8. Disaster at Lamington: 1951–1952

... in the tropics decomposition sets in quickly and thousands of rotting corpses were scattered throughout the devastated area mostly covered in ash. Many hundreds more were spread out along the road from Higaturu where they had been attending church services on the Sunday morning ... A couple of hundred more were huddled together inside a church. Large numbers of the bodies had split open with intestines spilling out. The stench was appalling.

Des Martin (2013)

Higaturu and the Orokaiva

We have a volcano! This is the exclamatory statement that Margaret or ‘Peggy’ de Bibra wrote down after breakfast on the morning of the Lamington catastrophe on Sunday 21 January 1951.1 Miss de Bibra was the principal of Martyrs’ Memorial School at the Anglican Christian Mission at Sangara on the northern flank of Mount Lamington, less than two kilometres downslope from the Territory’s government headquarters for the Northern District at Higaturu. Sangara and Higaturu were only 10–12 kilometres from the summit of the mountain, which rose as an impressive and scenic backdrop to almost 1,800 metres above sea level.

The Higaturu-Sangara area was, in many ways, located advantageously. It had been developed by Europeans in the higher country away from the oppressive heat of the coast and had, like Rabaul, rich volcanic soils. A wide variety of vegetables and fruit was grown there, and rubber, coffee and cocoa were harvested on commercial plantations managed by Europeans. Soil richness was also the reason why so many Orokaiva villages and hamlets had already spread throughout the area — including a concentration around Isivita, where the Anglicans had a mission station a few kilometres south-west of Higaturu.

There were, however, darker memories of wartime conflict in the area. Australian authorities had abandoned much of the Northern District for several months in 1942 when the Japanese military landed in the Gona area. The landing marked the beginning of the Kokoda campaign for the Allies, culminating in savage fighting at Buna and Gona. Anglican missionaries had been betrayed in 1942 by some of the local Orokaiva, and six of the Anglicans were murdered by...

the Japanese. Three corpses were recovered and later buried at Sangara at the Martyrs’ Cemetery, the name of which memorialised the dead missionaries. The returning Australian military captured the Orokaiva betrayers, as well as Orokaiva accused of other crimes, and publicly hanged 22 of them at Higaturu in early 1943.2

The Papuan people who speak the Orokaiva language live mainly in the northern foothills of Mount Lamington and on the adjoining plains. Their language is the one most commonly used by people of the Binandere language group and is spoken widely in the more densely populated parts of the Northern District. Group relationships within Orokaiva-Binandere territory and with adjacent outside groups such as in the Managalese area south-east of Mount Lamington, were managed through traditional exchange and reciprocity arrangements.3 Yega people on the coast to the north-east of the mountain traditionally considered the inland, ‘mountain’ Orokaiva as enemies, and they regarded Mount Lamington fearfully, even before the 1951 eruption, as the home of the departed spirits of the Orokaiva, later blaming the powerful spirits of the mountain for the disastrous eruption itself.4

De Bibra included the following pieces in the remainder of her unfinished draft article:

Mt Lamington … lies behind us and consists of four or five sugar-loaf peaks … We have always loved her for her beauty and nearness … [but now] she has changed from fairy queen to a wicked witch, and the gossamer scarves of mist [seen in the early mornings] have turned into smoky outpourings of some bubbling cauldron …

For days we had tremors … and the face of Lamington became scarred with great patches of bare earth, caused by landslides. Then one morning — January 18th [the previous Thursday] — after a night of continuous tremors, smoke appeared [that later] … came pouring out in great thick puffs high into the sky, wreathing and curling in awe-inspiring cauliflower shapes …

What do the people think? … What will it mean? … How will it affect the faith of new Christians? … Will you think of the people here, particularly the Managalas people, and those near our stations of Sewa and Sehaperete? Pray for them and for us, that out of this good may come, and as the dead mount came to5

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3 Schwimmer (1973).
4 Benson (1955).
Her final sentence was never completed.

Volcanologist G.A.M. ‘Tony’ Taylor arrived at the Lamington disaster area by air on the day after the catastrophe to begin an intensive study of the eruption and its volcanic deposits, and involving fieldwork that lasted almost two years. This was followed by a period of report writing in Canberra, resulting in the publication in 1958 of Bureau of Mineral Resources Bulletin 38 which today is recognised as a landmark in the history of volcanological studies. Taylor compared the Lamington eruption to those at Mont Pelée and Soufrière in 1902 and to subsequent eruptions at these two Caribbean volcanoes, and called the 1951 Lamington eruption peléean in type. Bulletin 38, however, carries no hint of the disaster-management controversies of the catastrophe at Lamington.

Taylor achieved fame not only amongst the international volcanological fraternity, who read and learnt from Bulletin 38, but also amongst the general public in both the Territory of Papua and New Guinea and in Australia. This is because Taylor was awarded the George Cross for courage as a result of his work during the dangerous first few months following the 21 January catastrophe. He thus became a high-profile scientist—hero, despite being a private, serious-minded, if not shy person. Taylor was assisted at Lamington by Leslie Topue, a villager from the Rabaul area, who had recently joined the Rabaul Volcanological Observatory. Topue would be awarded the British Empire Medal. Taylor was also assisted in the disaster area initially by Bureau of Mineral Resources (BMR) geologist John G. Best who was, however, soon sent on to supervise the operations at Rabaul Volcanological Observatory (RVO) during Taylor’s long absence from Rabaul.

**Build-up to Catastrophe**

Mount Lamington was not known to be a volcano, and there were no traditional stories or legends about previous eruptions. Both of these statements were true as far as the people living on the northern flank of Mount Lamington in 1951 were concerned. They were true, also, for Administration officials in Port Moresby and even for volcanologist N.H. Fisher when he later wrote the foreword to Bulletin 38. Both statements, however, need qualification given that previously ‘buried’ pre-1951 information came to light and became more significant after the catastrophic eruption.

Australian geologists before 1951 had recognised Mount Lamington and the Hydrographers Range to its east as both volcanic in nature and Quaternary in age — that is, geologically very youthful — and a Netherlands Indies geologist,
R.W. van Bemmelen, had even referred to Mount Lamington itself as being an ‘active’ volcano. The young volcanic features of Lamington volcano, including a north-facing crater, youthful lava domes — the ‘sugar-loaf peaks’ mentioned by de Bibra — and a thermal area, are visible on aerial photographs taken in 1947. Furthermore, an Administration patrol officer visited and identified the volcanic crater on Lamington in 1948 and recounted, before the 1951 eruption, a traditional story that a lake had once existed at the summit but its waters had burst out northwards, devastating several Higaturu villages and causing great loss of life.

The sugar-loaf peaks of Mount Lamington feature in powerful legends about the mountain, which the Orokaiva regarded as the centre of their universe, a place where death, strife, warfare, fires, marriage and other cultural elements originated. The Orokaiva called the mountain Sumbiripa Kanekari, meaning ‘the separation of Sumbiripa’, alluding to a time when the mountain had opened and split into separate crags. The Orokaiva man Sumbiripa, or Sumbirip, and his wife had been hunting on the mountain but they became separated on different peaks. Sumbiripa died, the first Orokaiva to do so, and became the spirit master of the mountain, living inside it with other Orokaiva people who died after him. This is not a clear-cut volcano or eruption legend as such, but the story does hint at earlier, witnessed, eruptive activity.

Europeans wanting to visit the summit of Mount Lamington could not always find Orokaiva people willing to guide them because of its special spiritual significance, but a group of missionary women managed to climb the volcano in the early 1930s. Their apprehensive guides had warned them in advance that the earth there shook and that a roaring noise could be heard at the top. The missionaries confirmed — before the 1951 eruption — these claims, as there was a great roar at the summit, the roar of a mighty waterfall in the chasm below, but the boys began to talk together in whispers. ‘Sister, listen’ said one, ‘That big noise not river.’

None of this information was generally available when Lamington started precursory activity six days before the paroxysmal outburst of 21 January 1951. There may have been even earlier warning signs, and a seismograph possibly could have picked up any earlier build-up of earthquake activity, but the mountain had no such instruments. Increases in tremors, landslides and gas emissions were noted from Monday 15 January until the time of the initial ash

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7 Stanley (1924), Bemmelen (1939) and Montgomery et al. (1950).
8 Taylor (1958).
9 Murphy (1951).
10 Schwimmer (1973, 1977). ‘Sumbiri’ (without the suffix ‘pa’) was the name of a tribal warrior from the Angereufu Clan of the Songe Tribe, and his wife was called Suja (Maclaren Hiari, personal communication 2013).
11 Tomblin (1951), pp. 132–33.
eruption of the following Thursday, when the resident District Commissioner at Higaturu, Cecil F. Cowley, informed Port Moresby of the 11 am outburst and that ‘there was no need for alarm’. The Administrator, J.K Murray, was travelling in other parts of the Territory and Justice F.B. ‘Monte’ Phillips was the acting Administrator in Port Moresby at the time. Cadet Patrol Officer Athol J. Earl wrote the following to his parents from Higaturu on 18 January:

Things have been happening here the last two days. We started off yesterday with earth quakes [sic], they were not very bad but frequent, every three to five minutes [t]his went on all day and on the Lamington Mountains behind us we could see great land slides. The quakes kept up all last night and this morning great rumblings commenced. At about ten o’clock it blew its top and we now have a volcano just behind us. Great masses of smoke have been belching out ever since and the lava [sic] can be seen running down the mountain side. We have looked at it through a telescope and you can see rocks, and so forth being tossed into the air. The native[s] from all around here deserted with all their belongings, however, I notice they had started to come back tonight. Earth quakes are still continuing and great rumbling is going on …

Phillips flew the next day, Friday, to Popondetta where there was a tiny settlement — including a Buntings general store and a new government agriculture station alongside the airstrip — more than 20 kilometres north-east of Mount Lamington. Phillips was met there by Cowley who surprised the judge by saying he had been expecting a volcanologist on the flight, having earlier requested the Administration in Port Moresby to provide one. The European women present, including Mrs Cowley, were anxious about the state of the mountain but her husband, the District Commissioner, was ‘cool and confident, and tried to calm his wife’s nervousness’, wrote Phillips. The people at the airstrip could see an eruption cloud rising lazily from Lamington to the south-west, and Phillips concluded that the volcanic pressure was being relieved quite safely. He pronounced this judgment on the basis of his personal geophysical experience at Rabaul in 1937. Phillips declared ‘there was no immediate danger to human life at Higaturu’ and flew back to Port Moresby. Cowley, still without the volcanological advice he had requested, had little option but to concur with the acting Administrator’s opinion. The decision was supported, too, by the missionary-in-charge at Sangara, Reverend Dennis J. Taylor, who had witnessed the Goropu eruption of 1943–1944 from Wanigela, and who thought that the Goropu volcanic activity was much stronger than the current, weak, eruptions at Lamington.

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12 Unpublished letter dated 18 January 1951. A copy of the letter was kindly provided by Earl’s niece, P. Earl (personal communication, 2011).
The Administration and Mission were the political and ruling elite and many of the Orokaiva looked to the Europeans for guidance on the matter of the eruption and its dangers. The decisions made by Phillips and Cowley were distributed by village constables and mission staff, and they influenced people not to evacuate the area. There were, however, spontaneous evacuations from some Orokaiva villages. The Phillips decision, nevertheless, ‘was a case where bad science was more dangerous than sound superstition’, wrote one commentator later.

The Administration’s volcanologist, Tony Taylor, was in Rabaul and at this time had not been consulted about either the volcanic eruptions or a need for any evacuation, although John Best recalled many years later that Taylor was aware of the volcanic happenings at Lamington from hearing radio news broadcasts that week. More than one explanation has been proposed for why Taylor was unable to leave Rabaul to investigate the early eruptions at Lamington, but the non-availability that week of suitable air transport from Rabaul seems to be the main reason for the delayed departure. Best, however, hinted at bureaucratic delays in Rabaul, which might have been avoided had the uncertain situation at Lamington that week been recognised in Rabaul as critical.

A black volcanic cloud advanced northwards over Higaturu, Sangara and many Orokaiva settlements on the morning of 21 January, and there are dramatic — at times horrific — records of the individual and in some cases courageous experiences of survivors, rescuers and evacuees. Pilots and passengers of in-flight aircraft probably had the best overall view of the colossal cloud that rose rapidly from Mount Lamington to at least 15 kilometres. A Qantas Dragon aircraft flying from Lae was just about to land at Popondetta when the ‘entire mountainside blew out, and Higaturu station was blotted out. The terrible cloud rushed towards them … [and they] sped back at full speed to Lae’. News of the eruption first reached Port Moresby by means of a radio message from a Qantas DC3 en route to Rabaul from Port Moresby. The aircraft was north-west of the mountain when its captain saw

a dark mass of ash shoot up from the crater and rise, within two minutes, to 40,000 feet, forming a huge expanding mushroom-shaped summit. The base of the column expanded rapidly as if the ‘whole countryside were erupting’ …

References:
14 Taylor (1958) and Didymus (1974).
16 Best (1988).
17 Sinclair (1986), p. 118. D.H. Urquart was one of the passengers on the Dragon aircraft and he exhausted a roll of 35 mm film in photographing the eruption from the air. The undeveloped film was posted to the Sydney Morning Herald, which syndicated it worldwide on Urquart’s behalf (Graham, 1974). Subsequent strenuous efforts by J.R. Horne (personal communication, 2012) to find the film have been unsuccessful, but some of the Urquart photographs were published by different newspapers at the time.
The Mission outstation and villages at Isivita were perilously close to the sharply defined edge of an area of complete devastation on the flank of the volcano. Reverend Robert G. Porter and others experienced a fearful blackout and substantial fallout of volcanic debris from the eruption cloud. Some injured people from the devastated area managed to reach the Mission on foot and received medical attention from the nursing sister, Pat Durdin, but they were in terrible condition:

The entire floor [at the Mission] was covered with people in utter agony. Some had almost the whole of their skin burnt off. It hung from their hands like discarded gloves, and their agonising cries were awful to hear …

Deaths followed, graves had to be dug, and 18 died that night at Isivita:

We carried them all out and laid them on the lawn at the end of the church. As we lifted several of them we could feel the burnt flesh coming away on our hands. It was a terrible sight to see those eighteen poor charred bodies laid in a row.19

Figure 56. The climactic eruption of 21 January 1951 was photographed from an in-flight Qantas DC3. The base of the collapsing eruption cloud is expanding and pyroclastic flows are cascading down the flanks of the volcano (right).

Source: Taylor (1958, Figure 11). Photographer Captain A. Jacobson, Qantas Empire Airways. Geoscience Australia (GB-1886).

19 Porter (1951) pp. 26–27.
The arterial road linking Gona at the coast to Kokoda in the mountains ran across the northern flank of Mount Lamington. It was outside the devastated area, and on the Sunday it was an important lifeline for the injured, evacuees and the first rescuers, although fallout of volcanic debris and minimal visibility greatly hampered movement along the road, particularly close to the volcano. A small group of mainly European men organised in dangerous circumstances a response to the chaos along the road between the plantations and other settlements. Trucks were used to shuttle the injured and dying to Popondetta. One group entered a village on the western edge of the devastated area and saw the extent of the human tragedy there. The radio at Higaturu headquarters was silent, and the usual weekday ‘sked’, or radio schedule, was closed each Sunday anyway, but the manager of the Awala rubber plantation, C.E. ‘Clen’ Searle, later that day managed to establish radio contact with Port Moresby, even though strong electrical disturbances interfered with effective radio transmission when the volcano was in strong eruption.

Rescuers from Port Moresby and Lae were unable to reach the Lamington area during that Sunday. Night fell, adding fear and greater uncertainty to those attending to the requirements of the injured, dying and dead. And there was further terror when, at about 8.30 pm, a second violent eruption took place from the volcano. The night-time eruption was loud, producing a great deal of volcanic fallout, and the cloud may have risen at least as high as the one in the morning. The cloud spread across the Owen Stanley Range and ash fell on Port Moresby, closing the airport there to traffic the next morning.

Relief and Recovery

The Territory Administration in Port Moresby was more fully informed of the extent of the catastrophe at Lamington by the morning of Monday 22 January, and a major relief-and-recovery effort was organised to deal with the Northern District disaster. Relief efforts were speedy and effective. The first few days were chaotic, however, before some order could be established, and many Administration personnel became involved in relief work. Aircraft would play a major role in both the relief and recovery phases of the disaster, using airdrops and airstrips in the area to deliver food, tents, medical and other supplies, in amounts that at times exceeded actual requirements.

Murray had left Rabaul by air to Port Moresby early on the morning of Monday 22 January, and had volcanologist Taylor on board with him. Murray was in the air when he heard about the catastrophe at Lamington, and his aircraft was
diverted to Lae because of the closure of Port Moresby airport. The District Commissioner at Lae, H.L.R. ‘Horrie’ Niall, who had heard about the disaster from Port Moresby, had already arranged for the Administration vessel *Huon* to sail from Lae on the Sunday evening. The *Huon* had Administration and medical personnel and emergency supplies on board, and it travelled overnight to Cape Killerton on the coast near Popondetta. The personnel included Niall himself as well as patrol officers J.D. ‘Des’ Martin and R.W. ‘Bob’ Blaikie, together with Doctor Max Sverklys, an Australian nurse Sister ‘Rusty’ Maclean, and about six Papua New Guinean police. The party did not know what to expect, but after landing at the beach at Cape Killerton on the Monday morning and then driving to Popondetta they soon started to appreciate the impact and horror of the disaster. They passed on the road a jeep and trailer heading to Gona from Popondetta and carrying the body of Reverend Dennis Taylor who had died overnight at Popondetta from burns after first escaping from the worst of the eruption. The party reached Popondetta later that Monday and saw the extent of burns on the survivors who had been brought in to the small settlement. Sverklys and McLean joined other Europeans who had already been attending to the victims still alive at Popondetta, but the number of injured was relatively few compared to the much greater number of people killed by the eruption. Indeed, the doctor and sister would have relatively little work to do after the first day or two.

Murray, Taylor, the Director of Public Health Dr John T. Gunther, the acting Director of District Services and Native Affairs Ivan Champion, and others flew into the area on Monday 22 January to assess and then implement what had to be done. The Administration set up a forward rescue-and-relief and evacuation centre at Popondetta, and the injured started to be airlifted that morning to base hospitals in Port Moresby and Lae. European women and children were evacuated too, by air and by road to Kokoda, including the Australian anthropologist Marie Reay who had been researching Orokaiva leadership in the area.

The sight of the volcanic destruction astounded and horrified the first people who managed to negotiate the side road that climbed through the devastated area southwards to Higaturu-Sangara from the arterial Gona-Kokoda road. The destruction seemed complete — as if a bomb had exploded, blasting everything away. Vegetation had been stripped, trees felled, and remnant trunks split and abraded. Most buildings had been obliterated. Ash covered everything, creating a bleak and monotonous ‘moonscape’. Most horrifying of all were the burnt human corpses, including hundreds littered along the access road itself, the fleeing people apparently having been felled as they attempted their escape. Champion directed Martin and a team of Papua New Guinean police early on Tuesday 23 January to clear the road into Higaturu in order to retrieve moneys
and documents in the safe at Administration headquarters using spare keys that had been brought over from Port Moresby. Martin and the police tried to move to one side the bodies that lay in the road, but the scale of task, including actual burial of the already decomposed bodies, was overwhelming and the work was clearly futile. Martin reported the situation back to Champion and, years later, wrote of his experiences amongst rotting and ruptured corpses and the overwhelming stench:

Initially we tried to shovel bodies off the road into drainage ditches with four of us together using shovels to do so. The masses of bodies along the road actually made it difficult to move around without stepping on one. In those days the native police had bare feet and what with ruptured bodies and exuding body fluids the police were slipping and sliding about … . In retrospect it was really was the stuff of nightmares.21

Figure 57. The limit of the devastated area on Mount Lamington, including Higaturu and Sangara, is surrounded by a narrower zone of partial destruction.

Source: Adapted from Taylor (1958, Figure 52).

21 Martin (2013), p. 44.
Acting Government Secretary Claude Champion, brother of Ivan, later visited Higaturu on the same day, Tuesday 23 January, and the following day wrote:

After reaching Higaturu we made a detailed survey, [but] were unable to move collapsed buildings. Several Europeans and natives were found in [the] vicinity of the District Commissioner’s residence — highly decomposed condition. It was difficult to distinguish between Europeans and natives as most of the clothing was apparently blown off. Without doubt, we have definitely identified C. Cowley who was sitting in his landrover [the body of his young son, Earl, was nearby] … [A] Works and Housing jeep was found suspended ten feet from the ground on a tree stump.22

Putrefying bodies were strewn around in their thousands, in numbers that far exceeded the number of injured. People within the nearly 200 square kilometres of total devastation were killed, those outside it survived, and the 100–200 injured people were mainly from a narrow ‘transitional’ zone in between. Identifying the dead was difficult because of an intense body lividity which removed the racial distinctions of skin colour. The authorities realised within two or three days that 35 Europeans were dead or missing but several months of inquiry were needed before the non-European death toll was known. Cadet Patrol Officer Athol J. Earl, for example, was on the list of the missing Europeans but his remains at Higaturu were not identified as his, and his parents informed officially, until February 1952. An estimate of 4,000 dead had been made initially. The final death toll however — made available in October — was 2,907 indigenous people, together with an acknowledgment that a more accurate number would never be known.23 The great majority of the almost 3,000 dead were Orokaiva from the Sangara area.

Priority for the Administration, however, was not counting the dead. There were thousands of surviving people whose villages had been destroyed but who happened to have been away from them at the time of the Sunday morning eruption, or whose houses and gardens had been seriously damaged by volcanic fallout beyond the devastated area. Survivors in general moved down slope, away from the volcano’s active crater, to places of refuge. People in the west descended to the arterial road and congregated at places such as Waseta. Those in the north moved down to Sangara Plantation on the road, displaced people reached Popondetta and the Cape Killerton coastline, and refugees in the east sought shelter at Inonda, near the wartime US airstrip at Embi. A refugee camp was soon established at Wairopi on the western bank of the Kumusi River in the west, where about 4,000 people gathered. Plans to establish another camp at Cape Killerton were abandoned because of inadequate amounts of potable water and the health threat of the swampy conditions there. Evacuees, therefore, eventually were shipped round to the coast east of Lamington to a camp at Oro Bay.

22 Champion (1951).
23 Murray (1951).
The refugee camps grew to include medical centres and schools. Medical work gave emphasis to sanitation, prevention of epidemics, and general camp health services. Whooping cough had been diagnosed in the area before the eruption, so a program of inoculation was started to prevent its further spread. Quick burial of the decomposing dead would have reduced the risk of more deadly diseases breaking out, but rapid burial of so great a number was impossible. Not all of the bodies could be entombed, and some ‘burials’ represented just piles of ash over decomposing bodies. In addition, some cadavers suffered the scavenging effects of hungry dogs and pigs, rendering the grim task macabre. Gunther said that the Department of Public Health succeeded in preventing major disease outbreaks.24 Nevertheless, deaths at Oro Bay — mainly of children — resulted from a mix of dysentery, pneumonia and whooping cough, disheartening local medical staff.25

Taylor played a key role during the relief and recovery phases at Lamington. He advised Administration personnel on the state of the volcano and, in effect, had full authority to advise on movements in and out of the devastated and prohibited area. BMR geophysicist W.J. ‘Bill’ Langron assisted Taylor by operating a seismograph that began recording on 8 February at an observation post at Sangara Plantation. Many explosive eruptions were still taking place, and levels of anxiety were high amongst the relief teams and survivors, who feared further major eruptions like, or even more powerful than, that of 21 January. The devastated area was at times declared off limits by Taylor because of this uncertainty and fear, thus again hindering any thoughts amongst Administration staff of burying the dead. Taylor was admired for his professional commitment and stoicism, and he surprised some colleagues when he would lie flat on his back on the ground to feel tremors or use a glass of water to watch tremor-induced ripples.
Figure 60. A Roman Catholic priest, Father Justin Lockie, left, conducts a requiem mass on the bonnet of a jeep on the road to Higaturu on 24 January 1951. Those attending the mass included senior Territory officials — from left to right in the front row: Ivan Champion, his hat in hand; the Administrator J.K. Murray wearing sunglasses; Dr John Gunther; and the uniformed J.S. Grimshaw, Commissioner of Police. The tall man in the centre-rear wearing a surgical mask around his neck is Patrol Officer Des Martin who had just returned from work in the devastated area. He had doused the surgical mask with disinfectant in order to cope better with the stench.


The physical and psychological impact on people involved in the relief and early recovery was extreme — what today would be called ‘post-traumatic stress disorder’ or PTSD. Martin and Blaikie, for example, were recognised as being physically and emotionally exhausted after almost three weeks, having been involved in the relief effort from the beginning. The two patrol officers were relieved from their duties at Popondetta and they returned to their permanent postings in Morobe.26 They never returned to the relief area at Lamington, but their experiences — and those of many other people — were unforgettable for the rest of their lives.

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Taylor conducted extensive fieldwork on the ground and made many hazardous aerial inspections of the active crater area in small aircraft flown by adventurous pilots from the Department of Civil Aviation and, later, Qantas Empire Airways. He also received from Canberra copies of the volcanological reports on the 1902 peléean eruptions in the Caribbean, and these guided much of his thinking about the kind of eruptions that might be expected. Taylor was on hand for particularly large eruptions on 6 and 18 February, and especially one on 5 March which turned out to be the last of the major explosive activity at the volcano. Ongoing development of a large, bulbous, lava ‘dome’ in the breached crater characterised much of the remaining eruptive period. Lahars, or volcanic mudflows, became a real threat when rains, unhindered by the absence of vegetation on the flanks of the volcano, formed hot torrents of water-borne ash, rocks, and boulders down major waterways, including the Kumusi River. The evacuation camp at Wairopi was threatened by lahars in early February and had to be transferred to Ilimo, further west and away from the riverbank.
Figure 62. This aerial photograph of Mount Lamington was taken from the north on 8 February 1951. The devastated area dominates the foreground and extends back to the breached crater of the volcano, where the early stages of growth of the active, vapour-emitting, lava dome can be seen. Visible dome growth was especially rapid between 2 and 9 February. The dark areas are mudflows of originally hot ash on the north-east flanks of the volcano in the headwaters of the Ambogo River. Old lava domes form the rugged summit of the mountain.

Source: G.A.M. Taylor (likely photographer). Taylor (1958, Figure 118). Geoscience Australia (GA-9938).

A major settlement including a hospital, was built for the displaced Orokaiva at Saiho, near Awala Plantation on the Gona-Kokoda road. It represented part of an overall resettlement strategy that the Administration had to work out in conjunction with the displaced Orokaiva themselves. Sydney Elliott-Smith had been appointed as District Commissioner to replace Cowley, who had been killed in the eruption, but development of Saiho was the day-to-day responsibility of Assistant District Officer F.P.C. ‘Fred’ Kaad. Resettlement strategies were not straightforward as many factors influenced final decisions on where the displaced Orokaiva would live, how large their new villages would be, how close they should be to the arterial road, which peoples would live together, whose land would be used, and what type of economic-development initiatives would be promoted in the district. A fundamental starting point for both the Administration and Anglican Mission, however, was a decision not to resettle the devastated area — Higaturu and Sangara would not be rebuilt. The volcanic threat was simply too great, not only in 1951, but also in the years ahead. Administration officer H.T. ‘Harry’ Plant, who had had anthropological training, undertook a detailed survey of clan relationships as a basis for resettling people of the Isivita villages, and two academic anthropologists, Cyril Belshaw and Felix Keesing, were invited to the area to make independent assessments.  

27 Plant (1951), Belshaw (1951) and Keesing (1952).
Figure 63. Tony Taylor, in front, and Patrol Officer W. ‘Bill’ Crellin approach the active lava dome on the first visit on foot into the newly enlarged crater of Lamington volcano on 11 February 1951. They were accompanied by N.H. Fisher and Leslie Topue. The photograph was taken by Fisher who visited Taylor, his subordinate, at Lamington during February. Only minor explosive activity is taking place — on the rear side of the lava dome — but a much larger eruption took place later that day after the group had left the area.

Source: Taylor (1958, Figure 90). Geoscience Australia (GA-9940).

The Anglican Mission at Sangara sustained grievous losses. Many communicants, missionaries and teachers had died in the eruption of 21 January — a Sunday, when Christians gathered for worship. Reverend Taylor and his family had perished, Taylor himself enduring horrific burns for several hours before being taken to Popondetta and dying there. De Bibra did not finish writing her article because — as surmised later by her missionary colleague, Sister Nancy White — ‘It must have been at that moment that the explosion occurred, to make everyone run down the mountain’. De Bibra had arranged for Papuan teachers from different parts of the district to come to Sangara that school holiday weekend in order to prepare school work for the coming year, and they had perished too.

28 Strong (1951).
David Hand, then 32 years old, had been ordained a bishop the previous year, assisting Bishop Philip N.W. Strong who was based down along the north coast of Papua at Anglican Mission headquarters, Dogura. Hand was in Australia at the time of the disaster and returned to the Lamington area which he knew well. The energetic bishop played a prominent role in the recovery process at Lamington, not only of the Anglican Mission itself but also in the resettled village areas, leading memorial and funeral services and supervising the building of a church at the new settlement of Hohorita. The Mission before the eruption had already held ceremonies of consolation, reconciliation and memorialisation after the horrors of the Second World War, but now the Lamington eruption had devastated the Orokaiva, and the Mission, adding to the work of postwar recovery.

![Figure 64. Two pyroclastic flows from Lamington volcano on 5 March 1951 ran beyond the limits of the devastated area of 21 January. The one shown here flowed down the Ambogo valley and threatened Sangara Plantation, where Tony Taylor had his observation post, but it eventually swung away to the north-east (left).](source: G.A.M. Taylor. Taylor (1958, Figure 42). Geoscience Australia (GA-8197).)
Hand seems to have had a forceful personality — for some people an abrasive one — and he did not in general establish good relations with Administration staff. Hand claimed after the building of Saiho had started, that the land there had been promised previously to the Mission. Rumours then reached senior Administration staff that the bishop had told villagers the Saiho land belonged to God who would destroy Saiho because of the Administration’s takeover. These stories did not impress the Administration. Relations with the bishop remained strained, Gunther characterising the bishop’s style of Christianity as ‘militant’.30 Furthermore, other rumours circulated regarding the bishop and a message having been relayed to parishioners of the Mission that the eruption had been an example of the ‘Wrath of God’.

Seeking Explanation and Meaning

Tony Taylor soon decided on a volcanological explanation for the Lamington disaster of 21 January 1951. It had been caused by passage of a nuée ardente — or, in more modern terminology, a ‘block-and-ash’ type of pyroclastic flow. The eruption that morning did not develop a high, umbrella-type, plinian eruption column with a ‘stalk’, as had happened at Vesuvius in AD 79, but rather had formed a large vulcanian cloud. Much of the cloud’s great mass was unable to sustain its upwards momentum for longer than a few minutes. It collapsed, spreading outwards as a pyroclastic flow, especially down the northern flank of the volcano, and devastating the countryside and populated areas. The pyroclastic flow stopped quite abruptly. Hot ash clouds then rose, drawing in the cooler surrounding air in surface winds that felt like a ‘drawback’ of the pyroclastic flow itself to people on the ground.

Block-and-ash flows are deadly because of their speed, temperature and gas content. They are composed of three main parts, all of which Taylor identified from his field investigations of the volcanic deposits at Lamington, supplemented by eyewitness accounts. First, is a dense, incandescent, basal layer that contains most of the energy of the pyroclastic flow. This layer moves down depressions such as valleys, like an avalanche hugging the ground, and it buries whatever lies in its path. A second part of the block-and-ash flow is represented by impressive ash clouds that roll upwards from the surface of the ground-hugging parts of the flow. These thermally driven clouds can be caught by the wind and drift off, dropping their ash on other parts of the volcano, and they conceal from the side-looking observer the fast-moving parts of the flow on the ground.

30 Gunther (1951).
The third part of a block-and-ash flow is the *pyroclastic surge*. Taylor called this the ‘ash-hurricane’ component because of the similar speeds to those of the colder winds of meteorological hurricanes. A surge is able to move over hills and ridges, unlike the valley-hugging avalanche part. It is less dense and deposits less ash, but it is lethal to the unfortunate people who are caught in it and inhale its hot gases and dust. No autopsies were carried out on the dead at Lamington because ‘putrefaction was too advanced when the medical services were free from their urgent obligations to the living’, but the general conclusion was that asphyxia and rapid damage to respiratory systems were important factors in the causes of death. Cadaveric spasm was suspected from the rigidity of many bodies. The rupturing of stomachs and extrusion of intestines seen at St Pierre in 1902 was also found at Lamington.

![Diagram of pyroclastic flow](image)

*Figure 65. The different parts of a pyroclastic flow being emplaced during a peléean eruption are shown in this diagram, which is based in part on Taylor’s landmark study of the 1951 eruption at Lamington. The viewer must imagine facing into the direct path of the fast-encroaching flow.*

Source: Adapted from Francis (1993, Figure 12.9). Reproduced with the permission of Oxford University Press.

Many comparisons would be made later by both eyewitnesses and journalists in the Australian media between the Lamington eruption cloud and the atomic-bomb blasts at Hiroshima and Nagasaki less than six years previously. The devastation of the two Japanese cities had been caused by high-energy atmospheric waves that radiated across the cities in seconds. In contrast, the

dark pyroclastic flow that struck Higaturu-Sangara and the surrounding villages took minutes to travel downslope. People in the devastated area are thought to have seen the flow coming and they may have had time to think about escape. Taylor concluded that the speed of the pyroclastic flow on 21 January was between about 100 and 350 kilometres per hour and that the temperatures of the surge — which were insufficient to cause the charring or ignition of wood at Higaturu — may have been about 200 °C for one or two minutes.32

Explanations of a different kind were being sought from the Administration in the few weeks after the disaster by the general public and the media and by Percy Spender, the Minister for External Territories.33 Why did Phillips decide not to evacuate Higaturu-Sangara? Was the Administration aware of the early warning signs that had been seen and felt by people before the devastating eruption? Why did volcanologist Taylor not arrive at the scene until after thousands of people had been killed? These and other questions were being asked and the necessity of an official inquiry was urged. Phillips, in particular, was under considerable pressure and he gave a full report of his actions to the Administrator, and thence to the Minister in Canberra.34 His detailed report was written with the exactitude and thoroughness of a lawyer, and one can only imagine what emotions he must have endured as a result of his fateful decision, on Friday 19 January, not to evacuate. No official inquiry was considered necessary by the Australian Government.

The rapid onset of the eruption after Phillips’ visit on the Friday meant almost certainly that an effective evacuation of the entire area, including Higaturu-Sangara, could not have been undertaken in time, especially over the next day, a Saturday, and without any idea about which areas would be safe from the effects of the unexpected eruption that took place the following Sunday morning. Furthermore, there are considerable doubts whether an arrival by Taylor days earlier would have made any difference. Taylor may have had to undertake many days, at least, of volcanological fieldwork in order to collect information sufficient for making any reasonable assessment of the situation. He would also have had inadequate prior knowledge, if any, of the volcanic geology of the area

32 The volcanological interpretations presented here are those of Taylor (1958), who was strongly influenced by the descriptions of the Mount Pelée eruption of 1902. More recently, however, volcanologists who have studied the 1980 eruption at Mount St Helens, United States, have been struck by its similarities to the Lamington eruption of 21 January 1951. The material deposited by a ‘surge’-like cloud that swept across the northern flank of Mount St Helens has been called a ‘blast deposit’, and the blast itself has been interpreted as the lateral release of pressure from a body of magma that had accumulated beneath the northern flank of Mount St Helens, pushing it outwards. The magma pressure was finally released, sideways, on 18 May 1980 when the flank gave way, also producing a debris-avalanche deposit. Overseas volcanologists who have visited Mount Lamington interpret the ‘ash-hurricane’ or ‘surge’ materials there as a blast deposit and have also identified debris-avalanche deposits. The results of these field studies (see, for example, Hoblitt, 1982) have not yet been published in the peer-reviewed literature.
33 National Archives of Australia (1951).
34 Phillips (1951).
or of this type of volcano in general. Taylor, had he arrived earlier, would have
been killed by the eruption if he had based himself at Higaturu-Sangara or had
undertaken fieldwork on the northern side of the mountain.

People in both the Territory and Australia who were seeking a full explanation
— if not someone to be held accountable — may to some extent have had their
attention diverted from recognising the success of the Administration’s disaster
relief effort at Lamington. Important factors in this achievement were strong
leadership by senior officials, who had known the Territory since before the war;
experience in the management and deployment of resources during and after the
war; stringent selection and training of a new generation of able, postwar, patrol
officers for the Territory; and, the availability of aircraft and nearby airstrips for
the delivery of supplies. Important support roles were provided by Melanesians
as police, medical assistants and mission workers. The success of the disaster
relief, however, is in stark contrast to the lack of volcanic-disaster prevention
and preparedness at Lamington before the catastrophe.

Explanation and meaning were explored after the disaster at a deeper
metaphysical or religious level by the Orokaiva.35 Their conclusion was that
they must have broken a covenant with a higher being and that, accordingly,
the disaster was their punishment. Anthropologists Cyril Belshaw and Felix
Keesing found that initially, in 1951, many Orokaiva considered the disaster to
be a result of the wrath of the Christian God. This, the Orokaiva thought, was
because of their disobedience towards God and the directions of the Anglican
Mission, or because they had not supported sufficiently the Administration’s
efforts in economic development, or had not done enough for the Allies in the
war. Another explanation — which may have derived from the Yega coastal
people — was that the eruption was a payback for the wartime hangings by
the Europeans at Higaturu. One of the 35 Europeans killed at Lamington in
1951 was W.R. Humphries, Director of Native Labour in the Administration
who, during war service, had been involved in arranging the hangings of the
Orokaiva at Higaturu in 1943.

The Administration levelled criticism at Hand that the Mission itself had been
verbally promulgating the Wrath of God explanation amongst the Orokaiva,
and they even alleged that the bishop had said he would cause another eruption
from the mountain unless he was obeyed.36 Hand strenuously denied these
claims of blackmail by the Mission.37 Furthermore, former employees of the
Mission in 1951 say today that they cannot accept that Hand, a committed
Christian, would ever initiate such rumours. Hand did, however, confirm in the

37 Hand (2002).
mid-1960s the prevalence of the Wrath of God explanation found by Keesing and Belshaw in 1951. There is additional uncertainty about the extent to which the Orokaiva themselves were testing, or even exploiting, perceived weaknesses in the relationship between the Administration and Mission, their joint colonial masters.

Many Orokaiva by the mid-1960s, in any case, believed that Sumbiripia, the spirit who lived at the top of Lamington, had caused the disaster. The peace of the mountain had been interrupted by disrespectful acts, such as grenades being let off during the war or hunting on the mountain with guns. One anthropologist concluded that Orokaiva explanations of the Lamington disaster, whether based on the anger of Sumbiripia, or of the Christian God, or even of the government, were consistent with a basic world view of the fundamental importance of exchange-and-reciprocity arrangements in all aspects of life. The Orokaiva, in any of these cases, would have believed that they had violated an agreement and, accordingly, the volcanic disaster was a punishment.

**Aftermath**

Regrowth of vegetation in the devastated area was rapid, particularly after the explosive eruptive activity diminished at the volcano. A curious, bright orange-yellow bloom of the fungus *Neurospora* appeared in the area following a light shower of rain three days after the 21 January eruption, and it lasted several weeks. Its spores had germinated in the high temperatures of the pyroclastic surges. The fresh ash encouraged growth rather than its retardation, and tuber plants especially — taro, yam and sweet potato — without competition from other plants, began shooting within weeks from the buried soils and from the new humus formed from the destroyed vegetation trapped beneath the ash. Grasses and other secondary growth then took over, and gradually the volcano became shrouded in its more familiar deep green. The slowly cooling lava dome, however, remained bare for many more years. Mount Lamington today is shrouded in vegetation, as it was before the 1951 disaster.

New Orokaiva settlements and land-use patterns were established in ways determined by the effects of the eruption on the land and by the new approaches of the people themselves, but the disaster was only one factor that influenced the future of the Orokaiva. The Administration was committed to postwar strategies of economic development, and Orokaiva people had travelled to other parts the Territory, returning home with new ideas. These are only two of the factors that

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influenced what was a complex pattern of social change. Popondetta became the new centre for district administration. There were changes, too, in the Territory Administration. Paul M.C. Hasluck took over as Australian Minister for Territories in the re-elected Liberal Government led by R.J. Menzies in May 1951, and he visited the Lamington area that year, flying over the crater with Taylor during an aerial inspection. Hasluck appointed Donald M. Cleland as the Assistant Administrator in the Territory, Murray was dismissed in May 1952, and Cleland then took over as the acting Administrator.

Five more European bodies were found in January 1952 at the deserted ruins of Higaturu, where the regrowth was now metres high. Burial of these bodies at Higaturu was considered inappropriate and a decision was made to have them, and the disinterred remains of some other Europeans, reburied at a new cemetery at Popondetta. The reburials became an occasion for a ceremonial opening of the Mount Lamington Memorial Cemetery in a plot of ground whose pathways were arranged like the Christian cross of crucifixion. The cemetery included a central plaque in memory of all those who lost their lives in the volcanic disaster, and the memorial was opened — and the plaque unveiled — by Hasluck on 24 November 1952. Individual graves were in the upper two quadrants of the cemetery and were mainly those of Europeans. The colonial authorities had there memorialised most of their individual dead but had not been able to individualise the memory of the greater number of Orokavia who had perished.

Fourteen people, mainly European, received medals in recognition of their work during the stressful and dangerous disaster-relief phase of the eruption, and five of them were presented with their awards by Cleland, after the ceremony at Popondetta on 24 November 1952. These included Tony Taylor GC and Leslie Topue BEM. No staff of the Department of District Services and Native Affairs, including patrol officers, were given awards. There were evidently too many worthy candidates, thus making the task of preference and prioritisation difficult, but perhaps also a view prevailed that Murray and his officers had done no more than their duty during the Lamington emergency. One other amongst the worthy candidates was S.A. Lonergan, Government Secretary in Port Moresby, about whom, on the day of Lonergan’s retirement in 1959, John Gunther said to the assembled Legislative Assembly:

One day … someone will write the full history of the Administration’s success in meeting the terrible tragedy of Mt. Lamington. I believe the

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41 Hasluck (1976).
42 Murray (1952).
43 Australia Department of Territories (1953).
44 Central Chancery of the Orders of the Knighthood (1952).
45 Downs (1980).
handling of the situation was a magnificent success … There is no doubt that success can only be achieved if the tools from which people could improvise were made available. In getting the tools and the needs of the field party to them Mr. Lonergan probably contributed more than any other individual towards that great achievement.\textsuperscript{46}

Memorialisation is one aspect of the aftermath of any major disaster. Individual grief management and trauma recovery are others. Kindness, sympathy, consideration and prayer abounded after the disaster, and grieving must have been supported privately within individual families and friendship groups. Some traditional wailing could be heard in the camps in the evenings, but Sister Pat Durdin recalled that ‘we could not but be impressed by the overall attitude of acceptance [by the Orokaiva, and their] readiness to respond to the immediate demands of the situation’.\textsuperscript{47}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure66.png}
\caption{Colonial authorities arranged for the ceremonial opening of the Mount Lamington Memorial Cemetery on 24 November 1952 and ensured that everyone knew their place in the official proceedings. The original, single, panoramic photograph has here been split into two overlapping parts.}
\end{figure}


\textsuperscript{46} Dr Gunther in Legislative Council Debates (1959), p. 577.
\textsuperscript{47} P. Durdin (personal communication, 2007) — now Sister Patience in holy orders.
There were no formal grief-counselling services in the 1950s, and so the number of people who suffered psychological trauma will never be known. Yet individual cases have come to light that hint at the emotional intensity of those who experienced the Lamington tragedy. The anthropologist Marie Reay, for example, is said to have been hospitalised for a long period in 1952 having suffered a mental breakdown on account of her experiences during the eruption.\textsuperscript{48} Mrs Ray Kendall, who came to the area as a mission teacher in 1952, told me of the anger in some of the schoolboys in her classroom at that time, only later realising that this was a stage in the grieving process.\textsuperscript{49} She also told

\textsuperscript{48} Glick & Beckett (2005).
\textsuperscript{49} R. Kendall (personal communication, 2006).
the tragic story of an Orokaiva woman who had gone down to the creek to collect water on the morning of 21 January 1951 and had returned to her home to find her husband and children dead. The woman later committed suicide.

More than 60 years have passed since the Lamington disaster and the number of people who experienced, and suffered, its consequences dwindles year by year. The tragedy is unlikely to be forgotten by the present generation of Orokaiva, yet inevitably its immediacy is fading. The green-clad mountain that can be seen from Popondetta, the modern capital of Oro Province today, has not been in eruption since 1951, but few can doubt that Mount Lamington must continue to be regarded as an active and potentially dangerous volcano. There are today population pressures in the Popondetta-Lamington district. Many people have moved back into the area previously devastated by the 1951 eruption.

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