site—not at the Santiong house site.

Wallace and the discovery of the Theory of Evolution by Natural Selection

Beccaloni (2015) recounted the life and achievements of A.R. Wallace (1823–1913) as the co-discoverer of the theory of evolution together with Charles Darwin (1809–1882). Wallace’s other major discovery was the Wallace Line (Wallace 1863; Fig. 1) that demarcates Asian fauna from that of Australasia. He is also recognized as the father of evolutionary biology, the discipline that describes and seeks to explain the distribution of organisms throughout the world (Wallace 1876). Moreover, he documented much of the biodiversity that exists within eastern Indonesia. Wallace was based in Ternate from January 1858 to July 1861, a small volcanic island off the west coast of Halmahera in eastern Indonesia, while collecting natural history specimens throughout the region. It was here that he conceived of his theory of evolution. His actual epiphany may have been at the nearby village of Dodinga during a fit of malaria (Beccaloni 2019). Wallace posted his famous *Ternate Essay* to Darwin in March 1858. Darwin was astounded that Wallace had independently come up with the same theory he had devised some 20 years earlier but had never published. Extracts of Darwin's unpublished writings together with Wallace's paper were read at the Linnean Society of London on 1 July 1858 and published in the Society's journal, *On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection* (Darwin & Wallace 1858).
Wallace’s Clues to the Location of His House (Wallace, 1869, Chapter 21)

- Mode of construction: not dissimilar to native houses, *a very common mode of building in these islands*.
- The house was owned by a *Chinaman*.
- Deep well: *a deep well supplied me with pure cold water - a great luxury in this climate*.
- Location relative to the fort: *just below my house is the fort, built by the Portuguese*. (Wallace is mistaken - the fort was built by the Dutch in 1607, although it may have been built over an earlier Portuguese fort.)
- Location relative to the market and seafront: *five minutes’ walk down the road brought me to the market and the beach*.
- Location relative to the native town: *the native town extends for about a mile to the northeast [from the open area in front of the fort]*.
- Location relative to the town and the mountain: *close to the town, yet with a free outlet to the country and the mountain*.
- Location relative to other European houses: *while in the opposite direction [from the market i.e. west of the fort] there were no more European houses between me and the mountain*.
- Fruit trees – *my house is surrounded by a wilderness of fruit trees*. 

Figure 1. First map showing the Wallace Line, from his paper, “On the physical geography of the Malay Archipelago”, Wallace 1863 (© Photo: G. Beccaloni)

**Clues to the location of Wallace’s house**

Wallace provides tantalizing clues as to the location of his house in Chapter 21 of his well-known travelogue, *The Malay Archipelago* (Wallace 1869). Historians, biologists, and Wallace enthusiasts, as well as local government and residents of Ternate, have for many years sought to locate the site of Wallace’s house. Their efforts have generated much debate based on oral history, local interests, and interpretations of Wallace’s clues. Two of Wallace’s clues are critical in locating the site of his house—that it had a *deep well with pure, cold water*, and that a fort was *just below* his house.
Ternate in the Time of Wallace

The first task in the search for the site of Wallace’s house was to establish the general area in which he had lived. Whincup (2020) examined historical accounts and recent research about Ternate town before and around the time of Wallace to assist in interpreting his clues regarding the location of his house relative to the European community and Fort Oranje. These also provided information about the presence of deep wells in the old town.

Wallace (1869) provided clues that he was “close to town, yet with a free outlet to the country and the mountain” and that “there were no more European houses between me and the mountain”. De Clercq (1890), Resident of Ternate, 1885–89, provided an extensive description of Ternate and a map of the town (Fig. 2) albeit some 30 years after Wallace’s time. Maulana & Kanazawa (2016) researched the historical development of Ternate’s urban quarters from the 17th through the 20th centuries (Fig. 3). Their map shows ‘Dutch Settlement’ on the southern side of what is now Jalan Juma Puasa [see also Fig. 4, Reimer (ca. 1759)].

De Clercq (1890) provided information about wells; that most wells in the town were saline and shallow having been constructed too near the coast “…nobody wants to take the trouble and spend the money needed to dig a deeper well…on the slope of the mountain.” The fact that Wallace had a deep well that provided him with pure, cold water indicates that he lived higher on the slope of the mountain, not near the beach where wells were shallower and more saline.
Whincup (2020) concluded that Wallace lived on the western side of Fort Orange in what is now the Santiong district. This corroborates earlier efforts to locate Wallace’s house that came to a similar conclusion. Furthermore, he concluded that Wallace did not live within the ‘Dutch settlement’ area in the Santiong district.

Figure 3. Evolution of Ternate town—17th through 20th centuries (Maulana & Kanazawa 2016)
Earlier efforts to locate the site of Wallace’s house
Until recently, two sites have been proposed: the Sultan’s house and the Santiong house. The Sultan’s house can be disregarded as discussed by Marzuki & Andili (2015). It does not have a deep well (rather the well is square and shallow, Fig. 5A), and the house was owned by a member of the Sultan’s family, not by a Chinese person as Wallace reported. Figure 5B shows the Sultan’s house before renovation with its masonry pillars (Gardiner et al. 2008). This style of architecture does not conform with Wallace’s description of his house.

We know of two documented accounts of earlier attempts to locate the Wallace house (Niizuma 1997, Marzuki & Andili 2015). Both acknowledge that the original house probably no longer existed and relied largely on the presence of a deep well and oral history to support their findings. Both concluded that the Santiong house was the likely site of Wallace’s house.

Figure 5. (A) Paul Whincup, Paul Sochaczewski and Fify Sahib inspecting the Sultan’s house well (N. Hughes 2019); (B) Sultan’s house in 1986, before restoration (© Photo: Sir G. Prance, in Gardiner et al. 2008)
Our literature search indicates that Niizuma (1997), an evolutionary biologist from Hokkaido University, was the first to nominate the Santiong house as the site of the Wallace house, while researching on Wallace in Ternate in 1980 and again in 1988.

Niizuma (1997) relates an interesting story from the 1940s about the Santiong house. Dr. Ahmad Najib Aziz, a medical doctor and Santiong resident, had owned the Santiong house until the 1980s. Dr. Najib recalled that when he was young, a Japanese engineer, Mr. Odagawa from Habikino-shi city, Osaka-fu prefecture, who was working for a coal mining company, Maruta Development Enterprises (as Niizuma recounts), had rented a room in the Santiong house. *The Malay Archipelago* had been translated into Japanese (Kakichi 1942), and it may be that the Japanese engineer had a copy, which may have been the basis for him believing that he was staying at Wallace's house. That may be how the Santiong community came to believe that the Santiong house was the site of Wallace’s house. Importantly, it demonstrates that interest in the location of the Wallace house dates back as far as the 1940s.

Niizuma (1997) wrote that he asked many people about the location of old wells: “there are many wells, but only two old wells”. He concluded that the Santiong house was where Wallace had lived based on the presence of an old, deep well supported by oral history (Fig. 6). The location of the second well that Niizuma reports is unclear from his description.

In 1990, an NHK (the Japanese public broadcaster) journalist visited Ternate while making a film about Wallace and requested Dr Najib to recount the story of the Japanese engineer. The NHK journalist had hand carried a copy of *The Malay Archipelago* from Niizuma for Dr Najib inscribed with his name, which enabled us to locate Niizuma’s 1997 publication. Ms. Naoko Misono attempted to view the film in the NHK archives but could not obtain access for copyright reasons. The film presumably still exists.

Figure 6. Santiong house and well in 1980 (Niizuma 1997: page 230)
Marzuki & Andili (2015) searched for the site of the Wallace house during a preliminary event to the *International Conference on Alfred Russel Wallace and the Wallacea*, Makassar, 10–13 December 2008. They concluded, on the basis of old maps and the locations of deep wells known at the time, that Wallace had lived in the Santiong district.

They were “reasonably confident that there were only two old wells in the neighbourhood”. Syamsir Andili, then Mayor of Ternate, who was born and grew up in the Santiong neighborhood, independently confirmed though interviews with elderly people that, earlier, there had been only two old wells in the neighborhood. But it was “…not possible for us, however, to determine with certainty which of the two wells is the right one.” One well was at the Santiong house site. The other was across the road where we established Europeans had lived. Marzuki & Andili (2015) deduced that the location of the Santiong house corresponded with Wallace’s clues and that the account of the Japanese engineer corroborated their conclusion. They acknowledged that “The basis for this claim, however, is not clear and our attempt to trace the Japanese engineer has not been successful so far.” Nizuma writes that he attempted to trace the engineer but found that the coal-mining company no longer existed.

Santiong residents have cited an additional reason for the Santiong house being the site of the Wallace house. They have claimed that the remnants of old walls, about two metres high and 50 cms thick on the opposite side of road from the Santiong house, are evidence of a Portuguese fort in their attempt to verify Wallace’s clue, “just below my house is the fort, built by the Portuguese”. Our research does not provide any evidence of a Portuguese fort in this area. Old maps, from before Wallace’s time, show only one military-style structure in the Santiong area, a *Burgerswache*, civil guardhouse (Fig. 4).

De Clercq (1890) explained the origin of these walls, “…the white walls surrounding the (European) compounds...are a real Old Dutch custom, adopted from our ancestors and still observed.” Interestingly, Wall Street, the financial district in New York, is so named after walls that surrounded Dutch houses when Manhattan was the Dutch colony of New Amsterdam before being exchanged with the English for the island of Rum in the Banda Islands (Treaty of Breda in 1667).

**Recognition of the Santiong house as the Wallace house site**

Following the *International Conference* in 2008, the city council recognized the Santiong house as the site of Wallace’s house. Marzuki & Andili (2015) advocated for a replica of Wallace’s house to be constructed as a ‘protected heritage site’. “Considering Wallace’s Ternate house is the most important science history heritage site in Indonesia, the project would serve to restore the memory of Indonesia’s role in inspiring one of the greatest scientific discoveries of the 19th century.” The Conference recommended that an Observatorium Wallace be constructed on the site. Mayor Syamsir Andili renamed Jalan Nuri, the street on which the Santiong house is located, as Jalan Alfred Russel Wallace (Fig. 7A). However, Mayor Burhan Abdurrahman, who took office in 2010, changed the name again to Jalan Juma Puasa after the family of a prominent freedom fighter during the Indonesian War of Independence, who had lived in the Santiong area. This was a council decision based on local opposition to the street being named after a foreigner. The Observatorium Wallace made no further progress. An alley (lorong) off Jalan Juma Puasa on the corner of the Santiong house was named Lorong A. Wallace (Fig. 7B).

**Doubts about the Santiong house site**

Maulana (quoted in Hidayat & Nurgianto 2017) had reservations that the Santiong house should be proclaimed as the site of Wallace’s house without further evidence: “There is a need for strong evidence if foreigners (the international community) are to support a Wallace Museum project.” He observed that the dimensions of a traditional village house are normally about 8 × 15 meters (about 26 × 50 feet), whereas Wallace’s house was 40 × 40 feet (as per his diagram in *The Malay Archipelago*). Maulana suggests that Wallace did not live in a traditional village house but in one constructed for Europeans using traditional building techniques. He also had doubts as to whether a house of these dimensions would have fitted on the Santiong block.

In 2012, Beccaloni (2012) raised doubts about the Santiong house as the site of Wallace’s house. He observed that this site faces south, not towards Fort Oranje which is to the east. He reasoned that a site nearer the southwest bastion of Fort Oranje would correspond more closely with
Wallace's clue that the fort was just below his house. Beccaloni proposed a location closer to and overlooking the fort. But he was unsure whether there were any old, deep wells in this area and proposed that further investigations of old wells be undertaken.

Niizuma (1997) and Marzuki & Andili (2015)'s conclusions, based on their limited investigation of old wells in the Santiong district and the anecdotal account of the Japanese engineer, would have been compelling if there were no other old, deep wells in the area.

Figure 7. (A) Jalan Nuri was renamed Jl. ARW in 2008 and, again, Jl. Juma Puasa in 2010 (N. Hughes selfie 2009); (B) Lorong A. Wallace with mural of Wallace and his assistant, Ali, on the wall of the Santiong house (N. Hughes 2019)

New evidence—discovery of the Oranje site well
Building on Beccaloni’s observations, Whincup (2020) hypothesized that other old, deep wells might exist within the Santiong district. He decided to conduct a census of all old wells within the district, and examine how their locations and features corresponded with Wallace’s clues.

In January 2019, Whincup (2020) arranged for a thorough search (census) of all old, deep wells within the Santiong district. Field workers, Fiffy Sahib and Muhdi Aziz, literally door-knocked every house in Santiong to enquire about the presence of old wells. Seven old, deep wells, including the Santiong house well, were identified. Figure 8 shows the location of the seven wells.

Four wells were on blocks of land along the southern side of Jalan Juma Puasa, opposite the Santiong house. These blocks have a uniform frontage, and one has the remnants of the old Dutch-style wall on its road-side boundary. This is the area indicated by Maulana & Kanazawa (2016) as ‘Dutch Settlement’. It is likely that the wells on these blocks were constructed by wealthy Europeans. As we have established, Wallace did not live in a European area, so these four sites can be excluded from consideration.

Whincup’s census resulted in the discovery of a hitherto unidentified well on the southern corner of Jalan Merdeka and Jalan Pipit. This he and Beccaloni named the Oranje site. Thus, the Santiong house and the Oranje site remained the key contenders for the site of the Wallace house. Where possible, Whincup examined all wells to determine how they conformed to Wallace’s description of “a deep well supplied me with pure cold water.” Key parameters were depth (deep), salinity (pure), and temperature (cold). A fourth parameter was included, age and mode of construction.
The owner of the Oranje site house gave Whincup permission to open the concrete cap over the well to take measurements and study its internal structure. The well was 11.6 meters deep with the water table at 11.0 meters; the water was of low salinity, and temperature 28°C. The internal lining was of typical, old construction—volcanic rocks loosely cemented with lime/concrete like wells within Fort Oranje dating from the 17–18th centuries. A family member informed Whincup that the well had existed long before their grandfather’s time and that earlier, this and the Santiong house well were the only two wells from which the Santiong community could draw water.

The Santiong house well had been capped and could not be inspected internally. The water temperature was 28°C and salinity was very low, being at a slightly higher elevation than the Oranje site well. The Oranje site block is 850m² with a frontage of 17.6 m on Jalan Merdeka overlooking the southwest bastion of Fort Oranje. This width would have been ample to accommodate Wallace’s house of about 12.2 × 12.2 metres with some gardens with fruit trees on each side. The block has since been subdivided. The present owner said that the lower subdivision, 17.6 m × 24.0 m, closer to the fort (Fig. 9A), formerly had a house facing the fort. The existing well is now within the house on the upper block (Fig. 9B). Thus, the well would have been about 10 metres behind where the back verandah of the earlier house had been situated on the lower block. Wallace does not say where his well was relative to his house, but wells are normally behind houses, not in front; so, it is logical that Wallace’s house was on the lower block facing the fort with the well at the back on what is now the upper block.
No evidence of the earlier house remains but an archeological dig on the lower, currently vacant, block might reveal foundations that correspond with the dimensions of Wallace’s house. Wallace states, “the walls were of stone up to three feet high ... the floor is of stucco.” Some remnants of these foundations might still exist.

Finally, we examined Wallace’s writings to try to better understand his use of the expression, just below, as applied to the location of the fort relative to his house. A search of his writings reveals that he uses this expression frequently when describing geographical features and morphological characteristics of specimens. Synonyms for the word, just, are exactly, precisely, directly, or very close.

Figure 9. (A) The lower block of the Oranje site where Wallace’s house most probably stood. The well is within the house above the fence and below the Mosque (© Photo: Beccaloni 2019); (B) Looking down Jalan Pipit towards Fort Oranje. The well is in the lower house on the right. The wall of the fort is just below the house (behind the motorbike passing along the road; © Photo: Beccaloni 2019)

The front verandah of a house on the Oranje site would have looked directly towards the fort about 60 metres away (very close), whereas a house on the Santiong site would have been 135 metres from the fort. The southwest bastion of Fort Oranje is below both the Santiong and Oranje sites. But a house on the Santiong site would have faced south, not directly towards the fort. We concluded that Wallace’s use of the expression, just below, strongly suggests that the Oranje site, rather than the Santiong house, was the site of Wallace’s house.

The results of this study are summarized in Table 1: Comparison of the Sultan, Santiong and Oranje sites.

Conclusions and further investigations
Whincup (2020) concluded that the discovery of the Oranje site well provides convincing evidence for the location of the Wallace house. Its location together with its deep well matches Wallace’s description most convincingly when all his clues, as provided in The Malay Archipelago, are considered.

A search of Dutch archives might reveal more information about where Wallace had lived in Ternate:
- Did the Resident, Casparus Bosscher, and/or the Police Magistrate, record Wallace’s address when he reported to them after securing a house from his Chinese landlord with the aid of van Duivenbode (as he relates in The Malay Archipelago)?
- A search of land ownership records might reveal who owned the land at the Santiong and Oranje sites around the time of Wallace in the 1860s.
- Wallace’s writings indicate that he was in Ternate at the end of 1860 around the time that the 1860 census was (presumably) taken according to de Clercq. Was Wallace recorded in the census by name and address?
- An archaeological dig of the currently vacant lower block at the Oranje site might reveal something of the original foundations of the house corresponding with the dimensions of Wallace’ house.
Commemorating Wallace and his ‘faithful assistant’ Ali
Marzuki & Andili (2015) advocate that the site of the Wallace house be secured as a ‘protected heritage site’. Given its national and international significance, a replica of the house, ideally at the newly discovered Oranje site, would be a valuable educational facility and tourist attraction. It could house a museum with exhibits explaining the tremendous intellectual achievements that Wallace made in Indonesia – the theory of evolution by natural selection, the Wallace Line, the founding of the discipline of evolutionary biogeography, and his work in documenting Indonesian biodiversity. Ali’s role in contributing to Wallace’s discoveries could also be acknowledged.

Table 1. Comparison of Results: The Sultan, Santiong and Orange sites

<table>
<thead>
<tr>
<th>Wallace’s Clues</th>
<th>Sultan</th>
<th>Santiong</th>
<th>Oranje</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Chinaman owned</td>
<td>No—family of the Sultan</td>
<td>Not known</td>
<td>Not known</td>
<td>Sultan house can be excluded as Wallace’s house</td>
</tr>
<tr>
<td>Wallace’s house</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mode of construction: not dissimilar to native houses</td>
<td>Original house still stands; eight masonry pillars</td>
<td>Original building probably long ago built over 13 m, deep, round</td>
<td>Original building probably long ago built over 11 m, deep, round</td>
<td>The Sultan house can be excluded as a contender for Wallace’s house</td>
</tr>
<tr>
<td>Deep well ...</td>
<td>2.4 m, shallow, square</td>
<td></td>
<td>11.6 m, deep, round</td>
<td>Deep wells were 1.2 m diameter, i.e., dug by hand.</td>
</tr>
<tr>
<td>Age of well</td>
<td>Old – open</td>
<td>Old-capped, not inspected internally</td>
<td>Old – capped, opened, inspected; volcanic liners</td>
<td>Construction of round wells typical of old wells in Fort Oranje from 17th century</td>
</tr>
<tr>
<td>Pure cold water ...</td>
<td>Brackish - shallow, close to beach</td>
<td>Pure—higher elevation</td>
<td>Slightly saline—lower elevation</td>
<td>Water in deep wells was of drinking quality; temp 28°C.</td>
</tr>
<tr>
<td>Five minutes’ walk to the market/beach</td>
<td>No. More than 800 m</td>
<td>Yes—550 m</td>
<td>Yes—590 m</td>
<td>6–7 minutes @ walking speed of about 5 km/hour.</td>
</tr>
<tr>
<td>Just below (my house) is the ... fort</td>
<td>No. Northern wall of fort is about 300 m south of this house</td>
<td>House faces south (not towards the fort) and is 135 m from fort</td>
<td>Yes – site is about 60 m from and faces the southwest bastion of the fort.</td>
<td>The location of the Oranje site corresponds more precisely with Wallace’s clue than the Santiong site.</td>
</tr>
<tr>
<td>No more European houses towards the mountain ...</td>
<td>No. This house is within Kampong Sio-Sia.</td>
<td>European houses on opposite side of the road.</td>
<td>No European houses, (as far as we know).</td>
<td>Four deep wells on opposite side of road can be excluded as Wallace did not live amongst Europeans</td>
</tr>
<tr>
<td>Surrounded by a wilderness of fruit trees</td>
<td>No. Probably surrounded by village houses</td>
<td>Maybe</td>
<td>Maybe</td>
<td>There were orchards in the area of both the Santiong and Oranje sites.</td>
</tr>
<tr>
<td>The native town extends a mile NE with sultan’s palace about the centre</td>
<td>No, the Sultan’s palace is about 400 m from this house</td>
<td>1.1 km to Sultan’s palace</td>
<td>1.0 km to Sultan’s palace</td>
<td>The native town is north the fort.</td>
</tr>
</tbody>
</table>

Acknowledgements
We are grateful to Paul Whincup, resident of Jakarta and hydrogeologist of international repute. In early October 2018, on reading Beccaloni’s search for the Wallace house on the Alfred Russel Wallace website (2012), he recognized that an old well in the Santiong district was the key to its location. He set in motion a search for all old wells in the district and, at the same time, undertook much of the background research presented in this paper. The well at the Oranje site was located in January 2019.

Dr George Beccaloni (2012) was the first to question the Santiong house as the site of Wallace’s house. Whincup and Beccaloni collaborated on this project. We are grateful to both of them for commenting on earlier versions of this paper. Fiffy Sahib and Muhdi Aziz undertook the census of old wells in the Santiong district. Dr David Parry provided his expertise in locating and interpreting...
historical maps and images of Ternate. Ms. Farida translated chapters of Niizuma’s book from Japanese that enabled us to relate Niizuma’s account of his search for the Wallace house. Ms. Naoko Misono researched the translation of Wallace’s *The Malay Archipelago* by Kakichi (1931) and revision (1942) and searched for the NHK film.

We wish to remember the former Mayor of Ternate City, Burhan Abdurrahman, for his support for this project and commitment to promoting the memory of Wallace. Sadly, Mayor Burhan passed away in July 2021. Finally, we express our appreciation to the current Mayor of Ternate, Dr. Tauhid Soleman, for his continuing support for this project.

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