

2

Australia Takes Possession of the At-Risk Capital

2.1. Earthquakes without Local Seismographs

The Commonwealth of Australia was created in 1901 by federation of the Australian colonies. In 1906, Australia took over the administration of British New Guinea after its renaming as the Territory of Papua. Australia maintained strong ties with the ‘mother country’, Great Britain, as seen in its decision to follow Britain into conflict after it declared war on Germany on 4 August 1914, ushering in World War I. Australians had long-lived and ongoing concerns about foreign powers—particularly Germany—being on Australia’s doorstep, so there was little hesitation in establishing an Australian Naval and Military Expeditionary Force for invasion purposes in 1914. This large assembly of troops invaded German New Guinea on 11–12 September, capturing and taking over the running of the capital Rabaul and thus the former Old Protectorate as a whole. Australian troops met military resistance from some German-led forces on the road to the Bitapaka wireless station and there were casualties on both sides (Mackenzie [1927] 1987).

Rabaul was occupied by an Australian garrison until 1921, when, following the Treaty of Versailles in 1919, a civilian administration took over (Mackenzie [1927] 1987; see Figures 2.1–2.3). German residents could remain in their former colony during the occupation provided they signed agreements of neutrality. Plantations established by the Germans were expropriated and arrangements made for non-Germans to manage

or purchase them, including returned Australian soldiers. Meanwhile, Rabaul itself became a 'backwater'. Despite some tension between the Australian occupiers and German residents in Rabaul, the garrison was largely untroubled by serious military hostilities, leaving the invaders bored and restless.

The Australian invaders took over a well laid-out town but, in doing so, they also inherited the volcanic-risk problem. No seismographs were installed, and systematic records of local and distant earthquakes and signs of local volcanic unrest—such as ground uplift or subsidence—do not appear to have been kept during the period 1914–21. Nevertheless, the garrison would experience the effects of a distant earthquake soon after taking control. On Wednesday 11 November 1914, ground-shaking was felt in Rabaul:

It occurred at about 6.00 p.m. when most people were settled down to their evening meal. The force of the shake was sufficient almost to empty cups of tea and to shift other articles in buildings from their positions. The tremor lasted about thirty seconds, the first portion of which was of a mild nature—the like of which has been experienced a couple of times since our arrival—but it was the last few seconds that caused excitement. This is a somewhat novel experience for most of the troops and they are not desirous for a repetition thereof. (Anonymous 1914a, 2)

Furthermore:

[A]bout 600 tons of rock has fallen from the old crater opposite Matupi Island. Several new fissures have also opened up, and from these sulphur fumes are being emitted. The members of the Expedition that has just returned from New Ireland report that they experienced a shock of earthquake on the same date as the one above. (Anonymous 1914b, 2)

These valuable descriptions correspond to an earthquake distant from Rabaul that was strong enough to cause landslips in the crater of Tavurvur but did not trigger any volcanic eruption. Signaller L.C. Reeves reported that the largest of several earthquakes felt in Rabaul soon after the invasion by the Australian troops occurred at 7.23 pm on 19 October 1914. It too is said to have displaced 'several hundreds of tons of rock and soil' in the crater of Tavurvur (Reeves 1915, 50). Reeves could here be referring to the same earthquake reported for 11 November 1914.



Figure 2.1. Australian troops after the 1914 invasion of Rabaul.

Australian soldiers pose for a photograph with a machine gun at Rabaul after the invasion of September 1914. Source: From the photographic collection of Albert Richards and provided courtesy of Bruce Young.

Major Howard Newport, director of the botanical gardens in Rabaul, published a report about an earthquake felt in Rabaul at 11.30 pm on New Year's Day 1916. It was

variously spoken of by old residents as the most severe for five to seventeen years. Nevertheless, there is no record of any furniture, shelves, &c., having been shaken down, or crockery or glass having been broken worth mentioning; concrete basements to houses ... were undamaged on this occasion ... Owing to the buildings being of wood, and not rigid, none suffered in Rabaul itself, though one or two water tanks were displaced. Some 20 miles further west, however, several houses were damaged by being thrown off their piles and twisted, but some of this at least may be ascribed to the bad state of repair in which the buildings were at the time ... These shocks are admittedly more severely felt at Namanula ... Indeed it would appear that many mild shocks are observed there that pass unnoticed in the township below. (Newport 1916, 2–3)

Major Newport counted and recorded additional shocks that were felt through the night until morning, adding that 'most tall furniture is fastened by the walls by iron hooks by our predecessors [the Germans] evidently in readiness for them' (Newport 1916, 3).



Figure 2.2. Viewing the 1878 crater of Tavurvur.

Australian soldiers and a Tolai guide look into the 1878 crater of Tavurvur volcano after invading forces had taken control of Rabaul from the Germans in September 1914. The troops were evidently not well equipped for a tropical invasion judging by the puttees and thick shirts and trousers. GA negative references M2444-1-4 and M2447-31A.

Another military report, from the Australian Navy on this occasion, provides extra information about the effects of the ‘somewhat severe’ earthquake of 1 January 1916, including a related tsunami:

The steamers alongside Rabaul wharf surged violently at their hawsers. The master of the S.S. *Masina* states that the water level fell 15 feet in a few moments, and rose again with tremendous rapidity; his vessel meanwhile being in grave danger. He noted that the top of a long corrugated iron shed on the wharf was actually moving ‘in waves’, and the entire wharf was on the move. The small steamer *Siar* was lifted bodily from Rabaul Harbour into Matupi Harbour, across the place where a strongly-built causeway had existed a few moments before. This causeway, which connected Matupi Island to the mainland of New Britain, entirely disappeared, leaving a depth of about 15 feet (H.M.A.S. *Una*, 1916). (Südsee-Handbuch 1920, fnt p. 20; see also Massey 1918; Fisher 1939a)

Another reporter, quoting from the *Rabaul Record*, a monthly newspaper of the Rabaul garrison, added that the tidal wave or tsunami caused by the 1916 earthquake did some damage to the foreshores and to vessels in port (Cilento 1937a, 1937b). Further, the water at the causeway, which carried a telegraph line, was deep enough to cover the telegraph line as well. Director

E.F. Pigot of the Jesuit-run Riverview Observatory in New South Wales concluded that, of 295 earthquake reports he had received for 1916 to June 1922, only six New Guinea earthquakes had notably high intensities and the highest value was for the 1 January 1916 event (Pigot 1923). However, Pigot did not rank the strong May 1919 earthquake that would also affect Rabaul. The epicentre for the 1916 earthquake (magnitude $7\frac{3}{4}$) was given in a later compilation of principal regional earthquakes from 1906 to 1962 as 154°E , 4°S —a point directly east of Rabaul and east of New Ireland (Brooks 1965, Table 1).

Another severe earthquake was felt in and around Rabaul on 7 January 1917:

It lasted for several minutes, and is stated to have made lately arrived members of the force wonder what sort of place they had come to. One of them fainted, but otherwise no damage has been reported. The older hands of course knew all about earthquakes, and as a matter of fact would not feel at home in Rabaul if during the wet season they did not get a shaking up at least once a week. (Anonymous 1917a, 3)

Furthermore:

According to statements made by German residents, Rabaul will be blown up in 1917 by volcanic forces. Should such a thing happen those [presumably Germans] who have always wished for a 'scrap' may be satisfied, if indeed they do not take exception to the latest inventions in heavy artillery. (Anonymous 1917a, 4)

This reaction by a writer in the *Rabaul Record* is an example of the tensions that existed between the Australians and Germans in Rabaul.

Two more earthquakes shook Rabaul, on 7 and 25 February 1917. The first one was the larger according to another article in the *Rabaul Record* (Anonymous 1917b, 3). It caused a landslip and interfered with telephone lines on the road to Namanula Hill, as well as throwing the supporting piles of a bungalow out of alignment. Advice was provided on the best way to evacuate from Rabaul. Major J.J. Cummins in the July issue of the *Rabaul Record* provided a brief history of the Rabaul area, including a summary of information on the 1878 eruption provided by Rev. George Brown (Cummins 1917). He repeated that Brown had been informed by local people that Tavurvur 'had been in eruption some 40 years previous [sic], but had been quiet up till the present ... On this fact is based the prophecy of another eruption which is due at present' (Cummins 1917, 10). Brown,

however, had actually said that the previous eruption had occurred 30–40 years before 1878 (i.e. 1838–48) and he was apparently unaware that the informants were probably talking about the eruption at Sulphur Creek. As concluded above, the year of that eruption is unclear.

The rumour that an eruption would take place at Rabaul in 1917 or 1918 was criticised by Captain C.H. Massey, an officer in the Australian garrison who appears to have had previous geological training. He expressed disbelief that volcanic eruptions could be predicted accurately using a precise 40-year periodicity, writing ‘that the periodic theory rests on a very slender basis’ (Massey 1918, 8). Massey also noted that local earthquakes within the harbour seemed to originate from the area of Tavurvur volcano. Some local residents believed that earthquakes felt at Rabaul happened during heavy rain, but Massey did not agree. He did suggest, however, that there may be a relationship to high ocean tides and, therefore, to the north-west monsoon or ‘wet’ season, and so, in turn, to ‘earth warping’ or earth tides caused by the changing seasonal positions of the moon and sun relative to the earth.

Massey concluded that the large flooded depression of Simpson Harbour was the original ‘crater’—actually a caldera—of Rabaul volcano and that it was the source of the thick deposits of volcanic dust, ash and pumice making up the surrounding countryside to the west and south, notably at Bitapaka and on the Namanula Road. These early geological observations by Massey relate to the origin of a *series* of calderas that form Blanche Bay, and to the especially large volcanic eruptions that accompanied caldera formation at Rabaul. They are matters that would occupy the attention of many subsequent volcanic geologists.

Another severe earthquake took place at about 5.40 am on 7 May 1919 after a fairly long period of seismic quiescence (Stanley 1923). It had a magnitude of 7.9 and its epicentre was at 154°E, 5°S—a point south-east of Rabaul and south-east of New Ireland (Brooks 1965, Table 1). The effects of the earthquake in Rabaul were reported in some detail by the administrator, Brigadier-General G.J. Johnston, in a memorandum to the Department of Defence in Melbourne, and later published by the Geological Society in London:

It took the form of a preliminary shake, and was followed by a long shock, or succession of shocks. The ground rocked in a most alarming manner, trees swayed backwards and forwards, cracks appeared in the surface of the earth, and much damage was caused to property ... Reveillé had blown at 5.30 A.M., and the men of the garrison

were preparing to go on early morning parade at 6 o'clock when the shock came. The wooden bungalows rocked to and fro, rifles were forcibly thrown from the racks, and a few who were snatching some minutes' extra sleep were pitched off their stretchers, which were overturned on top of them ...

The shock was felt most severely on Namanula Hill, outside Rabaul, upon the summit of which Government House is built. The two portions of the house, separated by a wide gangway, rocked in opposite directions ... When the earthquake subsided, most of the houses built on the hill presented an extraordinary appearance, the supports being tilted at all angles. Heavy 1000-gallon tanks were rolled over like toys, and our Government Printing Office was completely wrecked ... In many places the hillside collapsed, completely filling [road cuttings].

These earthquakes appear to be closely associated with the volcanic belt in this region, and the earthquake of the 7th was followed by great activity in the sulphur-springs at the foot of Mount Mother [Greet Harbour], the green fumes spreading over the sea to a height of almost 100 feet ... A tidal wave of some magnitude was experienced at Kokopo [and] Even at Rabaul, the wave was of such proportions as to leave thousands of fishes stranded above the high tide-mark. (extracts from Johnson [sic] 1919, v)

Further information on the 1919 earthquake was provided in another Australian military report:

At Rabaul wharf the water fell 6 to 8 feet and rose again rapidly; the shock made it impossible to stand on the wharf. The causeway to Matupi is now (September 1919) only knee-deep, and can be waded across (N.I.O., 1919). (Südsee-Handbuch 1920, fnt p. 20; see also Stanley 1923; Official Handbook 1937; Fisher 1939a)

Geologist Evan R. Stanley added that many 'minor shocks' had been experienced at Rabaul and surrounding districts after the May 1919 earthquake, and he presented a list of 22 dated earthquakes—together with time of day, duration and intensity—that were felt in July–December 1920 (Stanley 1923, 44). Stanley also gave the following additional information in his description of the 1919–20 earthquakes:

Again on the 7th May, 1919, a severe shock was experienced at 5.40 a.m. after a fairly long period of quiescence. Tanks and houses were displaced from their piles, and the submerged Matupi causeway was elevated 2 or 3 feet. The shock was followed by great activity

in the sulphur areas at Matupi and Tavorvur, and a tidal wave of some magnitude was experienced at Kokopo, whilst at Rabaul many fish were stranded on the beach. Many minor shocks have been experienced since at Rabaul and the surrounding districts ...

General Johnston [reported on 29 September 1920] that the centre of disturbances is near the volcano of Ghaie (Tavorvur) in a probable line of weakness from the Father [Ulawun volcano] on the North coast of New Britain. He points out that the earthquakes are most severe about Rabaul when the Father is quiet. Most of the shocks recorded travelled approximately from North to South and a few from South to North. These latter appear to have originated in the Tavorvur. (Stanley 1923, 44–5)

Evan Stanley, an Australian, was the government geologist for the Territory of Papua. He was also a member of the Australian Commonwealth Scientific Expedition to the former German New Guinea, which arrived in Rabaul early in November 1920—its aim, an assessment of the natural resources of the newly acquired territory (Davies 1987). A 12-metre wooden ketch, the *Wattle*, was to be used as a mobile base, but fitting out the vessel took five months. The expedition finally set off from Rabaul in April 1921 for the north coasts of New Britain and New Guinea. During the delay Stanley was able to study the volcanic geology of the Rabaul area, as he had in both 1915 and 1920 (Stanley 1923). In the end, the expedition was a poor replica of those that had taken place in German times, and it turned out to be an embarrassment to the Australian Government and Prime Minister W.M. ‘Billy’ Hughes because of its cost and non-achievement of objectives (Davies 1987).

Stanley’s report to the Australian Government was one of the expedition’s few redeeming features. He summarised the volcanic geology of the Blanche Bay area where Simpson Harbour ‘appears to have been the seat of a large volcano, remnants of which are left in the Dawapia Rocks’ (Stanley 1923, 45). Stanley remarked that, together with volcanoes on the north coast of New Britain, Blanche Bay had had ‘eruptions of the explosive type and extraordinarily stupendous judging from the number of parasitic cones and the huge quantity of fragmentary material deposited by them’ (34). Notably, he also drew attention to the north-west–south-east alignment of the volcanoes Watom, Tovanumbatir (North Daughter), Kabiū (the Mother) and Turagunan (South Daughter) plus Tavorvur. This pointed

to the existence of a South-eastern rift, which has been responsible for the huge deposition of pyroclastic material, building up a great area of the land surface within recent geological times. (56)

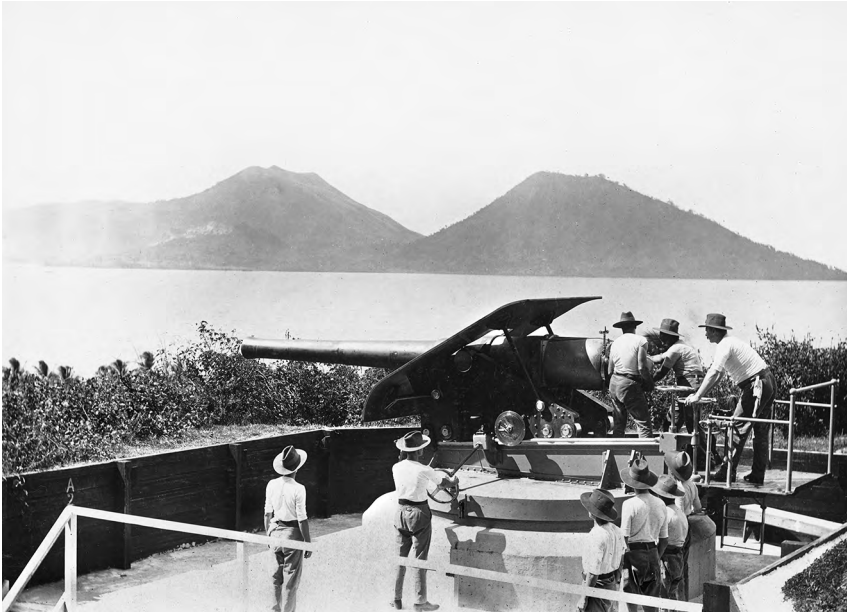


Figure 2.3. Fort Raluana and background volcanoes.

Kabiu (left) and Turagunan volcanoes are shown in the background of this view northwards across the entrance to Blanche Bay from Raluana Point (Mackenzie [1927] 1987, photograph facing p. 344). Tavurvur volcano is just visible down to the left of Kabiu. Australian troops are seen in the foreground at a six-inch gun battery at Fort Raluana. The battery was established in 1918, taking the place of a 4.7-inch battery on Matupit Island. Australian War Memorial photograph H01987.

Stanley believed, however, that ‘the whole series about Rabaul ... appears to be in the dying stages’ (34).

Stanley’s report contained a recommendation that a ‘Geophysical Laboratory be established in conjunction with a Volcano Observatory’ for public safety purposes in the New Guinea region (Stanley 1923, 92). This recommendation had stemmed from an international Pan-Pacific Scientific Conference in Honolulu on volcanology and seismology. Australian military authorities did not take any specific measures to monitor the volcanoes and earthquakes at Rabaul, although General G.J. Johnson, head of the Australian garrison, in a letter written in September 1920, did recommend the installation of a seismograph at Rabaul, evidently without success (Stanley 1923, 44).

2.2. Civil Administration up to 1937

Rabaul and the former German colony came under Australian civil rule in 1921, which lasted until 1942. The captured territory—following the Treaty of Versailles in 1919—became a Class C Mandated Territory under the League of Nations, and this allowed the Australians to rule it almost as if it was part of Australia (Official Handbook 1937). The new civil administration's scientific interests were mainly restricted to health, agriculture, weather and anthropology, and, as in previous German and Australian military administrations, there was no interest in volcano monitoring—at least until after the disastrous 1937 eruption at Rabaul. There were, however, still signs of geological unrest at Matupit Island:

After 1919, the causeway apparently rose, for by 1924 it was once again possible to drive a motor car to Matupi Island and this condition persisted until the 1937 eruption. Some observers stated that a slight amount of elevation continued to take place right up to May 1937. (Fisher 1939a, 18; see also Figure 2.4)

Earthquakes continued to be felt. Dr S.M. Lambert MD, for example, in his entertaining book *A Doctor in Paradise*, wrote the following about one in 1921:

Rabaul was an extremely shaky Garden of Eden, geologically and politically. Jolly earthquakes came and went with seismic whimsicality, and were so frequent that every hotel, home, and office had its heavy furniture lashed to the walls. Otherwise, one might have waked up any morning and found a large German wardrobe in one's lap ... One morning in 1921 I saw some lumber that had been piled on Vulcan go scattering into the sea like a box of matches, and I saw the huge sheet-iron D.H. & P.G. store curl like a withered leaf. After that Eloisa and I agreed that at the next tremor we'd pick up little Harriette and make for the hills. (Lambert 1941, 79)

Vulcan Island by 1925–26 was a low casuarina-covered area used as a government quarantine station and occupied by local people under the charge of a resident medical assistant (Cilento 1937a, 1937b). Submarine disturbances were noted there in 1926:

[S]ubmarine rumblings and explosions had been heard on the island, accompanied by earth tremors, and the following day it was observed that a reef of rocks had arisen at the north end of the island, in close relation to the area which [became] the site of the eruption of May [1937]. (Cilento 1937a, 8; 1937b, 45)



Figure 2.4. Aerial view of Tavurvur, Matupit Island and Vulcan Island.

This south-westward view of Tavurvur volcano (foreground) is undated but is thought to have been taken from a float plane probably sometime between 1920 and 1924. The height of the in-flight aircraft must have been lower than the stated '3000 ft'. The two flat islands are Vulcan Island in the left background and Matupit Island right of centre. The causeway between Matupit and the mainland appears to be absent, implying that the photograph may have been taken before 1924 (Fisher 1939a; see also unpublished discussions in R.W.J. Collection 25, Folios 49–50 and 55–57). Digital copy provided courtesy of the National Library of Australia (nla.pic-an20237763-55-v).

This brief note, if accurate, is significant, as it is the only known record that the Vulcan area had become volcanically restless at least 10–11 years before the volcano broke out in eruption in May 1937. The need for the installation of some sort of volcano monitoring of both Tavurvur and Vulcan seemed appropriate and further calls were made for instrumental earthquake monitoring at Rabaul—for example, in 1932 (Anonymous 1932)—but, like Stanley's and Johnston's earlier recommendations, they elicited no practical support. Earthquakes and tremors continued to be felt in Rabaul, as reported briefly in the local newspaper, the *Rabaul Times*, edited by Gordon Thomas: seismic events such as in 1931 (22 March, 14 June), 1933 (29 May, 13 December), 1934 (early January) and 1935 (15–16 and 20 September, and 8 and 15 November). Occasional reports of earthquakes felt at Rabaul were also published in the *Pacific Islands Monthly*, a regional magazine edited by R.W. Robson, and in other newspapers, including Australian ones.

The record of earthquakes or ‘tremors’ felt at Rabaul up to 1937 is incomplete given the absence of any systematic data recorded by a seismologist using a seismograph or, better still, a *network* of seismographs. Thus, the magnitudes and places of origin—the epicentres and depths—of earthquakes felt at Rabaul, and any sequences of related seismic events whether local or distant, cannot be identified readily from the limited records. Nevertheless, one difference between some of the reported events is that a few of them seem to have produced two shocks just seconds apart. This means that these particular earthquakes, at least, must have been distant ‘regional’ events—a ‘primary’ wave arriving before a ‘secondary’ one. A further problem with the existing earthquake record up to 1937 is the number of differences in recorded dates for particular events in the same year: whether these are errors between different records of the same event or signal multiple events in the same year is unknown.

A well-known Australian seismologist, Ian Everingham, in 1974 published a scientific paper in which he listed large earthquakes for the 1873–1972 period recorded from the New Guinea and Solomon Islands region (Everingham 1974). ‘Large’ meant earthquake magnitudes of greater than 6.9, which of necessity excluded many lower-magnitude events that may have been, or were, felt in the Blanche Bay area. Seventy-two earthquakes were listed for the period 1900–37, but none of these was in the Blanche Bay area—if the generalised coordinates used for a box-like area encompassing the bay are set at 152.0–152.5°E longitude and 4.0–4.5°S. A few earthquakes plot close to the box, including one of magnitude 7.0 (depth unknown) and dated 23 January 1937 whose coordinates are given as 153.0°E and 4.5°S—that is, in southern New Ireland.

Another notable feature of the large-magnitude earthquakes considered by Everingham is their relative abundance in the northern Solomon Sea area, including beneath north-eastern New Britain, southern New Ireland and Bougainville Island (Everingham 1974, Figure 2). This area also coincides with the deep-sea submarine trench and ‘Planet Deep’ discovered by the SMS *Planet*. The available earthquake information as a whole can be taken as evidence for ongoing seismic restlessness felt in the Blanche Bay area even though many of the European inhabitants in both German and Australian times seem to have taken the earthquakes for granted and not always with any accompanying concern that the volcanoes may again break out into eruption.

The geodetic record of ground uplift, subsidence and horizontal ground motion is also restricted to incomplete observations of the causeway area at Matupit and not, for example, to other parts of the shorelines of the island and of Greet Harbour. Finally, there are no systematic, time series records of changes to gas or vapour emissions at either Tavurvur or Vulcan Island or the development of new geothermal areas. There was, therefore, by early 1937, no strong reason for residents to be concerned about the possible outbreak of any new eruptions at the volcanoes of Blanche Bay.

Rabaul town had grown significantly during the 16 years following establishment of an Australian civil administration in 1921, as described in detail elsewhere (Threlfall 2012). There had been an increase in the size of the European population as people looked for new opportunities following the end of the war. New businesses were established and Burns Philp and W.R. Carpenter became the main trading companies (Buckley and Klugman 1983). The first administrator was Brigadier-General Evan Wisdom. The town expanded westwards along the head of Simpson Harbour, along both sides of Malaguna Road, to include new buildings and facilities established on land acquired from the Malaguna people; a new wharf was also built. Cars and other vehicles became more common on the roads and tracks. An electricity supply was developed for the town as well.

The year 1922 was significant due to the discovery by 'Sharkey' Park and Jack Nettleton of commercially viable deposits of alluvial gold in Koranga Creek, inland from Morobe on the New Guinea mainland (e.g. Nelson 1976). This triggered a great deal of mining interest in the area and the development of the Morobe Goldfield. Gold extraction in the 1930s at Wau and Bulolo involved enhanced dredging technologies, aircraft for haulage and greater financial investment. New Guinea Goldfields and Bulolo Gold Dredging were among the most highly capitalised companies on the Sydney Stock Exchange (Garnaut 2010; Waterhouse 2010). Rabaul became a port of entry for overseas mineral explorers and miners before they moved on to Morobe. Increased shipping in the region meant that Rabaul also became the main coal refuelling depot in the Mandated Territory. The old hulk *Loch Katrine* was brought to Rabaul and anchored in the harbour for the purposes of coal storage.

Another significant date was January 1929, as this was when New Guineans from different parts of the Mandated Territory, and in a range of paid jobs in Rabaul, went on strike for better conditions (Threlfall 2012). Racism was still rife in the socially stratified Australian town, and the infamous White

Australia Policy still prevailed at home. The ‘Rabaul Strike’ caused great uncertainty and concern, if not real fear, among the white population, some of whom imagined the prospect of a non-peaceful uprising. Eventually, the potentially threatening, but actually quite peaceful, situation was brought under control. The strike leaders were confined to the *Loch Katrine* hulk where they received poor treatment under appalling conditions. Court cases were held on board and severe prison sentences were handed down.

The Wall Street Crash also occurred in 1929, triggering the Great Depression. Copra prices declined but government income was offset by the imposition of gold royalties from the Morobe Goldfields. The administration recorded as a significant historical event that the value of annual gold exports reached £1,897,244 in 1935 (Official Handbook 1937, 7). The Seventh-day Adventist Church, also in the eventful year of 1929, accepted the offer of a site at the south-eastern end of the island just across from Tavurvur volcano at the entrance to Greet Harbour (Oliver 2020; see also Figure 4.4). This part of Matupit Island would become a key instrumental measurement area for geodetic and earthquake monitoring in volcano-monitoring programs at Rabaul after WWII (see, e.g. Figure 7.4).



Figure 2.5. Aerial view of Rabaul town, Dawapia Rocks and Vulcan Island.

The town of Rabaul, including its tree-lined streets, wharves and shipping, is shown before the eruption of May 1937 in this undated aerial view of Blanche Bay taken from the north-east. Dawapia Rocks (the Beehives) and Vulcan Island (in the distance) can be seen in the upper-left quadrant. Sulphur Creek is adjacent to the centre of the left-hand border. GA negative reference GB3290.

The year 1934 was when the young Commonwealth geologist Norman H. Fisher began geological field work at Wau on the Morobe Goldfields, developing a strong interest in the volcanic rocks that had originally hosted the gold, and in volcanology in general (Fisher 1945; Wilkinson 1996). The science of volcanology had been advancing steadily after WWI. There was one significant advance, for example, when a New Zealand geologist working in the central part of New Zealand's North Island discovered, mapped and named a volcanic rock: *ignimbrite* (Marshall 1935). There was, however, no significant recognition of the international volcanological importance of this discovery—nor of its importance in understanding Rabaul's volcanic geology—until well after the end of WWII. The year 1934 was also when Walter McNicoll was appointed administrator of the Mandated Territory. Both McNicoll and Fisher would become involved in significant but different roles in managing the aftermath of the 1937 volcanic eruptions.

There had also been notable growth in the use of aircraft in general in the Rabaul area by this time, starting with float planes in the 1920s (Figures 2.4 and 2.5). Lakunai, south of Sulphur Creek and adjacent to Greet Harbour, was tried as a location for an airstrip but was abandoned in favour of one near Taliligap, later called Vunakanau, on a flat area with good approaches west of Simpson Harbour. Work on the Vunakanau Airfield was finally completed in April 1937. By then, radio communication technology had been improved too: the transmission-and-receiving wireless station at Bitapaka had been abandoned and Rabaul itself had two wireless radio stations—a commercial one for messaging run by Amalgamated Wireless (A/Asia) Limited (call sign VJZ), and one operated by the administration (call sign VHR2) for radio communication with district officers in remote areas and for receiving messages from Australia (Official Handbook 1937; Robson 1937; Threlfall 2012). Citizens commonly used shortwave radio for overseas communications and radio broadcast reception.

Rabaul town in 1937 was comfortable in its established routine as an enclave of the long-lived British Empire, but changes were ahead. Countries making up the empire had been surprised, if not shocked, by the abdication of Edward, Duke of Windsor, who had refused the throne of England so as to marry an American divorcee, Wallis Simpson. Further, there were press reports of Adolf Hitler spreading Nazism in Europe, leading to speculation that Germany, should it win any larger war with Britain, might want to reclaim its former colony in New Guinea. Also, Japan had invaded Manchuria in 1931 and would soon be expanding further, militarily, in east Asia and the Western Pacific. Nevertheless, life as a whole in Rabaul seemed reasonably stable and secure, at least until the last week of May.

This text is taken from *Return to Volcano Town: Reassessing the 1937–1943 Volcanic Eruptions at Rabaul*, by R. Wally Johnson and Neville A. Threlfall, published 2023 by ANU Press, The Australian National University, Canberra, Australia.

doi.org/10.22459/RVT.2023.02