3

Coping with the Unexpected: The 1937 Eruptions

3.1. Rabaul in the Last Week of May 1937

Rabaul was an attractive town by 1937, surrounded by the towering volcanic cones and steep escarpments of majestic Blanche Bay and by the usually calm, blue waters of the sheltered Simpson Harbour. The town had matured since the Germans had laid out its network of streets. Trees had grown fully, providing much needed shade along major thoroughfares, such as Malaguna Road (Figure 3.1), Mango Avenue and Yara (or Casuarina) Avenue (Figure 3.2). Rabaul was a garden town where multicoloured croton hedges fringed carefully tended tropical gardens. Frangipani trees were common, accompanied by poinciana and other colourful plants. The Australians had developed the western part of the town, linking it with the Malaguna villages of the north-western shoreline (Figure 3.3). They had also developed the Rapindik, or Rapidik, area on the northern shore of Greet Harbour near Rabalanakaia volcano (which was also known as Rapindik Crater). Here, separated from Rabaul town, the laboratory of the Department of Health, the Rapindik native hospital and native labour quarters, as well as several official residences, had been established.

Figure 3.1. Malaguna Road, Rabaul, before the 1937 eruption.

Branches from the raintrees down the centre of Malaguna Road in pre–1937-eruption Rabaul provide extensive shade for both sides of the road. GA negative reference GB3299.

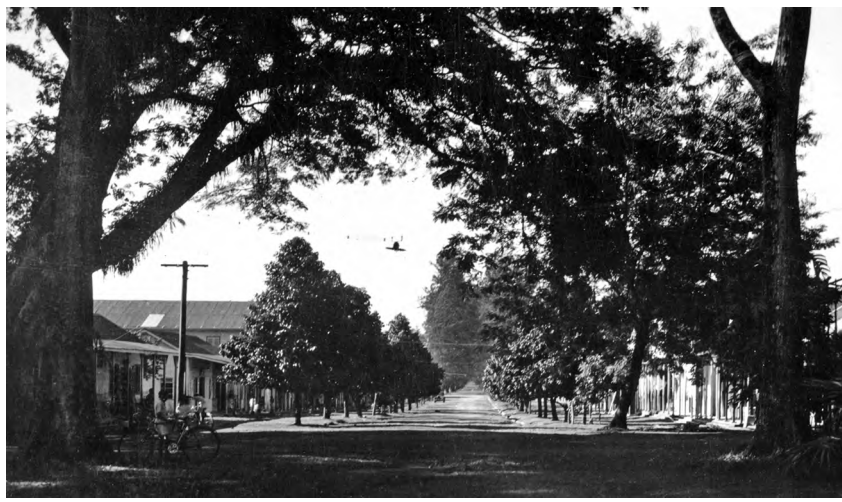


Figure 3.2. Chinatown and Yara Avenue, Rabaul.

Part of the Chinatown area of Rabaul at the northern end of Yara Avenue is seen as it was before the 1937 volcanic eruption. GA negative reference GB3298.

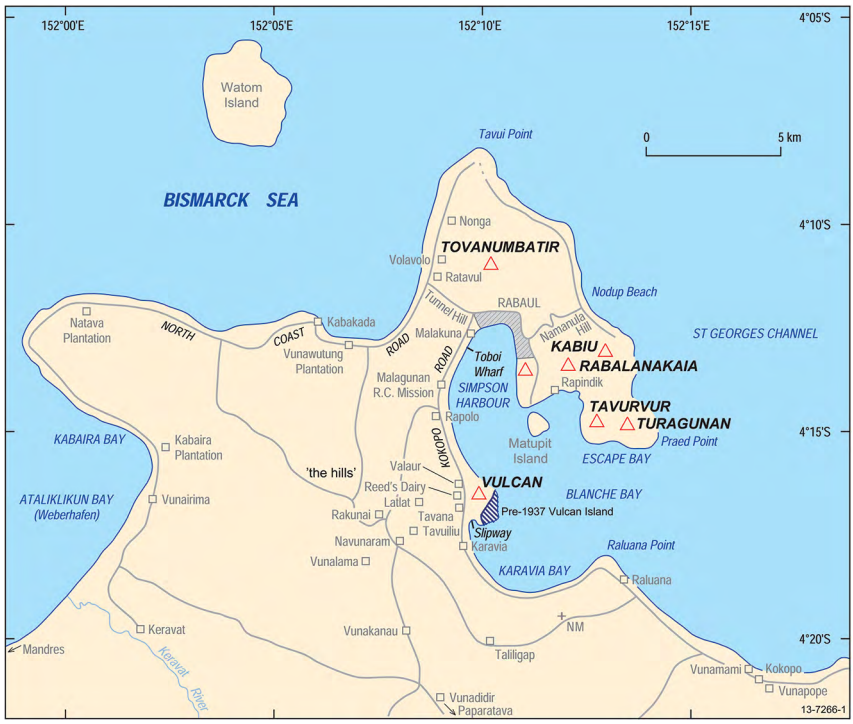


Figure 3.3. Map of north-eastern Gazelle Peninsula including Rabaul town.

Features of the Rabaul area in 1937 are shown here (adapted from Johnson 2013, Figure 42). Triangles represent volcanic peaks, and the main part of Rabaul town is shown stippled. Three villages called Malaguna, west and south-west of Rabaul, are not shown to avoid congestion on the map; one is close to the Malagunan Roman Catholic mission, and the other two are along the Kokopo Road between the Tunnel Hill turn-off and the Methodist District Headquarters at Malakuna (note the three different spellings of the name 'Malaguna' used in 1937).

A well-known place that attracted visitors and residents alike was the Rabaul market or 'bung' near the botanic gardens, where local women from the villages sold garden produce and souvenirs such as baskets and shells to curious tourists and others (Weetman 1937). Commerce in the town as a whole, however, was dominated by the giant Australia-based island trading companies of W.R. Carpenter & Co. Ltd, and Burns, Philp & Co. Ltd (Buckley and Klugman 1983). Australian Rabaul, as in German times, was still geared to the control and monitoring of commerce and to government administration of the native peoples of the territory. Commercial activity was still mainly in the production of copra and cocoa from the numerous plantations, mostly established by the Germans, along the shores of the

Bismarck Archipelago and including the Rabaul area. Also in the town, however, as the authors of the 1937 *Official Handbook of the Territory of New Guinea* enthusiastically pointed out, were

> department stores, banks and agencies for a large number of Australian and oversea suppliers, as well as shipyards, radio station, ice works, cordial factory, pharmacy, plumber, newspaper and printing office, restaurants, picture theatre, bakery, hotels and clubs, public carriers and hire car garages, billiard rooms, photographers and camera service, library and book club. The medical, legal and dental professions are sufficiently represented. There are accountants, auctioneers and insurance agents [and so forth]. (Official Handbook 1937, 139)

Burns, Philp & Co. Ltd was owner of passenger and freight vessels, including the steamships *Montoro*, *Macdhui* and *Malaita* (Buckley and Klugman 1983). The arrival at Rabaul of large ships carrying mail and supplies from the south was an important, even a social, occasion: Australian expatriates, garbed in tropical whites, would gather at the wharf to welcome friends and meet visiting business contacts and government officials (Figure 3.4). The *Montoro* (Figure 3.5) entered Blanche Bay on Thursday 27 May under the command of Captain William Michie and docked at the government wharf. Among the passengers disembarking was Miss Melville Chaseling from Sydney, who was met by her husband-to-be, missionary Jack Trevitt, and others from the European Methodist community in Rabaul (Trevitt 1937; H.L. Jones 1937). Melville and Jack were to be married in Rabaul on the following Saturday, 29 May. The usual cluster of coastal ships and inter-island schooners occupied the smaller wharves of the waterfront or lay at anchor in the harbour. The vessel *Durour*, 820 tons, belonging to W.R. Carpenter & Co., was in Blanche Bay too, but, more correctly, on the Carpenter's slipway on the north-western shore of Karavia Bay a few hundred metres from the western end of Vulcan Island.

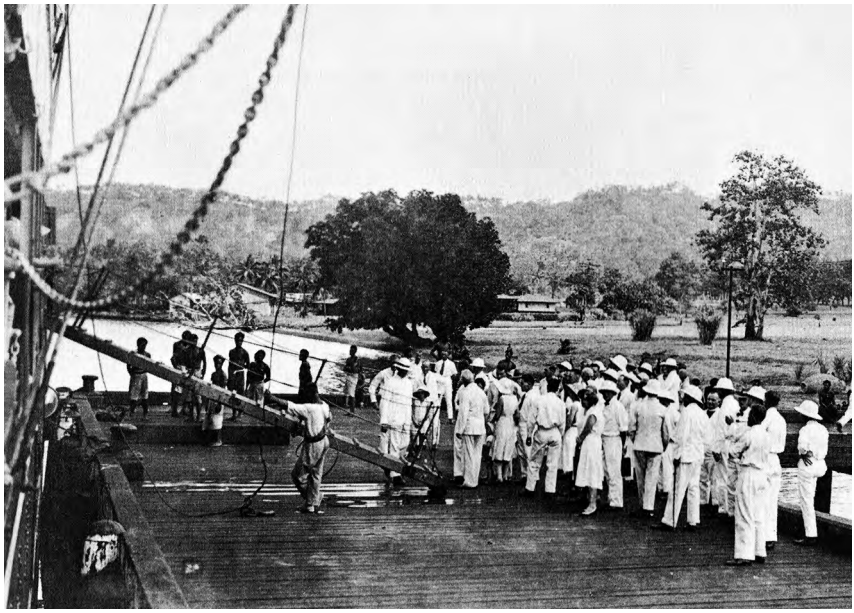


Figure 3.4. Meeting the arrival of a vessel at Rabaul's main wharf.

Europeans gather to welcome disembarking passengers at the main wharf some time before the 1937 eruption (McCarthy 1963, copy of photograph opposite p. 164). New Guineans are standing to one side.

Figure 3.5. Painting of the SS *Montoro* at sea.

This photograph of SS *Montoro* in stormy seas was kindly supplied by Mr G.A. Clarke in 1980. The original painting is by A.J. Grant (1932). GA negative number GB2426.

Still in charge of the Mandated Territory, and of the Rabaul administration, was Brigadier-General Walter Ramsay McNicoll, CB, CMG, DSO, VD, who had been appointed administrator on 13 September 1934. He and his wife lived in Government House—previously the German Residency—on Namanula Hill and therefore part of the north-eastern caldera rim between Tovanumbatir and Kabiu volcanoes. Here they enjoyed spectacular views of St Georges Channel and New Ireland to the east and of Simpson Harbour to the south-west (Figure 3.6). The sea breezes were a relief from the, at times, heavy heat in the town, which was hemmed in below by the caldera walls. Administrator McNicoll was not in Rabaul during this last week of May 1937. He had travelled to the Morobe Goldfield on the mainland of New Guinea for an inspection, and his position back in Rabaul was being filled temporarily by Chief Justice D.S. Wanliss. Judge F. Beaumont ('Monty') Phillips was also based in Rabaul.

The Territory of New Guinea as a whole in 1937 was administered from Rabaul by a Legislative Council consisting of the administrator, government officers of an Executive Council and seven non-official members appointed by the Governor-General of Australia (Official Handbook 1937). The Honourable John C. Mullaly, for example, was one such 'non-official' member in 1937 (Hopper 1986). He was president of the New Guinea Planters' Association and owned Natava Plantation out west on the north-coast road (Figure 3.3). The director of agriculture, G.H. Murray, and the director of district services and native affairs, E.W.P. Chinnery, were among the five most highly paid first division officers on the administration staff; the other three were the director of public health, E.T. Brennan, the government secretary, H.H. Page, and the treasurer, H.O. Townsend. The administration hierarchy also included the secretary of the Department of Land, Surveys, Mines and Forests, an anthropologist, an entomologist and an economic botanist; missing from the list of science-related officers was a volcanologist. This omission reflected the general attitude of the administration to volcanic hazards at Rabaul: namely, that volcanoes had not been active since Australia took control after WWI; and the previous volcanic eruption had been in the previous century, even before the Germans had claimed the protectorate. There were earthquakes, certainly, but these *gurias*—the Tolai word for earth-shakes—added to Rabaul's character and, since volcanic eruptions did not seem to follow them, were, to an extent, taken for granted.

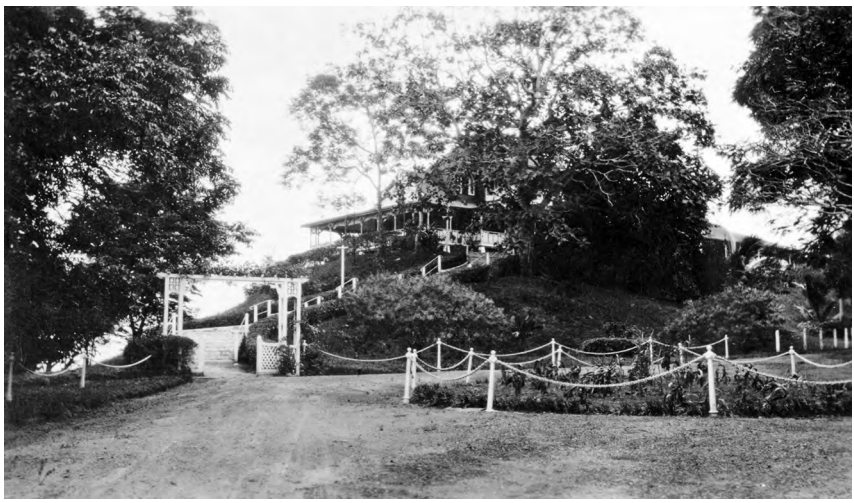


Figure 3.6. Entry gate to Government House in 1927.

Government House on Namanula Hill in prewar Rabaul commanded superb views of Simpson Harbour and St Georges Channel. This photograph was taken by Mr C.D. Meares in 1927. GA negative reference GB3300.

On Empire Day, 24 May, Judge Phillips visited Rabaul Public School, reminding the children that the empire stood 'for justice, a square deal and playing the game'. The junior choir sang 'Golden Wattle', the seniors sang 'Australia' and all joined in for 'Rule Britannia' (*Rabaul Times* 1937). No Asians or New Guineans attended the public school. Rabaul and its surrounding area were still a racially stratified society in which the colonial *mastas* were the 700 or so Caucasians of the town, mainly Australian and German. Next in line came about 1,000 Asians, mainly Chinese and a few Ambonese, and last about 8,000 New Guineans, including many indentured labourers from as far away as the Sepik area and Manus Island (Official Handbook 1937, supplement, p. 1). The celebration of the coronation of King George VI and Queen Elizabeth that had been held on 12 May in Rabaul was evidently enjoyed by all, irrespective of social status—a parade of ships, fireworks, torchlight procession and a dragon dance from the Chinese. There had been a splendid procession through the town in which the float decorated by Father Murche of the Sacred Heart Mission and his Eurasian pupils had won first prize (MSC 1937; Arculus and Johnson 1981, 21).

3.2. Volcanic Unrest and Early Warning Signs

Volcanologist N.H. Fisher, using the benefit of hindsight, wrote in 1939 that:

> The 1937 eruption was undoubtedly preceded by many warning phenomena whose significance would have been appreciated by a trained volcanologist. Many of the phenomena which may have occurred, such as changes in the temperature, the quantity or the composition of the gases being given off by the fumaroles in and outside of the craters, and possible increases in the gas ebullitions and water temperatures around Matupi Bay and in the wells at Rapindik, have not been recorded and consequently there is no means of telling whether they took place or not. (Fisher 1939a, 18)

Long-term Rabaul resident and editor of the *Rabaul Times*, Gordon Thomas, wrote in the newspaper in the first week of June 1937 that:

> The Karavia district has always been noted for the severity of earth tremours [sic] ostensibly due to a geological fault which runs across Blanche Bay to the Matupit crater [Tavurvur]. It is in the area that Vulcan Island is situated—that island which 'came up in a night' 59 years ago, and was most appropriately named. (Thomas 1937a, 2)

However, two years later, volcanologist N.H. Fisher portrayed the situation at Karavia and Vulcan Island before the weekend of 29–30 May in a somewhat different light:

> [P]remonitory symptoms were observed whose importance would never again be underestimated by the people of Rabaul. Very small earth tremors were experienced before the eruption and Father George Boegershauser [sic] reports that three days before the eruption, at Tavailiu [Tavuiliu], on the top of the hill opposite Vulcan, tremors apparently vibrating in a vertical direction were noticed. (Fisher 1939a, 18)

The absence of volcanological assistance was indeed a major limitation, and Fisher's comments are relevant in asking the question of when these early warning signs—whether earthquake activity, thermal changes or changes in coastal elevation—might have first been identified: were they days, months or years beforehand? For example, how significant was the submarine disturbance at Vulcan in 1926 noted by Cilento (1937a) or the large earthquake of 23 January 1937 listed much later by Everingham (1974)? Further, how significant were the elevation changes to the causeway

at Matupit after the 1919 earthquake and up to 1937, mentioned briefly by Fisher (1939a), when no systematic geodetic surveying of the island is known to have been undertaken in the intervening 18 years?

Friday 28 May dawned on what promised to be a normal working morning in Rabaul. The night had passed uneventfully. People geared themselves for their routines during this last full working day of the week, but they also looked ahead to the coming weekend when there would be leisure activities, social engagements and religious obligations to fulfil. Catholics would be attending confession on Saturday afternoon in preparation for Mass on Sunday during the Corpus Christi celebrations. Methodists, too, would have church services on Sunday, and their mission staff and others would be in the congregation at the Rabaul Methodist Church for the Chaseling–Trevitt wedding on Saturday afternoon. Europeans and Tolai would be playing and watching the baseball (the Commonwealth Bank team was anxious to defend an unbeaten record), and others would be engaged in the wide range of other sporting activities so much enjoyed by Australian expatriates. The Boy Scouts had an outing planned. There was also to be a traditional *tubuan* ceremony at the coastal villages of Tavana and Valaur—a gathering of Tolai that was not greatly approved of by the missions, as such dances and feasts were the activities of secret societies established in pre-Christian times. The social clubs and hotels would be busy, assisting many Europeans in enjoying another favourite Australian pastime: consumption of liquor and beer. Others, however, had work commitments. Captain Michie would require the cargo of the *Montoro* to be off-loaded so that he could steam on to Kavieng in northern New Ireland that evening. Captain Eugene M. Olsen would be preparing to load copra on board his American ship, SS *Golden Bear*, at Carpenter's Toboi Wharf in the north-western part of Simpson Harbour (Olsen n.d.; see also accounts by Third Officer A.C. Willson [1937] as well as a cadet in *Mill Valley Record* [1937]).

The Friday lunchbreak passed, and then, at about 1.20 pm, as office workers returned to their duties, the sharp and sudden shock of a *guria* was felt. Miss Carol Coleman, who worked upstairs at Carpenter's offices on Mango Avenue, said the earthquake was

> [a] terrific bang, as though two lorries had collided. We soon realised what was happening when everything swayed and rumbled. Carpenter's building was a two-storied wooden building, and so we rocked very heavily, and we were all very upset. (Mason 1937, 1)

One moment Amy Anthony was squatting on her heels, cleaning paint brushes on her lawn, and the next she was flat on her back (Anthony 1981). Coconut palms across the road shook, the roof of her house rattled, and water slopped back and forth in the rain tanks. Brett Hilder and other officers on board the *Montoro* had been discharging and tallying cargo down in the holds during the morning, but were up on deck for a late lunch,

> when all of a sudden the ship started to tremble, and the tremble got more and more violent until the plates and cutlery on the table started dancing along … in front of our eyes, which was rather disturbing—made a great clattering noise. (Hilder 1980, 28)

The earthquake lasted only about 30 seconds and there was no reported damage to buildings and roads in Rabaul. However, damage was reported from out on the Kokopo Road near Karavia where Mr and Mrs Furter's house was partly thrown off its piles; a wardrobe fell, trapping the elderly Mrs Furter, who was bedridden with a broken leg, and she was brought for treatment to the European hospital on Namanula Hill. Landslides blocked parts of the Kokopo Road, and, on Vulcan Island, a cliff on the lagoon disappeared and cracks opened in the south-western part of the island. A village school building collapsed at Raluana. The exact location of the earthquake's focus remains unknown because of the absence of seismographs in the Rabaul area, but the above descriptions are sufficient to indicate that the shock must have taken place under the general vicinity of the Karavia–Vulcan area. The earthquake was a premonitory expression of volcanic disturbance.

Fluctuations in the level of the water in the harbour, presumably caused by the earthquake, were noted at about 2 pm. The water receded gently to 100 metres out from the shore before returning to the normal waterline. The sea went out slowly at Vulcan Island, came in again to about 150 metres past the high-water mark, and then receded back to normal level. Fish were left stranded. The water at Karavia Bay at 1.30 pm rose over the road to about 2 metres higher than its usual level.

The remainder of Friday afternoon in Rabaul was more or less free of felt earthquakes. Normal activities in the town resumed, although the earthquake was a topic of conversation into the evening, and tremors were felt continuously out at Karavia and Taliligap, as well as at Rapindik south of Rabalanakaia. Rabaul inhabitants went to bed as usual and had an earthquake-free night, more or less, until about 5.05 am on Saturday 29 May when another sharp shock occurred, waking sleepers and causing

pictures and bottles to fall to the floor. Saturday mornings were part of the working week for administration staff and banks, as well as for shops and businesses, but this Saturday morning was disturbed by a continuous series of felt earthquakes of different intensities. Most of the earthquakes were short, lasting no longer than about 10 seconds, but some went on for more than a minute. Intervals between shocks were about three minutes or less, but even during the breaks there was a gentle ground vibration. Tremors were especially severe around 10 am.

During each shock, storekeepers saw their stock fall from shelves and drivers felt their cars wobble; filing cabinets rattled and pedestrians staggered in the shaking streets. Medicine bottles fell off shelves at the Rapindik native hospital and bank tellers found it difficult to count notes and coins. The Commonwealth Bank building swayed and windows rattled; Virgil King, branch manager, decided to shift all the records into the strongroom and to evacuate his staff from the banking chambers as soon as possible (King 1937). Lawyer James Cromie took a legal paper, just signed by Chief Judge Wanliss, to the Bank of New South Wales only to find 'the staff running out and the manager leaping over the veranda rail' after a severe shock (Threlfall 2012, 212).

Judge Wanliss, who was still acting in the position of administrator because Ramsay McNicoll was visiting the Morobe Goldfields on mainland New Guinea, sent a telegram at 11 am on Saturday 29 May to the Department of the Prime Minister in Canberra informing the Australian Government of the disturbances the previous day (Wanliss 1937). The message contained the misleading, but somewhat prophetic, statement that there had been a 'small eruption' on the 'shores [of] Rabaul harbour'. The term 'eruption' may have referred to small ejections of water along the shoreline or in areas of shallow sea floor affected by the earthquakes. Wanliss's intended meaning has not been resolved:

> EARTH TREMORS VARYING DEGREES EXPERIENCED CONTINUOUSLY FROM FIVE A.M. TODAY. ONE OF UNUSUAL SEVERITY EXPERIENCED SHORTLY AFTER NOON TWENTY EIGHTH RESULTED SMALL LANDSLIDES KOKOPO ROAD SHIFTING ONE RESIDENCE SLIGHTLY FROM PILE FOUNDATION AND CAUSING SMALL ERUPTION SHORES RABAUL HARBOUR. NO OTHER DAMAGE REPORTED AND NO CAUSE ALARM. CAUSED PROBABLY BY LONG ABSENCE RAIN. WANLISS. (Wanliss 1937)

Damage was becoming more widespread. A section of rocks fell from the larger of the two Beehives at 12.45 pm and further landslides took place along the Kokopo Road. Rain tanks began leaking. Cracks appeared in the floors of the native labour quarters at Rapindik and also on Matupit Island, where, before lunch, Mr Chinnery and two Crown law officers heard deep rumbling noises that appeared to come from the bottom of the harbour in the direction of Vulcan Island. More especially, there had been some startling happenings at Vulcan Island during the course of the morning: land was rising out of the sea.

Elevation of the sea floor around Vulcan is thought to have begun between 8 and 9 o'clock in the morning. Fringing reef became visible around the island, and several small islets appeared. The effects were most noticeable between the mainland and the island. Brother Averbeck was at the Sacred Heart Mission shipyard at Karavia but abandoned his work at about 10 am because of the constant shaking (MSC 1937; Arculus and Johnson 1981, 22). An overseer of a New Guinean road gang noted a seething of the sea on the foreshore near the W.R. Carpenter slipway west of Vulcan Island occupied by Carpenter's 820-ton steamer *Durour*. Australian Medical Assistant C.W. Lambert and his New Guinean orderlies left Vulcan Island, abandoning the quarantine station. News of these happenings reached Rabaul and, although there were no officials able to evaluate their significance, there was concern, as the disturbances of the previous few hours had created tension in the town.

Abortive efforts were made to release the *Durour* from Carpenter's slipway on the afternoon of 29 May. Harry Hugo, a labour contractor in Rabaul at the time, was asked as a matter of urgency to provide a gang to assist in refloating the vessel. He recalled the event in an interview recorded for an Australian radio program broadcast in 1980–81:

> The Captain of the boat was aboard, an old chap called Tom Proctor, and the old engineer, Fred Northey. And, anyhow, one of the boys was working away and he said to me, 'Masta, have a look at the end of the passage', and I looked at the end of the passage and there was the bottom of the ocean. I thought, 'That's rather strange'. So I sing out to the Captain, 'Tom, come and have a look at this', and while we were looking there was another earthquake, and you could see this rise again—about another foot. And old Tom, being who he was, an old New Zealander, and happening to know a little bit about volcanoes and things, called: 'Jesus Christ! Let's get the bloody hell out of this!', and with that he and old Fred Northey—

> both elderly men in their sixties—made up to the Kokopo road where I put the lorry, and we—me, myself, and all the boys followed them, and, young as we were, couldn't catch those pair of old fellows. (Hugo 1980, 8; see also Nelson 1982, 85)

Mr Murray, the director of agriculture, called at the Chinnerys' Rabaul home after lunch on Saturday and invited Mr Chinnery and his wife, Sarah, a keen photographer, to drive with him to Taliligap so as to inspect the new land being created around Vulcan (Chinnery and Chinnery n.d.; Ripley 1947; Chinnery 1998). They stopped at Rakunai Mission station and admired the decorations being erected for the Corpus Christi celebrations, reaching Taliligap, where Mrs Chinnery took photographs of the rising island below them to the north (Figure 3.7), by mid-afternoon. The party decided to return to Rabaul by the coast road and take a closer look. They drove on, passing the Furters' dislodged house at Karavia, and reaching the *Durour* on the slipway opposite Vulcan Island. Two young engineers of the *Durour* were going out in a launch for a closer view and invited the Chinnerys and Mr Murray to join them, together with some New Guinean helpers.

The new raised land was yellow and brown, up to 2 metres above water level, and had the familiar fetid stench of exposed live coral. Mrs Chinnery took another photograph. Some people from nearby villages, including Tavana and Valaur, were on the newly elevated reef and islets collecting stranded fish, apparently unaware of the significance of the raised land (Neumann 1996). Others were still on shore preparing for the *tubuan* ceremony. Mrs Chinnery noticed a peculiar rippling of the water and suggested turning back, to which the men eventually agreed. But she was startled on the return to see that one of the larger islets they had passed a few moments earlier had risen higher. Further, her husband noticed that another small islet had appeared. They were still about 200 metres from the *Durour* slipway at about 4.10 pm when a causeway of rocks suddenly rose out of the water completely connecting Vulcan Island to the mainland and cutting them off from the jetty (Figure 3.8). The party then

> turned for the nearest point on the shore, about 70 yards away, and as they did so heard a dull explosion, and there, about 100 yards behind them and just a few yards north of the islets they had just passed a jagged-edged column of black liquid-like ejecta about 30 feet in diameter was shooting 40 feet or so into the air. Eruption followed eruption, the height of the column increased rapidly, and the base crept towards them with continuous sharp explosions. (Chinnery and Chinnery n.d., 2)

Figure 3.7. View from Taliligap of the rising Vulcan Island.

Mrs Sarah Chinnery took this photograph from Taliligap northwards to Vulcan Island about 45 minutes before the beginning of the Vulcan eruption on the afternoon of Saturday 29 May 1937. Patches of newly raised reef are seen clearly around most of the north-western and eastern shores of the island. Tovanumbatir and Dawapia Rocks are in the distance. Published courtesy of the Chinnery family and the National Library of Australia. GA negative reference GB3292.

The boat party managed to reach the mainland, splashing on foot through shallow water to the shore. Mr Chinnery grabbed his wife's camera in one hand, his wife in the other and, with one of the engineers holding Mrs Chinnery's free hand, they all three raced with some of the others for the Rabaul–Kokopo Road and eventually reached the car. Flight back to Rabaul was now impossible by the coast road, for the eruption cloud had, within a few minutes, already risen thousands of metres and was dumping boulders, pumice and ash to the north-west over the road and beyond. Instead, they drove southwards to Vunapope. Mrs Chinnery stayed with the sisters while her husband attempted to reach Rabaul by tracks west of the caldera, but the attempt was futile because of blocked roads ahead.

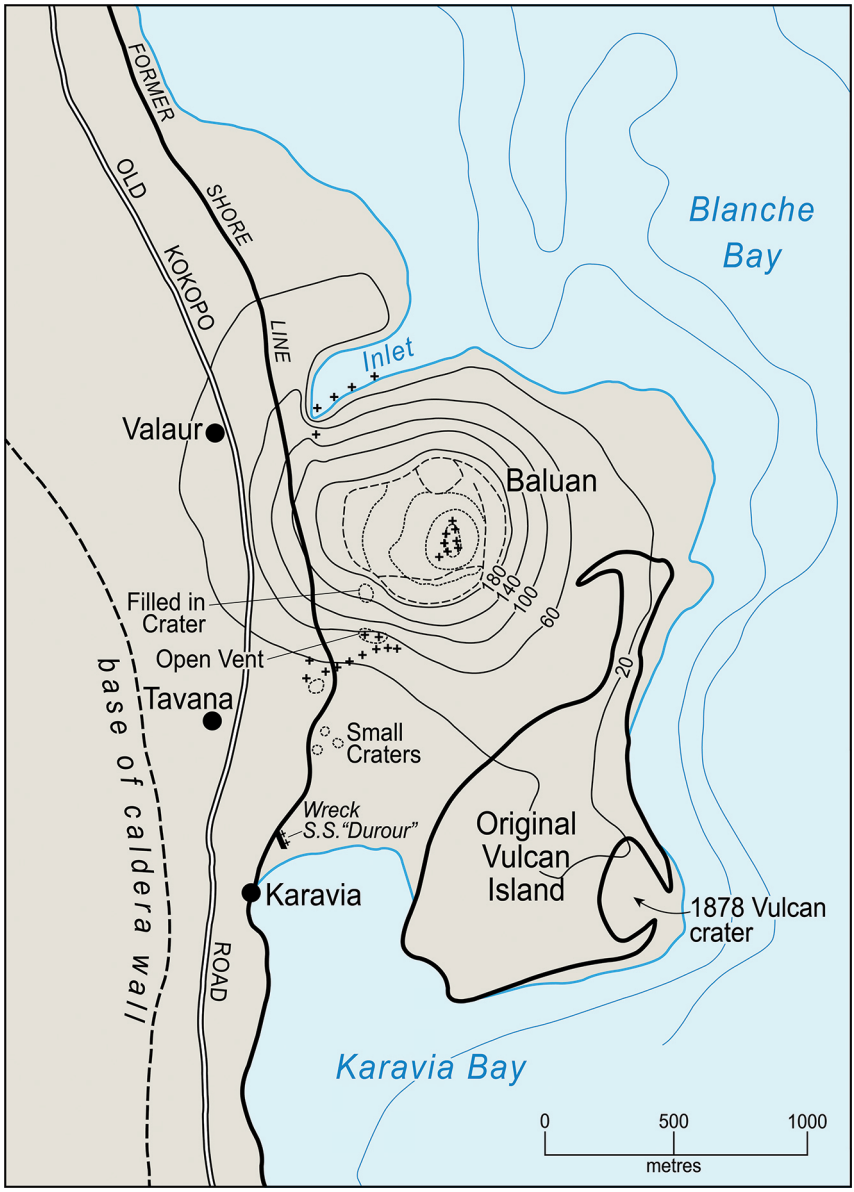


Figure 3.8. Map of the 1878 Vulcan Island and the 1937 Vulcan cone.

The old shorelines of the mainland and of the former Vulcan Island are shown in this map by the thicker lines. They are shown in relation to the new volcanic cone—called here 'Baluan'—that grew out of the sea to the north-west of the island on 29 May 1937. The contours for the cone are in 40-feet intervals. The map is a detail adapted from a large chart published by Fisher (1939a, Plate A1). The pre-eruption positions of the villages of Valaur, Tavana and Karavia have been added and are only approximate. Death tolls of 186 and 184, respectively, for Valaur and Tavana were the highest of all the settlements impacted by the 1937 eruption. North is to the top.

3.3. Vulcan in Eruption: Saturday Afternoon, 29 May

Those in the Chinnery–Murray party were not the only people to see the beginning of the 1937 eruption at such uncomfortably close quarters. Those on board the small sailboat *Kavivi* must have seen it too as she tacked down harbour into the trade wind, taking a group of Vunamami people home from Matupit Island to their village south-east of Raluana Point. They were among the first to perish. Mainland survivors said they had seen the sailboat apparently trapped in the pattern of disturbed waves created by the eruption, and then disappear in the eruption cloud, never to be sighted again. Other observers included the fish collectors on Vulcan Island, as well as villagers at the shoreline at Tavana and Valaur villages. Many of these people, however, would also perish as the eruption developed and overwhelmed them. Tolai survivors would later tell of their personal experiences of the eruption.

One Tolai survivor wrote of his escape from the developing disaster by travelling northwards along the coast road towards Malaguna. He identified himself by his initials I.M., which probably stands for Isikel Mulas. He was head printer at the Methodist Mission Press and his account was published in the church magazine *A Nilai ra Dowot*. The English translation of the original Kuanua in which he wrote reads:

> We saw the signs of it first as a bubbling and boiling on the surface of the sea, at the part where it is deep, not in the shallows. It was exactly like the boiling of a great cauldron which is on a hot fire. When it was boiling exceedingly and the sea was breaking up into waves, it spouted upwards into the sky. When it had risen up thus, it thundered and it shattered the rocks in the crust of the earth. And so it threw out a shower of huge rocks high into the air, with hot water and dust and pumice. It was just like the scattering of little fish when other fish attack them. That was what it was like at the very beginning, when I saw it because I was standing very close to the place where it burst forth. Man! What you would have seen among us, when it erupted! We were just like fish which have been benumbed with poison. We were astonished and we were in confusion. (I.M. 1937, 2)

Lesley ToGe from Karavia No. 1 village was a young boy in 1937. In 1984 he recalled that, on 29 May 1937, he had paddled out with his brother and others to the newly exposed reef

> and filled up their canoe with fish. They were just about to turn back, when the volcano began to erupt from Ralebe, a place on the Valaur side of Rakaia … The big waves created by the initially submarine eruption capsized the brothers' canoe and they had to swim. (Neumann 1996, 22)

They tried to stay together and swim to the shore, eventually taking hold of a drifting canoe that had to be abandoned when the volcano began emitting ash and pumice. 'Terrifying whirlwinds [*kalivuvur* in Kuanua] lifted objects out of the water' and one of their group was 'virtually sucked out of the water … and did not survive' (Neumann 1996, 22). Such disturbances evidently were also experienced by other small vessels, including the doomed *Kavivi* sailboat.

William To Kavivi, who was at the beach at Vunamami near Vunapope Mission when the eruption occurred, provided an accurate description of the initial development of the eruption as seen from the south. He saw a column of white vapour wreathing up from the direction of Vulcan:

> First it shot up straight, like the smoke from the funnel of an old, coal-burning steamer. Then it spread out at the top like an umbrella. Then the top of it leaned over towards Latlat, and the cloud became black and spread all over the area … I could see rocks coming up through the smoke and shooting in all directions, like sparks flying everywhere. (Threlfall 2012, 215)

This is a good description of what volcanologists call a 'plinian' eruption (Figure 3.9). Plinian eruptions can be particularly powerful, reaching heights of tens of kilometres, well into the stratosphere where volcanic materials are spread by high-level global winds. The Vulcan eruption in 1937 was smaller, perhaps 'reaching a height of 25,000 feet [7,620 metres] or more' (Fisher 1939a, 20), or '26,000 feet' (almost 8,000 metres), the height measured from the Baining Mountains by a surveyor using triangulation methods (Joycey c. 1937). The term 'sub-plinian', then, can be used for the small Vulcan eruption cloud.

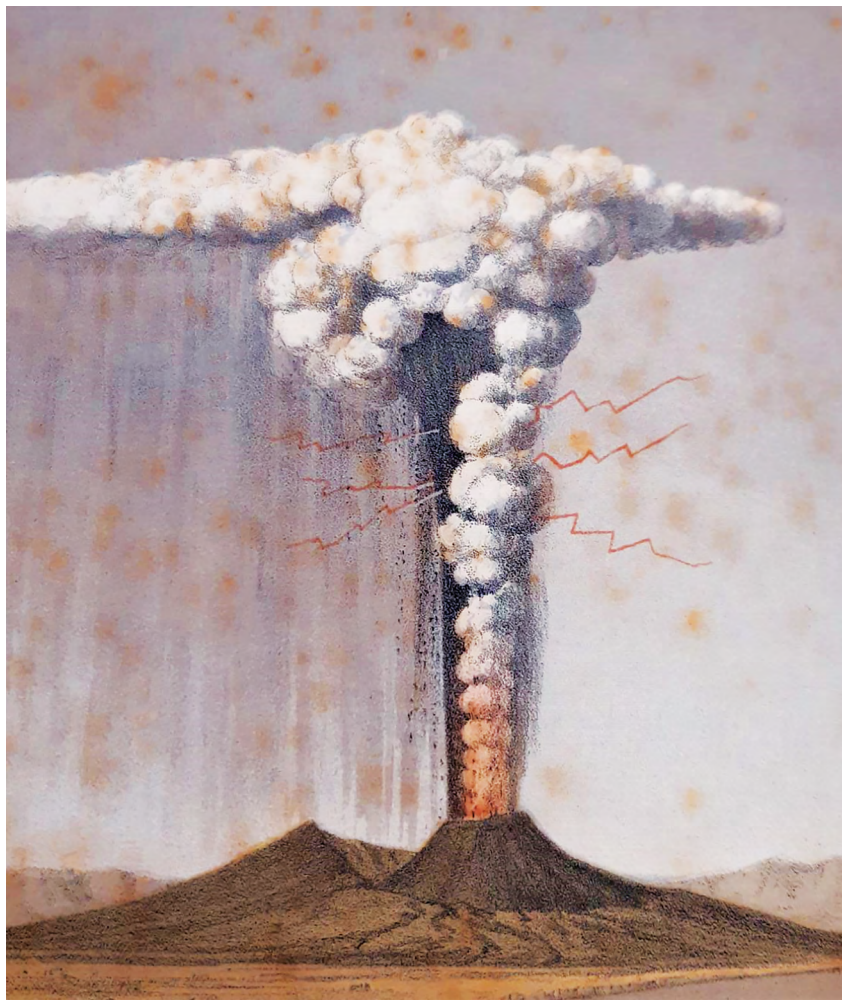


Figure 3.9. Plinian eruption at Vesuvius in 1822.

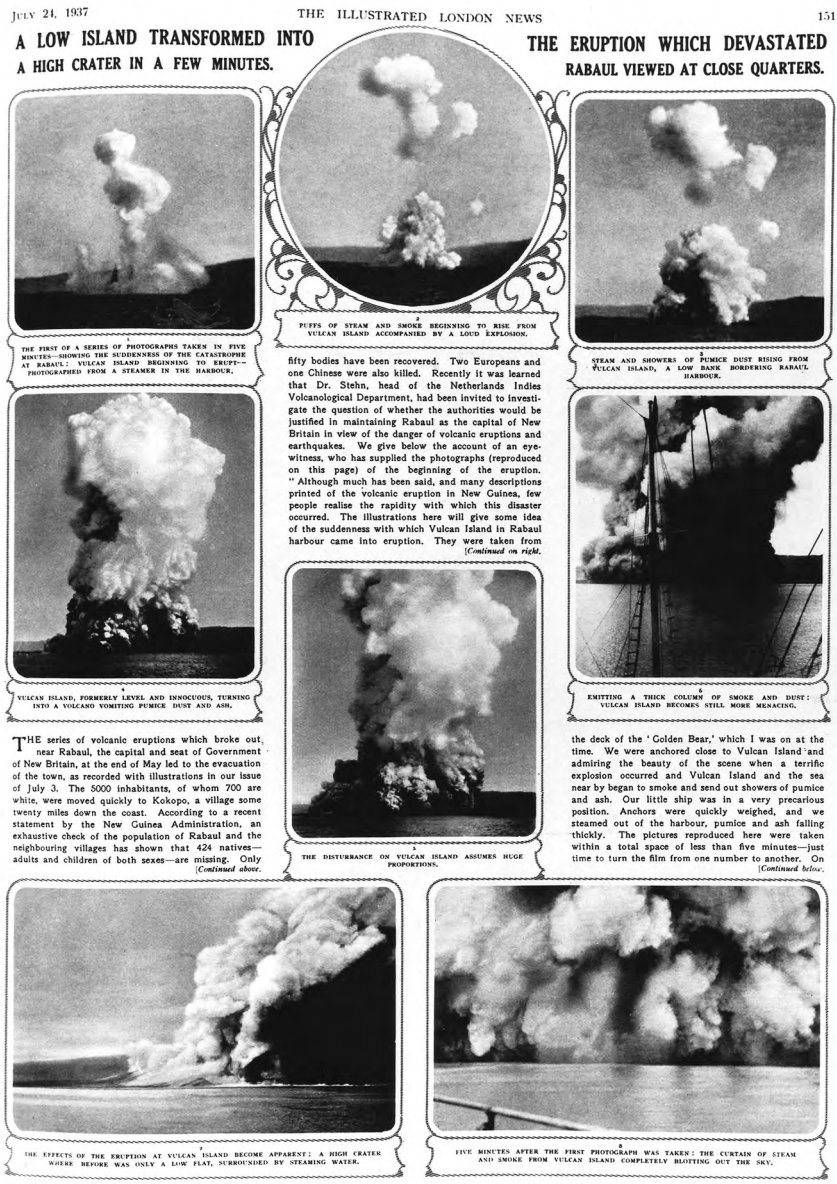
The term 'plinian' was first used in volcanological references for the great volcanic eruption at Vesuvius, Italy, in 79 CE. This somewhat idealistic illustration is of a similar plinian eruption at Vesuvius as sketched from Naples (in the foreground) during October 1822. The 'umbrella' shape consists of a central, rising stalk that is spread out horizontally by higher-altitude winds, together with lightning discharges and pumice ash fall to the leeward side of the column. Note how some ash falls out of the sides of the ascending column too, contributing to the growth of the volcano itself. The illustration was used as a frontispiece in a volcanology book by G.P. Scrope (1862). The plinian column at Vesuvius in 79 CE eventually collapsed, producing the famous Roman volcanic disasters at Pompeii and Herculaneum.

Father K. Schlüter had been standing on the verandah of the Fathers' House high up in Vunapope when, at about 4.30 pm, a colleague drew his attention

> to a pillar of cloud to the northwest, which was becoming enormous and resembled a vast cauliflower … We immediately alerted the Fr Procurator and drove with the Bishop and the Fr Superior in the direction of the eruption. A short way behind Raluana there was a clear view of the new cone. We had to stop there, as a hail of pumice in the form of minute balls was beginning. A terrible and beautiful sight lay before us. Pitch-black masses of ash were shooting up in all directions like great arrows to a height of over 1000 m, to fall slowly back again and build up a considerable mountain. Massive hot stones shot down like comets, leaving a white plume of smoke behind them and sending up great splashes in the sea. Lightning flashed continuously and thunder growled and cracked …
>
> We saw how the clouds of smoke and light ash, spiralling up slowly to a height of several thousand metres, were carried by the prevailing southeast wind mainly over the area between Karavia and Malagunan. Nothing could be seen of Rabaul as the eruption cloud blocked the view of the whole harbour. In spite of the heavy rain of ash it was possible to observe clearly constant new outbreaks of new masses of debris [floating pumice] in the direction of Matupit, so that it seemed as if the whole harbour of Rabaul would be cut off. Near to the newly-formed island we saw a white sail, which soon vanished again [presumably the *Kavivi*]. (MSC 1937; Arculus and Johnson 1981, 8)

Captain Eugene Olsen was on the starboard side of the lower-bridge deck on the *Golden Bear*, which was tied up at Toboi Wharf about 6 kilometres north of Vulcan Island, when he saw, at about 4.10 pm, a small white speck on the water near the island (Figure 3.10). The speck grew larger in convolutions, assuming the appearance of a large cotton ball, and when it began to rise Captain Olsen realised that a submarine volcano was in activity. Three or four minutes lapsed, and then

> it suddenly burst wide open, and with a tremendous roar sent a column of white steam and black lava thousands of feet into the air. Spreading and becoming larger it enveloped Volcano Island and, with the light southeast breeze blowing at the time, drifted in a northwesterly direction over the main land [i.e. to the south-west of the *Golden Bear*]. (Olsen n.d., 1)



JULY 24, 1937 THE ILLUSTRATED LONDON NEWS 151

A LOW ISLAND TRANSFORMED INTO A HIGH CRATER IN A FEW MINUTES.

THE ERUPTION WHICH DEVASTATED RABAUL VIEWED AT CLOSE QUARTERS.

1 THE FIRST OF A SERIES OF PHOTOGRAPHS TAKEN IN FIVE MINUTES—SHOWING THE SUDDENNESS OF THE CATASTROPHE AT RABAUL: VULCAN ISLAND BEGINNING TO ERUPT—PHOTOGRAPHED FROM A STEAMER IN THE HARBOUR.

2 PUFFS OF STEAM AND SMOKE BEGINNING TO RISE FROM VULCAN ISLAND ACCOMPANIED BY A LOUD EXPLOSION.

3 STEAM AND SHOWERS OF PUMICE DUST RISING FROM VULCAN ISLAND, A LOW BANK BORDERING RABAUL HARBOUR.

4 VULCAN ISLAND, FORMERLY LEVEL AND INNOCUOUS, TURNING INTO A VOLCANO VOMITING PUMICE DUST AND ASH.

5 THE DISTURBANCE ON VULCAN ISLAND ASSUMES HUGE PROPORTIONS.

6 EMITTING A THICK COLUMN OF SMOKE AND DUST: VULCAN ISLAND BECOMES STILL MORE MENACING.

7 THE EFFECTS OF THE ERUPTION AT VULCAN ISLAND BECOME APPARENT: A HIGH CRATER WHERE BEFORE WAS ONLY A LOW FLAT, SURROUNDED BY STEAMING WATER.

8 FIVE MINUTES AFTER THE FIRST PHOTOGRAPH WAS TAKEN: THE CURTAIN OF STEAM AND SMOKE FROM VULCAN ISLAND COMPLETELY BLOTTING OUT THE SKY.

THE series of volcanic eruptions which broke out near Rabaul, the capital and seat of Government of New Britain, at the end of May led to the evacuation of the town, as recorded with illustrations in our issue of July 3. The 5000 inhabitants, of whom 700 are white, were moved quickly to Kokopo, a village some twenty miles down the coast. According to a recent statement by the New Guinea Administration, an exhaustive check of the population of Rabaul and the neighbouring villages has shown that 424 natives—adults and children of both sexes—are missing. Only fifty bodies have been recovered. Two Europeans and one Chinese were also killed. Recently it was learned that Dr. Stehn, head of the Netherlands Indies Volcanological Department, had been invited to investigate the question of whether the authorities would be justified in maintaining Rabaul as the capital of New Britain in view of the danger of volcanic eruptions and earthquakes. We give below the account of an eye-witness, who has supplied the photographs (reproduced on this page) of the beginning of the eruption. "Although much has been said, and many descriptions printed of the volcanic eruption in New Guinea, few people realise the rapidity with which this disaster occurred. The illustrations here will give some idea of the suddenness with which Vulcan Island in Rabaul harbour came into eruption. They were taken from [Continued on right.

[Continued above.

the deck of the 'Golden Bear,' which I was on at the time. We were anchored close to Vulcan Island and admiring the beauty of the scene when a terrific explosion occurred and Vulcan Island and the sea near by began to smoke and send out showers of pumice and ash. Our little ship was in a very precarious position. Anchors were quickly weighed, and we steamed out of the harbour, pumice and ash falling thickly. The pictures reproduced here were taken within a total space of less than five minutes—just time to turn the film from one number to another. On [Continued below.

May 29 Vulcan Island was little more than a mud bank. On June 2 it was a huge crater fully 1000 ft. high. Two mountains just behind Rabaul, known as the Mother and the Daughter, are also in eruption, sending up showers of pumice and ash, so the town is right in the middle of the disturbance. The pumice dust is the finest dust that one can imagine. It finds its way everywhere—it is even said, it will get under an apple-skin. All cars and machinery have been disabled owing to the dust penetrating everything, while a vile smell of sulphur fumes from the craters has made the place unbearable. The weight of the pumice dust has broken all the leaves of the palms and other beautiful trees about Rabaul, and in many cases buildings have collapsed under it. Many coconut and rubber plantations have been completely ruined. One man who had a dairy farm close to the Mother crater was forced to leave when the crater began to erupt. On returning to the place a few days later he found it impossible to find even where his farm had been. The eruption in the sea had caused a tidal wave, while lava from the crater had covered parts of his farm to a depth of from twelve to fifteen feet."

Figure 3.10. Magazine photograph compilation of Vulcan in eruption in 1937.

This page from the *Illustrated London News* of 24 July 1937 (p. 151) includes the collection of photographs taken by a crewman on board the *Golden Bear* at Toboi Wharf minutes after the initial outburst from Vulcan at about 4.10 pm on 29 May 1937 (see also the

collection of photographs in the 3 July 1937 issue of the same magazine, pp. 8, 9). Note the dark, spire-like ejection of ash in the upper-left photograph, which is the first of the series of seven shots taken over a five-minute period. The bottom left-hand photograph was apparently taken later and seems not to be part of the series. Courtesy of the *Illustrated London News* Picture Library.

Captain Olsen, as a precautionary measure—in case of a shift of the wind—gave word for the engines to be made ready so that he could move the vessel away from the wharf if necessary. The wind direction next changed to the southward, and, by 4.46 pm, a light rain of ash was falling and the engines were ready. Suddenly the ship was

> enveloped in complete darkness and a solid downpour of ashes, accompanied by a strong sulfurous odor. This, shutting out all visibility, forced me to give up the idea of moving the ship or [getting] underway, and not knowing what may happen, I phoned the engine room to kill the fires under the boilers, shut down the auxiliaries, and for all hands to come on deck. (Olsen n.d., 2)

The majority of the *Golden Bear* crew were in Rabaul for the baseball, but those still on board:

> left the ship under conditions hard to describe [and], crawling along the wharf on hands and knees, feeling our way along the car tracks, we finally reached the shore. There, some of us nearly overcome, we found it impossible to proceed any further, or to remain outside in the suffocating air. Fortunately for us the wharf office door was unlocked, and we all took shelter there against the heavy downpour of ashes. (Olsen n.d., 3)

This 'first phase' of the eruption did not last long—perhaps less than one hour—but it was distinctive in having the characteristics expected for explosive volcanic eruptions that begin from new vents on relatively shallow sea floors, as shown in several of the photographs taken at the time. The technical name for such eruptions is 'phreatomagmatic' because they involve the interaction of hot pumice and volcanic ash with cold seawater that vaporises explosively. The interactions are so violent that the eruption vent can enlarge significantly, expelling large rocks and allowing more water to enter the sea floor vent, thus causing yet more water-rich pyroclastic material to be emitted. The eruption column itself then widens, momentarily losing upwards momentum. This causes erupted pumice and ash to collapse onto the sea surface, its lateral movement radially outwards from the vent in some cases creating significant tsunamis. Eventually, however, and especially

for shallow-water vents, the erupted pumice and ash build up around the vent and a new volcanic cone grows above sea level. The number of large tsunamis would decrease in these circumstances.

The precise time when the new cone first appeared at Vulcan is unknown, although by dusk—when observations became difficult anyway—the eruption seems to have started to become a 'normal' subaerial plinian one. The technical term 'phreatoplinian' has been used for the early stages of such water-affected eruptions (Walker 1981). The original depth of the young active Vulcan vent in 1937 is unknown, but it was probably only a few hundred metres from the old shoreline (Figure 3.8), in which case water depths may have been only 50–100 metres (see the bathymetric contours given by Fisher 1939a, Plate A1).

The mechanism of 'lateral movement radially outwards from the vent' referred to above corresponds to what volcanologists today would call 'pyroclastic flows'. This term was not used in any of the observer reports from 1937; nor was it used by Fisher (1939a) in his pioneering volcanological account of the 1937 eruption at Vulcan. 'Pyroclastic flows', however, are seen clearly in several of the photographs taken at the time (Figures 3.10–3.13). Further, an eyewitness of the eruption, Burns Philp employee Bernard Ryan, described clearly in a telephone interview in 1981 seeing the process of collapse of the Vulcan ash column and 'avalanches rolling down and outwards from the eruption centre' (Ryan 1980–84, 2). He also saw: 'Now and then "very large blocks" being flung out of the column.' Another eyewitness, Brett Hilder, wrote:

> The strangest thing we saw was a white mass coming over the edge of Vulcan's crater and tearing down the side like a Roman chariot in a cloud of dust. It met the sea in a cloud of hissing steam. (Hilder 1961, 57)

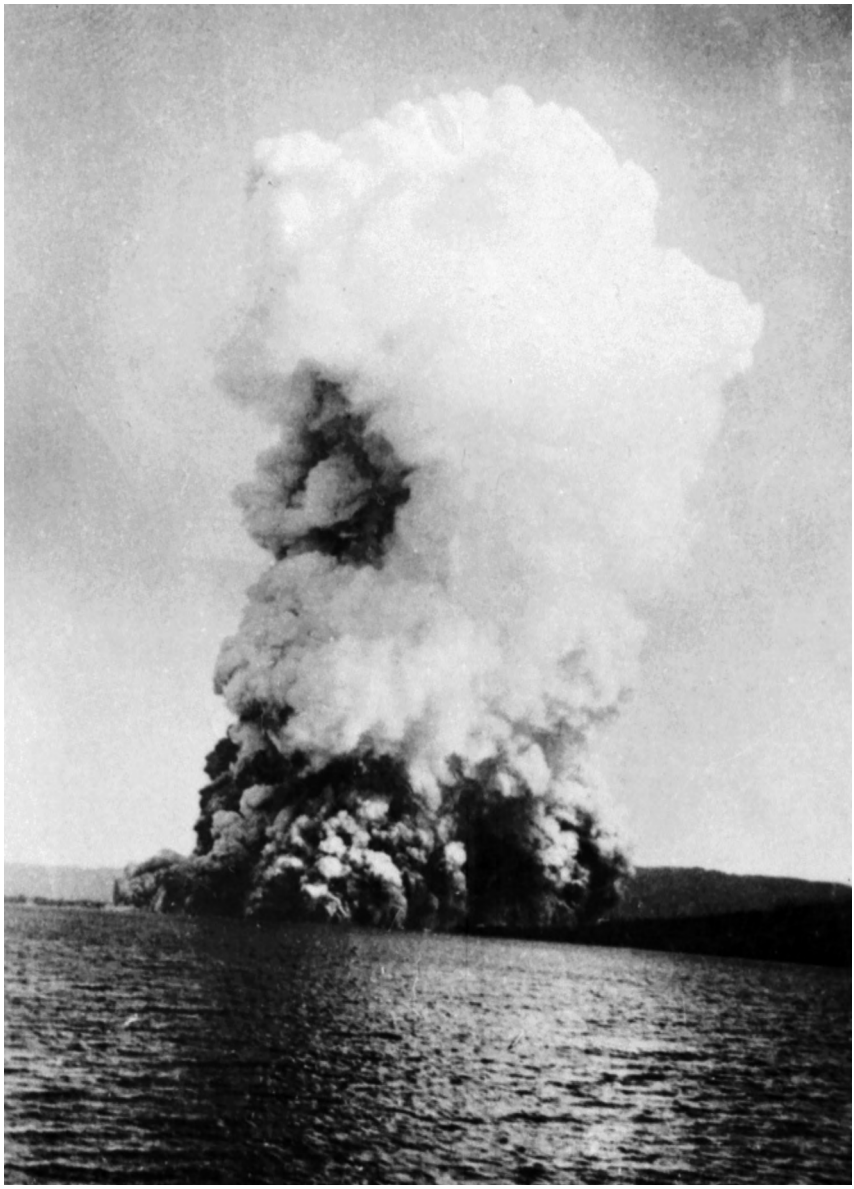


Figure 3.11. *Golden Bear* photograph of Vulcan in eruption.

This is an enlargement of one of the photographs taken by the crewman of the *Golden Bear* at Toboi Wharf to the north of Vulcan (see the middle image in the left-hand column of Figure 3.10). It was taken a few minutes after the beginning of the Vulcan eruption on 29 May 1937, and already the eruption column has grown to a considerable height. Note, however, that some of the cloud extends laterally out over the sea to the left (east). These are pyroclastic flows caused by the early collapse of parts of the column. GA negative references M2444-3-2 and M2447-1A.

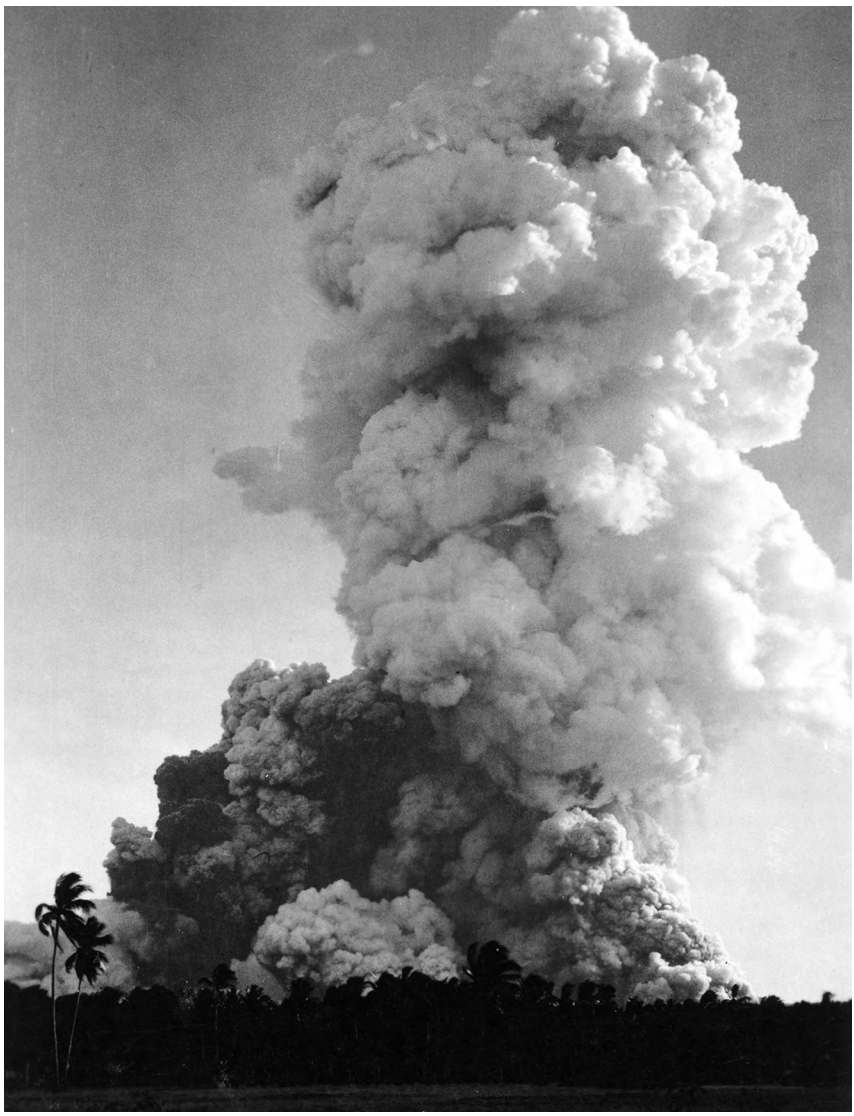


Figure 3.12. Vulcan eruption as photographed from Rapindik.

This was the view south-westwards from Rapindik about 10 minutes after the start of the Vulcan eruption on 29 May 1937, and before the short-lived fallout of ash on Rabaul and Rapindik, in the early evening of the same day. This timing is given by medical assistant Douglas C. Joycey (1981). The photographer, however, was fellow medical assistant Roger Davies (Joycey c. 1937), who took a series of excellent photographs from Rapindik showing the development of the Vulcan eruption (see also Figure 3.19). The eruption column is still developing in this shot, and its top has not yet filled the camera's field of view. The eruption is still at the 'phreatoplinian' stage, its base having expanded laterally to produce pyroclastic flows (see also Figure 3.11). A print of this image is in the photograph album donated to the National Library of Australia by Dr H. Champion Hosking (see also GA negative reference G2007).

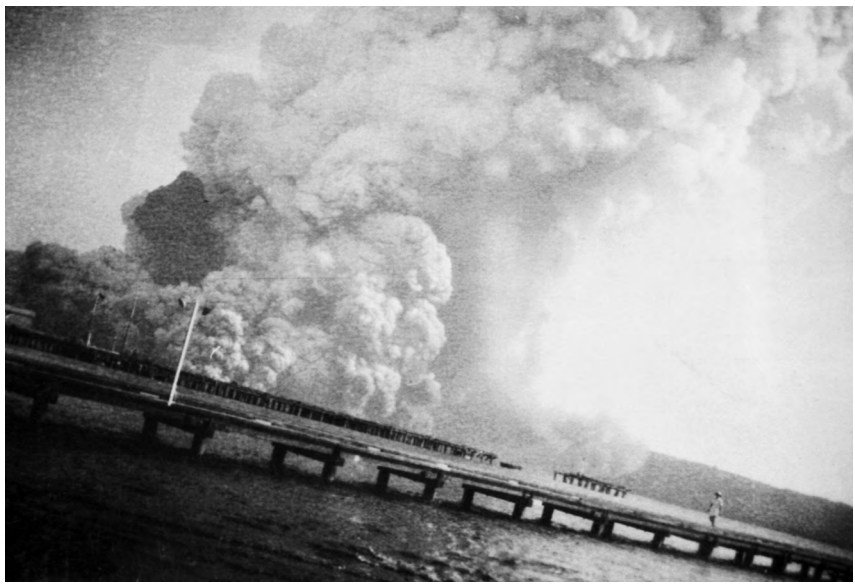


Figure 3.13. Pyroclastic flows from Vulcan as seen from Rabaul.

Two kinds of volcanic 'flows' are seen moving laterally outwards from the base of the Vulcan eruption column in this tilted photograph that was taken, almost certainly, on 29 May 1937 from the wharves at the north-eastern corner of Simpson Harbour. The 'old burnt wharf' is behind the one with the man on it. A light-coloured cloud on the right moving to the north appears to be less dense than the one moving to the south on the extreme left. GA negative references M2447-3-4 and M2447-41A.

Meanwhile, Miss Chaseling had married Mr Trevitt and was beginning her new life in unusual style (Figure 3.14). Since disembarking the *Montoro* with her friends Hazel and Albert Jones, she had been staying at Kabakada over Tunnel Hill Road, on the north coast. Rev. Jones and his wife 'went to no end with preparations', and Albert made a bouquet of frangipani for the grateful bride-to-be (Trevitt 1937, 1; H.L. Jones 1937). The car arrived just about on time at 4 pm at Rabaul Methodist Church, which was 'beautifully decorated with frangipani and maiden-hair fern—it was a lovely picture of good taste'. Two earthquakes shook the church, one just as Mr Trevitt was saying 'I will'. Miss Chaseling, now Mrs Trevitt, recalled the ceremony and its aftermath in a letter to a friend in Australia:

> Hazel was scared bowls of flowers at the back of the minister, Rev. Lewis, would fall down on top of him—the whole place shook and trembled. I thoroughly enjoyed it all & wasn't in the least bit nervous & just managed to keep back the giggles. While we were in the vestry signing up there was a most terrific explosion which shook everything rather drastically. We just thought it was another—

> worse—'quake but after we got away from the front steps of the church we saw a most marvellous sight—huge, thick dense clouds of smoke coming from the sea or an island in the harbour. Gosh it was a sight! Our car started off first for Kabakada where the breakfast was to be—but ran a little way along the coast first to see the sight. I can't describe the hugeness and denseness of the clouds which were circling up to the sky and over towards the land. (Trevitt 1937, 2)

Hazel Jones herself was no less impressed by the eruption at the time of the Trevitts' wedding:

> The sight was—well I can't find a word, but out from the sea was a gigantic column of white, grey, thick cloudy smoke, which seemed half as wide as the harbour, and hundreds of feet high. The heavy white clouds rose and twisted and curled higher and higher straight from the sea. Everyone was interested and thrilled and yet awed and already the road was dotted with natives hurrying away, and cars leaving for our road as quickly as possible.
>
> The wind began to carry the smoke over our way, so we left and turned up Tunnel Hill and made for home [at Kabakada]. It was beginning to darken and already the pumice and stones were beginning to fall on our garden and yet we still intended to carry on [with the wedding reception]. Lots of our Kabakada natives came hurrying across with their children and babies and came to our verandah. Mrs. Pearce spoke to them and I sent them to the garage. (H.L. Jones 1937, 2)

People elsewhere in Rabaul, and at other viewpoints not yet affected by the fallout, were similarly awe-struck by the great convoluting column of vapour and black ash that was rising from the sea north of Vulcan Island. Bernard Ryan of the Burns Philp office in Rabaul was at the baseball ground where the games had been interrupted by earthquakes during the afternoon (Ryan 1980–84, Sleeve 49). He had seen 'waves' running roughly north-westwards through the kunai grass outside the ground, and towards 4.30 pm was surprised to see excitement among the Tolai spectators, who began streaming down towards the harbour before the game had ended. Office worker H.E. Burgess was also watching, and noted that 'about three minutes after, the man on second base had the whole field to himself. A car came full speed past the sportsground, with the horn working overtime' (Burgess 1937, 1). People hurried to the harbour foreshore and found, says Mr Burgess, 'a spectacle so colossal that it held us all spellbound'. Mr Ryan likewise recalled vividly, more than 40 years later, the sight of a brilliantly white vapour column of ash that towered upwards against a cloudless sky.

Figure 3.14. Trevitt wedding photographed at Rabaul.

Jack and Melville Trevitt pose for photographs on the steps of the Rabaul Methodist Church after their wedding on the afternoon of Saturday 29 May 1937, just after Vulcan was beginning its nearby activity. On the steps behind them are, from left to right, Mrs Lewis (wife of Rev. Lewis), Rev. Howard Pearson (best man), and Mrs Hazel Jones (matron of honour). The cameras of some wedding guests that were used to take shots like this one subsequently became inoperable because of the entry of volcanic dust and damage to shutter mechanisms. Published courtesy of Mrs Melville Walker. GA negative reference GB3294.

Father Franz Utsch Jnr had just come out of the confessional at about 4 pm at Kabaira on Ataliklikun Bay well to the west of Rabaul. He looked up at the sky for a sign of good weather for the Corpus Christi procession on the next day, but saw instead

> a peculiar cloud … It stood there like a mushroom, or rather it grew from second to second into something gigantic. It billowed and rolled forward. The lightning flashed and thunder rolled from it in a terrifying way. At the top it was shining white, the stem of the mushroom was dirty yellow. The thing advanced at tremendous speed. The thought flashed through my mind: if that is a waterspout and it falls on us then we can say goodbye to the procession for everything will be washed away. (MSC 1937; Arculus and Johnson 1981, 33)

Figure 3.15. Fully developed eruption column from Vulcan as seen from Kokopo.

Vulcan is seen in full plinian-like eruption in this impressive view from Kokopo on 29 or 30 May 1937. A densely laden eruption column rises in convolutions, darkening the sky and dumping its pumice load over the land mainly to the north-west. The ship in the foreground is the old coal hulk *Loch Katrine*, which had been towed out to Kokopo from Rabaul for use as a breakwater for a swimming pool, as shown here. This image is a copy of a print in the photograph album donated to the National Library of Australia by Dr H. Champion Hosking. GA negative references M244-5-3 and M2447-38A.

Another Sacred Heart priest, Father Mayrhofer, who was at Lamingi in the southern Baining Mountains more than 50 kilometres from Rabaul, had a spectacular view of the whole northern part of the Gazelle Peninsula, and of the

> gigantic pillar of cloud which was rising up in the direction of Rabaul. It grew so rapidly to an enormous height—certainly 4 to 5000 m—and showed such a whirling movement on the lower side that I immediately thought of a volcanic eruption … The edges of the cloud shone white in the sun, but the interior was pitch-black. It consisted of a massive column of steam, mud and stones, amongst them rocks as big as a house. There was at the time a fairly strong southeast wind and so the rain of stones, ash and mud was driven northwest … At the beginning of the eruption a dreadful thunderstorm developed in the cloud, that was more intense than any I have ever experienced … Even here in Laminqi we were dazzled by the weird light of the lightning. At the same time whirlwinds developed in the affected area, and these, together with lightning, stonefalls and mud rain, caused the most damage. (MSC 1937; Arculus and Johnson 1981, 36–7)

Few of these observers who saw the rapid ascent of the Vulcan eruption column from different vantage points at the beginning of the eruptive activity had opportunity to reflect fully on the implications of the spectacle before them (Figure 3.15). The sight to many of them was so unbelievable that, from their grandstand viewpoints, they must have felt detached from the happenings that were developing before their eyes. Yet few of them would escape the consequences of the eruption, for in the hours ahead Rabaul township would be evacuated, the MSC missionaries at Vunapope would be called on to look after thousands of refugees and hundreds of Tolai would die in the west.

3.4. Fallout from the Vulcan Cloud and Evacuations to the North Coast

'Dear Lord', cried Father Nollen at the Malagunan Catholic Church, 'if you go on roaring and groaning like this I can't hear confessions any more!' (MSC 1937; Arculus and Johnson 1981, 38–9). The priest's somewhat lighthearted reaction to the beginning of the Vulcan eruption would soon give way to fear for his life, as volcanic fallout from the eruption carried to Malagunan:

The people rushed into the church to pray. For a moment I debated whether to summon them to flee to Rabaul or Volavolo. But the black wall came on so fast, that it was no use to think of flight. The cloud banks reached Malagunan in ten minutes … A few seconds more and there was Egyptian darkness. Then the rain of ash began. Our church has no glass windows. The openings are just filled in with criss-cross laths. Thus the ash came into the church from all sides unhindered. The lamps and candles, which were lit, could hardly be seen. We were all covered and had to shake the ashes all the time from our heads and shoulders. Meanwhile the people prayed very loudly and urgently for help.

The earthquakes had ceased when the eruption occurred, but the ground trembled continuously and moved all the time like flowing lava. Powerful electric discharges followed one after the other, and the sharp claps of thunder made the ground and the church vibrate. Then came a rain of hot ash, so thick that we could not see a gleam of lamplight. I thought 'This is the end', felt my way through the darkness to the front, and asked the people, as loudly as I could, to beg for God's forgiveness and to vow to fulfil His commands better, if we should escape with our lives. I led an Act of Contrition and gave General Absolution …

The people never ceased to pray aloud for help. But at times the ash was so thick that they could do no more. Fortunately the rain of ash ceased and the weather became calmer; but after a few minutes there came fresh masses of ash with thunder and lightning: however, the ash was no longer hot. During one of the pauses, I opened the door a little and saw a faint glimmer in the air where the moon ought to be rising. It may have been half past eight or nine. Then some refugees arrived and wanted to get into the church. First of all they had to clear away ash with their hands in order to be able to open the door. Meantime there was enough faint light for me to find the way to my house, where I got a shovel with which we cleared the thick layer of ash from the door. More and more refugees came from the direction of Karavia and reported that several people had been killed by collapsing huts and copra stores. Then ash and rain fell together and we had to go into the church again.

Trees bent under the heavy layer of ash, coconut palms snapped off and shattered what lay beneath them. The broad branches of the mango tree crashed down. There was a hellish noise, for the thunder was also still rolling. In addition there was now a great flood of water over the land, which was presumably due to the sea being driven far

> inland by the eruption. About 11 o'clock there was a slight pause, and the rain of ash ceased as the wind had gone round. The Sisters were now able to take the children home to rest for a time. The natives did not want to leave the church. About half past two the weather became dangerous again. There was further rain of ash and mud. The Sisters had to leave their house hurriedly as it was cracking and swaying on all sides. The verandahs collapsed. We all went again into the church, which offered the best refuge. (MSC 1937; Arculus and Johnson 1981, 29–31)

Methodist district headquarters was at Malakuna. After officiating at the Trevitt–Chaseling wedding, Rev. F.G. Lewis, district chairman, was anxious to return there, despite the ominous north-westerly growth of the Vulcan eruption cloud and 'though we lost much valuable time in doing so' wrote Rev. Albert Jones later (A.S. Jones 1937a, 2). Lewis was driven to Malakuna, but Jones was eager to take the women passengers who were also on board his utility vehicle, to greater safety at Kabakada where the Trevitt–Chaseling reception was to be held. So he left Rev. Lewis and three others at the mission residency and drove back up Tunnel Hill Road. An exodus was taking place from Rabaul to the north coast, and Tunnel Hill Road was already

> blocked with natives making their way out, and a huge line of cars. It was a terrible experience to see natives we knew, but could not take with us as the car was full. (A.S. Jones 1937a, 2)

Meanwhile, Rev. Lewis at Malakuna saw the eruption column become denser:

> [F]rom the black rising columns there were shooting out in all directions stones and cinders, like multitudinous rockets or comets, and then this great moving, towering mass was seen to be making fast towards us as if the Malakuna Mission Station was in the direct line of its objective. (Lewis 1937a, 6)

Rev. Lewis decided to abandon the residency and began racing on foot with the others along the road northwards to Tunnel Hill. But the cloud soon reached them, and they were enveloped in complete darkness as pumice ash showered down, irritating their eyes and penetrating into ears, hair and pockets of clothing. Visibility improved at the top of Tunnel Hill Road. Several cars sped dangerously down the hill. Lewis and his colleagues were then relieved to see ahead the district car coming in from Kabakada to pick them up. But progress back out to the north coast was impeded, again by the cloud of darkness, as well as by fallen palm trees across the road

and, finally, by rain, lightning and thunder (A.S. Jones 1937a, 1937b). The Lewis party eventually joined a group of stranded refugees at the nearby home of planter J.O. Smith whose house at Vunawutung was refuge for several groups of motorists that night (Lewis 1937a). Another planter who took in refugees further along the north-coast road, at Natava Plantation, was the Honourable John C. Mullaly, who organised the feeding of large numbers of homeless people from the areas devastated by the Vulcan eruption (McNicoll 1937e).

Newlyweds Jack and Melville Trevitt had driven up over Tunnel Hill Road soon after leaving the wedding and seeing Vulcan, for they were expected back at Kabakada for their reception (Trevitt 1937; H.L. Jones 1937). Hazel Jones had prepared three tables on the back verandah; set with crystal, silver and china, and edged with ferns, the tables were enhanced with bowls of salmon-pink lilies. There were salads and meats, fruits in jelly and a fruit salad that nearly filled a wash dish. Fresh cream had been whipped, all ready to be put straight onto plates. The weather had been glorious and the view out across the Bismarck Sea was delightful. Jack and Melville were on the front lawn having their photographs taken and waiting for the guests to arrive when the ash fall from Vulcan began. Showers of pumice drove them inside, and soon after a frantic Rev. Laurie Linggood arrived in his truck, urging them to board immediately and head inland to the hills: 'Rabaul is blotted out with smoke and utter blackness and it's coming this way—have already tried two roads to the Hills … but ran into walls of blackness' (Trevitt 1937, 2). Linggood's pregnant wife had been unwell and had not attended the wedding, and now he was cut off from her and their small son at Raluana. The bride and Hazel changed their clothes at once. Albert Jones had arrived with his load of ladies and, quickly assessing the situation, began to load up his utility again, this time with two cases into which he piled the wedding cake and other food from the tables (Trevitt 1937; A.S Jones 1937a, 1937b). His wife's work and planning for the reception had almost been for nothing!

Melville Trevitt scrambled into the front of Linggood's truck, alongside Linggood and Mrs Pearce, who had been helping with the reception, and Jack Trevitt climbed into the back with the suitcases of clothes packed for the honeymoon in the hills. The other ladies urged them on, but Linggood needed no encouragement—he 'drove like mad fury in his anxiety to get

to his wife'. However, the road inland was impassable, and they decided to attempt the drive around the north-coast road to Vunairima, which was to be Melville Trevitt's new home. Mrs Trevitt would later write:

> The smoke and sulphur fumes and falling mud and stones were blinding … the thick cloud of smoke impenetrable … Native people, panic-stricken, were fleeing in hundreds, down from the hills, not knowing where to go, and cars and lorries impeded our progress.
>
> We were nearly blind for we had to open the windscreen in an effort to follow the road. Mud was falling thickly and lay in inches over the truck. It was pitch black and the man just drove furiously while we shut our smarting mud-filled eyes. I kept my hand on the horn, sounding it at short intervals for the safety of those fleeing, stricken people. We grazed past lorries and cars and ran into trees and gutters and finally were ahead—Jack continually getting out and scraping away mud from the headlights so we could go a little further. No words could describe the thunderous deafening roars like terrific explosions and the lightning—great streaks which seemed to reach from the sky to the ground. We were travelling through a coconut plantation and could see, in the flashes of light, coconut palms bending under their weight of mud. Soon they began falling with great crashing thuds and behind us the trees on either side of the road were on fire.
>
> We suddenly came to an abrupt halt. The men, by feeling, found a tree across the road and were able to move it but very soon we were stopped by another palm, sixty feet or so, lying across the road. There was nothing we could do but sit in that truck and wait—possibly until morning or until the end! … We … knew (but didn't voice it) that, at any moment, coconut palms could crash over us, and we knew too there was a danger of a tidal wave. In the lightning flashes we could see the water only a few feet from where we were stuck.
>
> We sat in that truck for approximately one and a half hours—each with his own private thoughts … I, feeling so thankful that my husband was beside me, experienced no feelings of fear whatsoever—Mrs Pearce not knowing where her husband was—and Laurie Linggood with anxiety for his wife and child and the one shortly to be born. (Trevitt 1937, 3–4)

Figure 3.16. Vulcan ash on car and coconut-tree damage.

This car was one of many abandoned along the roadside during the fallout of Vulcan pumice and rain on Saturday 29 May. Plantation coconut trees in the background have been damaged by the same fallout. GA negative references M2444-2-5 and M2447-3SA.

A truck driven by a New Guinean eventually stopped a short distance behind the Linggood truck. Some of the Kabakada wedding guests were on board, including the Jones's as well as Ron and Helen Wayne, Methodist lay workers, who had come over from the Duke of York Islands for the Trevitt–Chaseling wedding and reception. Those on the truck had left the abandoned reception at different times and, fortunately, had been picked up by Vincent To Papa in his truck along the road at various points where their own cars could not negotiate obstacles. The party also included Mr and Mrs Atherton and their 10-month-old baby. Trevitt and Linggood struck out to nearby Kabaira, returned with borrowed axes and cleared the fallen palm trees, but a mile further on yet another tree blocked the road. All then began to negotiate the last few kilometres to Vunairima on foot, scrambling, Mrs Trevitt recalled, 'over and under logs and stumbling along often wondering if we were still on the road or somewhere in a plantation' (Trevitt 1937, 5). Ron Wayne's diary of these events provides a valuable source of information about the movements and experiences of European Methodists along the north coast (Wayne 1937), particularly where supplemented with information from other sources (Figure 3.16).

Ron Wayne called the walk

> a nightmare, especially for Mrs. Atherton and her baby. Mr. Atherton being in like plight as all the men, his wife was frightened to let him carry their girlie lest she catch cold. Thanks to [an] umbrella the child was still more or less dry. Trees, palms, and fronds were tripping us every few yards. Often we stopped while some tree that cracked ahead of us decided what to do. Once or twice we thought palms were coming down on top of us. At last we reached Vunairima [at 8.35 pm] and went to the Sister's [sic] House, whence Linggood had gone ahead to warn Miss Mills of our imminent arrival …
>
> When we entered the Sisters' big living room what a sight we proved to be! Nice new marocain and georgette frocks had shrunk upwards and inwards! Hats were beyond description. Trevitt's helmet was three times its normal weight with pumice that had adhered to it, but his buttonhole was still in place. A source of considerable comment and amusement, this being the only sign that he was a brand new bride-groom … Those of us who lacked hats were in the worst plight because our hair was plastered as with cement, and much mud had stuck to our necks. (Wayne 1937, 5)

Their appearances were so comical that Hazel Jones said they 'just roared' with laughter (H.L. Jones 1937, 4). Tensions and anxiety were temporarily relieved. The party dispersed for the night after hot soup and quinine, the bride sharing the guest room in the crowded Trevitt house with Hazel. Yet, recalled Mrs Trevitt:

> Sleep was out of the question for us although we were dog tired—for the crashing thunderous explosions were deafening and lightning circled around all night and the house shook and trembled. I lay on the edge of my bed on the alert, ready to escape should the house begin to tumble. (Trevitt 1937, 5)

The Methodist mission station reception back along the north coast at Kabakada was deserted, and Mrs Lulu Miller, of Samoan heritage, had been having a worrying time (Miller 1980). She had hurried from the plantation at Kabakada at the beginning of the Vulcan fallout to her home to rescue her dogs, cockatoo and goura pigeon, but was enveloped in darkness, and spent the terrifying evening in her small bath hut huddled together with her pets and a young New Guinean boy. Despite this company, she felt lonely and isolated in the deserted bush among ash-laden fallen trees and bamboo. Late in the evening, she left the hut and went to the shed where a village headman kept a hot-air copra drier, and 'during the night we had rain—was

salty the water. Came down here like a stream' (Miller 1980, 35). Seawater was mixed with the pumice dust and rain had evidently been thrown up from the harbour during the eruption.

April and May had been particularly dry months. The rain that fell on Saturday over and north-westwards of the new volcano might have been regarded as a welcome boost for water tanks had it not been for the pumice ash and salt water that was mixed with it. The rain fell mainly from beneath the eruption canopy, affecting neither Rabaul nor other places outside the ash fallout zone. Most of the rain probably formed from condensation of volcanic water vapour in the upper parts of the Vulcan eruption cloud in the higher and cooler parts of the atmosphere, and from seawater—at least some of it vaporised—that had been caught up in the rising column of ash and carried over the hills to the north-west. It all fell as a deluge, including over the volcano itself (see, e.g. Figure 3.35). Torrential rain was common during Rabaul's wet season, but its force was generally lessened by the dense vegetation that allowed the water to percolate through foliage and grasses into porous humus and soil. But this protective natural screen had been destroyed by the pumice fallout, and the deluges of rain and seawater formed floods that raced across exposed surfaces into dry gullies, gouging out deep ravines. Raging torrents quickly built up and rushed down to the coast, washing away the north-coast road in places. These floods added considerably to the difficulties of using the north-coast road as an evacuation route out of Rabaul.

Father Utsch's afternoon fears of a 'waterspout' ruining his Corpus Christi procession at Kabaira on Ataliklikun Bay were, therefore, somewhat justified during Saturday night, as the torrential rain contributed to the volcanic devastation (MSC 1937; Arculus and Johnson 1981, 33). The 'storm' quickly reached Kabaira during the late afternoon, and stones that sounded like hail, rather than rain, clattered on the roof of the church occupied by Father Utsch:

> People put their cloths over their heads and staggered in under my house. Amongst the stones was dust and flakes like cement. In an instant all was dark; only towards Mandres [to the west] was the sky clear. We were all terrified. We could not flee; as there were only a few canoes and they would be sunk by the weight of this rain. So we stayed where we had a solid roof over our heads. Trees were already crashing down. Deadly fear seized us all. It got even darker. I thought of Pompeii. Lord God, save us from such a fate! In the church all started praying as never before. I sat in the confessional.

> Wesleyans were praying in one corner. I lit a candle for them too. Then cars began to arrive. We now learnt that the volcano near Karavia had erupted.
>
> The whites were fleeing from Rabaul to the north coast. My house was soon full. They could go no further. One could hardly see one's hand before one's face. Constantly we could hear the noise of trees breaking off. Then a terrible cry, which echoed through the church in spite of the frightful thunder. The roof had fallen in. I could not see what was happening but it was impossible to keep the people in the church any longer. I directed them into the school and under my house. Then I discovered that only the verandah round the church had collapsed. In the house I had to prepare some food for the children. I looked like a miner, muddy from head to foot. I brought my horse into shelter. The poor animal was trembling violently. But I could not let it loose; it had only been two days on the station. The night was everything but quiet. I threw myself onto my bed exhausted. But I started up involuntarily at the next clap of thunder and lightning. It might have struck us, the whole house rattled so much. And all night long this noise, now softer, now louder. The cement still kept on falling. (MSC 1937; Arculus and Johnson 1981, 33–4)

This same Catholic Church along the north-coast road may have been the refuge for staff from the Bank of New South Wales and Commonwealth Bank. The bankers had been to visit a 'sing-sing' in the hills, had heard the 'violent roar [of] the new volcano', had seen the eruption column—'a fascinating yet eerie experience'—and had been unable to return to Rabaul by the north-coast road (King 1937, 5). Kerevat was chosen as a more appropriate destination but, like others on this evacuation route along the north coast, they were caught in the fallout zone. Hundreds of confused New Guineans sheltered in the church—'seventeen miles out'—with the bankers. To raise their spirits, Virgil King

> thought the best thing to do was to hurry and get them singing. What an accompaniment they had—the electric grand organ of hell, together with the fire and brimstone—His Satanic Majesty was surely reigning. (King 1937, 5)

Other Rabaul evacuees who had earlier taken the north-coast road were enjoying the safety of Keravat, which lay well to the south-west of the fallout area. One of these was Miss Carol Coleman (Mason 1937). She had left the baseball game with a group who had piled into Alf Dowsett's open tourer car and headed out over Tunnel Hill Road for the north coast. They

encountered the same unpleasant fall of ash and mud as had the others on the road but managed to escape from beneath the volcanic canopy before the road became impassable. Lightning and thunder nevertheless disturbed their night at the plantation at Keravat run by Mr and Mrs Green.

The frightening experiences of all these people on the north-coast road must have been insignificant compared with the terror of those who died within the maximum zone of devastation, where pumice was finally to accumulate to depths of more than 2 metres. Many Tolai saved themselves by flight away from the area of maximum fallout, but hundreds were caught there. Among those who escaped was Father Laufer of Rakunai Mission, only about 4 kilometres upslope and west of Vulcan Island. He had, like his colleagues fathers Nollen and Utsch, been taking confessions in church, but was soon 'in the midst of the "Hell"':

> With the women and children who were standing nearest I tried to run through to Navunaram. But stones started to fall after only ten minutes. First we crept into some holes in the road embankment, but nearly squeezed ourselves to death there. So with the men and boys onwards to To Puia's wooden house [To Puia was a catechist]. Violent drumming on the roof. Still bearable. About 50 people crowded into the tambolo (the space under the house, which stands on piles). Then suddenly a wall as black as shoe-polish. Dreadful fear. Everyone clung to me. Repentance and general absolution. Then the flood of mud rained down. Continuous lightning with whirlwinds that drove the mud under the tambolo. We lay flat on the ground, beside and on each other, held sheets of tin and corrugated iron over our heads for shelter, tying our shirts round eyes, nose and mouth, damping them with mud against the sulphur.
>
> About ten minutes, then the sky became a bit red. By the lightning flashes we could see that all the trees and coconut palms were snapped off and lying on the ground. Without our noticing, two coconut palms had fallen right across our house and broken through the roof, but had held the structure firm in the wind. We ate first a little coconut, to get the sand and mud out of our mouths. Until ten or half past we still sat together and prayed as well as we could. In the east the moon and stars gradually appeared. By the gleam of lightning we set out and felt our way through the uprooted bush as far as Navunaram corner. Then clear road and steady march to the school at Navunaram, where I found Sister Carola with some girls whom I sent to Vunakanao. I tore on with my people to Vunalama.

> We arrived there at midnight. It was not possible to sleep on account of the frightful thunder and lightning. (MSC 1937; Arculus and Johnson 1981, 26–7)

An attempt was made 40 years ago to illustrate in simplified form the possible nature of the eruption cloud that had been experienced by the missionaries up on the plateau west of both Vulcan and the intervening caldera wall (Figure 3.17). The missionaries' descriptions given above contain some features relating to passage of a pyroclastic flow, but this would require the flow to climb the caldera wall before levelling out and continuing westwards. In Figure 3.17, the advancing cloud is shown trapped between the low eruption cloud and the plateau west of Vulcan and escaping laterally to the west.

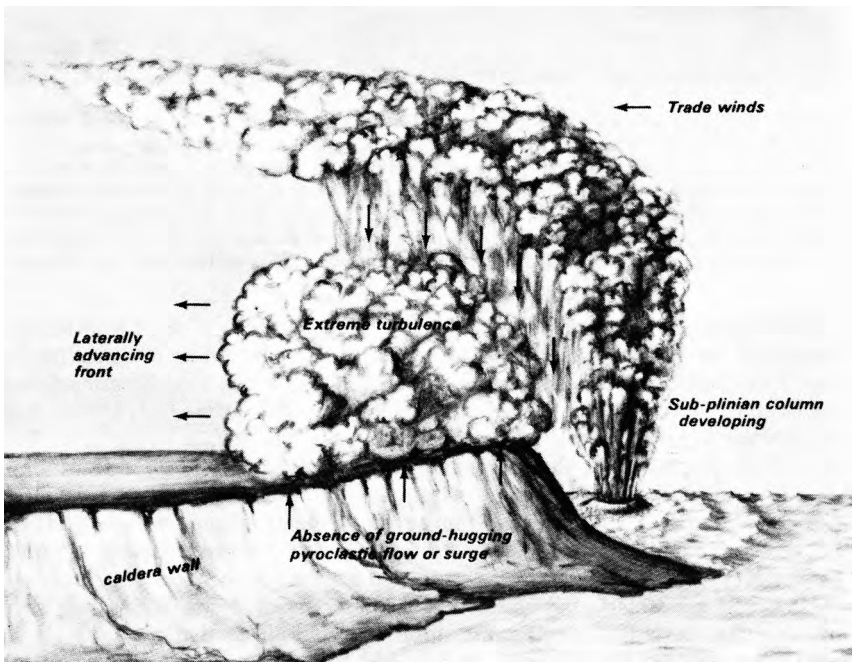


Figure 3.17. Sketch of components of Vulcan eruption cloud.

Schematic representation of the Vulcan eruption cloud from the south-east at about 4.30–5 pm on 29 May 1937 showing the formation of turbulent, laterally advancing ash clouds (McKee et al. 1985, Figure 11). The main elements of the eruption have been artificially exaggerated and separated so that they can be identified more clearly. This interpretation does not mean that the lighter parts of otherwise dense pyroclastic flows (which are not shown here) could not have drifted westwards over the caldera wall and contributed to the laterally advancing cloud. The sketch was drafted in the Bureau of Mineral Resources, Geology and Geophysics Drawing Office (GA reference number 24/B56-2/23).

The hundreds of deaths in the villages closest to Vulcan were probably caused mainly by suffocation as pumice falls rarefied and heated the air, by crushing and suffocation as roofs fell on the occupants of lightly built shelters, and possibly by burning of lungs and suffocation as hot avalanches from the base of the eruption column overran helpless victims. Some people were probably struck down by flying blocks and boulders, and some of those who sought to escape Vulcan Island and the new islets by swimming to shore may have drowned. There may also have been fatal heart attacks. The body count would amount to only about a tenth of those missing. Most corpses would remain buried under the ashes.

It took many days for news of the devastation and casualties north-west of Vulcan to become known in Rabaul, for the townspeople had difficulties of their own to deal with—including a major evacuation of the town.

3.5. Evacuations up Namanula Hill

Clive Meares was chief clerk of the Department of District Services and Native Affairs; E.W.P. Chinnery was its director. Meares lived on Namanula Hill with his wife, close to Government House, the residence of Administrator McNicoll, who was still away on his inspection tour (Meares 1968, 1980, 1980–84, n.d.). Meares had inspected the stumps of his house at various times during the afternoon for any displacements caused by the earthquakes that had taken place that day, but was relaxing when he became aware of people from Rabaul arriving in their cars hoping to obtain a view of the rapidly developing scene at Vulcan Island. Meares grabbed his government-owned camera but, by the time he had focused it, the top of the billowing clouds over Vulcan were 'already too high to show in the view-finder' (Meares n.d., 3):

> It was an awesome spectacle. Belches of dense smoke were thrusting straight up into the sky while, simultaneously, what looked like curling, black waves of still thicker smoke were shooting out from the base of the 'pillar' at all angles like rockets. We could see what appeared to be huge rocks, varying in size from five-ton trucks to small houses, hurtling through the air and, apparently as they met the cooler atmosphere, disintegrating like bombs and falling back into the sea.
>
> Higher and higher wreathed the main column of smoke until, approaching an altitude of about 25,000 feet, it slowly began to spread, like a mushroom, over the harbour, the town and the

> neighbouring country-side … the main body of it was steadily carried away to the north-west. In a matter of minutes some fifty to a hundred residents had joined us on Government House lawn, but as the 'mushroom' began to spread across the sky [towards Rabaul and Namanula] we moved back to our home, and the crowd broke up into groups as those of us living on 'the hill' invited various ones to stay with us. What the future had in store for us no one knew. (Meares n.d., 3–4)

W.B. Ball was acting superintendent in charge of police and, like Meares, was spending a restful afternoon at his home on Namanula Hill when an agitated servant from Government House telephoned to say that 'something was very wrong in the harbour' (Ball 1937, 1). Ball hurried to Government House and from the verandah there he saw the 'huge and sinister looking column of smoke coming out of the sea from the neighbourhood of Vulcan' (1). He telephoned for a car and set off for the police station, passing numerous carloads of people making their way up to Namanula Hill. Ball was met at the station by Acting Inspector W.B. Prior, and they made off with a driver towards Kokopo Road to investigate the column of 'smoke'. Progress was slowed by traffic making its way towards and up Tunnel Hill Road, but just past the turn-off they saw

> coming towards us from the sea and along the Kokopo road, something that is very hard to describe; it was a dark brown almost black cloud, so dense that it looked more like a moving mass than a cloud. It has been called the 'black-out' and that is actually what it did, for immediately one was enveloped in it daylight suddenly became blackest night in which it was impossible to see anything at all, even the powerful headlights of a car failed to pierce it for more than a few inches as we found to our cost a few minutes later. Realizing that it would be futile and dangerous to go on, I ordered the driver to turn and go back to the station. He succeeded in turning the car and managed to drive a few yards along the road before we were enveloped in the cloud which by this time had overtaken us. A few yards more and the car landed in the ditch. It was impossible to see even a few inches. I said to Prior that we should get out and try to walk back. We did, and groping our way on the tarmac commenced to stumble along. It is hard to describe my feelings. The cloud seemed to be composed mostly of grit that filled my eyes and nose causing great discomfort and adding to the horror, but I remembered to keep my mouth shut and to refrain from rubbing my eyes. I observed that the blackness was as yet almost entirely free from poisonous fumes, but at the same time I feared it could only be

> a matter of moments before we would detect them and be overcome. It seemed a horrible way to die and I wondered if one could keep from panicking. All this time we were stumbling and groping our way, trying to keep on the road, but not always being successful. On one occasion I collided with the back of a lorry that was quite invisible. All of a sudden we emerged into daylight; it was just as though the blackness had been cut with a knife. (Ball 1937, 2–3)

Ball and Prior ran back along Malaguna Road but 'again ran into darkness and our gropings recommenced'. They finally boarded a Department of Public Health vehicle and managed to return to the police station, but 'there was very little that could be done at that time except to take shelter from the rain of dust and ashes that kept coming over the town' (Ball 1937, 3). The 'almost black cloud' noted by Ball that was moving northwards along the Kokopo road—'so dense that it looked more like a moving mass than a cloud'—was caused by large amounts of pumice and ash being dumped from the sides of the rising column that was now changing its shape to something more cauliflower-like. The falling masses then hit the surface of the land or sea and were diverted laterally along the ground as 'flows' of pyroclastic material having different densities (Figure 3.13).

Ash began falling on Rabaul a little after 5 pm, caused by a change in direction of the normally south-east winds. Rabaul people then began to experience some of the fear, uncertainty and disorientation that was being encountered to a much greater degree by those in the main fallout zone to the west. There was a 'slight smell of sulphur'—probably hydrogen sulphide, the volcanic gas known for its bad-egg smell (Fisher 1939a, 30). Amy and Mercer Anthony were at their home when the Rabaul fallout started, and they decided to stay in the town because there was no available transport (Anthony 1981). They joined their next-door neighbours. The weight of fallen pumice outside was breaking limbs from large trees, but the wind direction eventually changed, and the Anthonys were able to return to their own home, clambering over fallen branches in their garden that 'had been completely covered with pumice, and looked like the sea shore, with humps here and there where there had been shrubs or groups of flowers' (Anthony 1981, 3). Dry pumice had blown into bedrooms and they had to gently tip a layer of it from the top quilt of their bed. The Anthonys stayed the night in Rabaul, wakeful on account of the Vulcan thunder and lightning over the harbour, and by morning found that not only was their garden a 'wreck', but also they 'could see from our back verandah right through to the far end of the town, [that] all the Casuarina and Mango trees were just trunks'

(Anthony 1981, 3). They also discovered that many people had left Rabaul the previous evening and were now on Namanula Hill or down the other side on St Georges Channel at Nodup.

Some of the people who drove up to Namanula shortly after the beginning of the eruption obtained a spectacular view of the eruption before the fallout began on Rabaul. Gladys Forsyth and her husband, for example, 'gathered up a few things for the child … gathered up the cat and the dog, got into the car and set off to find [Gladys's] brother Adrian Field' (Forsyth n.d., 9), but, failing to do so, returned, left a message and set off for Namanula. Field was caught in some of the fallout, but he received his sister's message and, packing a haversack with a revolver and bottle of water, began walking up Namanula Hill (Field n.d.). Several cars passed him at high speed, and eventually he was offered a lift.

Bernard Ryan and two friends had also decided to drive up Namanula, but they were caught soon after the start of the climb by the fallout on Rabaul (Ryan 1980–84, Sleeve 49) and were enveloped by pitch blackness like night. Wet gobs of ash had at first spattered the car windscreen like bird droppings, but the cloud soon became so dense that headlights could not penetrate it, and fine ash entered the car, getting into eyes and lodging behind ears and in hair. They all got out of the car, but were still unable to see ahead. There was a hot, clammy, stifling sensation, as well as a distinctive, repetitive, swishing sound in the ash cloud. Handkerchiefs in front of their mouths helped prevent inhalation of ash. Ryan remembers that this was the most frightening part of the eruption for him, but fortunately the wind swung away to the north-west and they were able to drive again up onto Namanula Hill. Mr J. Hoogerwerff, manager of the Rabaul Printing Works, had a very similar experience to that of Ryan and his friends while climbing up Namanula Hill (Hoogerwerff 1937; Langdon 1973).

Hal Evans, a junior administration officer in the Rabaul District Office, became involved—with others—in ferrying evacuees out of Rabaul to Namanula Hill 'where nearly the whole [white] population had gathered' (Evans 1937, 2). Rabaul town, as seen down below the hill, became smothered in pumice and ash while he was there and

> about 15 minutes later it reached Namanula and completely enveloped the Hospital and surrounding country. Everyone shut themselves in the wards and everything became dark. The marvellous thing about it was that all the women and children were wonderfully calm, and though we all thought that it was just a matter of time before we were

> suffocated, not one even screamed … However, the Pumice stopped falling, and in time we were able to go outside with handkerchiefs as masks and get water for the sick. (Evans 1937, 2–3)

A layer of Vulcan dust on a dining room table in Rabaul was found useful at about 8 pm when Gordon Thomas, editor of the *Rabaul Times*, wrote a message in it for his wife whom he had been unable to find (Thomas 1937b). Thomas had spent a stressful few hours searching for his wife, driving, stumbling and losing himself in the volcanic 'blackout' near the bottom of Tunnel Hill Road. Having climbed up over the hill towards the north-coast road, he heard, at several spots, the eerie 'murmur of praying natives'—in Kuanu, *'A kulou U na belaure aret, ma U na tulue mule pire aret ne a kapa* ('O God, protect us and send us light again')—and 'the crooning music of hymns' (Thomas 1937b, 37). Thomas, on one occasion, when the air became charged with sickly warm 'sulphur fumes', believed it 'was the beginning of the end' for him. However, he eventually reached Volavolo Mission, and then met an oncoming car driven by the new proprietor of Roberts' Garage; he accepted a lift back to Rabaul over Tunnel Hill in conditions much easier than those of his outward trip, but he was still anxious to know the whereabouts of his missing wife.

Jean and Keith McCarthy also had an eventful time. Mrs McCarthy had been in Rabaul for only a week, and was newly wed to Keith, who was waiting for a government posting as a patrol officer elsewhere in New Guinea (McCarthy 1963, 1971a, 1971b, 1980). The McCarthys' wedding gifts were still crated under the house and Mrs McCarthy's wedding dress was hanging on the wardrobe door when the Vulcan eruption began. They ran down to the wharf, joining the crowd there, but fled back to the house when they saw the eruption cloud rolling towards Rabaul. Keith McCarthy 'grabbed a couple of towels with some idea that they might help us to breathe while we made for safety', and joined the throng of people climbing Namanula Hill,

> many wild eyed and very near panic, going at a jog trot as they hurried up the hill; there were whites and Chinese, the men carrying bundles and the women carrying babies; and there was a long line of cars and trucks. (McCarthy 1963, 173–4)

The McCarthys abandoned their climb because of the crowds and set out to try a little used track through kunai grass across the caldera wall. Then: 'Here comes the first of the ash, Jean! Use your towel. It might be hot!' (McCarthy 1963, 174). Fortunately, the ash did not affect them, and the

McCarthys changed direction again, resolving to weather out the pumice fall back in town. They reached Rabaul and joined a party of perhaps 30 Europeans at the Cosmopolitan Hotel.

Acting Superintendent Ball would subsequently have problems with some of the drinkers in the Cosmopolitan bar (Ball 1937). The general opinion there, recorded J.K. McCarthy, seemed to be: 'If this is our last night let's make it a good one!' (McCarthy 1963). Proprietor Morton Wilmot was kept busy serving drinks to customers, especially to many of the crew of the *Golden Bear.* H.E. Burgess was at the hotel but left at 8.45 pm with a flashlight to check on any damage to his office. This was normally a three-minute walk, but it took him 25 minutes because of ash and broken branches in the street, and because he had to be watchful for fallen electricity wires (Burgess 1937). Waiau Ahnon in 1953 recorded that he went to the Cosmopolitan Hotel and saw some enthusiasts

> still playing billiards on top of a dusty billiard table—and I saw somebody, too, being appointed as one of the volunteer police and all that, with the red band now, and he is carrying a revolver with him, and he is trying to tell people to get out of the pub, but no-one seems to pay any heed to him. He came inside then, and is still trying to tell people to get out. He even fired a shot through the window to tell them to get out, but nobody wants to move. They said, 'We'll move as soon as we feel like moving'. (Ahnon 1953, 39)

Acting Superintendent Ball did not detail this theatrical incident in his later report to the administrator, but he did decide to temporarily close the Cosmopolitan Hotel that night because of the 'very unsavoury crew of the Golden Bear' who were 'in an excited state' (Ball 1937, 4). The intoxicated sailors were ejected and driven to Toboi Wharf. One of the sailors, Victor M. Costner, radio operator, did not board the ship. He was never found and his disappearance was never fully accounted for, although Captain Olsen reported dispassionately that 'he must have walked overboard from the wharf and drowned' (Olsen n.d.). Costner was evidently not one of the drinkers at the Cosmopolitan, for Captain Olsen stated that Costner was on board the *Golden Bear* just before the remaining crew had had to leave the ship a little before 5 pm and crawl to the wharf office on hands and knees. Olsen's clinical account counteracts the belief expressed in some reports that Costner had been drinking too heavily at the Cosmopolitan and had foolishly attempted to reach the ship by either leaping across the gap between wharf and deck or walking across the pumice-covered water.

Captain Olsen and his skeleton crew had been able to leave the wharf office at about 5.15 pm and had secured the gangplank to the *Golden Bear*, but they were showered by light to heavy downpours of pumice for several hours (Olsen n.d.). Then:

> At 7 o'clock it cleared some and everyone on board were [sic] called out to assist in getting lines to the wharf. We were at the time experiencing a series of small tidal waves, causing a tremendous surge. The water would raise to the level of the wharf, then run out to about 8 or 10 feet below. The vessel would surge fore and aft about 50 feet, until she fetched up in the anchors and the stern breastline. It looked several times as if the propeller would get foul of the corner of the wharf. We had great difficulty holding the vessel alongside and parallel with the wharf and were steadily at it until midnight, at which time we managed, with the assistance of the men who had been absent but had then returned and were assembled on the wharf, to get the vessel secured. (Olsen n.d., 4)

Other vessels were also buffeted by the surging waters in the harbour during the evening. Waters were reported to be up to almost 3 metres higher than normal high-water at the Rabaul waterfront, and down to well below the usual low-water mark by roughly the same amount (Figure 3.18). Waterfront store sheds were flooded and some were swept away. Waiau Ahnon was surprised in the evening to find boats and boxes knocking around his house alongside the customs boatshed and to discover seawater almost up to his bed. Small inter-island boats were dashed against wharves and several of them sank (Ahnon 1953). The schooner *Meto* was washed up into the front garden of Treasurer H.O. Townsend. *Induna Star*, drawing about 2 metres of water, was dumped on top of and crushed a small jetty by one surge, but was then lifted clear again by another. Carpenter's *Duris* was sunk at her moorings, and another fleet member, the wooden motorship *Desikoko*, was battered but survived. The *Durour* was now under a thick layer of pumice on the slipway near Vulcan. *Golden Bear* left Toboi Wharf at 1.36 am and anchored amid empty oil drums, drifting vessels, pumice and debris of all kinds floating in the harbour (Olsen n.d.). The crew salvaged two schooners and anchored them. Cadet Pederson had taken down the Australian ensign on one of them—the two-masted *Nereus*—and had nailed up the American ensign in its place, but as the vessel was the one used by Administrator McNicoll, Captain Olsen very quickly had the ensigns changed round again (Olsen n.d.).

Figure 3.18. Tsunami debris and grounded boats at Rabaul.

Small boats and debris were left stranded on the Rabaul foreshore, apparently swept by the tsunamis that took place on the evening of 29 May 1937. Rabaul town and Tovanumbatir volcano are in the background. The original print used for this image is slightly damaged. GA negative reference GB2591.

Captain Roy Kendall of the *Induna Star* saw that the rises and falls of the water level in the harbour corresponded to periods of activity of the eruption at Vulcan. The eruption was beginning to build a volcano out of the sea. Kendall noted:

> During the first three hours active eruption was practically constant and no changes were observed in water level (after the initial fluctuation at the beginning of the eruption). At about 7 p.m., however, definite periods of active eruption were followed each time by corresponding periods of dormant steaming, and it was during this period, and prior to the rising of the rim of the crater above sea level that the tidal waves were observed. During the dormant periods enormous quantities of water must have been pouring into the crater itself … This was followed each time by a violent and sustained eruption which stopped the flow of water into the crater … When the rim of the crater appeared above the sea the waves ceased. (Fisher 1939a, 22)

Kendall was able to proceed out of the harbour that night but had to stop frequently so that injection pipes could be cleared of pumice. He passed within about 1 kilometre of Vulcan and noted that the new volcano was about 100 feet above sea level.

Vessels at Kokopo were well clear of the disturbances in Simpson Harbour, and two of them—pinnaces *Theresa* and *Paulus* belonging to the Vunapope Mission—had already been commissioned by the Kokopo police to sail around to the far side of Crater Peninsula and begin ferrying evacuees from Nodup back to Kokopo and Vunapope. Father Schlüter accompanied the pinnaces 'and as a precaution I took with me the holy oils and baptismal water' (MSC 1937; Arculus and Johnson, 1981, 9). Chinnery had consulted with the district officer at Kokopo, D. Waugh, about the possibility of a Rabaul evacuation, and Waugh began making preparations with mission staff for receiving evacuees. Chinnery returned to Rabaul by mission boat that evening, landing at Nodup after midnight. *Theresa* and *Paulus* would together make several return trips during the night.

Rabaul was now under the charge of Judge Beaumont ('Monty') Phillips (Phillips 1937a, 1937b, 1937c; Thomas 1937a). Ramsay McNicoll was still on mainland New Guinea and Chief Judge Wanliss would have normally deputised for him. However, Wanliss had been in poor health and on Saturday, before the eruption had begun, he had been allowed by doctors at the European hospital to drive to Kokopo accompanied by Sister Latta. He attempted to return to Rabaul using one of the back roads to the north coast, but was blocked by the pumice fallout, and even though he gained passage on the Japanese trading schooner *Asakaze*, his return was further thwarted when the vessel ran aground near Natava. Judge Phillips, therefore, assumed the role of administrator on Saturday evening, and he was soon faced with the problem of what recommendations should be issued. Many people who had evacuated from the pumice-covered town were now congregated on Namanula Hill and down at Nodup, and Phillips had little information on the whereabouts and condition of those on the eruption-affected west side of the harbour, or of those who had joined the exodus up Tunnel Hill Road to the north coast. Kokopo and Vunapope, however, were clear of the pumice fallout, and were together an obvious choice as a refuge for the townspeople.

Acting Superintendent Ball and other officers at police headquarters would have little rest during the 48 hours after the initial Vulcan outburst. Ball 'placed a guard over the Telephone Exchange to see that the operators remained on duty' (Ball 1937, 3), but later commended them for their 'quiet courage … sitting in that tiny room with only a couple of hurricane lamps as light through the horror of those two nights' (4). Mr 'Pug' Noble from the Department of Public Works was placed in charge of the exchange early in the evening, but was later replaced with Mr Walsh from the post office (telephone branch), and between them they supervised the operators who kept open the lines, particularly between the town and Namanula Hill. Maintaining power in the town was a difficult task because of falling wires, but Jack Barrie, manager of the Rabaul Electricity Supply Co., kept up the supply by mending fuses and restoring many circuits. Broken wires were, as Burgess (1937) noted, a hazard, especially where they touched water tanks and roofs, but maintaining lights in the streets, in the hospital and in Namanula residences, and keeping telephone lines open, was considered necessary. The risk was an acceptable one. There is a report of one New Guinean being killed by electric shock, but this is unconfirmed.

Administration medical staff at Rapindik native hospital did not know of the massive exodus from Rabaul. Medical assistants Doug Joycey and Roger Davies had seen the initial rise of the Vulcan eruption column, and orderlies and patients had run out from the hospital to view the eruption, 'including our pet Osteomyelitis case, who was supposed to never to [be] able to walk again' (Joycey c. 1937, 1). Thunder and lightning kept Joycey and Davies awake during the night. They attempted to play chess but found that this was impossible too. Davies, an enthusiastic and careful photographer, took spectacular photographs of the eruption, including long-exposure shots of Vulcan lightning by standing his camera on a chair (Figure 3.19). His friend Joycey noted that the lightning 'streaks stood in the air and quivered for minutes at a time, and were practically continuous' (Joycey c. 1937, 1). Both of them had retreated hastily from the hospital cookhouse, to which they had been drawn by swishing noises, on discovering harbour water suddenly rushing in over their ankles and back out again just as quickly. They spent 'terrifying' periods during the Rabaul pumice fallout with towels around their mouths and noses. Not until Sunday morning did they receive a telephone call: instructions were to proceed to Namanula to assist in evacuating the European hospital.

Figure 3.19. Lightning in night-time eruption cloud at Vulcan.

This dramatic shot of forked lightning in the Vulcan eruption cloud was taken by medical orderly Roger Davies at Rapindik on the night of Saturday 29 May 1937 during the severe 'electrical disturbance' phase of the eruption. The area west of Vulcan is being devastated by the fall of pumice out of the electrically charged eruption cloud. GA negative reference G2008.

Clive Meares on Namanula Hill heard a car drive up outside the house at 6 pm but, on going outside, 'walked into the blackest "blackness" one could imagine' (Meares n.d., 4). He could hardly see the car's lights on full beam from just 2 metres away. The car's driver reported that Rabaul town appeared to be practically deserted, but he thought many residents, in their desire to get as far from the volcano as possible, 'had driven to the north coast, not realising that they were travelling right into the path of the prevailing winds blowing from it' (Meares n.d., 4). Meares next noted that:

> The explosions from the volcano seemed to diminish after a while [and the atmosphere at Namanula to clear a little] but they were replaced by the still louder noise of a storm—perhaps an 'electrical disturbance' would be a better description—which raged above and around the centre of the eruption until the morning hours [Figure 3.19, this volume]. I had often experienced severe thunderstorms and had seen the sky lit up by a sequence of flashes of chain

> lightning, but never have I seen the sky illuminated by a dozen or more 'chains' at the one time as we witnessed, time and time again, that night. It seemed as though they were playing 'chasings' in and out of their hiding places behind the huge banks of whirling and wreathing clouds. Each flash set off a tremendous crash of thunder and, when a dozen flashes appeared at once, so was the sound of the ensuing thunder multiplied. In the occasional short lulls that did occur between the thunderclaps, still another sound thrust itself upon us: the continual crashing of falling trees and branches all over the hills on either side of the ridge [Namanula] as they were no longer able to bear up under the increasing weight of the debris that settled on them from the volcano.
>
> By this time the atmosphere at Namanula had begun to clear, either because the wind from the south-east had freshened and was taking more of the ejecta away from us, or because the rain nearer the centre of the disturbance was forcing it down into a more restricted area. Although there was no rain in Rabaul that night, it was impossible even to guess how much fell on the hills across the harbour and near the volcano itself … the stormwaters swept down the hillsides either into the harbour or onto the beaches and then into the sea on the north coast. In the latter area many Rabaul residents, who thought they would be safer there, found themselves held up by wide rivers where not even a small stream had existed before. They were forced to abandon their cars and trucks and managed to wade through the swift flowing torrents by holding hands and forming human 'chains'. (Meares n.d., 4–5)

The extreme volcanic 'weather' and land-surface flooding described by Meares and others can perhaps be regarded as an evening 'second phase' of the eruption. The growing volcanic cone may have appeared above sea level by this time, but the volcanic cloud above it was drenched with seawater derived from the harbour—*'was salty the water'*, Lulu Miller had said—and with water precipitating from volcanic vapour dissolved previously as part of the magma before its eruption. Water then rained out of the cloud copiously, causing the flooding. Vivid lightning is known in many other explosive eruptions where friction between solid volcanic particles generates static electricity, but distinguishing this kind of electrical discharge from that formed in what might be called 'normal', non-volcanic thunderstorms can be difficult. The combined volcanic/weather cloud may also have created different wind directions and strength in the surrounding atmosphere, thus perhaps accounting for the Vulcan pumice and ash that fell for a short while on Rabaul while north-westerly winds were blowing.

Keeping the two wireless radio stations in operation at Rabaul had been impossible. Operator E.B. Alexander at the administration radio station on the foreshores of Rabaul evidently made every effort to man the equipment, but the pumice fallout overwhelmed him. No longer able to see, and with the power plant broken down, he abandoned the task at about 6 pm (Threlfall 2012). The operator on duty at the AWA radio station at Malaguna, L.E. Coleman, was advised to leave by the officer in charge of radio operations in Rabaul, J.K. Twycross. Coleman experienced the same intense fallout as had Father Nollen and others at Malaguna, but he stayed at the station, and a fellow operator took the women of the station over Tunnel Hill to the north coast.

Judge Phillips urgently required communication links with centres outside Rabaul. The radio on board the *Golden Bear* was still working, but Radio Operator Costner was missing. However, the *Golden Bear* was still at Toboi Wharf, so Phillips sent round to Captain Olsen the experienced Rabaul radio operator S.W. Faulkner whose ship was the Carpenter's unfortunate *Durour*. Over the next few hours, Faulkner sent a backlog of messages using the *Golden Bear* radio, which Olsen placed at the disposal of the administration. Phillips was thus able to send out two important messages that evening: one at 9 pm to the Department of the Prime Minister in Canberra informing the Australian Government of the Vulcan eruption (Phillips 1937a), and the other, at 11.30 pm, to Captain Michie on board the *Montoro* informing him of the eruption and requesting that he 'hasten Rabaul and stand by' (Phillips 1937b):

> AFTER CONTINUOUS EARTH TREMORS SINCE 4 A.M. THIS DAY VULCAN ISLAND ERUPTED ABOUT 4 P.M. EMITTING DENSE VOLUMES SMOKE AND COVERING RABAUL WITH VOLCANIC DUST MAKING DAY INTO NIGHT. SHIP GOLDEN BEAR STANDING BY AND MONTORO RECALLED FROM KAVIENG EXPECTED HERE TOMORROW. AT NINE P.M. ACTIVITY MUCH MODERATED AND ERUPTION STILL SMOKING BUT COMPARATIVELY QUIET. SEEMS NO IMMINENT DANGER THOUGH CONDITIONS EXTREMELY UNPLEASANT AND FUTURE POSITION OF COURSE OBSCURE UNPREDICTABLE. NO CASUALTIES REPORTED SO FAR MOST OF RESIDENTS OF TOWN COMING TO NAMANULA WHERE CONDITIONS LESS UNPLEASANT AND SECURITY GREATER. ESSENTIAL SERVICES

> FUNCTIONING REASONABLY. ADMINISTRATOR ON TOUR CHIEF JUDGE HELD UP KOKOPO SIDE BY LAND SLIDES. PHILLIPS. (Phillips 1937a)

> VULCAN ISLAND ERUPTED TODAY COVERING RABAUL WITH VOLCANIC DUST. SLIGHT TIDAL WAVE ALSO OCCURRED BUT CAUSED NO LOSS OF LIFE. THOUGH NOW QUIETER POSITION STILL DOUBTFUL. REQUEST YOU HASTEN RABAUL AND STAND BY. IF YOU CANNOT RAISE RABAUL RADIO OFFICE COMMUNICATE THROUGH SHIP GOLDEN BEAR RABAUL. PHILLIPS. (Phillips 1937b)

People on Namanula Hill and those still in Rabaul would be advised to evacuate to Kokopo and Vunapope via Nodup using a flotilla of boats that would be made available.

3.6. Evacuations from Nodup

Mr and Mrs Meares on Namanula Hill had taken in one crowd of people, and when ash began falling on the hill at about 5 pm on Saturday they

> collected buckets and basins of water and passed round towels, flannels, pieces of sheeting … to about 25 persons congregated in the dining room where we had shut every door and window. (Meares n.d., 4)

The party included

> four or five young children whom we perched on top of the piano so as to keep them in sight, but I remember how vainly we tried to get them to submit to having wet flannels held to their faces. (Meares n.d., 4)

However, the European hospital on Namanula Hill was the centre of greatest activity that night for most who had come up from Rabaul. Gordon Thomas later wrote:

> [T]he work done by the hospital staff and their able and willing volunteers will never be forgotten by the two hundred-odd people who were cared for during Saturday night and Sunday morning. Tea and refreshments were always available throughout the night; enquiries for missing relatives given the promptest attention and nothing was left undone which could have been done by Matron

> McKinnon and her helpers. Fortunately no serious accidents occurred to residents; many sufferers from dirt-infested eyes were treated and sedatives administered to those suffering from shock and nervous prostration. (Thomas 1937a, 2)

Thomas himself had reason to be grateful for he was there reunited with his wife (Thomas 1937b). Others were equally appreciative. Gladys Forsyth, for example, was rejoined by her brother Adrian. Her friend, a sister at the hospital, gave Mrs Forsyth her room in which the grateful mother installed her baby, together with the cat and dog. Mrs Forsyth retreated to the hospital room when the ash fell, and 'waited to be "buried alive" (as described in the "Last Days of Pompeii") as did everyone else who had read the book' (Forsyth n.d., 9). Hospital doors were closed to keep out the dust, and the children were gathered in rooms more protected from the fumes and ash, but the heat indoors became unbearable. After the worst of the ash fall passed, Mrs Anthony, like others near and on Namanula Hill, was kept awake by the lightning and thunder (Anthony 1981). By morning, the demand of the crowd of refugees on Namanula was so great that the hospital could no longer cope. Acting Superintendent Ball received a telephone call from Dr H. Champion Hosking advising that

> he couldn't carry on … and demanding that they be sent down to the beach at Nodup to await the transport that was said to be coming from Kokopo to take them there. (Ball 1937, 4)

The extent of the fallout on Namanula Hill and the effects on Rabaul town could be fully appreciated in the morning light when, shortly after daybreak, Clive Meares and several others drove down into town. Vulcan was still in eruption, but noiselessly, and driving was eerily quiet as the pumice cover on the road deadened the sound of the car wheels. Meares wrote:

> Looking across the town, not a vestige of green was visible in the forests on the hillsides and, in fact, everything in sight was covered by a mantle of death-like grey … In the town itself, motor traffic was at a standstill as the roads were almost completely blocked by fallen trees. (Meares n.d., 5–6)

Meares made his way to the police station where Judge Phillips had hastily convened a small meeting of leading government officials and principal businessmen (Ball 1937; Meares n.d.), including, among others, R. Melrose, the district officer at Rabaul; Acting Superintendent Ball; and Gordon Thomas, editor of the *Rabaul Times*. Phillips informed the meeting of his decision that Rabaul should be evacuated and that people should assemble at Nodup to be taken by boat to Kokopo and Vunapope.

From then on, Acting Superintendent Ball reported, the

> whole of Sunday morning was spent in a terrific effort to clear the roads which were in a frightful state from pumice, rain and fallen trees. Every lorry that could be found was pressed into service, every prisoner was used, every Officer was at work. Our idea was to clear the main routes to expedite the work of the evacuation … other members of the Force were directing the movement of refugees to the beach at Nodup from Namanula and their work by all accounts was highly creditable and very necessary, particularly in the handling of the Chinese who showed every inclination to panic. (Ball 1937, 5)

Ball had been concerned the previous evening to hear that Senior Gaoler H.C. McFarlane had evacuated the native prison. McFarlane and J.H. Theckston had mustered the prisoners when they were on the point of becoming unmanageable and had marched them up to Namanula Hill. Ball was impressed with their work, but nevertheless instructed McFarlane on Sunday morning to return their charges to prison. Doug Joycey and Roger Davies at Rapindik Hospital had also, on Saturday night, released the nine or so inmates of the native asylum so that they could have the same chance of escape as the other patients; Davies is said to have remarked that 'there were many worse cases outside, anyway' (Joycey c. 1937, 3).

The McCarthys returned to their home from the Cosmopolitan Hotel to collect some possessions, and then began walking again, up over Namanula Hill to Nodup. Mrs McCarthy collected her fur coat and marriage certificate, but later could not remember any of the other more important items they took (McCarthy 1980). She recalled losing one of the heels of her white high-heeled shoes so that she had to hobble along. The Anthonys emerged from their home and saw the changed view of Rabaul from their verandah, their bleary-eyed servants drifting out from their *boi* house after a sleepless night and reporting for duty (Anthony 1981). The cook boiled some water on a primus and an attempt was made to brush away the ash from the verandah. A car picked its way along the street and the driver, Ted Cook, surprised to see the Anthonys still in town, told them of the evacuation and offered them a lift to Namanula Hill. Mrs Anthony packed a small case, threw a loaf of bread and other food into a shopping basket, and the party, which included their fox terrier (which later sat on the bread), its two puppies, a servant and two children from next door, drove up to Namanula and joined the crowds milling round the hospital before going on to Nodup.

Some people who had overnighted on Namanula Hill took the opportunity of going back into town to collect a few clothes and essential items. Mr Hoogerwerff, for example, rushed back down the hill for extra clothing (Hoogerwerff 1937). Few had time to consider emptying toilet pans, and ice-chests and refrigerators that would be without power. Perishable foods were left to spoil in most homes. Mr Burgess had time to think of packing only a 'toothbrush, comb, and a clean shirt' (Burgess 1937, 1). Bernard Ryan also returned to town and was there appointed, with others, to assist in the evacuation. Ryan and John Cox were assigned the task of removing from the Cosmopolitan a residue of *Golden Bear* drinkers who were 'recovering slowly' (Ryan 1980–84, Sleeve 55). Ryan and Cox drove them over to Nodup ready to board their ship. Chinnery had also been busy since his arrival at midnight from Kokopo. However, at about 9 am on Sunday, his car crashed and he received a severe head injury, resulting in his evacuation to Kokopo as a hospital patient.

Mrs Kathleen M. Bignell, proprietress of the Rabaul Hotel, came down from Namanula and resumed catering at the hotel, as well as taking in a range of household pets that had been deserted by their owners (Bignell and Clarence 1981–84; Clarence 1982). She would remain in Rabaul and experience further difficulties related to the eruption over the next few days. Waiau Ahnon was reluctant to leave his house at the foreshore, but Messrs Ball and Prior made their intentions clear, and he soon began walking to Nodup (Ahnon 1953). Joycey and Davies at Rapindik, after receiving instructions via telephone to help evacuate the European hospital, also set out on foot but became lost after taking a short cut; they finally arrived at Namanula at about 10 am, just as the last of the patients were being driven down to Nodup, and were admonished for their lateness (Joycey c. 1937). Davies was ordered to Kokopo with the patients. Joycey was told to stay in Rabaul with Dr R.W. Cooper, who had been put in charge of medical and sanitary arrangements.

People were now congregating in their thousands at Nodup, streaming down the road from Namanula on foot, in private cars and in trucks, waiting for the boats to pick them up (Figure 3.20). Eric Hopkins placed his fleet of hire cars at the disposal of the administration, and personally drove the Rabaul–Namanula–Nodup Road many times conveying people without means of transport out of Rabaul to the Nodup evacuation point (Hopkins 1937). L.W. (Bill) Heinicke of Burns, Philp & Co. also, among others, provided valuable assistance in transporting refugees between Rabaul and

Nodup. Hopkins stayed in the Rabaul area after the Nodup evacuation and, with some others, experienced the next volcanic eruption that would affect Rabaul township.

Captain Olsen on board the *Golden Bear* in Rabaul Harbour received a request at 7 am on Sunday to proceed to Nodup to help pick up refugees; about an hour later, he steamed into the channel between Crater Peninsula and Vulcan, which was still in full eruption (Olsen n.d.). Later, upon attempting to leave the harbour, they 'narrowly escaped being enveloped in the flow from the volcano' when a 'column of steam and lava' was sent across the channel directly ahead of them (Olsen n.d., 8). Olsen 'asked for all speed possible, trusting to luck', and ordered everybody off the decks. Government officials on shore lost sight of the ship in the flow and feared she was lost. But the cloud dissipated and the *Golden Bear* managed to exit the harbour, covered in several inches of pumice and looking a 'sorry sight'. Her holds had been left open at Toboi Wharf to dry out in readiness for copra loading; the pumice later found in holds two and four had to be hoisted up through the hatches in almost 50 loads of 500-pound (225-kilogram) rattan baskets. *Golden Bear* rounded Praed Point and arrived off Nodup at about 9.30 am.

Figure 3.20. Car parking at Nodup after Rabaul evacuation.

Cars are parked in an orderly fashion at Nodup on the morning of Sunday 30 May 1937 while Europeans wait for their evacuation by boat. Many such vehicles were requisitioned by the administration for use in and around Rabaul. Some of those left at Nodup were used by people who returned to Nodup from Kokopo and who required transport to Rabaul so as to retrieve personal possessions, business documents and other essential items. GA negative reference GB2603.

Captain Olsen attributed the 'flow' of ash that enveloped the *Golden Bear* to a sudden change in the direction of the wind affecting the Vulcan eruption column. Local changes in wind direction around the volcano may well have been caused by the hot column of ash and pumice rising from Vulcan itself. However, a more probable explanation for the origin of the dust-laden flow is that it came directly from the base of the collapsing eruption column. Brett Hilder noted the *Golden Bear* had been 'blasted all over the starboard side as she passed Vulcan, making her a rusty grey colour all over that side while her port side was clean and brightly painted' (Hilder 1980–81, see letter to R.W.J., 6 April 1981, 1). It is possible that a large amount of pumice was dumped out of the Vulcan eruption column and hit the ground, sending gusts of dust-laden air from the base of the column and plastering the ship on one side, perhaps like the 'light-coloured cloud' shown in Figure 3.13. Another possibility is that the lateral flow was a fast-moving, low-density, turbulent cloud that had detached from the top of a denser pyroclastic flow. Volcanologists call such clouds 'surges' (among other terms) and they can cause great destruction on account of their searing heat. The flow that plastered the side of the *Golden Bear*, however, appears to have been cold—more like a lateral gust of dust.

Judge Phillips's radio message sent the previous night from the *Golden Bear* to the *Montoro* reached Captain Michie at 11.30 pm while at sea between Kavieng and Salamaua. Captain Michie was described by Purser George Clarke as a 'slow-spoken gentleman of invariable calm and even, pleasant temperament' (Clarke 1960, 1; 2001, 42). Not surprisingly, Michie responded well: within 12 minutes he had set course for Rabaul; advised the administration, via the *Golden Bear*, of his estimated time of arrival of 2 pm Sunday; and informed Burns Philp's head office in Sydney of his new schedule (Michie 1937). According to Clarke, the chief engineer was instructed to 'get every possible revolution out of the engines. The "Montoro" never throbbed as heartily in her life' (Clarke 2001, 42). Second Mate Brett Hilder, who came on watch at midnight in bright, full moonlight, noted that the ship was curiously whiter than usual, and soon discovered that the cause was fine white volcanic ash that had carried north-westwards over 240 kilometres from the eruption at Rabaul (Hilder 1961). Hilder later suggested that there may have been a relationship between the earth tides of the full moon and the volcanic eruption at Rabaul, a general hypothesis that Rabaul-based volcanologists would consider in later years (Hilder 1980).

Meanwhile, Judge Phillips—who was much less concerned about the science of earth tides—sent further instructions during the morning to Captain Michie to proceed to Nodup to take on evacuees (Michie 1937). Stock was

quickly taken of water and provisions for the expected thousand or more Europeans and Asians (Clarke 2001). All New Guinean hands on board were moved to 'tweendecks' after breakfast so that the decks were clear, and every cabin and sleeping place was prepared for passengers. All six lifeboats were stripped of gear, except the steering oar, and lowered to the waterline ready for immediate release when the ship stopped. The cargo boats and two pinnaces were also readied for heaving out.

The *Golden Bear*, a cargo vessel, experienced difficulties at Nodup in taking on refugees. The beach at Nodup had only a small jetty so the loading of boats had to be undertaken in the shallows. There was, fortunately, none of the surf that can pound that part of the coast during the south-east season, but the freighter had no launches for towing her two lifeboats and work boat, and there was some initial difficulty in heaving out the boats, as the davits and pulleys were seized up with pumice. One boat davit gave way, injuring Ordinary Seaman Samuel O'Neal. Further, the lifeboats had tall sides and were difficult to load in the shallow water. Amy Anthony recalled seeing her husband and another man grappling with

> a very heavy lady, and as her weight spreadeagled their legs in the soft sand, they finally heaved and tossed her over the side of the boat, whilst willing hands on the lifeboat caught her and broke her headlong tumble. (Anthony 1937, 5)

The morning sun was strong, and those without hats felt it badly. Evacuees had to clamber up rope ladders and cargo nets that had been slung from the freighter's sides. The *Golden Bear* had, by the time of its departure at about 2 pm, taken on board about 750 people, mainly women, babies in arms and children, both European and Chinese. There were also the patients from the hospital, the doctor, several nurses and an assorted group of family pets.

Other smaller craft also took on board evacuees for Kokopo. These included Vunapope Mission vessels *Paulus* and *Theresa* that had begun ferrying people to Kokopo during the night, the Chinese-owned *Kwonchow* (or *Kwong Chow*), the plantation boat *Muruk* and the Japanese *Asakaze*, which had been refloated and had transported Judge Wanliss to Nodup. Wanliss went on to Kokopo, leaving the evacuation in charge of Judge Phillips. Captain Kendall was there too with Oscar Rondahl's *Induna Star*, which he had brought round from Kabakaul Plantation. The administrator's *Nereus* had made her way out of Rabaul Harbour during the morning—Captain Jackson, said Gordon Thomas, 'making a very fine dash past the dense smoke clouds of the volcano for the open sea' and Nodup (Thomas 1937a, 2).

These vessels could carry only small numbers of people, so when the 360-foot, 4,088-ton *Montoro* hove into view off Nodup at about 1.15 pm, shortly before the fully loaded *Golden Bear* was set to leave, there was increased optimism among the thousands still on and near the beach. As the coastline was poorly charted, Captain Michie was forced to move slowly; the anchor was dropped to 30 fathoms and the *Montoro* edged in carefully until, at 1.40 pm, the anchor touched bottom and the ship was halted (Michie 1937; Hilder 1961, 1980). The people on shore, already anxious to board the old ship, grew even more anxious when they became aware of a dark eruption cloud curling upwards behind Kabiu and towering up from the shore close to Nodup. Tavurvur had joined Vulcan in eruption at about 1 pm!

3.7. Tavurvur in Eruption: Sunday Afternoon, 30 May

Many women on board the *Golden Bear* and small boats on their way to Kokopo were badly affected by the sight of the Tavurvur eruption: '[I]t was a terrorfying [sic] sight', recalled Amy Anthony who was then aboard one of the small boats, 'and very frightening and most of the women passengers disolved [sic] into tears, as our husbands were all back at Nodup' (Anthony 1981, 6). Some thought that Kabiu herself—the Mother—might also break out into activity. George Clarke on board the *Montoro*, 'right under the lee of the Mother', was anxious about that possibility: '[I]f the old lady blew her top whilst we were there, the *Montoro* would cop the lot' (Clarke 2001, 44).

Evacuation down to, and from, Nodup had been orderly throughout the morning, but excitement mounted as the *Montoro* anchored and lowered her boats and as Tavurvur continued to discharge a considerable eruption cloud (Figures 3.21–3.23). Yet the crowds on shore stayed controlled, and their embarkation proceeded steadily and without significant interruption. The presence and directions of the police were influential in maintaining order. Acting Superintendent Ball (1937, 5) wrote that the Chinese showed 'every inclination to panic', but he and others said that the general behaviour of the evacuees was exemplary. George Clarke, who was appointed beachmaster, said that the Burns Philp

> labour line caused some trouble through claiming priority because the *Montoro* was a company vessel, and at one stage put on a demonstration and rushed the boats. However, the vigorous but unconventional methods of the police restored order. (Clarke 2001, 44)

Young European male civilians such as Adrian Field, who armed himself with a stick, were also involved in maintaining order (Field n.d.).

The lifeboats, pinnaces and cargo boats were lowered into the water as soon as the *Montoro* came to a halt. Boats were towed two at a time by the launches, and each was filled in the shallow water by the beach with more than 100 people at a time, although the boats were certified to carry only fifty-four. Rope ladders, cargo nets, lifelines and the two gangways enabled boats to be quickly discharged when they reached the *Montoro*. Captain Michie was requested to take on board all the New Guineans assembled on the beach, as well as the Europeans and Asians, and only after five hours of running the lines of boats between beach and ship was the task completed. Brett Hilder was impressed with the quiet, controlled manner of the evacuees during the ferrying and embarkation: 'There was no excitement of any sort. Everybody was overawed; they were speechless … they were all pretty frightened, but all very quiet—amazingly quiet' (Hilder 1980, 31–2). Passenger D. Stewart, sales manager for Holbrooks Ltd, Sydney, also remarked that the 'discipline and lack of panic was most marked'. He attributed this to European control, adding, patriotically, that 'one felt proud to be British' (Stewart 1937, 72).

Figure 3.21. Tavurvur eruption cloud as photographed from the SS *Montoro*.
This was the view seen from the decks of the *Montoro* as she approached Nodup in the early afternoon of Sunday 30 May 1937 (compare with Figure 3.22). Refugees from Rabaul are assembled on the beach as small boats take some of the evacuees out to two of the smaller vessels used in the Nodup evacuation. Eruption clouds drift north-westwards (to the right) from Tavurvur, which is hidden behind the slopes of Kabiu (extreme left). The hill in the centre of the photograph represents the north-eastern side of Palangiangia within which is Rabalanakaia. The photograph was supplied courtesy of B. Hilder. GA negative reference GB3301.

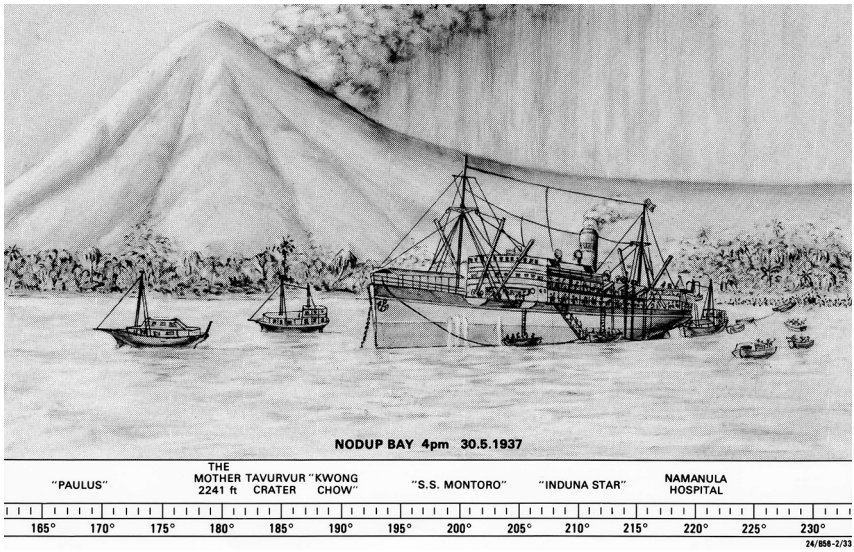


Figure 3.22. Brett Hilder sketch of the scene off Nodup.

This is a previously unpublished sketch (based on compass readings) made by the late Brett Hilder of the evacuation from Nodup at 4 pm on Sunday 30 May (compare with Figure 3.21). Small boats are relaying refugees from the shore to the SS *Montoro* shortly after Tavurvur volcano, on the other side of the Mother, had broken out in explosive eruption. Note that Palangiangia and Rabalanakaia volcano are not shown in the sketch.

Figure 3.23. Evacuees at Nodup being ferried out to the SS *Montoro*.

Ghostly figures in this underexposed photograph congregate at the Nodup evacuation point. Heavily laden small boats ferry evacuees out to the SS *Montoro* (top left) as the *Golden Bear* in the top right, carrying other evacuees, steams off to Kokopo in the early afternoon of Sunday 30 May. GA negative reference GB2506.

There was no opportunity to count all those on board the *Montoro* by the time she weighed anchor at 6.35 pm, but most estimates range between 4,000 and 6,000 people, about 200 of whom were Europeans. Brett Hilder wrote:

> And we had them standing on every deck in the ship—all the way up to the bridge. We had them in the 'tween decks, but we didn't put any in the lower holds; but all these people standing up, like cigarettes in a packet, or a bit like a Sydney bus in rush-hour … We had the police boys who came aboard with them, and they kept a gangway clear so we could get up the companion ways up to the bridge and back … There was absolutely no trouble—no noise. Everybody just stood rooted to the spot, like the good commuters coming down to the office from the North Shore line … [Y]ou couldn't believe you could load that many people, at an anchorage—just with ships' boats—and get them all to stay on deck and stay in position all night. (Hilder 1980, 32)

The assembled refugees 'were a motley sight', said Mr Stewart, 'some maimed and crippled—carrying their baskets, parrots, dogs, primus stoves, hurricane lamps, camphor boxes, etc.' (Stewart 1937, 72). Many carried 'a bundle of clothes, or a little suitcase, or a kit-bag, or something with them—or a baby', listed Brett Hilder (1980, 32). An elderly Chinese man carried a very heavy bucket, apparently full of potatoes, but the potatoes were only a top layer covering a hoard of coins.

The refugees on the beach at Nodup on Sunday 30 May 1937 could not see Tavurvur volcano directly, but others in Blanche Bay were able to see the start of the eruption and even to photograph it. Mr and Mrs A.G. Vagg of Madang were in the Rabaul area at the time of the 1937 volcanic eruptions, awaiting the arrival of the *Neptuna*, which would take them back to Australia, and Mrs Vagg took an exceptional set of snapshots of Tavurvur breaking out into explosive eruption, using a small Brownie camera (Figure 3.24; Vagg 1981). Mr Vagg also took photographs. Another photograph of Tavurvur at this time was taken from Matupit Island by a missionary (Fisher 1939a, 57; see also Figure 3.25). Vulcan meanwhile was still producing its sub-plinian eruption (Figure 3.26).

A European man, William Elworthy, had gone missing out at Tavurvur on Saturday (Joycey c. 1937; Saxton 1937). Elworthy, an electrical engineer who had been assisting Chief Engineer Jack Barrie of the Rabaul Electricity Supply Co., was due to return soon to Australia. He had decided to hire a canoe at Matupit Island early on Saturday afternoon so that he could be paddled across Greet Harbour to Tavurvur volcano to take photographs. Elworthy had not returned. Barrie found it impossible to maintain the electricity supply and by Sunday had shut down the generators, freeing him to search for his young colleague. He drove out to the causeway leading to Matupit Island early in the afternoon, accompanied by, among others, Doug Joycey, who wanted to return to Rapindik to retrieve some medical books, but they became bogged when driving onto what they thought was a solid roadway (Joycey c. 1937). The causeway, in fact, no longer existed, and the water was covered in floating pumice from Vulcan, across the harbour, which was still in full eruption.

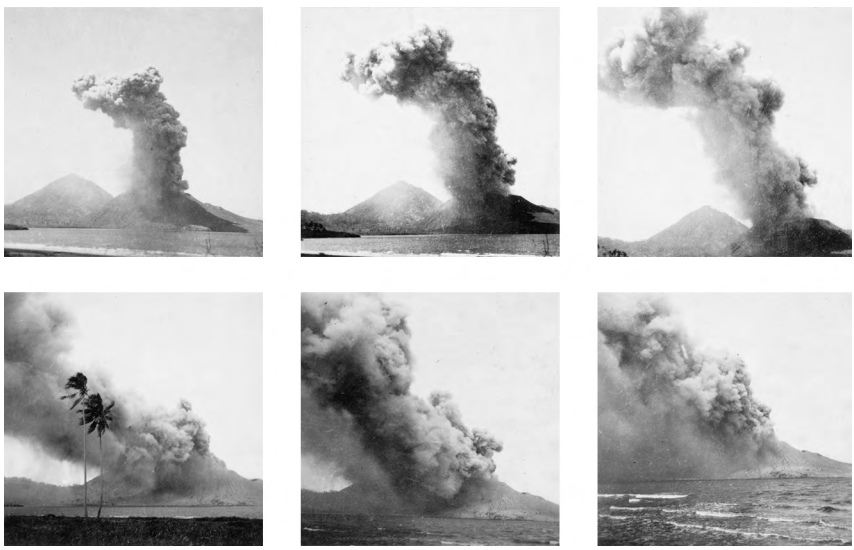


Figure 3.24. Six photographs of Tavurvur eruption taken by Mr and Mrs Vagg.

This set of six photographs of Tavurvur in eruption on 30 May 1937 was taken by Mr and Mrs A.G. Vagg using two cameras (Vagg 1981). The photographs have been arranged here top left to bottom right in what may be a time sequence. Note how the initial upward impulse of the Tavurvur eruption column in the upper-left photograph has been arrested by the south-easterly wind that blows the ash towards Rabaul. The ash fall is dense and the column completely bent towards the north-west in the bottom right-hand photograph. The peak in the distance is Turagunan (South Daughter). A similar photograph to these was taken by Pastor G. Peacock from the Seventh-day Adventist mission on Matupit Island (Fisher 1939a, lower photograph on p. 57; see also Oliver 2020). GA negative reference GB3293.

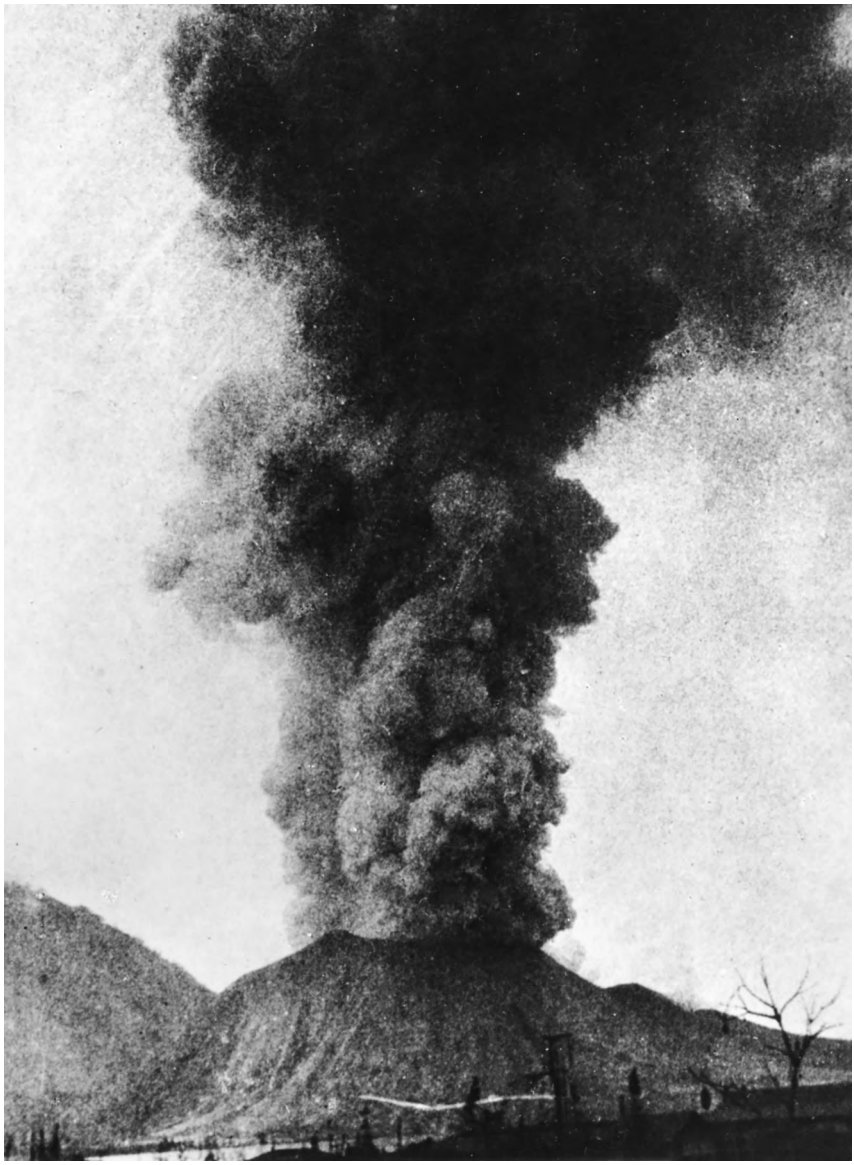


Figure 3.25. Tavurvur in eruption probably as seen from Rapindik.

Tavurvur volcano is seen in eruption in this photograph attributed to Dr R.W. Cooper (Fisher 1939a, 60) and shot apparently from Rapindik. The time that the photograph was taken is uncertain. Both Dr Cooper and photographer Roger Davies were probably on Namanula Hill at the time of the first outbreak of the eruption, so this photograph may have been taken later. Note the damage to vegetation in the foreground presumably caused by fallout of the mud-ash in the early afternoon of Sunday 30 May. The photograph, therefore, may be of the early, still-daylight part of the later phase of activity that was witnessed so vividly after dusk from the *Montoro* off Kokopo (Figure 3.27). GA negative reference GB3296.

Figure 3.26. *Daily Telegraph* front page featuring the high Vulcan eruption column.

Part of the towering eruption column from Vulcan dominates the front page of the Australian newspaper the *Daily Telegraph* for Tuesday 8 June 1937. The exact time that the photograph was taken is not certain, but most probably it was sometime on Sunday 30 May — that is, after both the initial 'phreatoplinian' phase and the night-time 'electrical disturbance' phase of the eruption. The eruption column in this photograph appears to be rising in typical 'plinian' fashion from the centre of the newly formed

volcanic cone of Vulcan (compare with Figure 3.9). A small pyroclastic flow seems to be running down (or has run down) the eastern side of the cone as seen by the darker lobe on the light-coloured flanks of the new cone. Collapsed crowns of fronds on the tops of plantation coconut trees are shown in the photograph on the right, and a small boat moves through floating pumice on the left. The photograph may have been taken by Eric Hopkins, who is known to have given photographs to the *Daily Telegraph* (Hopkins 1937). Published courtesy of Australian Consolidated Press Limited, Sydney.

Joycey recalled that, just as they were dragging out their vehicle, Tavurvur, which was nearby,

> went up with a loud explosion. Now, Matupi was different altogether from Vulcan. Vulcan shot out light pumice which floated away in whatever direction the wind was blowing. Matupi produced thick, heavy, slatey-blue mud, which rolled down towards Rabaul, in a cloud. We turned the utility round as quickly as possible, filled it to overflowing with the boys who had been helping us to drag it out, and raced for Rabaul. I would say the clouds travelled slowly, because we beat it in the ute.
>
> Well over one hundred boys from the Compound and Matupi village were running along this road, imploring us to pick them up; but, as we had natives on the running board and hanging on the back, we could not stop.
>
> The cloud of mud was a terrifying thing to watch, billowing along the road a thousand or so feet high, and faster than a man could run. I thought I was witnessing a great tragedy … but Matupit sent up just one puff of mud which lasted about half an hour, and then only steam; and not one of the natives on the road was lost. (Joycey c. 1937, 2)

Other witnesses said the initial explosion was extraordinarily quiet and continued this way 'except for a sort of whirring sound' (Fisher 1939a, 23). The Tolai of Matupit Island nevertheless were in a turmoil as the Tavurvur cloud grew and developed. Many of them believed the eruption was the work of the *kaia*, To Lagulagu, who lived in the volcano and that the eruption was somehow a punishment directed at them (Mennis 1972). Matupits who had not already left the island on Saturday afternoon after Vulcan had begun its activity streamed across to the mainland carrying children and belongings (Mennis 1972). Those left behind—the old, sick and crippled who had no way of escaping—worried that the volcano would engulf them. However, the 'whirring' cloud missed the island, advancing instead on Rabaul, causing a blackout, and dumping on the town an unpleasant, wet, mud-like ash, accompanied by the stench of sulphur dioxide that made breathing difficult (Fisher 1939a). More than 10 centimetres of this sulphur-rich, moist ash

would eventually accumulate in the southern part of town, covering the lighter-coloured and mainly drier ash of Vulcan that had fallen the previous evening. Gordon Thomas noted later that the message he had left his wife indoors on the table written in the dust-like ash from Vulcan was still there, whereas none of the heavier, wet mud-ash had entered the house to cover the message (Thomas 1937b).

The Tavurvur eruption cloud rose higher and could be seen clearly from the *Montoro* to the north-east as she rounded Tavui Point and approached the Nodup pick-up point between about 1 and 1.30 pm on Sunday (Hilder 1961). Father K. Schlüter at Vunapope to the south-west also saw the Tavurvur cloud:

> Suddenly—at exactly 13 hours—we noticed a small white cloud over the small crater of Kaia (to the right of Matupit). The eruption followed only a second later. A black mass of stones and ash shot 1000 m straight up into the air. Shortly afterwards we could see the splashes of the boulders into the sea. It recalled pictures of naval battles; except that here there were several hundred splashes. I estimate that the water shot up 30–40 m. The clouds rose up even higher above the crater and then slowly sank over Matupit and Rabaul. At that moment two pinnaces belonging to the Adventists, lying off Matupit, which were ready to sail, did set sail and fortunately escaped destruction. (MSC 1937; Arculus and Johnson 1981, 10)

Acting Superintendent Ball, in Rabaul, heard of the Tavurvur eruption soon after 1 pm and was notified that the prisoners, who had been taken back to the prison, were becoming restive (Ball 1937). He therefore instructed that all police, prisoners and rations should be brought to the Rabaul Police Station and, following hurried consultation with Acting Inspector Prior, decided to confine the prisoners to a convenient building close at hand: the government store. Trucks were sent to bring everyone in, but the Tavurvur blackout and showers of mud caused 'indescribable confusion' and only one truck reached the police station; another two reached Namanula, and thus many New Guinean police and prisoners were, contrary to Ball's intention, evacuated from Nodup to Kokopo. Ball reported:

> There followed in Rabaul another afternoon and night of horror far more dreadful than the previous afternoon and night. No words I have at my command can adequately describe the effects of the incessant and nerve-racking thunder; of the lightning of an intensity never seen by any of us before; of the almost incessant boiling over of the new volcano at Vulcan Island accompanied by the most sinister

> rumblings. To have remained in Rabaul, beneath it as it were, during the hours of darkness, was a test of endurance. The horror was increased by having to listen throughout the night to the crash of falling trees or huge branches as they gave way under the weight of mud with which Rabaul had been deluged during the afternoon and evening. (Ball 1937, 6)

Hal Evans was in Rabaul when the Tavurvur eruption took place:

> We, the 18 remaining persons in Rabaul closed ourselves in the Police Station which had become the Administrative Headquarters, and the only habitable building in Rabaul. The second eruption was worse than the first, because it took place within about 2 miles of Rabaul Township. However, we survived it [and] after being in the darkness for about 3 hours, we were again able to carry on. (Evans 1937, 3–4)

The fallout of the volcanic material from Tavurvur on Rabaul was different to that of the mainly dry, dust-like pumice ash from Vulcan, which blew about and had fallen earlier that day for a short while. Rather, the Tavurvur mud, once it landed, could not be resuspended by any breezes. Further, most of the Tavurvur mud-ash was restricted to a fairly narrow band that extended north-westwards from the volcano, over nearby Rapindik to the central and south-eastern parts of Rabaul town. Namanula Hill was much less affected, as were the evacuation routes down to Nodup and over Tunnel Hill to the north coast. The mud had a sulphur-like or sulphuretted smell, possibly including the 'bad-egg' smell of volcanic hydrogen sulphide, but most probably was dominated by volcanic sulphur dioxide, much of which had been dissolved in the odoriferous mud. The Tavurvur mud was, therefore, acidic—sulphuric acid—which would have a corrosive effect on exposed metal surfaces such as on motor cars left outside (Fisher 1939a).

People remaining on Matupit Island close to Tavurvur had a frightening night:

> The Catholics locked the Church doors and went over to the Methodist church where they spent the night huddled in the darkness. They were very frightened of the large fiery rocks which continued to be hurled out of Matupit. They had no food and only a little water, and they thought they would soon die … Tavurvur continued to emit steam, mud and rocks all through Sunday and the following night. A terrible choking gas accompanied the explosions so that many thought they would suffocate. Earthquakes continued and lightning flashed as the rumbles of thunder and explosions continued. (Mennis 1972, 64)

Those who had left the island took any route they could over to Nodup. Hardly any ash from either Vulcan or Tavurvur fell on Matupit Island but the island was nevertheless damaged by tsunamis. Some Matupits came to the conclusion that the old *kaia*, To Lagulagu, 'was not so angry with them after all' (Mennis 1972, 67).

Following a visit two days later to nearby Rapindik, across the now submerged causeway to Matupit, Doug Joycey observed that:

> The mud and the pumice, on the palm leaves, had bent them down like pine-trees. Hopping about in the mud were thousands of birds, their wings so weighted with mud that they could not take off. The whole landscape was grey mud, right to the top of the hills—a most depressing sight. (Joycey c. 1937, 3–4)

The successful evacuation of Rabaul on Saturday night and Sunday morning meant that most Rabaul people were spared the effects of the Tavurvur fallout during Sunday afternoon and night, as many of them had already landed safely at Kokopo or were awaiting disembarkation from the *Montoro* on Monday morning. The picture of Rabaul presented at first light on Monday to the few who remained there was, according to Ball, one of 'desolation … the roads were jungles and ankle deep with a thick and treacherous mud' (Ball 1937, 6). Nevertheless, Ball organised his resources and responded to the following priorities:

1. *Sanitation*: to remove the contents of sanitary pans and ice-chests, and to bury them, or dump them in the sea.
2. *Road clearing*: to open trafficable routes so that supplies in Rabaul could be transferred to Kokopo via Nodup.
3. *Police work:* to establish order among the small community—the 'garrison'—who remained in Rabaul, to prevent unauthorised people from coming into Rabaul and to safeguard property.

A police mess was organised and run by 'Soldier' Williams and Charley Bye, both of Carpenter's. Mrs Bignell carried on the mess at the Rabaul Hotel, rationed by the administration and supported by the police.

The *Montoro* had headed out to sea late on the Sunday afternoon. Unable to discharge her passengers at Kokopo until daybreak the next day, she stood off Blanche Bay waiting for the night to pass. A severe wind and rain squall struck the *Montoro*'s starboard side at about 2 am, and George Clarke, the ship's purser, woke to find the ship keeling over to port. He leapt out of his bunk and landed on a New Guinean who had sensibly crept into his cabin after lights out. Much later, he recalled:

> On deck the scene was bedlam. The locals on the starboard side were pressing to port so as to avoid the driving rain and the more they pressed the greater the list became, and a few Europeans awake were trying to drive them back to trim ship. Fortunately the native police aboard rallied magnificently and once understanding what was wanted, the excess weight on deck was again evenly distributed in a short space of time. The ship's head was also brought into the wind promptly, but the few minutes over which this happened were as tense as any I have known. (Clarke 2001, 45)

A magnificent pyrotechnic and electrical display was performed all night by the volcanoes for those *Montoro* passengers who stayed awake to watch the rare spectacle of two volcanoes in full, simultaneous eruption. Brett Hilder drew a sketch of the view (Figure 3.27) and recorded that:

> Most of us stayed up to watch the satanic celebrations; the two volcanoes on each side of the entrance, were throwing up a solid jet of red-hot dust and stones to a great height and the two columns appeared to meet somewhere over Rabaul. The lightning was fantastic, some flashes bursting like bombs, others running horizontally around the ascending columns, while forked lightning zig-zagged down to the surface of the sea. (Hilder 1961, 54–5)

Clive Meares also saw the same 'grandstand' view from the comparative safety of the *Montoro*, adding that a new cone must have been built up at Vulcan because there was a 'repeated appearance of a ball of fire which then broke in two and "poured" back into the sea as though running down the two sides of an isosceles triangle' (Meares n.d., 7). Meares was describing some form of subaerial pyroclastic flow down the new cone of Vulcan.

Viewing the eruptions from Kokopo, George Clarke felt that:

> As a spectacle the volcanoes were their best at night. At two or three minute intervals each would erupt with a mighty blast, shooting a molten and glowing stream over a thousand feet into the air, and as the thrust diminished, red-hot boulders could be seen falling back into the crater. Each night whilst the volcanoes were in major eruption a terrific electric storm would develop over them between 8 and 10 o'clock, producing the most vivid lightning I have yet seen. At regular intervals a chain of lightning would strike downwards from high above them and at a distance of up to 10,000 ft divide into two forks each simultaneously penetrating the core of both craters. These storms when at their peak were an awesome sight. (Clarke 2001, 45)

Figure 3.27. Brett Hilder sketch of Vulcan and Tavurvur eruptions at night-time.

This sketch by navigator Brett Hilder, showing both Vulcan (left) and Tavurvur in activity, is of the northward view, as seen by Hilder and thousands of others on board the *Montoro* off Kokopo overnight on Sunday 30 May 1937 (Hilder 1961, 57). Note the difference in the eruption style between the two volcanoes represented in the sketch: violent, jet-like explosions at Vulcan together with an eruption cloud that extends above the top margin of the sketch; Tavurvur, whose eruption cloud is almost entirely within the field of view. Winds at different levels are blowing the eruption clouds off to the north-west or west-north-west. The distance between the two volcanoes is about 6 kilometres, so the height of the Tavurvur eruption cloud where it starts to be blown on a more westerly vector is about 4 kilometres. The volcanic cones of Tovanumbatir, Kabiu and Turagunan (the Mother and two Daughters) are clearly visible on the right. GA negative reference GB2189.

An important aspect of these reports of eruptions from both volcanoes after dusk relates to the likelihood that Tavurvur had changed its style of eruptive activity from its initial wet 'ash-mud' eruption—which lasted only half an hour according to Doug Joycey—early on the Sunday afternoon, to ongoing explosive activity of a different kind. The evening/night-time drawing by Brett Hilder (Figure 3.27) is significant with regard to the near-vertical eruption column from Tavurvur, which reached a height of about 4 kilometres before being driven north-west by high-level winds and merging with the Vulcan cloud. This height of 4 kilometres is far higher than either the Mother or South Daughter cones on the right-hand side of the sketch, and higher than the clouds that produced the mud-ash clouds early on the Sunday afternoon. Finally, the later, night-time Tavurvur eruption clouds were incandescent, consistent with the Matupit observation of 'large fiery rocks' being expelled during the night (Mennis 1972, 64). There is, however, some uncertainty about how much of the new ash from these later Tavurvur eruptions fell on Rabaul during the night when so few people had remained in the town, or indeed on Matupit Island itself where there

was comparatively little damage. Much of it may have fallen into Simpson Harbour. Hal Evans recalled that the darkness in Rabaul, apparently caused by the eruption, lasted only about three hours (Evans 1937). In any case, judging by photographs, the ash-producing Tavurvur eruption had more or less ceased by daylight the next morning, although water vapour and volcanic gases continued to be expelled, whereas Vulcan continued to produce explosive eruptions.

3.8. North-Coast Rescues and Back to Herbertshöhe and Vunapope

Those Rabaul townspeople seriously affected by the eruptions of both Vulcan and Tavurvur were in effect abandoning—at least until the future became clearer—the site of what had been the new German capital in 1910 in favour of the old German capital, Herbertshöhe, now known as Kokopo, which appeared to be a decidedly safer place. It was, after all, situated outside Blanche Bay and the area of its active volcanoes and protected from any volcanic fallout by the south-east trade winds at that time of year. Other people seriously affected by the Vulcan eruption to the west also focused their attention on reaching the facilities of the Kokopo area. This included the MSC headquarters of the Catholic Church and hospital at Vunapope, the 'place of the Pope', which was run by German fathers, led by the Bishop Gerard Vesters, a Dutchman. Disembarkation from the rescue vessels in the anchorage required the transfer of refugees by small boats to the shoreline beaches (Figures 3.28 and 3.29).

The *Montoro*'s anchor was let go at the Kokopo anchorage at 6 am on Monday 31 May, and the first of the 5,000 or so New Guineans—this number is Captain Michie's estimate—began leaving on the ship's small boats (Michie 1937; Hilder 1937, 1961; Clarke 2001; MSC 1937; Arculus and Johnson 1981). About 200 Europeans were given breakfast before landing, but many European women and children stayed aboard—mostly wives and families of residents who could not be accommodated ashore. The *Montoro*, said crew member George Clarke, became for a day or two 'a floating boarding house and restaurant' (Clarke 2001, 45). Seventy people, apart from ticket-carrying passengers, were fed and housed on the boat that normally had room for only 50 passengers. The *Montoro* shared anchorage with the cargo vessels *Golden Bear* and *Polzella* and with other smaller vessels (Figure 3.30).

Figure 3.28. Rabaul refugees at Kokopo beach.

A multiracial group of Rabaul refugees has reached Kokopo beach after evacuation from Nodup on Sunday 30 May 1937. GA negative reference GB2618B.

Figure 3.29. Launch being unloaded at Kokopo beach.

Expatriate men help unload a launch at the beach at Kokopo. One European is still wearing his baseball shirt (V-shaped insignia) from the games played at Rabaul's sports field just before the outbreak of eruptive activity at Vulcan. A European woman, possibly a patient from Namanula Hospital, lies on the roof of the launch. This photograph is one of a set accompanying a 15-page article on the 1937 eruption published in the *Sydney Mail* of 9 June 1937. GA negative reference GB2590.

Figure 3.30. Ships anchored at Kokopo and hulk of the *Loch Katrine*.

The *Montoro*, the *Golden Bear* behind it, and other smaller vessels are seen anchored off Kokopo in this photograph taken from above the shoreline on 30 May 1937. The listing hulk of *Loch Katrine* in the left foreground acts as a break for the enclosed swimming area at the beach edge. The *Montoro* can be identified by the distinctive white band around its funnel (compare with Figures 3.5 and 3.23; see also Figure 3.41). The dated photograph was supplied courtesy of Mrs G. Forsyth, who was evacuated from Nodup on the *Golden Bear*.

The *Montoro* became the radio link between Kokopo and the outside world until Mr Twycross, the officer in charge of the wireless station at Rabaul, established operations on shore at Kokopo on Thursday 3 June. L.C. Coleman at the Rabaul receiving station and C.B. Alexander at the transmitting station had stayed at their posts. By 12.15 am on Sunday, Alexander had re-established power from an auxiliary generator and, with the assistance of C.H. Sturgeon and H.S. Burgess, messages were being transmitted and received—though under trying, if not heroic, circumstances. The *Montoro*'s wireless office 'was besieged by people trying to send wireless messages, mostly without money to pay for them', reported Captain Michie (1937, 2), and the wireless operator, Norm Odgers, worked heroically, non-stop, on board the *Montoro* from Sunday night until Tuesday morning coping with the deluge of radio traffic (Clarke 2001).

Another role taken on by the *Montoro* was that of provider of stores to the growing population at Kokopo. The holds contained stores destined for Salamaua and Lae, but Mr P. Coote, manager of Burns Philp in Rabaul, gave orders that they be off-loaded for use at Kokopo. Both bulk freezers at Rabaul had been put out of action after the electricity station became inoperable, so fresh meat, vegetables and fruit were supplied to Kokopo from the *Montoro*, together with other goods, which were all carefully tallied and sent ashore. There was a special plea from European mothers for milk

powder for their babies. One small box of it was on the Lae manifest, but it was somewhere among more than 300 tons of total cargo. Purser Clarke was relieved when: 'We opened the first hold of the Lae cargo and there perched right on top of the stow was our case of Glaxo' (Clarke 2001, 45).

Planning by administration officers at Kokopo to receive the influx of evacuees had begun as early as Saturday evening when Mr Chinnery returned to Kokopo after his escape from the Vulcan eruption. District Officer Don Waugh and Assistant District Officer K.C. McMullen were in charge of arrangements for the evacuees, but the administration had little in the way of facilities to house and feed them. However, the Sacred Heart Mission at Vunapope kept large supplies of food in bulk store for distribution to outlying stations and had several large buildings in the mission grounds. Bishop Vesters and his mission staff agreed readily to a request that they assist with the expected evacuees. Vunapope staff were to play a major part in the relief effort, and they subsequently received high praise from many grateful individuals. Vunapope Mission was the lynchpin of the administration's plan for coping with the refugees of the Rabaul evacuation (Figures 3.31–3.33). Civilian participation in the relief efforts was also facilitated through Mr Waugh and others establishing a citizens' committee that included representatives from the administration, business community and townspeople.

Many Rabaul refugees had already reached Kokopo and Vunapope before the off-loading of the *Montoro* began on Monday morning. Those from the *Golden Bear* and the other small vessels had disembarked on Sunday. Some European families were initially accommodated in homes on plantations following spontaneous invitations from individuals, but subsequently a billeting system was organised. Amy Anthony, for example, landed at Kokopo on Sunday without her husband, but accompanied by her two puppies ('while sitting on the beach and feeling sorry for myself', she met fellow evacuee Jean McCarthy, who ended up having a puppy given to her). The Anthonys were eventually accommodated together at Carpenter's plantation at Ralabang where they had to sleep on the verandah—the first night on a sofa using store-issue blankets, and the second on mattresses made from copra sacks stuffed with banana leaves. They 'could hear the booming sounds of the volcanoes all night [Sunday], and feel the shakes of the tremors. It was a pretty grim night', and by morning they found the verandah crowded with others wrapped in blankets and in a similar plight. Newlywed Jean McCarthy was billeted at Ulaveo plantation for almost three weeks, while husband Keith stayed on at Rabaul to assist with relief work there.

Figure 3.31. Nurses attending to refugees at Kokopo.

A first-aid station on the foreshore at Kokopo has nurses and others attending to needy refugees brought in by vessels from Nodup. One of the ships in the lower background (just visible behind the people) appears to be the *Golden Bear*. GA negative reference GB2592.

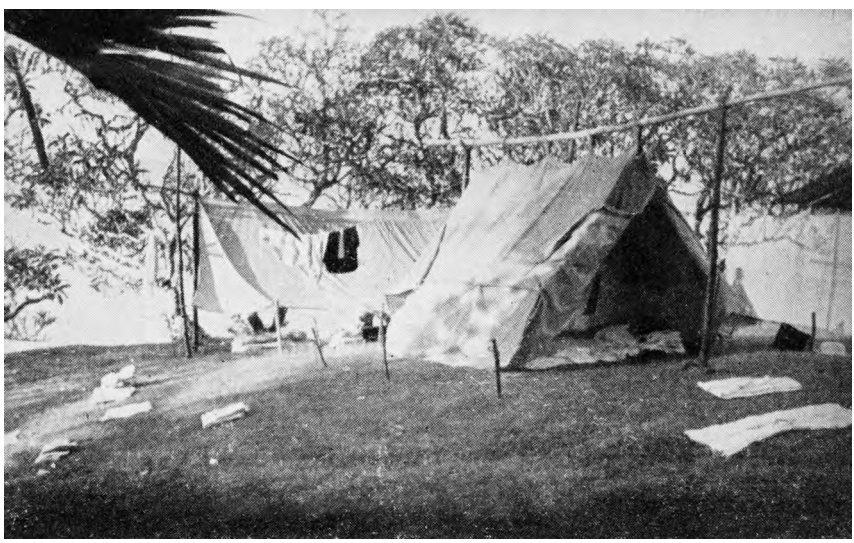


Figure 3.32. Camping out at Kokopo.

Tent accommodation such as this was provided for many people evacuated to Kokopo. This photograph was taken by Mr J. Hewett. GA negative reference GB2940.

Figure 3.33. Vunapope procession and Vulcan eruption cloud.

A Corpus Christi procession went ahead at Vunapope on Sunday morning 30 May 1937 despite the eruption at Vulcan Island. This photograph was taken by Sarah Chinnery (1998, 213). She did not have any film of her own, but a roll was found for her by the young missionaries at Vunapope. The towering Vulcan eruption cloud can be seen in the background of this image, which was digitally enhanced and provided by the National Library of Australia.

Many New Guineans who arrived at Kokopo, either on foot from the devastated area west of Vulcan or from the *Montoro*, found accommodation in nearby Tolai villages. Father Benda later wrote to a colleague in Germany telling him that his

> former parishioners from Paparatava distinguished themselves especially. They took in the people from Tavuiliu station and looked after them without payment. How much taro was thus consumed you may work out for yourself. To feed several hundred guests for two whole weeks is a great achievement. (MSC 1937; Arculus and Johnson 1981, 38)

New Guineans who could not be accommodated in villages stayed in or around Kokopo, in the administration labour compound or, in fact, anywhere they could find. Tents were sought and found by administration staff, and many more arrived later on relief ships, swelling the tent town that grew at Kokopo (Figure 3.32). Asians, New Guineans and Europeans were segregated and watched closely by Department of Public Health officials in case of any outbreak of disease.

Exactly how many people were fed and, in many cases, housed at Vunapope is not known. Father Hepers thought as many as about 10,000 (MSC 1937; Arculus and Johnson 1981, 12). This seems quite feasible if, as Brett Hilder (1937, 54) considered, 6,000 people alone were on board the *Montoro*, though not all may have passed through Vunapope. The mission, by Sunday, was 'overflowing', 'a vast army camp', 'buildings simply packed out with people' (MSC 1937; Arculus and Johnson 1981, 12–13). Patients evacuated from Namanula Hospital filled up Bethania Hospital at Vunapope, including the convalescent ward. European women and their children were accommodated in the sisters' quarters: the Daughters of Our Lady cooked for between 60 and 70; the Hiltrup Sisters for 42 white women and children. Father Murche was in charge of a building for mixed-race children who boarded at the mission, and 240 Chinese were accommodated there. The mission houses used as quarters by the fathers and brothers were similarly occupied by milling refugees. Mr Hoogerwerff came off the *Montoro* and found a place to stay in an old store at Kokopo, but, through the kindness of Brother Nattebride, he was able to sleep instead in a boxroom at the mission (Hoogerwerff 1937). The mission kitchens, and others set up outside, served meals for thousands. Bernard Ryan remembers vividly the great piles of bread and butter and huge bowls of hard-boiled eggs (Ryan 1980–84).

The mission even made available to Gordon Thomas its printing facilities, and a special 'Volcano Issue' of the *Rabaul Times*, dated 4 June, was published at Vunapope. Thomas wrote in the first paragraph:

> [R]ight here we wish to record the wonderful work done by the Mission all through this harrowing period and congratulate His Lordship Bishop Vesters, and his untiring staff, on the excellent organisation and display of Christian spirit. (Thomas 1937a, 1)

In this special issue, Thomas warned of

> commenting on the possibilities of the future … Whether the capital of the Territory is to remain at Rabaul or be removed to some other locality is not a question to be finalised at this juncture. Both the volcanoes and our mental state must be allowed to cool off. In a month or so—perhaps more—we can the better decide such a momentous question. (Thomas 1937a, 1)

Such commentary on the future of Rabaul was present, and inevitable, in the community from the end of May onwards; however, the matter would not be settled for some years. Meanwhile, people were trying to come to terms with the personal and family situations that had resulted from the disaster.

Father Laufer of Rakunai station had to be brought into Vunapope because of his exhaustion (MSC 1937; Arculus and Johnson 1981, 14–15). He had arrived at Vunalama, near Tavuiliu, on Saturday at midnight after fleeing the Vulcan eruption cloud, and on Sunday he carried on towards Vunadidir. Father Hepers at Vunapope had set out from there on Sunday morning to meet him at Rakunai, believing the station was unaffected, but he could proceed no further than Taliligap. He therefore drove on to Vunakanau where he met Father Bogershausen and four Hiltrup sisters from Tavuiliu:

> The sisters had wandered about the whole night in the rain of mud and ash; they were covered with dirt from head to foot and had only saved what they had on them. Fr Bogershausen equally! (MSC 1937; Arculus and Johnson 1981, 14)

Father Hepers heard from some local people that Father Laufer was on his way south to Vunadidir on foot, and he found him about halfway there,

> staggering through the wet kunai grass in shirt and torn trousers and with completely worn-out shoes. He had nothing else with him … and had discarded his soutane on the way. (MSC 1937; Arculus and Johnson 1981, 15)

Father Laufer was brought to Vunakanau and he and the sisters were driven to Vunapope.

Others needed rescuing too, particularly those Rabaul evacuees now stranded along the north coast, and the administration made arrangements for their return to Kokopo and Vunapope by boat. The *Asakaze* was sent to the north coast carrying Dr Champion Hosking of the Department of Public Health in case medical relief was required. Rev. Laurie Linggood, with the Trevitt–Chaseling wedding party on the north coast, had no intention of waiting for rescue. Anxious to reach his wife and child, he left Vunairima at 5.15 am on Sunday to extricate his truck and drive to Raluana, first south then eastwards around the southern edge of the devasted area. Rev. Linggood eventually succeeded in reaching his family and the safety of Raluana (Wayne 1937).

Rev. Albert Jones and Ron Wayne at Vunairima took tools and a team of New Guineans back to the abandoned cars on Sunday morning, and cleared logs from the road, including some that had fallen after Rev. Linggood had been through. 'When we reached the vehicles we had to shovel inches of pumice off them before we could open doors and the bonnets … Rain was falling all the time and still contained mud', Wayne (1937, 7–8) noted, but he and Jones were able to bring the cars back to Vunairima at about 3 pm. They heard during the day that Tavurvur had started activity of its own, and eruptions from Vulcan continued into and through the night. The next day, Monday, Rev. Jones, Wilfred Pearce (business manager of the Methodist Church) and Ron Wayne and his wife, Helen, attempted to get back to Kabakada. Jones wrote later:

> We had to cut a way through to a village 5 miles from K'da, when we were forced to stop as the road had been carried away. I left the car and Mr Pearce and went on with the Waynes. We forded the first stream, half of the road being there. When I returned a few hours later [on his way back to Vunairima] the whole of the road was gone leaving a hole 12 ft deep. Another few miles and we came to a big river that had come down … [cutting] a huge track 40 ft deep and about 35 ft across. It had been a raging torrent. Though much water was gone it was still racing out to sea. It was a twisted

> mass of fallen palms and pumice stone … One of the boys sat Mrs Wayne on his shoulders with her legs around his neck and carried her across the fallen palms … We pushed on, passed dozens of cars that had been abandoned by the road side, till we came to K'da … Our beautiful garden was no more and everything was covered in inches of volcanic ash. The house was thick with it, and the tables still set on the back verandah. There were the place cards still in their places. (A.S. Jones 1937a, 4; see also A.S. Jones 1937b, 5)

Ron Wayne noted that Kabakada was not so seriously affected by the fallout compared with Vunairima, or with Kabaira plantation through which they had passed:

> Kabaira … suffered most, all of the palms being broken, to say nothing of the palms that had fallen. The fronds had not only bent down beneath the weight of mud but the midribs had broken at the bend—a most unusual damage for a leaf to suffer. It was heartbreaking to look along lines and lines of thousands of palms and see only the topmost uncurled frond sticking up like a spearhead. (Wayne 1937, 10)

Rev. Jones's party heard that the schooners *Asakaze* and *Induna Star* had that morning picked up many people, including the large group stranded at J.O. Smith's plantation at nearby Vunawutung (Wayne 1937). The group included Methodist chairman Rev. Lewis and his wife, who were transferred to Kokopo and then to accommodation at Vunapope. This news was later received by Hazel Jones at Vunairima: 'Mrs Lewis is with the Roman Catholic Sisters in a Nunnery, and our Rabaul Minister is in a monastery. We think it is a great joke' (H.L. Jones 1937, 10). Virgil King was also one of those taken by boat to Kokopo from Vunawutung and, like many others, was deeply impressed by the hospitality afforded him by J.O. Smith: 'That big-hearted planter … was amongst us continually with the perpetual question, "Is there anything else I could do for you?"' (King 1937, 6; Lewis 1937a). Evacuation by sea seems to have been the only feasible way out for many people on the north coast, as the road eastwards to Rabaul was cut by fast-flowing streams similar to those crossed by the Jones party to the west. Rev. Howard Pearson, who was with the Lewises at Vunawutung, had attempted to return towards Rabaul, but he was unable to cross a rushing stream and, on his return, encountered a new stream that had just formed.

Ron and Helen Wayne also wanted to leave the north coast so that they could return to their home at Ulu Mission on the Duke of York Islands, but the relief boats had evidently departed and evening was fast approaching (Wayne 1937). Then, from the beach, they saw the Vunapope vessel *Theresa* moving along the coast towards them. It had come from Kokopo and was in the charge of Patrol Officer C.B. Bates. The *Induna Star* had reported that all people from the north coast had been evacuated, but Bates was out looking for any people still stranded there. The Waynes boarded the *Theresa*, together with Mrs Lulu Miller, joining other evacuees on board. Mrs Miller had managed to reach Watom Island; she had left her pet birds in the charge of the father there, and she now wanted to get back to her home. Instead, she was taken to Vunapope, where, against her wishes, she was obliged to stay for the next three weeks: 'Oh, I asked and asked; they wouldn't let me go back to my place' (Miller 1980, 35).

Damage to the crops of commercial plantations, especially along the north coast, was extensive. No less than seven members of the Planters' Association of New Guinea were offered immediate assistance, as reflected in the ultra-formal language of the association's annual reports, which also referred to the mandated expropriation arrangements that had been set in place following the Treaty of Versailles:

> Application for suspension of payments of Principal and Interest instalments due in respect of affected Expropriated Properties, was made to the Custodian who has granted a suspension of the payments due 1st July, 1937, and assured the Association of sympathetic consideration based on the merits of individual cases in respect of future payments. The extent of the damage done to these plantations cannot yet be fully assessed. It is certain however, that production will be very seriously affected for the next eighteen months to two years, and that consequent loss to owners will total many thousands of pounds. (Planters' Association 1937, 4; see also 1938)

3.9. Reduced Eruptions and Return of the Administrator

The District Office at Kokopo and the staff of Vunapope Mission were, by Monday, coping well enough. However, the flood of refugees from the surrounding evacuated areas was stretching them to their limits and, clearly, the support they were providing would not last indefinitely (Thomas 1937a; Robson 1937; MSC 1937; Arculus and Johnson 1981). More supplies would be needed to supplement those off-loaded from the *Montoro*, held at Vunapope, and being transferred from Rabaul. The supply of roof-catchment water and the water tanks of the *Montoro* were being rapidly drained, and fresh supplies would be needed urgently. Further, the prevention of serious outbreaks of disease in the crowded buildings and camps at Kokopo and Vunapope would have to be tackled—particularly infectious diseases such as dysentery caused by poor sanitation, and also malaria, an ever-threatening reality that could reach epidemic proportions if mosquito nets were not made available, or if open bodies of water were not drained or treated. Dr T.C. Backhouse and, later, Dr Champion Hosking were in charge of medical arrangements at Kokopo, assisted by three other doctors, including Dr Watch, a private practitioner, who had come to Kokopo after assisting overnight at Namanula Hospital, as well as staff from the Department of Public Health, including Roger Davies.

On Monday, District Officer Waugh sent from the *Montoro* a telegram to Canberra detailing the situation, his requirements and the names of supply ships that could help with the relief effort:

> RABAUL POPULATION SUCCESSFULLY EVACUATED TO KOKOPO SUNDAY EXCEPT JUDGE PHILLIPS TOWNSEND MELROSE BALL AND FEW OTHERS STANDING BY AND HUNDRED ODD ON NORTH COAST. NO KNOWN CASUALTIES. ADMINISTRATOR SALAMOA EXPECTS FLY RABAUL THIS MONDAY MORNING. ESTIMATED TWO DAYS RATIONS KOKOPO. MONTORO RUNNING SHORT WATER ARRANGE MORESBY SECURE SUPPLIES THURSDAY ISLAND. ESSENTIAL MALAITA ARRIVE AS SOON AS POSSIBLE SUPPLIES VERY SHORT ENDEAVOUR SHIP MALAITA 50 TONS RICE 500 CASES MEAT 12 OZS TWENTY TONS FLOUR THREE TONS SUGAR FIVE CHESTS TEA THREE TONS FINE SALT 25 CASES CONDENSED

> MILK 50 CASES IDEAL MILK FIVE CASES LACTOGEN TEN CASES HAM 100 GROSS EGGS 1000 LBS BACQN THREE TONS POTATOES TWO TONS ONIONS 15 CASES TINNED BUTTER 20 DOZEN HURRICANE LANTERNS 100 CASES KEROSENE 4 CASES MATCHES 50 CASES SOAP 200 TENTS BEDDING FOR 600 PERSONS THOUSAND MOSQUITO NETS 1000 BLANKETS 1000 TOWELS 120 FIVE GRAIN QUININE CAPSULES 60 ASPIRIN TABLETS SIX DOZEN CHLOROFORM SIX DOZEN ETHER 1000 EACH SHIRTS SHORT TROUSERS SANDSHOES ASSORTED SIZES 60 DOZEN EACH TOOTH BRUSHES TOOTHPASTE. WAUGH OFFICER IN CHARGE KOKOPO. (Waugh 1937)

HMAS *Moresby* was surveying the Gulf of Carpentaria and proceeded at once to Thursday Island where it picked up supplies, reaching Kokopo on Saturday 5 June. The Burns Philp vessel *Malaita* at Brisbane was chartered to take supplies to Kokopo, arriving there on Sunday 6 June. Water supplies were brought in by the *Island Trader* the same day and, later, by other vessels.

Short-term relief problems at Kokopo and Vunapope were being dealt with expediently, but many refugees remained concerned about the future of Rabaul. Would the town recover from the effects of the volcanic eruption? If so, how soon before they would be able to return? Was Simpson Harbour now blocked from the open sea? Would Rabaul be built elsewhere? Would Rabaul remain the capital of the Mandated Territory? These questions would soon be addressed by Administrator Ramsay McNicoll, who, on the morning of Monday 31 May, was on his way back from the Morobe Goldfields by air via Lae and was expected at the Taliligap (Vunakanau) Airfield at lunchtime. McNicoll had heard about the volcanic eruption at Rabaul by way of the Wau radio station:

> WAU RADIO PICKED UP FROM UNKNOWN SHIP BARE NEWS ERUPTION AT RABAUL AND RESIDENTS EVACUATING. AM RETURNING FROM WAU TO RABAUL BY AIR. RABAUL RADIO REPORTED OUT OF ACTION WILL SEND FURTHER NEWS BY ANY MEANS POSSIBLE. MCNICOLL. (McNicoll 1937a)

The administrator radioed Canberra and set off, accompanied by Director of Public Works C.R. Field, on board a three-engine Guinea Airways plane piloted by Captain A.J. Turner (Thomas 1937a). They arrived over Rabaul about midday, circling the harbour area—including Rabaul town—and obtaining, for the first time from the air, an impression of the extent of the damage to the Blanche Bay area caused by the two volcanoes. The tropical-garden town had been stripped of its fine foliage. The streets, near-deserted and branch-strewn, were shrouded with grey ash and pumice. Much of the waters of Simpson Harbour and Blanche Bay were covered by floating pumice that must have seemed solid enough to land on. To the west, where formerly had been villages, gardens and forest, they saw only devastation. And, instead of low-lying Vulcan Island, a new peninsula jutting out from the western side of the bay and dominated by a new and still growing volcanic cone, Vulcan, was observed (Figures 3.34–3.35). The aircraft circled the town and then landed 'perfectly' at 12.30 pm on 'the new 'drome at Taliligap' (Thomas 1937a, 3) outside the area of devastation. By that time, Tavurvur volcano had, apparently, ceased producing the volcanic mud that had blanketed Rabaul town the previous day and possibly during part of the night.

The degree to which the two volcanoes were still active on the afternoon of Monday 31 May should be addressed, given that Captain Turner was able to circle Rabaul without apparently any interference from suspended volcanic materials and to land safely at Taliligap. Four photographs are of interest regarding the explosive eruptions then taking place at Vulcan (Figures 3.34–3.37). They were all taken at a time when the Vulcan cone was at, or nearly at, full height—likely on Monday 31 May. The 'phreatoplinian' and 'plinian' eruptions had ceased less than two days after the initial sea floor outbursts near Vulcan Island. By 31 May, the style of eruptive activity was 'vulcanian'—a general term used widely by volcanologists for what is a common type of explosive activity, including for many volcanoes in Papua New Guinea—and subaerial, although the extent to which the eruptions were still being affected by seawater deep within the cone is unknown.

Figure 3.34. Aerial view of Rabaul town and Vulcan on front cover of *Pacific Islands Monthly* magazine.

The new Vulcan cone is seen in explosive eruption in the top right-hand corner of this aerial photograph that featured on the front cover of an issue of *Pacific Islands Monthly*. The photograph was evidently taken during the flight that brought the administrator to Vunakanau Airfield on 31 May (see also Figure 3.35). Rabaul town is shown in the bottom left of the photograph, covered in volcanic mud. The caption read: 'Rabaul after the eruption. This aerial photo., taken soon after the "blackout," shows the town under its grey pall of pumice and ashes. The newly arisen Vulcan volcano is seen, smoking in the upper corner. The black masses in front of Vulcan evidently are pumice, floating on the water — there is no land there. The other active volcano, Matupit [Tavurvur] is out of sight, around Matupit Island (the point in the left upper corner).'

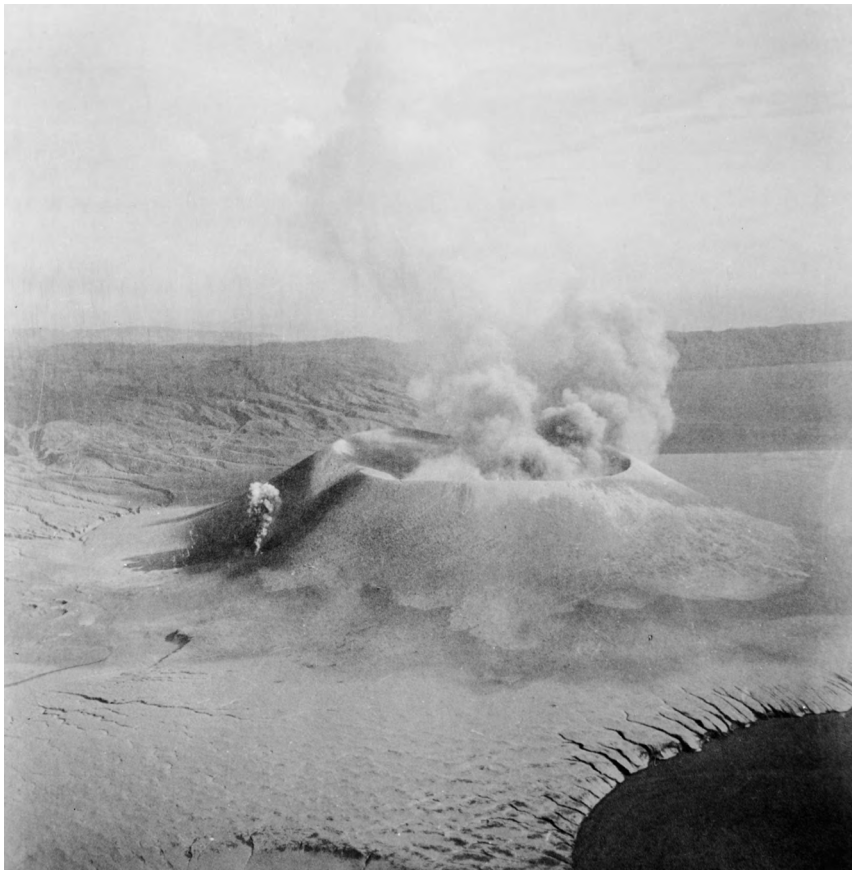


Figure 3.35. Aerial view of the new Vulcan cone and small eruption clouds.

Newly formed and 225 metres high, Vulcan cone is seen from the air in this photograph taken by pilot Jack Turner on Monday 31 May 1937 (Fisher 1939a, 61). This was the day when Administrator McNicoll was flown by Turner into the airstrip at Taliligap/Vunakanau. Lightly laden ash clouds emerge from the central crater, as well as from a small subsidiary vent on the south-south-western side of the new volcano. This small vent was evidently caused by a blow-out on the flanks of the main cone, and it released vapour and entrained ash for many days after the main activity had ceased. Ravines apparently cut by floods of water from the Vulcan eruption cloud are clearly visible on the extreme left and on the new shore in the right-hand corner where there is no sign of any floating pumice on the waters of Simpson Harbour (see also Figure 3.37). GA negative references M2579-1-12-2 and M2579-11.

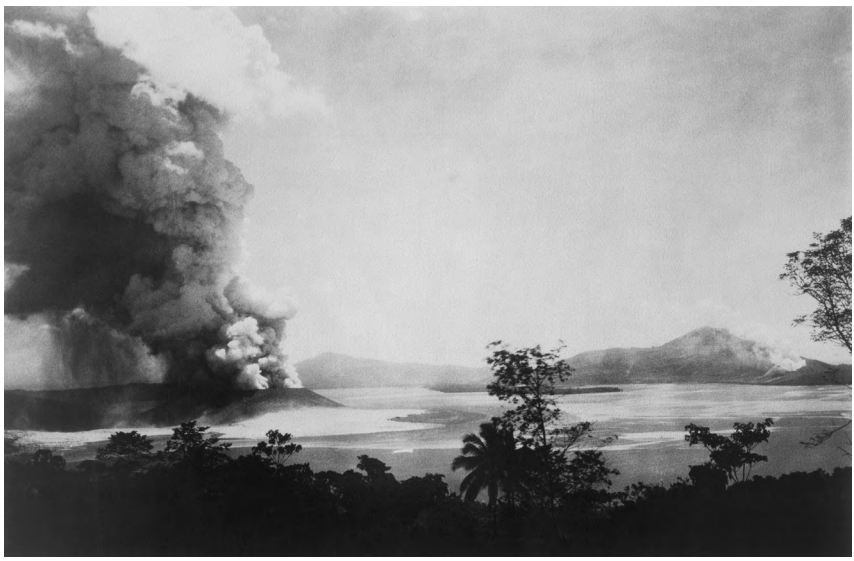


Figure 3.36. Emissions from both Vulcan and Tavurvur as seen from Taliligap.

Taliligap provided an excellent vantage point from which to view and photograph the changes to Simpson Harbour and Blanche Bay caused by the 1937 volcanic eruptions. This photograph appears to have been taken on Monday 31 May, perhaps by E.A. Hawnt from Taliligap (compare this photograph with a similar undated one taken by Hawnt and published by Fisher [1939a, 61]) or by Captain Turner on his way by road from the Vunakanau Airfield to Kokopo. Vulcan cone (left of centre) has reached almost its full height and is in moderate or weakening eruption. Ash is falling out of the cloud to the left. Tavurvur (extreme right) appears to be emitting only water vapour and gas. Floating pumice covers much of the bay and harbour. Compare this photograph with the one taken from Taliligap by Mrs Sarah Chinnery on Saturday 29 May just before the Vulcan outbreak (Figure 3.7). GA negative references GB2792 and M2447-33A.

Ash is seen falling from all the Vulcan eruption clouds shown in Figures 3.34–3.36. Figure 3.37 is rather different in that pyroclastic materials can be seen flowing down the sides of the cone. The origin of these pyroclastic flows is uncertain, but they may represent the result of what some investigators at other volcanoes have called 'shallow-pocket' explosions (Perret 1937; Taylor 1958). Such explosions take place at a shallow depth, just beneath the crater, and are fairly weak; the crater fills with a massive, convoluted cloud of fragmental debris and gas that has little tendency to rise. The heavy, buoyant, 'fluidised' mass of pumice and ash then overflows the lower parts of the crater rim. This type of explosion is quite different to the stronger eruptions of a day or two earlier that originated deep within the volcanic conduit, causing a stronger upward thrust to the surface and pyroclastic flows that originated from the collapse of a high, weakening eruption column.

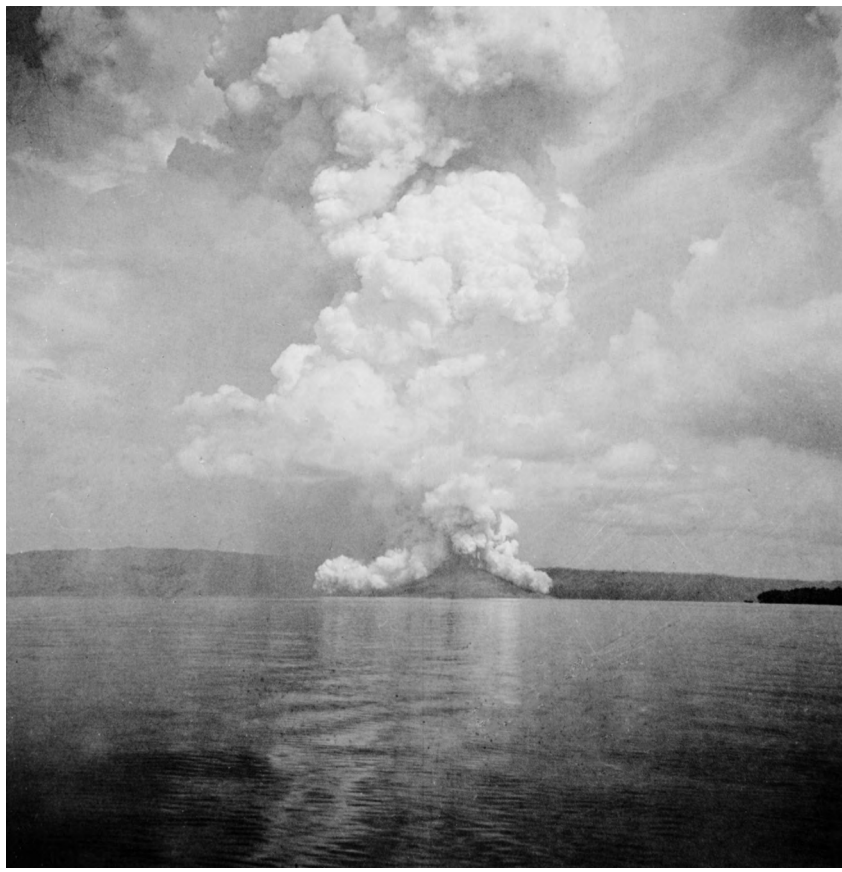


Figure 3.37. Small pyroclastic flows running down the flanks of the new Vulcan cone.

Clouds of hot pumice and gas cascade down the sides of the newly formed Vulcan cone towards the end of the 1937 eruptive period when the overall activity was periodic and waning. Note that the waters of Blanche Bay in the foreground on this occasion appear to be free of floating pumice. The high volcanic cloud shown here appears to be vapour-dominated but ash can be seen falling out of the clouds on the left. The date of the photograph is uncertain but is most probably in the period 31 May – 2 June. GA negative references M2579-1-12-4 and M2579-9.

McNicoll, by the time of his arrival, was seeing both volcanoes in a much less threatening condition compared with people who had endured, or had fallen victim to, the effects of the eruptions—particularly Vulcan—over the previous two days. McNicoll was met at the airstrip by Clive Meares, who briefed him on events while the rest of the party, which included C.R. Field, the director of public works, drove down to Vunapope (Meares 1980; Thomas 1937a). McNicoll then boarded the *Montoro*, where he spent a

few minutes with Mrs McNicoll, who had been evacuated from Namanula, before leaving by the *Induna Star* for Nodup and Rabaul (Figures 3.38 and 3.39). That night he sent from the *Montoro* his first report to Canberra:

> LANDED RABAUL DROME TWELVE THIRTY TODAY REACHED KOKOPO THREE OCLOCK PROCEEDED BY SCHOONER TO NORDUP AND ROAD TO REMAINS OF RABAUL. WIDESPREAD DEVASTATION. VOLCANO AT VULCAN ISLAND STILL ACTIVE ALSO OLD CRATER NEAR MATUPI. FINE ORGANISATION AT KOKOPO WHERE WHOLE POPULATION WHITES CHINESE NATIVES INCLUDING THOSE PREVIOUSLY SHELTERED ON NORTH COAST NOW CONCENTRATED. DISTRICT OFFICER WAUGH ASSISTANT DISTRICT OFFICER MCMULLEN AND ADMINISTRATION STAFF ASSISTED MOST ABLY BY GREAT MANY PUBLIC VOLUNTEERS HAVE KOKOPO MATTERS WELL IN HAND. AT RABAUL PHILLIPS BALL MELROSE GREGORY MCCARTHY WITH WHITE AND NATIVE POLICE AND MANY VOLUNTEERS ARE CONTROLLING ISSUES AND ATTEMPTING CLEAR ROADS. IMPOSSIBLE OVERPRAISE WORK OF STAFF AND VOLUNTEERS AND DEMEANOUR OF PUBLIC INCLUDING WOMEN CHILDREN CHINESE AND NATIVES. LARGE AND GROWING CONICAL HILL AT VULCAN ISLAND. HARBOUR RENDERED IMPASSABLE BY THICK LAYER OF FLOATING PUMICE. WILL REVIEW WHOLE SITUATION TOMORROW AND REPORT. MCNICOLL. (McNicoll 1937b)

An important matter for Ramsay McNicoll was assessing the state of Rabaul Harbour. Had the eruptions so modified the sea floor of Blanche Bay and Simpson Harbour that Rabaul could no longer be used as a port town? Captain Michie was no less interested and, at 10 am on Tuesday 1 June, he set off from Kokopo in the *Montoro*'s launch, together with others of the crew, including Second Mate Hilder, in an attempt to get into the harbour through the normal steamer passage:

> About one mile from Matupi we ran into a sea of pumice which blocked the entrance from Vulcan Island to Matupi and right up Matupi Harbour. Vulcan … was belching forth stones and lava in thousands of tons. Our launch was only able to penetrate the pumice barrier for about 100 yards, when the engine got too hot [pumice had entered the intake of cooling water] and the launch almost came to a standstill. The attempt to get through was abandoned, and we returned to the ship. (Michie 1937, 2; Figure 3.40)

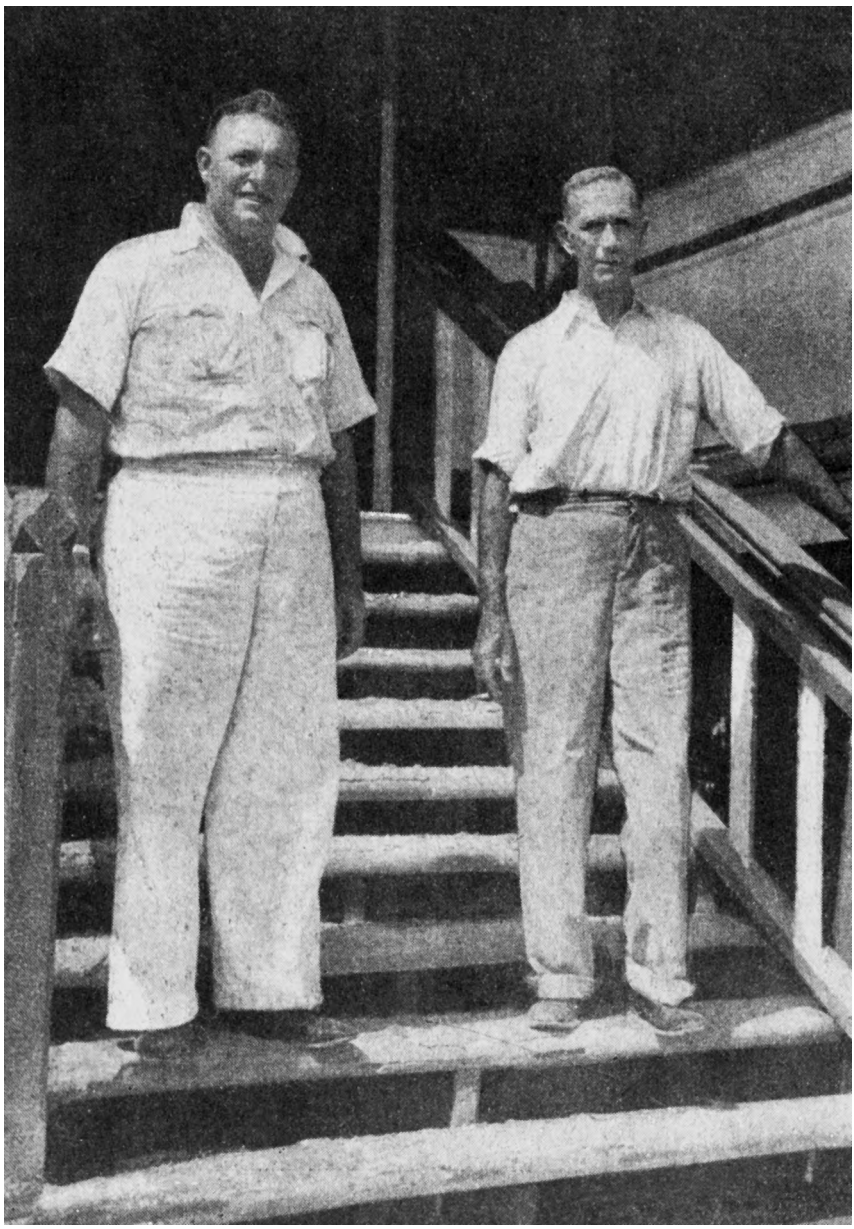
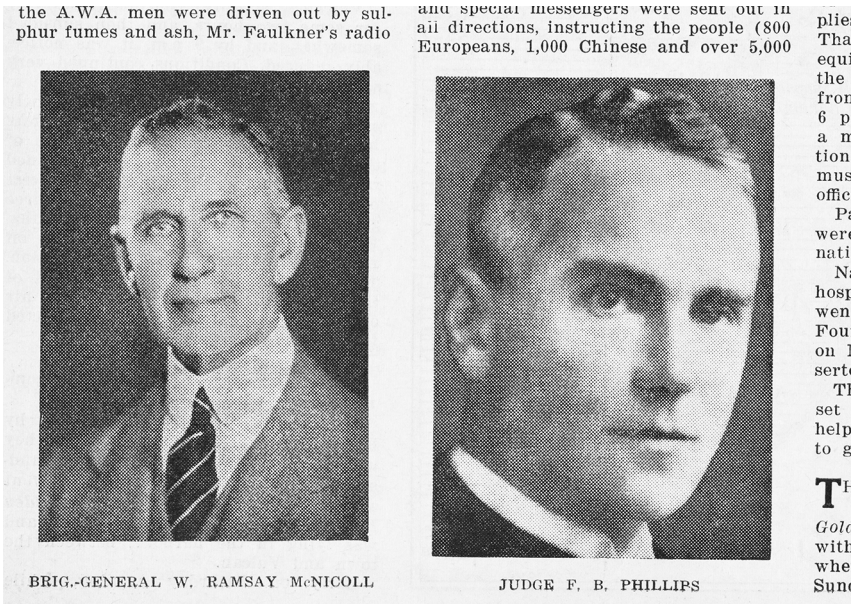


Figure 3.38. Ash-covered steps at the Rabaul Hotel.

Brigadier-General Ramsay McNicoll (right) and pilot Jack Turner pose for a photograph at the Rabaul Hotel presumably shortly after they had reached Rabaul via Kokopo after having flown into Vunakanau Airfield on Monday 31 May. Ash or dried-out mud mantles the steps. GA negative reference GB2594.


the A.W.A. men were driven out by sulphur fumes and ash, Mr. Faulkner's radio

and special messengers were sent out in all directions, instructing the people (800 Europeans, 1,000 Chinese and over 5,000

BRIG.-GENERAL W. RAMSAY McNICOLL

JUDGE F. B. PHILLIPS

Figure 3.39. Combined portrait photographs of McNicoll and Phillips in *Pacific Islands Monthly* article.

These photographs of the administrator and judge were published in an issue of the *Pacific Islands Monthly* (Robson 1937, 10). This digital copy was provided courtesy of the National Library of Australia.

Brett Hilder tried to pull up a bucket of water from over the side but obtained one full of pumice. They also saw, while in Blanche Bay, a large launch returning to Kokopo—on board, a police officer and 'two old friends of ours … respectable Europeans' who had, finally, been extricated from their drinking binge and pub crawl of Rabaul's hotels and clubs (Hilder 1961, 57).

Tuesday 1 June was also the day on which Ramsay McNicoll issued the first of a series of 'Circular Despatches' (CD) from the central administration at Rabaul (McNicoll 1937c). His assessment of the situation was not encouraging:

> Rabaul will be untenable for many weeks, the water supply has become polluted and no sanitation arrangements are at present possible. The present bad situation will become intensified when rain comes as the roofs of all houses are thickly covered with volcanic dust which will become thick mud directly it becomes wet. Under the circumstances it is necessary to restrict the number of persons that may be permitted to visit Rabaul. Only those officials on duty

> and others with urgent business to attend to will be permitted to proceed from Kokopo and land at Nodup. It is essential that written authority be first obtained … [and] extremely desirable that at the very first opportunity as many women and children as possible proceed to Australia. (McNicoll 1937c, CD1, 1)

Subsequently, many European women who were still on board the *Montoro* sailed with her when she left Kokopo for Lae on Wednesday 2 June.

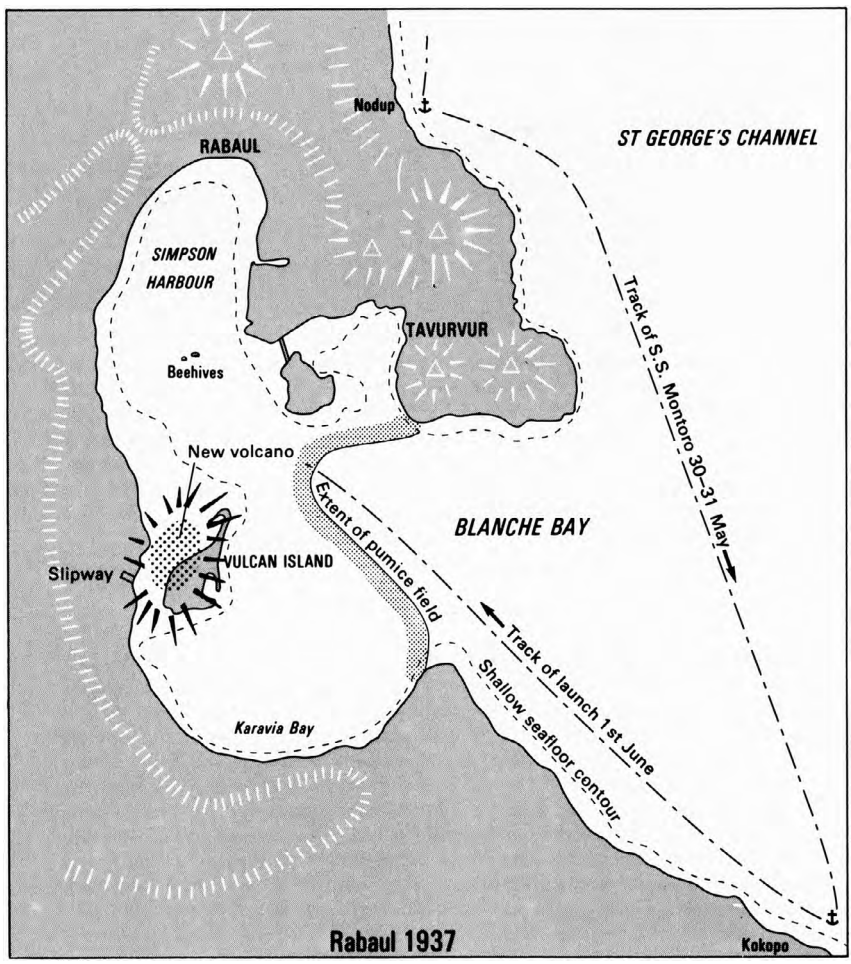


Figure 3.40. Brett Hilder map of Blanche Bay pumice field plus launch and ship tracks.

Brett Hilder drew a rough sketch map of the Blanche Bay area showing the extent of the floating pumice field on Tuesday 1 June 1937; the approximate position of the new volcano, Vulcan, in relation to what used to be Vulcan Island; and the tracks of the *Montoro* and its launch. The diagram shown here is adapted directly from Hilder's sketch.

Figure 3.41. Rescue vessels at Kokopo and new Tavurvur emissions.

Vessels are shown anchored off Kokopo in this photograph dated 31 May 1937. They include, on the left, the *Golden Bear* used in the evacuation from Nodup (see also Figure 3.30). Tavurvur volcano is mildly active left of centre in the background. Note especially that water vapour — and apparently no ash — is emerging from two different sources on the volcano, as described by Olsen (n.d.) when the *Golden Bear* returned to the Rabaul area on 12 June 1937. GA negative reference GB2597.

The McNicolls dined on board the *Montoro* on the Tuesday night. Captain Michie was thanked 'for the assistance rendered', and the old ship left anchorage at 1.14 pm the following day (Michie 1937, 2; Figure 3.41). However, the *Montoro* had not quite finished her role in the Rabaul evacuation; she would be back at Kokopo to take on board more Europeans en route to Australia on 9 June.

3.10. Coming Back to a Damaged Town

The 'garrison' of administration officials and volunteers at Rabaul had spent Monday attempting to tackle the priorities of sanitation, road clearing and police work (Figures 3.42–3.54). Clearing the road over Namanula Hill to Nodup of fallen trees was a priority so that the increased population at Kokopo could be supplied with goods and produce. Other tasks would be added to these, and the arrival of the administrator meant that the central administration at Rabaul could begin organising an integrated relief effort in cleaning up the town (McNicoll 1937c, CD 1–6; Phillips 1937c; Thomas 1937a, 1937b; Radio Roundsman 1937). Tavurvur was still active

on Monday, but at a reduced level compared with the previous day; there are no known reports of Tavurvur ash falling on Rabaul that day. Pumice was still being discharged, at times in large volumes, from Vulcan. This ongoing activity did not deter the garrison from immediately beginning clean-up operations in the town. Judge Phillips remained in charge of Rabaul, while his counterpart, Don Waugh, assisted by a committee of officers and residents, was officer in charge at Kokopo. Assistant District Officer H.A. Gregory was placed in charge of the beach at Nodup, R. Melrose of stores at Rabaul and the medical situation continued to be supervised by Dr R.W. Cooper (McNicoll 1937c, CD1).

There were hungry people in Rabaul as early as Sunday morning, and Doug Joycey, assisting Dr Cooper, heard from the police that

> you could help yourself at Burns Philp and W.R. Carpenters' stores … so I made a parcel of tinned ham, chicken, salmon, crab, asparagus, chocolate, and some cigars for the Doctor. Nothing but the best. (Joycey c. 1937, 2)

Figure 3.42. Mango Avenue damage.

The trees of once shady Mango Avenue, Rabaul, were stripped of many of their branches as a result of ash overloading. The photograph was taken at the intersection with Court Street. Rabaul's chemist shop (pharmacy) can be seen on the corner of the intersection on the left, together with W.R. Carpenter's store behind it. GA negative references GB2785 and M2447-34A.

Figure 3.43. Malaguna Road damage.

Branches weighed down by ash on the raintrees running down the centre of Malaguna Road, Rabaul — and probably at its eastern end where the damage was most severe — have collapsed into both lanes of the road. GA negative reference GB2606.

The decision to open the Rabaul stores was made by administration officials but, at least for the Burns Philp's store, company staff were not consulted, nor was a tally kept (Burns, Philp & Co. 1937). Stores were loaded on vehicles once a trafficable road had been cleared and driven to Nodup where they were sent on to Kokopo. There, at least, Burns Philp employees were able to check what was landed. Both trading companies, and others, were quick to set up offices and stores at Kokopo.

Bank officials were concerned about their records, cash and silver. Virgil King, manager of the Commonwealth Bank, reached Kokopo after his north-coast rescue on the *Induna Star* at about 2 pm on Monday, and left on the schooner that same afternoon—with Ramsay McNicoll on board—for Nodup, where there 'were cars everywhere, parked by refugees' (King 1937, 7). They next went to the Rabaul bank where records were retrieved and brought back to Kokopo. King and a group of bank volunteers returned again on Wednesday afternoon for the cash and silver:

> The sea was very rough … Box after box (Australian silver £5000) was loaded into the row boats and the last issue reached the schooner at dark … barefooted [bankers] with trousers rolled up above their knees … and the boats bobbing like corks. (King 1937, 8)

Figure 3.44. Yara Avenue damage.

Ash-laden branches of the casuarinas bordering Yara Avenue in Rabaul have fallen and blocked the roadway. GA negative references M2579-1-12-3 and M2S79-10.

The drama of the bankers' rescue of the cash and silver was increased by the fact that activity was continuing at both Vulcan and Tavurvur, though at a much-reduced level. Indeed, by the following day, Thursday 3 June, the administrator reported that: 'Both volcanoes are now reduced to a small quantity of lazy smoke' (McNicoll 1937c, CD3, 1). The major force of the outbursts had evidently been expended. Vulcan's major activity had, in fact, diminished markedly by the previous Sunday night; by Monday morning the activity at both volcanoes was much less than it had been in the few hours after their initial outbreaks.

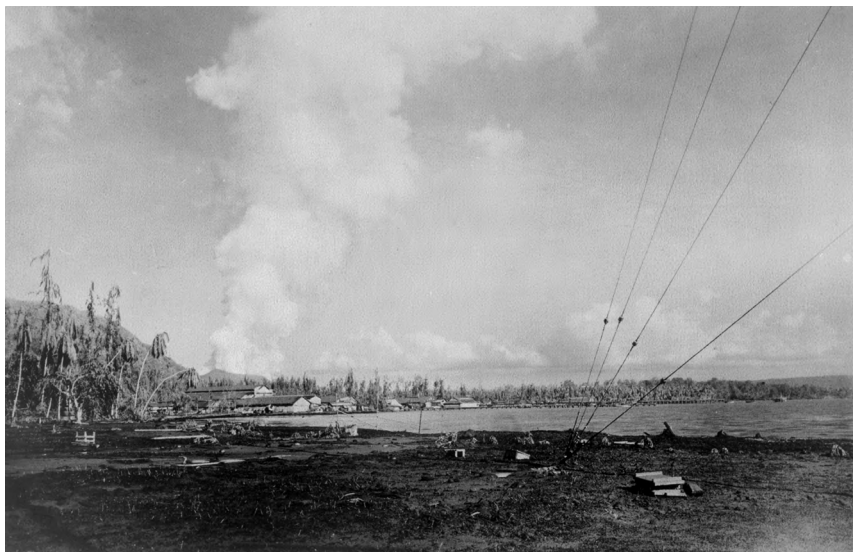


Figure 3.45. Damage along Rabaul frontage near radio station.

Foreshore damage near the Rabaul radio transmitting station (the rigging of masts and wires can be seen in the right foreground) was caused by tsunamis on the evening of Saturday 29 May 1937. Tavurvur emits vapour in the background, and trees are visibly damaged by the Vulcan and Tavurvur ash fallout of 29–31 May. The view is south-eastwards towards the main business part of Rabaul town. GA negative reference GB2797.

On 4 June, Gordon Thomas reported in the *Rabaul Times* 'the welcome news'—received on Wednesday 2 June—'that the Father volcano in Nakanai [on the north coast of central New Britain] has broken out again' in eruption (Thomas 1937a, 6). The news was 'welcome' because of a belief among some people that Rabaul and Ulawun (the Father) volcanoes were somehow connected. Indeed, an Australian newspaper had published a report on 2 June that referred to Ulawun as 'Rabaul's safety valve' and noted that eruptions had taken place at Rabaul because of a period of volcanic inactivity at Ulawun (Anonymous 1937a). The idea that active volcanoes in the New Guinea region could be related in this way would be addressed by volcanologists in future years, particularly in the 1950s.

Ramsay McNicoll, presumably, would have considered the possibility of further eruptions taking place in the days ahead and the effect they would have on the already beleaguered town. However, he must have dismissed the possibility because, in his fourth CD, released on Friday 4 June, he advised that:

> Arrangements are being made to select from the Administration officials now at Kokopo twenty (20) officers who will proceed to Rabaul for the purpose of assisting actively in the work of clearing and cleaning the town. (McNicoll 1937c, CD4)

The policy would evidently be carried out irrespective of what may, or may not, happen with the volcanoes.

Administration officials in Rabaul soon recognised the need to remove the ash that had accumulated on the roofs of buildings. Much of the town had collected less than 5 centimetres of accumulated ash from each of the volcanoes, and the total of 10 centimetres was insufficient to cause most roofs to collapse, although the roof of the printing shed of the *Rabaul Times*, containing four printing presses, had fallen in (Hoogerwerff 1937). Such examples were few and, in general, most buildings were still intact, and the town had not yet been greatly damaged. However, the damp, mud-like Tavurvur ash soon baked hard in the sun; a visiting radio reporter said that he 'picked up one piece of crust about 2.5 feet square and it weighed about sixteen pounds [7 kilograms], which gives you an idea of the weight on the ordinary roof' (Radio Roundsman 1937, 2). Future rains would soak into the ash, substantially increasing its weight, and roof collapses might easily take place. Further, the ash would be washed into rain tanks, polluting the water, if gutters were not first disconnected. Officials, therefore, supervised the cleaning of roofs by gangs of New Guineans who were brought into the town as labourers for a range of clean-up activities.

About 400 New Guineans were at work as early as Thursday 3 June (Nicholls 1937c, CD3); two days later there were 660 of them (Phillips 1937c). Piles of ash soon began forming around buildings as the gangs pushed tons of material off the stressed roofs into the streets. The removal of ash from the roofs was not an easy task because of the formerly damp, mud-like Tavurvur ash having been baked hard in the sun. It had to be broken up before being dumped on the ground, and it gave off clouds of fine abrasive dust. Vehicles also churned up clouds of the dust in the streets, and traffic restrictions and speed limits were imposed. Rain tanks that had been open to the ash falls were treated with chlorine, and broken tanks were repaired. Clearing the roads of ash and fallen branches was also a major task, and vehicles were requisitioned for this and other purposes. Some fallen branches were later chopped up and stacked in the yards of residences for householders' use as firewood.

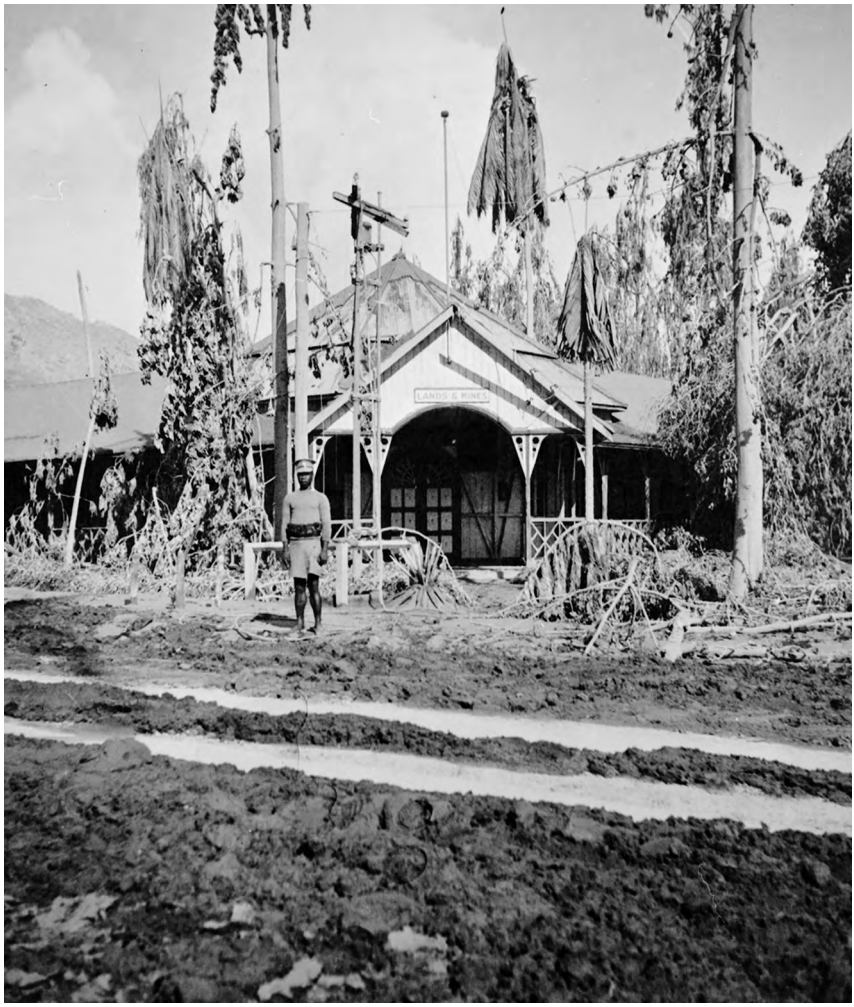


Figure 3.46. Department of Lands building and palm damage.

The umbrella-like folding back of coconut fronds caused by ash loading is clearly illustrated in this photograph of the Department of Lands building in Rabaul. Some ash has been cleared from parts of the roof, and the mud-covered road in the foreground seems to be fairly passable. GA negative references M2579-1-12-7 and M2579-6.

Figure 3.47. Central administration building and ash-covered road.

The central administration building at Rabaul is seen mantled by volcanic ash. Trees behind the building are damaged and ash covers the road. GA negative references M2579-1-12-11 and M2579-2.

Figure 3.48. Rabaul Hotel and compacted mud-ash deposit.

Proprietress Kathleen Bignell is photographed with pilot Jack Turner (left) and customs official Jack Marshall at the Rabaul Hotel soon after the end of the Tavurvur volcanic mud fallout. Roof, courtyard, seats, rails and table are all covered by the material. Note the deep footprints caused by the strong compaction of the mud-ash deposit. GA negative references M2579-4 and M2579-13.

Figure 3.49. Roof collapse caused by ash loading.

Ash loading has caused corrugated iron roofing to collapse onto a parked vehicle. The tree is stripped of leaves and branches. GA negative reference GB2626.

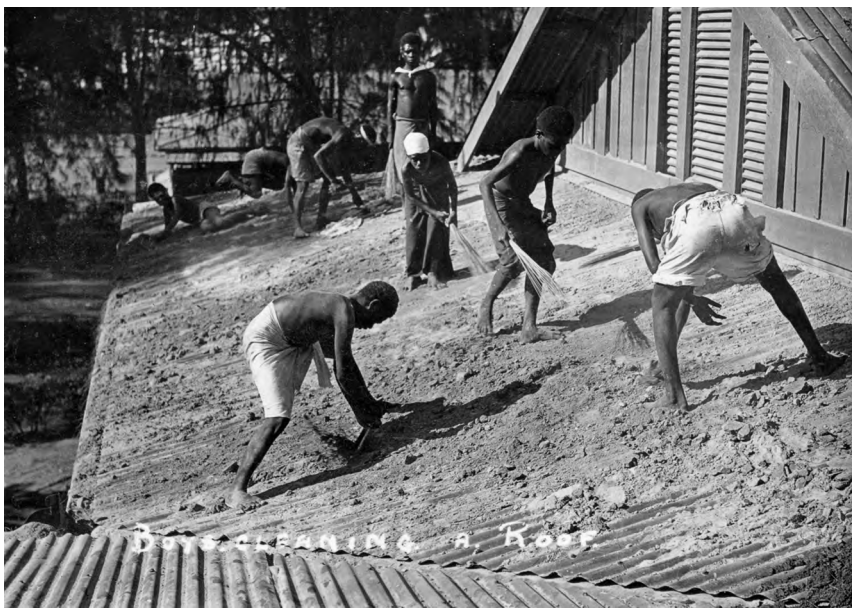


Figure 3.50. Ash being removed from roof.

Brushing the ash from Rabaul roofs and clearing gutters were undertaken after the 1937 eruptions in case rain increased the weight of the ash and caused the roofs and gutters to collapse. There was also concern that the ash would turn to mud and flow into the rain tanks that were the main source of domestic water in Rabaul. GA negative reference GB3285.

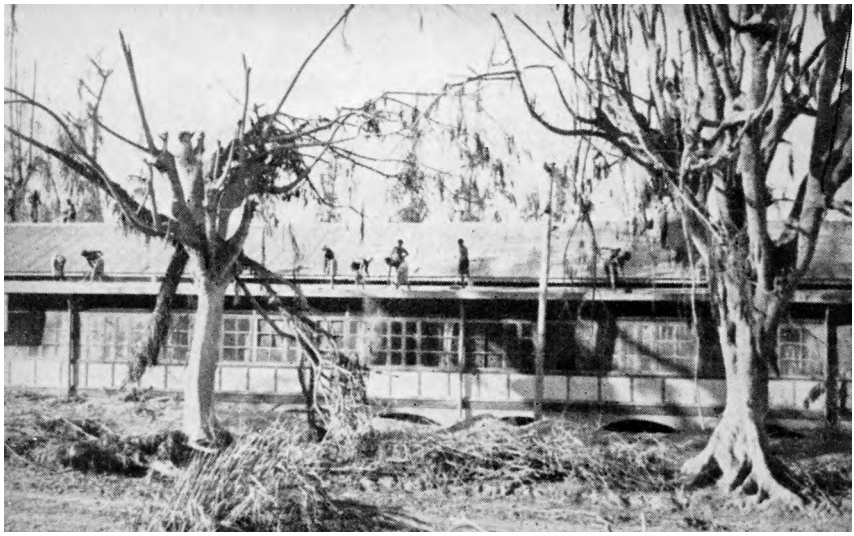


Figure 3.51. Clean-up operations in ash-affected Rabaul.

Ash on the roof of the *Rabaul Times* building is being pushed off by a team of New Guinean labourers in this post-eruption photograph taken by J. Hewett of clean-up operations in Rabaul. Hewett was one of the 'barefooted bankers' who helped Commonwealth Bank Manager Virgil King remove the bank's cash and silver from Rabaul to Kokopo via the Nodup beach. GA negative reference GB2957.

Police patrols were a deterrent to looters. Relatively few looting incidents were reported within the town, and those caught were dealt with summarily—for example, with 10 cane strokes across the offender's rump. A *doctor-boi* (New Guinean medical assistant) was found among a group of looters in the Rabaul clinic that Doug Joycey had opened up on the Monday morning. The *doctor-boi* had helped himself to trade goods from Chinatown (including a bicycle, clothing and torches), and had also done 'a good job in the Clinic. He was on his toes the whole time—he could not sit down for a week' after his punishment (Joycey c. 1937, 3). The two Europeans that Brett Hilder had seen being taken into Kokopo by launch on the Tuesday had also been charged with looting, but apparently not caned, having helped themselves to liquor long after supplies were officially put under administration control. Some homes beyond the town limits and not patrolled by the police were plundered, including, for example, Mrs E.S. Garton's home and tearooms at Ravuvu out on the Kokopo Road.

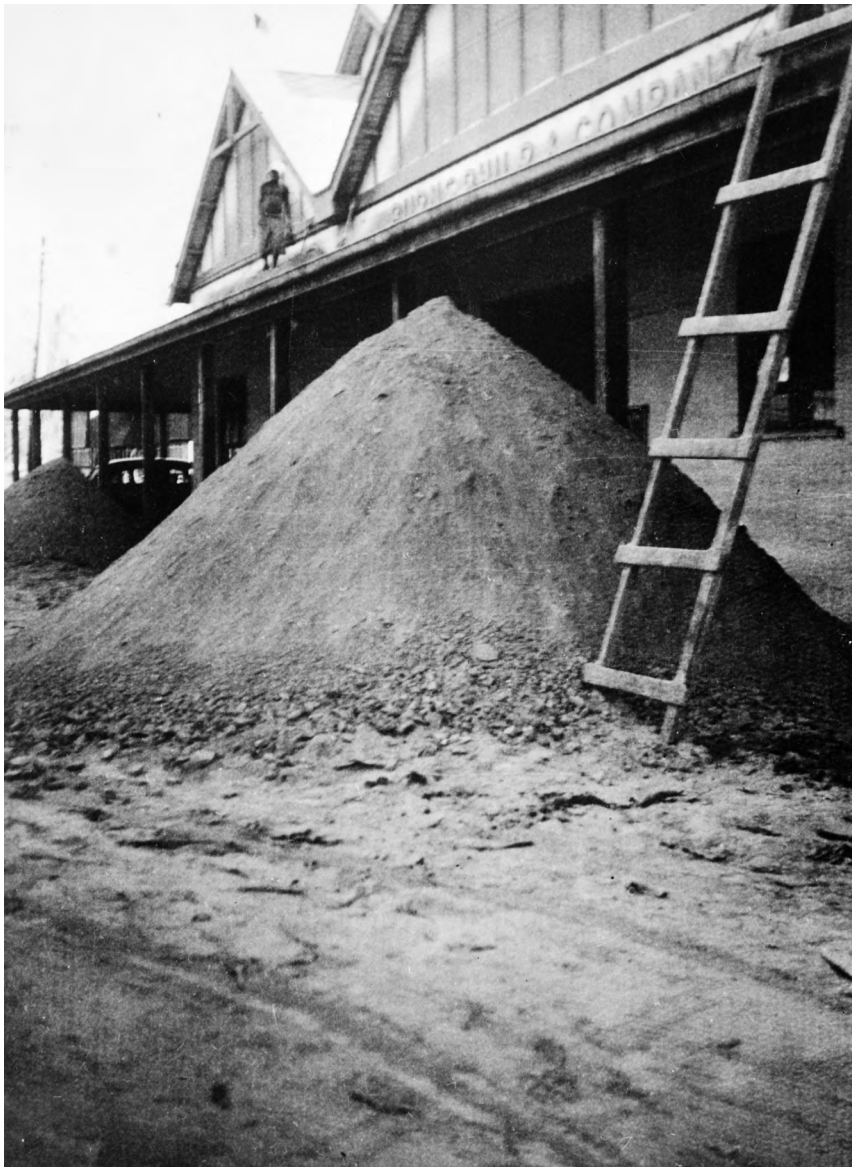


Figure 3.52. Burns Philp store after clearing ash from roof.

These piles of volcanic ash outside the Burns Philp store in Rabaul represent at least part of the ash shovelled off the roof of the building. GA negative reference GB2609.

The sanitation problem in the town had grown serious by Tuesday 1 June. 'Rabaul began to stink', reported Doug Joycey bluntly (Joycey c. 1937, 3). Three days had elapsed before sanitary pans, ice boxes and perishable foods could be properly attended to. Joycey was assigned the task of organising squads of New Guineans who could 'get the stuff buried in back gardens'. Some of the rotting material and waste was dumped in the sea, but this had to be limited, as Judge Phillips pointed out, because the

> floating pumice in the harbour prevents a proper scour … The result in certain states of the tide and the wind may be left to your imagination, especially when I add that dead cats, dogs, fowls, fish, birds and flying foxes added their quota to the effluvia. (Phillips 1937c, 1)

Sanitation arrangements also had to be made for the growing numbers of helpers who were being brought into the town. Central lavatories were constructed, and Ramsay McNicoll 'earnestly requested that no other conveniences be used' because the administration could not 'cope with conveniences in scattered parts of the town' (McNicoll 1937c, CD2, 2).

Floating pumice on the harbour not only prevented a proper scour of the stinking effluvia from Rabaul, but also was a problem for shipping. Smaller vessels, in particular, found ploughing through the pumice fields especially difficult, including the trapped *Desikoko*, which managed to escape the harbour on Tuesday 1 June despite stalling because of a pumice-filled engine (Anonymous 1937a; Thomas 1937a). On the following Thursday, the administrator sailed from Nodup on board the *Nereus* into the harbour and discovered

> an unimpeded entrance between Vulcan and Matupi estimated to be one mile wide. The vessel was stopped and a lead line failed to reach bottom. The Harbour as far as examined, that is from Old Wharf to Main Wharf, appears unaltered. (McNicoll 1937c, CD3, 1)

The SS *Bopple* steamed into the harbour early on the morning of Friday 4 June, followed by the *Induna Star*. A survey by HMAS *Moresby*, which had arrived over the weekend, confirmed that the harbour floor had changed little as a result of the volcanic eruptions. Fears that Rabaul would no longer have seaway access to St Georges Channel were therefore groundless. However, the pumice continued to be troublesome: it abraded paintwork on ships' hulls; could be pumped with seawater into ships' cooling systems causing blockages and engine damage; and could make berthing difficult if it became compressed and jammed between ships and wharves, as happened

when the *Polzella* came into the harbour to load copra on 8 June (McNicoll 1937c, CD5, 2). Gradually, however, over the following days and weeks, the pumice dispersed, either by sinking or by being driven out of the harbour by currents and winds during the north-west season.

Tensions, differences of opinion and ill feeling between the administration in Rabaul and the community at Kokopo had, for several reasons, developed by the first weekend of June. First, the business community that had transferred to Kokopo was not appreciative of the way in which the administration had seized foodstuffs and other supplies from their Rabaul stores without consultation. Second, sections of the community at Kokopo were concerned by the heavy-handed way in which townspeople were restricted from re-entering Rabaul to retrieve possessions and records: after obtaining a permit, a place on one of the small vessels plying to and from Nodup had to be secured, then visitors were challenged at Nodup beach to produce the permit, before finally being given a strict time limit to see to their affairs in Rabaul. This led, at times, to heated words being exchanged on the beach. Other people were critical of the way in which the administration was setting about cleaning the town. Why, for example, could not more helpers be allowed into Rabaul? Judge Phillips countered this criticism in a memorandum to Mr Waugh in Kokopo on 5 June, pointing out that there were insufficient facilities to accommodate an indefinite number of people, that 660 New Guineans were already toiling in the town and that accommodation had become available for 380 more (Phillips 1937c).

Dr Champion Hosking was not completely satisfied with the health arrangements in Rabaul, particularly the measures being taken to prevent a malaria outbreak. In a report to the administrator, he noted that the ground drainage system at Rabaul was completely disorganised as a consequence of drains filling with impervious volcanic mud and tree branches, and that, after heavy rains, the town and surrounding area would become a mass of puddles, which, particularly in shaded areas, would last longer than the life cycle of mosquito larvae, causing an outbreak of malaria (Champion Hosking 1937). Champion Hosking acknowledged that the task of levelling the ground would take a long time, perhaps months. McNicoll, not having the same high opinion of Champion Hosking as of Dr Cooper, did not receive his report favourably (McNicoll 1937d). Nevertheless, Champion Hosking's recommendation that Sir Raphael Cilento, professor of tropical medicine at the University of Queensland, Brisbane, be invited to review the medical implications of the Rabaul eruptions was subsequently accepted.

But the greatest reason for discontent among Kokopo residents was the decision, reached by McNicoll over the first weekend of June, that Rabaul should be reoccupied as soon as possible, and that the townspeople should return from Kokopo without unnecessary delay. In his fifth CD, dated Tuesday 8 June, McNicoll wrote:

> The Chinese community is returning to Rabaul commencing from Wednesday the 9th June. This will enable stores, restaurants, bakeries, etc., to function, and those European residents who desire to do so may return and take up residence in Rabaul, commencing from Thursday the 10th June. (McNicoll 1937c, CD5, 1; Figure 3.55)

This decision was not received favourably in Kokopo. Many felt that Rabaul was still too dangerous a place for reoccupation—if not because of the possibility of the volcanoes breaking out again in eruption, then due to the acknowledged health hazards in the town (Purefoy Fitzgerald 1937).

Rabaul was perceived as an unsafe place, so much so that the administration itself was defraying the cost of sending European women and children back to Australia (the *Montoro* left Kokopo on 9 June for Australia carrying many such passengers), yet the administrator was recommending an almost immediate return of both the Asian and the European communities from Kokopo to Rabaul. His viewpoint appeared to many to be a complete turnabout from the statement made the previous Tuesday that 'Rabaul will be untenable for many weeks'. Businessmen who had just completed setting up temporary stores and offices in Kokopo were not in favour of the move. The dispute was publicised in Australian newspapers and different opinions were expressed. Sir Walter Carpenter, for example, chairman of W.R. Carpenter & Co., said in Sydney: 'The Administrator may think that people will go back at once, but nobody else does' (Anonymous 1937b, 17). McNicoll stated that the return to Rabaul was voluntary, but there were obvious compulsions—in particular, the instruction that:

> All free issues (except to indigent natives) shall cease at midnight on Wednesday the 9th. Pending a return to normal conditions goods may be obtained on purchase from the Government Stores at Kokopo and Rabaul. This is an emergency provision only and shall cease at the earliest possible moment. (McNicoll 1937c, CD5, 1)

Figure 3.53. Fallen tree branches on roadside.

This road has been cleared of fallen branches and is trafficable again, but an abandoned car is partly covered by other fallen debris. Road clearing was given high priority in the task of cleaning Rabaul during the first week of June 1937. GA negative references M2579-1-12-8 and M2579-5.

There is no evidence that McNicoll, at this time, revisited Albert Hahl's original decision to establish Rabaul as a town and capital, despite its now obvious vulnerability to volcanic activity. McNicoll cannot have excluded the likelihood that in the years ahead similar or even more destructive eruptions would take place in Blanche Bay. Evidently, in the immediate situation, he had no alternative but to order a reoccupation of the town, which, after all, and despite its covering of ash-mud, could be restored satisfactorily. Ben Sullivan, the Australian Broadcasting Commission's 'Radio roundsman', talked with a young businessman who had been evacuated to Kokopo. The young man suggested, rather prophetically, that the transfer of the capital to outside Simpson Harbour, while keeping the existing harbour and wharves at Rabaul operational for business purposes, might be the way forward (Radio Roundsman 1937). Moving the whole

town back to the old German capital Herbertshöhe, now Kokopo, would have been too expensive, particularly during the global economic downturn of the 1930s. Further investigations of the town's future as a capital would require involvement of the Australian Government in Canberra.

Figure 3.54. Recovery of coconut palms.

Coconut plantations in the volcanic fallout zones suffered greatly as a result of the breaking of palm fronds caused by ash loading, although they appear to have recovered somewhat by the time this photograph was taken. The road is clear of debris and is trafficable. GA negative references M2444-1-3 and M2447-32A.

Figure 3.55. Return of evacuees to Rabaul.

Chinese tradesmen and artisans are here seen returning to Rabaul in the second week of June 1937. Collapsed branches from the partly stripped trees litter the side of the ash-covered road leading up from the wharf where these townspeople—among the first of the evacuees to return to Rabaul—have landed. GA negative reference GB2443.

Another cause of contention was the apparent reluctance of the administrator to acknowledge that hundreds of New Guineans had been killed by the Vulcan eruption. Father Zwinge reported in a letter written on 6 June from Vunapope that: 'Many natives perished. Fr Bogershausen had to date a list of 273 names' (MSC 1937; Arculus and Johnson 1981, 19). Similarly, pilot T. McDonald, managing director of North Queensland Aerial Surveys, told reporters on his return to Brisbane from Rabaul that:

> I cannot understand the denials of the number of casualties. One Catholic German missionary told me that 281 natives had perished. Natives reported that there were many bodies in the valley near the new volcano—so many that they could not continue to live there … There can be no question that hundreds have perished. (Anonymous 1937c, 15)

Further, Rev. Lewis reported from a Methodist standpoint in a letter dated as late as 26 June that 'there has been a consistent attitude of the Administration to belittle the loss' (Lewis 1937b, 4). Lewis estimated that the losses were: four churches, one teacher, 327 people, plus land that was no longer suitable for resettlement.

However, McNicoll believed that most of the missing New Guineans had probably fled and would return. Indeed, according to the *Pacific Islands Monthly* of 23 June 1937, the administrator, on 12 June, estimated the number of dead to be only 18 (Robson 1937, 72). Government officials subsequently investigated how many had been killed. McNicoll, in a memorandum dated 20 July 1937 to the secretary of the Department of the Prime Minister in Canberra, set the number at 424, but even then added that some of the missing 'may have fled to distant places and will return later' (McNicoll 1937g, 1). The exact number of fatalities will never now be known, but the most accurate number is probably that given by N.H. Fisher, who reported a later administration estimate of 505—plus Costner and Elworthy—in his volcanological account of the eruption (Fisher 1939a).

3.11. Vulcan, Floods and Next Steps

The two most seriously affected villages near Vulcan were Tavana and Valaur (where the *tubuan* had been held) and their total dead accounted for well over a half of all casualties. There, along the Kokopo Road close to what had been Vulcan Island, the Vulcan ash was thick—deeper than 10 metres at Valaur—and its burial effects were the most devastating (Figures 3.56–3.60). Several European houses along the road were buried (but no Europeans), including those of Mr and Mrs Furter, the Wallace family and A.R. Reed, owner of the Rabaul Dairy whose herd of milk cows perished in the eruption. The devastated area west of Vulcan held more dead, as well as survivors many of whom were stunned and shocked by the events they had endured. Administration officers were more concerned initially about the condition of Rabaul than the welfare of the survivors west of Vulcan, but missionaries returned to the area to see what support they could offer, including Rev. Jones, who received

> pitiful … letters from my teachers up in the hills as to what they should do … [T]heir gardens had been utterly destroyed, having been covered to a depth of 3 ft with this volcanic ash. Their houses had collapsed, and they were at their wit's end as to what to do or where to go. (A.S. Jones 1937b, 5)

Jones set out on Wednesday 2 June on a long walk into the hills:

> [W]e passed hundreds of natives fleeing to the coast. They had their belongings in bundles on their heads. They had caught various birds for food, and one man had a wallaby … So tangled were fallen trees and palms, so thick was the deposit that I could not recognise the villages. The gardens were a wreck, the ground appeared as though a huge flood had covered it leaving a deposit of mud and stone. (A.S. Jones 1937a, 2)

Jones visited several wrecked villages and talked to teachers and villagers: 'The teachers have all stood firm and stuck to their flocks, not going to their own villages, as it is natural for them to have done.' A wind was blowing, disturbing the ash: '[I]t is most disagreeable, as it cuts into the eyes worse than any sand storm that I have been in' (A.S. Jones 1937a, 6).

Figure 3.56. The *Durour* on the slipway in front of the new Vulcan cone.

The profile of the new cone of Mount Vulcan, or Kalamanagunan, looms up behind destroyed palm trees and a pumice-covered *Durour* stranded on its slipway that, formerly, had been at the shoreline across from Vulcan Island. This photograph was taken by W.B. Ryan along the track that led to the slipway. R.W.J. Collection 30A, Folder 4, Sleeve 51.

Administrator McNicoll would have realised that many people had perished west of Vulcan had he visited the area during the first week after the eruptions, but he was heavily involved in administrative matters in Rabaul, and, by the second week of June, was evidently under pressure from many sections of the community. His telegram of 12 June to Sir George Pearce, Minster for External Affairs, in Canberra reads: 'Human element at Kokopo a big burden—false rumours, vilification, abuse, which I request you to disregard' (McNicoll 1937d, 1). Two days later, he wrote:

> This show has brought out the best and the worst in people. There are some surprising cases of nervous prostration. I am trying to disregard the unpleasant and unhelpful things that are written to me, and bandied about—attributing them to the nervous conditions of the offenders. (McNicoll 1937e, 2)

Sir George made his support for McNicoll's actions at Rabaul publicly known, and told McNicoll he appreciated 'the prompt manner in which you have dealt with the situation and the steps that you are taking to restore Rabaul' (Pearce 1937, 1). Criticism in Rabaul and Kokopo of McNicoll's plans and actions gradually fell away, and, as the town began to recover and no further volcanic eruptions took place, the administrator's strong stand became more accepted.

Figure 3.57. Vulcan ash covering the Baden-Jones's home.

Several European expatriates lived in houses out of town along the Kokopo Road, some of which were quite close to Vulcan Island. All of these Europeans escaped the Vulcan eruption, but their houses were either severely damaged or completely buried. This home was occupied by the Baden-Jones family. GA negative reference GB2937.

Figure 3.58. House collapse caused by volcanic ash from Vulcan.

Amid general devastation near Vulcan, the roof of this house has collapsed under its loading of pumice. GA negative reference GB3310-13.

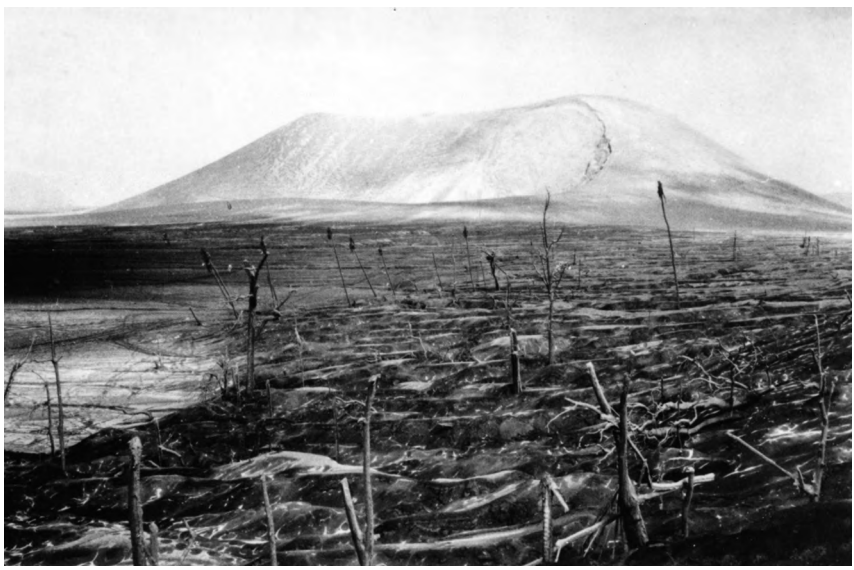


Figure 3.59. Vulcan cone and probable salt encrustations.

Extreme devastation is seen in this photograph taken by Dr H. Champion Hosking just north of the new cone of Vulcan at the end of its eruptive activity in 1937. The white encrustations in the foreground are salts presumably dried out from the seawater that was flung out during the explosive eruptions. GA negative references GB3309 and GB3309-11.

Figure 3.60. Excavating an occupied shelter buried by Vulcan ash.

A team of New Guineans excavates a native-materials dwelling buried under pumice near Vulcan. They have unearthed the corpse of a New Guinean woman (right-hand photograph, point a) who had evidently attempted to shelter there. These photographs appeared in Sir Raphael Cilento's medical report on the after-effects of the 1937 Rabaul eruptions. GA negative references GB3312 and GB3312-15 and 16.

McNicoll reported on 15 June that the 'work of clearing the town is proceeding apace and good results are being achieved' (McNicoll 1937c, CD6). Electric light and power were being supplied, and extensions to the electricity network throughout the town were being made daily. Requisitioned vehicles had been returned to their owners, and administration departments had again opened their offices in Rabaul. Evacuees, in time, began returning from mainland New Guinea. However, the environment of the town remained uncomfortable, on account of the volcanic dust that was swirled into the air by breezes and passing traffic. The dust remained a nuisance for several weeks, particularly during dry periods. It irritated eyes and people with respiratory problems must have found it particularly unpleasant. Face masks were ordered by the administration, and the task of providing 2,000 of them fell to Doug Joycey. He made a few hundred masks from cotton wool pads soaked with hypo (sodium thiosulphate; a design based on gas masks used in WWI), but he ran out of hypo, and they were never used.

Meanwhile, villagers and missionaries in the west were attempting to resume a normal life after the devastation caused by Vulcan, dust irritations notwithstanding. Valaur and Tavana villages, which suffered the greatest human death tolls, were rebuilt by survivors away from the shoreline on the western foot of the new Vulcan cone—a vulnerable place should Vulcan break out into eruptive activity again (Figure 3.8)—but on the eastern side of a new unsealed road linking Rabaul to Kokopo, meaning there was at least a possible evacuation route southwards for any explosive eruption in the south-east season, as in 1937. A memorial to those killed in 1937 was later constructed at Tavana as a constant reminder of what could happen again (see Figure 7.9).

Figure 3.61. Flooding in Rabaul.

Heavy rains caused flooding in Rabaul in the few weeks after the 1937 eruption, especially where the impervious ash of Vulcan and Tavurvur covered the normally porous soil of low-lying areas. These photographs were taken by Miss Carol Coleman, who returned to Rabaul on 16 June, and who noted in her diary that there was 'a bad storm on 30th June which turned everything into a sea of mud again'. GA negative references GB2933 and GB2935.

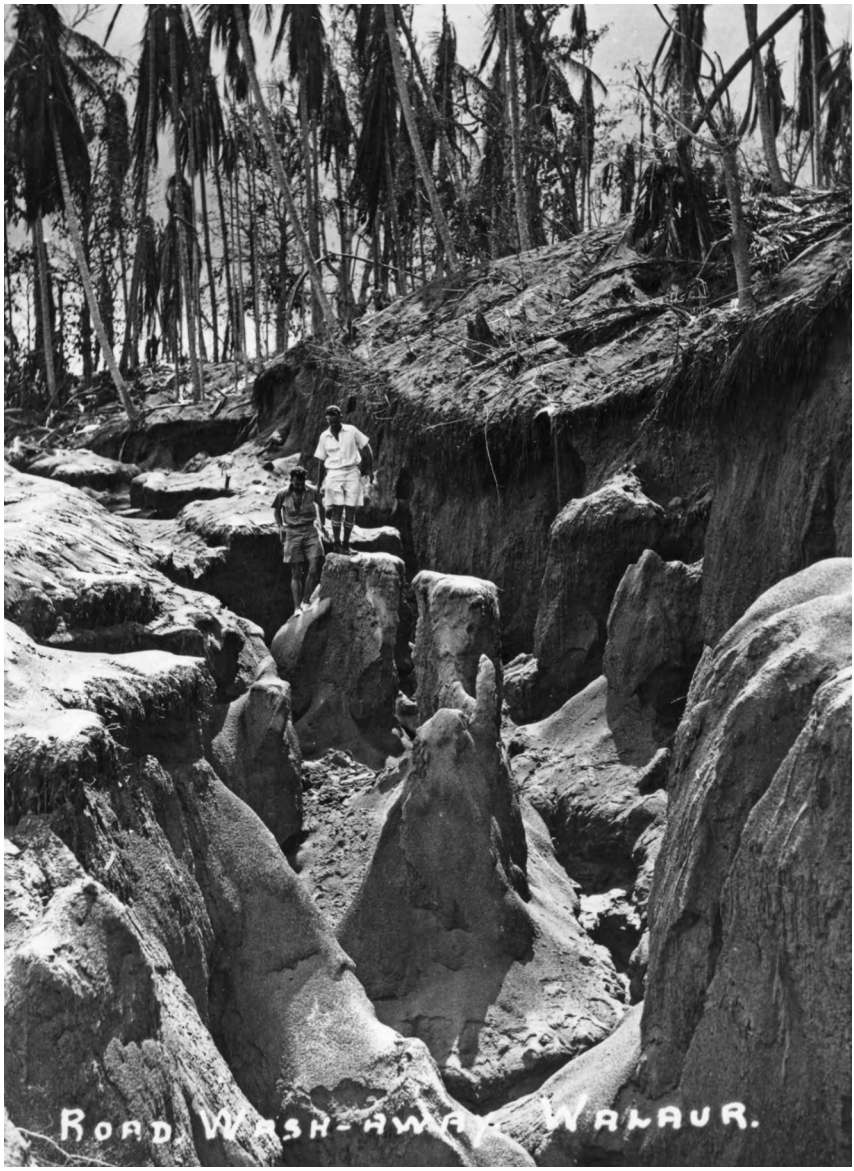


Figure 3.62. Erosion gullies near Vulcan.

Deep ravines were gouged out near Vulcan by rains that fell during and after the 1937 eruption. This photograph was taken near Valaur where Vulcan pumice accumulated to many metres thickness. Layers of pumice can be seen in the ravine walls. GA negative reference GB3284.

Figure 3.63. Erosion on Namanula Hill Road.

Extensive gullying on the side of the Namanula Hill Road has been caused by increased run-off of rain that, normally, would have percolated through the tropical vegetation and porous soils at Rabaul. Volcanic ash has not only stripped away much of the vegetation, but also covered the soils, so that the rain runs over exposed surfaces eroding them. GA negative reference GB2630.

The first of the rains began in the second week of June, and these helped to dampen the dust. The rain, wrote McNicoll (1937c, CD6), 'greatly improved the appearance of the town and greenery is again evident on all sides'. A restriction on the use of vehicles in the streets was lifted, but a 15-miles-per-hour speed limit was enforced. Flowers such as frangipani and hibiscus started to bloom in the still drab town. However, heavier rains, when they came, did not help the situation in Rabaul. Rains could no longer percolate through foliage and normally porous soils, but rather ran off surfaces covered by the relatively impervious Tavurvur ash. Torrential floods developed down slopes, and especially down steeper streets such as the Namanula Hill Road (Figures 3.61–3.63). These torrents swept mud into the town, gullied hillsides, eroded the edges of roads, blocked drains and caused flooding, particularly in the lower-lying parts of Rabaul such as Chinatown. Doug Joycey recalled that after one heavy rainstorm: 'Dozens of Chinese began to arrive on the old burnt wharf, with huge bundles on their heads, for a second trip to Kokopo.' The waters drained away quite quickly, and no serious malarial problems eventuated, but the Department of Public Works subsequently developed a system of deep open drains across Rabaul to cope with any further floods (Figure 3.64).

Figure 3.64. Construction of drains in Rabaul.

A New Guinean team works on lining deep drainage channels that were built shortly after the 1937 eruptions to cope with the possibility of future floods in Rabaul. GA negative reference GB2622.

Sir George Pearce informed McNicoll in his cablegram of 11 June that:

> [T]he Government feels it cannot concur in the retention of Rabaul as the permanent capital of the Territory without the fullest investigations as to its safety and suitability from all aspects. It is therefore proposed that such investigation should be made from the scientific, commercial, navigational, Administrative and medical viewpoints. I have caused inquiries to be made with a view to securing a qualified scientist to proceed to Rabaul and report upon the volcanic and seismal dangers of the area from the point of view of the safety of the inhabitants and the Administrative and commercial activities. [Further] a Committee should be appointed to review the questions from all angles, [and which would] consist of persons who could give expert advice from the medical, shipping, commercial, transport and aviation and Administrative point of view. (Pearce 1937, 1)

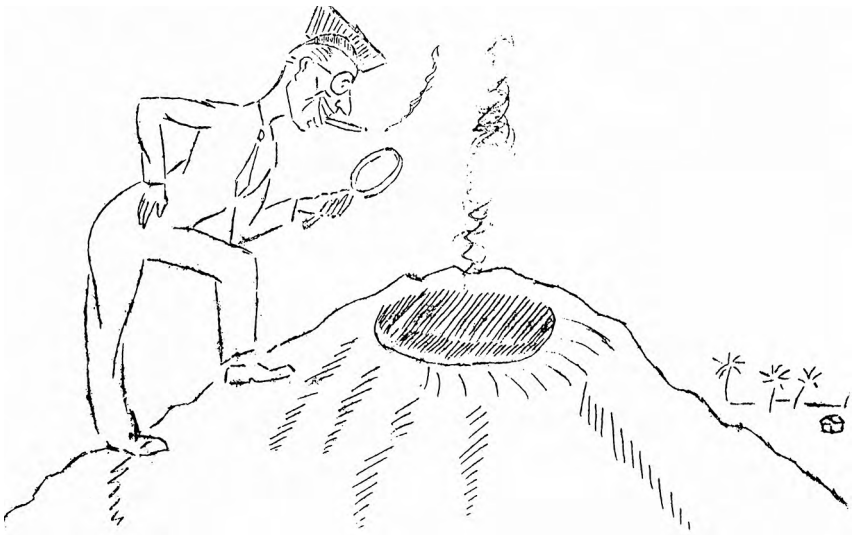


Figure 3.65. Cartoon of visiting volcanologist on volcanic cone.

J.K. McCarthy produced this cartoon of a nonchalant visiting volcanologist carrying a magnifying glass. Its caption reads: 'Eminent scientist (probably American) examines the crater—Bulletin No. 6 "Cute but not acute".' 'Bulletin 6' presumably refers to the administrator's Circular Dispatch No. 6, so McCarthy is here poking fun at McNicoll for his bracketed comment 'probably from America'. A photocopied collection of some of McCarthy's cartoons is catalogued in R.W.J. Collection 30B, Folder 8, Sleeve 50.

The administrator included news of the proposed investigations into the suitability of Rabaul as a capital in his sixth CD of 15 June 1937, adding his own detail 'that the Commonwealth Government is making enquiries with a view to obtaining the services of a qualified Scientist (probably from America) who will visit Rabaul' (McNicoll 1937c, CD6, 1). McNicoll's view of qualified volcano scientists—American or otherwise—was lampooned in a cartoon drawn for wider distribution (Figure 3.65).

Ramsay McNicoll was the target of criticism from sections of the Rabaul community, and he in turn was critical of his detractors. Yet the administrator was clearly impressed with the actions of many Rabaul citizens during the volcanic crisis, because on 26 June he submitted to Sir George Pearce:

> [I]n view of the meritorious work performed by a number of officers and private individuals during the recent volcanic disturbance in Rabaul … the names of 10 people who had been particularly outstanding. (McNicoll 1937f, 1a)

At the top of the list was Judge F.B. Phillips. All 10 nominees, and one other, would eventually receive appropriate British Empire awards bestowed by King George VI. McNicoll also informed Sir George that he had a reserve list of another 40 or 50 people who had 'performed work of a sterling character'. Apart from Judge Phillips, Acting Superintendent Ball, Dr Cooper and Acting Inspector Prior were included in the 10 nominated, and so too were Dr Watch (for his medical work at Kokopo), Messrs L.W. Heinicke and E. Hopkins (for driving between Rabaul and Nodup and for other services), Mr Barrie (for his work at the electricity station), Mrs Bignell (for the supply of meals and accommodation arrangements) and the Honourable John Charles Mullaly of Natava Plantation, who 'rendered wonderful assistance in the matter of caring for the natives of the devastated areas of the North Coast'.

Gordon Thomas resumed normal publication of the *Rabaul Times* on 23 July 1937: '[T]he linotype is clicking again and the whirr of the presses make a welcome sound.' In an editorial entitled 'Nearing Normal', he wrote that:

> Large areas of pumice still float in the harbour [Figure 3.66]; many of the streets are lined with large heaps of volcanic mud which must be cleared away by the mechanical conveyors [brought especially from Australia] and large gangs of native labourers shovelling them onto an ever-moving stream of motor lorries; roads and drains require

> attention; carpenters and plumbers are busy effecting repairs; street lights are still absent and light and power have not been re-installed in all residences yet … furtive glances are still directed at Matupi and Vulcan as they come into view and nerves are still a-tingle if the verandah shakes from the scratching of a dog. It is correct, however, to say we are approaching normal times again. (Thomas 1937c, 8)

In the issue, Thomas acknowledged the cartoons of J.K. McCarthy—who had 'the power to illustrate the humorous incidents at times of stress which does so much to relieve the tension of the moment'—which had been printed in the previous 'unofficial numbers' of the newspaper. The issue also contained news and notice that a ball, organised by Mrs Bignell, would be held at the Rabaul Hotel on Friday 6 August during the visit of HMAS *Australia* (Figures 3.67 and 3.68). Another announcement was that fresh milk, from newly imported and tested Holstein cattle, was available from Reed's Rabaul Dairy as of 18 July. Social life had resumed soon after the town's reoccupation and, like the frangipani flowers that had so impressed the townspeople, Rabaul soon bloomed again in its former style. The Frangipani Ball was inaugurated to celebrate the rebirth of the town, and this continued as a regular postwar event in the Rabaul social calendar.

Figure 3.66. Pumice floating on Simpson Harbour near wharf.

The *Montoro* leaves main wharf, Rabaul, in July 1937, through a field of floating pumice. Photograph supplied by B. Hilder. GA negative reference GB3302.

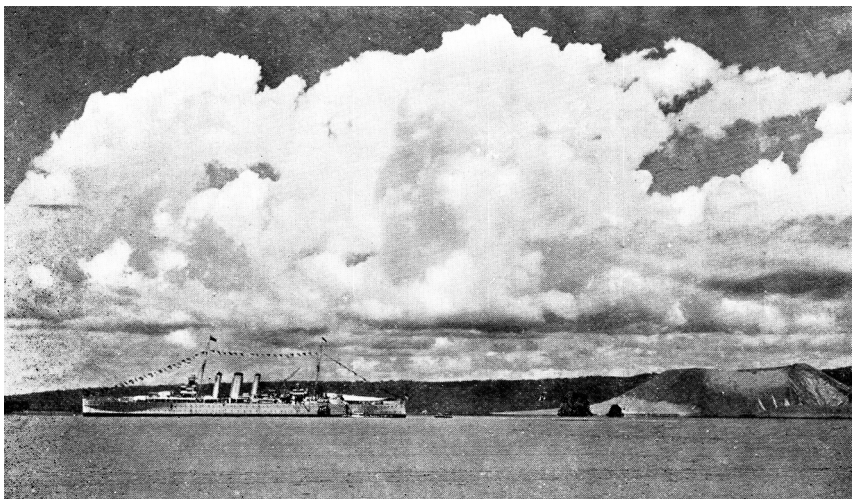


Figure 3.67. HMAS *Australia* visiting Blanche Bay.

HMAS *Australia*, Dawapia Rocks (Beehives) and Vulcan in Blanche Bay (Fisher 1939a, 66, lower image). Stehn and Woolnough (1937a, 8–9) reported that HMAS *Australia* undertook deep soundings in the harbour on 10 August, including to a depth of 150 fathoms at the entrance to Blanche Bay in the south-east.

Figure 3.68. Mrs Bignell on the rim of Vulcan cone.

Kathleen Bignell, proprietor of the Rabaul Hotel, and her daughter Margaret climbed Vulcan one day in mid to late June 1937 while the volcano was still emitting vapour and gas (Clarence 1982). Mrs Bignell was awarded the British Empire Medal for her work at the hotel in providing meals for the men who remained in Rabaul during the arduous first few days after the May 1937 eruptions. Margaret took this photograph of her mother at the top of the climb on the rim of the new crater. Margaret Bignell was evacuated from Nodup to Kokopo where she worked as a typist for Gordon Thomas helping in the preparation of special issues of the *Rabaul Times* at Vunapope. GA negative reference GB3289.

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.2023.03