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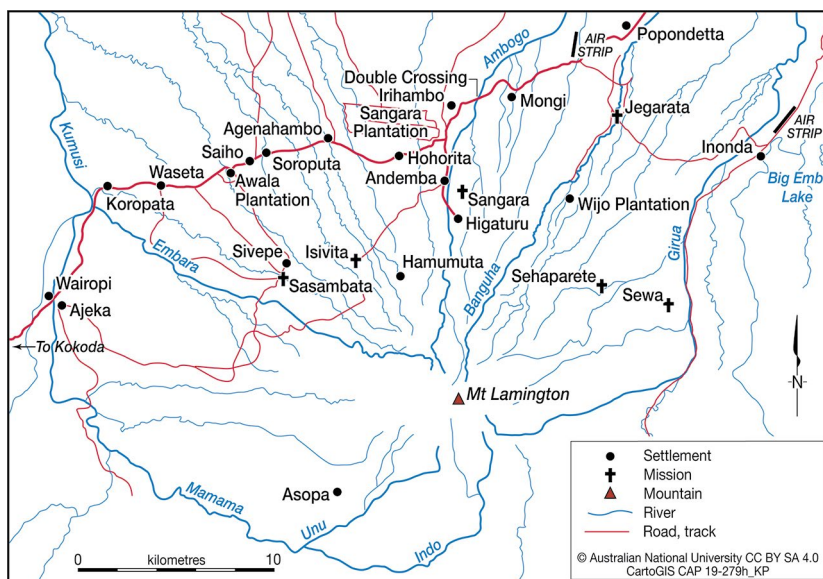
## **VICTIMS, SURVIVORS AND EVACUATIONS**

### **Vulnerability on the Mountain in January 1951**

Life on the mountain for the Orokaiva in the third week of January 1951 may have re-equilibrated somewhat after the traumas of World War II (WWII), but memories of the hangings at Higaturu would never be forgotten. The mountain Orokaiva were settled in their communities and hamlets in the Sangara–Higaturu area on the lower northern slopes of Mount Lamington, and in the north-western sector bounded roughly in the north by the road between Wairopi and Agenahambo, a sector that was called the ‘Isivita District’ by some people (Figure 4.1). Populations in both places were quite large by Papuan standards, as they had been long before the arrival of white men. This was because of the fertile, well-drained soils, and cooler, more pleasant climate than at the coast. This summary helps to define a primary disaster-vulnerability factor: too many people settled in a volcanically hazardous place.

Europeans had settled in the area in the 1930s, initially for the purposes of Christian proselytisation among the large Orokaiva populations, although the mountain settlements had been visited by government patrols and others since the beginning of the century. The rich agricultural land during that time had also attracted commercially orientated European planters, and there were now both European-owned and local ‘native’ cash cropping plantations held under a range of different land tenure conditions. Therefore, there had been only about 20 years of direct,

settled, interaction between the Orokaiva and Europeans, and this had been interrupted by the war. The Europeans had brought peace, at least to the extent that the deadly, inter-tribal clashes of pre-contact days had been eliminated. Postwar growth was now being provided by new medical and educational services from a district headquarters at Higaturu and at the nearby Anglican mission at Sangara. Further, government agricultural services in the area were being provided from Popondetta by officers of the Department of Agriculture, Stock and Fisheries.



**Figure 4.1. Main geographical features of the Lamington area**

The principal geographical features of the Lamington area prior to the 1951 eruption shown here are based on the map published by Taylor (1958, fig. 52). Only very few of all the tracks used in area are shown. This map also forms the basis for Figure 4.6.

The European population was small—just a few dozen—but the much larger Orokaiva one was still under the control of postwar colonialism. This was centred on Higaturu, now the administrative headquarters for an economically important division in the new Territory of Papua and New Guinea. Colonisation seemed to be working reasonably well, at least in comparison to the years between the two world wars and during the Great Depression when Hubert Murray struggled to achieve any significant economic development for the Territory of Papua. This apparent improvement, however, can be regarded as a further disaster-vulnerability factor: growth and development of what was already a heavily populated area.

There existed still the situation of a strong colonial power in charge of, and controlling, a largely preliterate people through the immediate triple presence of representatives of the State, Church and the commercialised white planter community. Structural racism still existed, racial dependencies had been created and the Orokaiva were still, in one sense, ‘controlled’ by their elitist colonial masters. There were also beliefs and perceptions among at least some of the Orokaiva that the white-skinned expatriates were a valuable source of modern knowledge and that they had an ability to generate material wealth. The Orokaiva could see for themselves the results and power of European engineering and technology, and of medical and agricultural science, although not of other sciences such as geology, geophysics and volcanology. Some of the Europeans also seemed to worship a rather powerful and universal God. Thus, there existed a willingness among the mountain Orokaiva to listen to, and to be led by, the Europeans, as well as them holding a trust for, or reliance on, the foreigners’ decision-making capabilities. These local dependencies, then, can be regarded as another disaster-vulnerability factor. Nevertheless, Orokaiva cultural relationships at the family, kinship, clan and ‘village’ levels were still strong at this lower stratum of the racially layered society. This, in turn, reflected an innate community strength and self-reliance that would be displayed to the full after the catastrophic volcanic eruption on 21 January 1951.

A final disaster-vulnerability factor is the situation in which few people in January 1951 in the Mount Lamington area itself—whether Orokaiva or European—appear to have had sufficient, or indeed any, knowledge that the mountain on which they lived was a potentially active volcano. The situation might have been different if government geologists or volcanologists could have been employed in the Lamington area by the administration after the death of geologist Evan R. Stanley in 1924, but budgetary constraints, the Great Depression and WWII seem to have prevented this. There was no obvious potential for resources such as gold and oil in the Lamington area, meaning there was no obvious motivation to give the area any economic priority for geological surveying in the first place.

## Six Days of Growing Threat

### European life near the mountain

The week of Monday 15 to Saturday 20 January 1951 was one of great uncertainty for the inhabitants of the Lamington area. Strange and unexpected physical changes were taking place at the summit of the mountain and were evolving unexpectedly. Several Europeans who were there during that week later wrote about these changes, thus providing volcanology with a useful record of the geophysical phenomena that preceded the catastrophic volcanic eruption of Sunday 21 January. Margaret de Bibra, for example, produced a particularly valuable summary of the events up to the Sunday morning, extracts of which were published later (Taylor 1958; White 1991).

January was not a typical month for people in the Higaturu and Sangara area. It was, firstly, the time of school holidays, meaning that local students who boarded at the Sangara Mission had returned to their respective homes in the Northern Division. The hard-working Margaret de Bibra took this opportunity to arrange a special training course for local schoolteachers who then came to the mission from outlying areas. Bishop David Hand was in Australia on a deputation in search of staff and finance for new proposed missionary activities by the Anglicans in the New Guinea Highlands (Hand 2002). Similarly, Sister Nancy White, who was normally based at Sangara Mission, was on furlough in Victoria, Australia (White 1991). Rodd Hart and Madeleine Swan had married and were taking their honeymoon at nearby Jegarata. Administrator J.K. Murray was also away from his base in Port Moresby. He was undertaking one of his regular tours of the Territory during the second week of January, and was due in Rabaul, East New Britain, at the end of the week. Judge F.M. Phillips remained in Port Moresby, acting as administrator in Murray's absence, and S.A. 'Steve' Lonergan was the acting government secretary for the administration in the capital. Volcanologist Taylor was at the volcanological observatory in Rabaul for the whole week.

The postwar European communities on the plantations near Mount Lamington and at Higaturu by this time had created their own social life. T.G. 'Hendy' Henderson was the manager of Sangara Rubber Plantation where he lived with his wife, Toby, their son and a daughter, Mary Rose. Assistant managers were F.W. 'Stevie' Stephens and John R. Gwilt,

who were accompanied by their wives, Laura and Heather, respectively. Australian Bill Schleusener was a young single assistant at the plantation. Another European family, the Searles, ran their own smaller rubber, coffee and cocoa plantation at Awala further along the road towards Wairopi. The Searle family were Cledwyn, or 'Clen', and Jessie Lilian, known as 'Pat', and their children Peter and Rhonwen. All of these plantations depended on Papuan labour.

Laura Stephens wrote that at Sangara they:

Lived a normal, happy, busy life on the plantation. There were plenty of social happenings in our small community, as Higaturu was nearby and a flourish[ing] Government Station, with 36 European personnel and many natives both in Government Service and in their own villages, and working around on other estates. We were going up to Hibaturu [sic] very often, for the various little social events which a small community indulges in; and the Higaturu people used to come down to the plantation to visit the various people who lived here. The [previous] Christmas ... was very bright, ending with a new years party in fancy dress, at which nearly everybody from the near and far districts attended. At that time, no one suspected that the nearby range of mountains known as the Lamingtons, were abnormal in their appearance, nor, at that time, had any earth tremors or rumblings been noticed. (Stephens 1951, 1)

New administration staff had arrived at Higaturu by January 1951, including three cadet patrol officers. Pat Searle recalled that:

The Commonwealth Bank had recently opened a branch ... there were several new Patrol Officers on the station at that time we had barely met ... The Australian Commonwealth Government had sent several men to Higaturu to build a new permanent station to replace the old war-time buildings. A large new hospital was already built and in daily use. (Searle 1995, 234)

Two Australian children—Erl, who had just celebrated his 16th birthday, and his younger sister, 12-year-old Pamela—had returned home to Higaturu from boarding school in Australia and were staying with their parents over the holidays (Cowley and Virtue 2015). Their father was Cecil F. Cowley, the district commissioner for the Northern Division. Cowley first came to Papua in 1927 as an engineer for the Anglo-Persian Oil Company, but in 1929 became one of Sir Hubert Murray's 'outside men' in the prewar administration of the Territory (e.g. *South Pacific Post*

1951b). He served with the Royal Australian Air Force and then with the Australian New Guinea Administrative Unit during WWII. Cowley's wife was Amalya, née Franceschi, a former professional violinist. Both Amalya and daughter Pam played their violins at Higaturu.

The most senior public servant in Higaturu at this time was W.R. 'Dickie' Humphries, who had presided at the Higaturu trials and hangings of the accused Orokaiva in 1943. He was now director of labour for the administration and had recently been appointed a member of the Territory's first Legislative Council (e.g. *Pacific Islands Monthly* 1951a). Humphries was on recreation leave visiting his daughter, Letty, her husband, Maynard Locke, their small daughter, Marion, and a recently arrived baby. Maynard Locke worked at Higaturu for the Department of Education as an education officer. The educational facilities at Higaturu included the technical Commonwealth Rehabilitation and Training School.

Dr Pal or Paul Martin was the doctor at the Higaturu hospital. He was a postwar immigrant to Australia from Romania, and was one of several European doctors recruited to the Territory after the war by Dr John Gunther, director of public health, at a time when European medical qualifications were not being recognised in Australia (see, for example, Sinclair 1981). Martin lived at Higaturu with his wife, Olga, and three-year-old son, Pinky. Other former European doctors included Max Sverklys and Olgerts Ozols, both based in nearby Morobe District.

Agricultural officers Fred Kleckham and 'Blue' Morris and their families were still based at Popondetta. A new arrival was an anthropologist from The Australian National University, Marie Reay, who had started academic studies of the Orokaiva and was living at the government resthouse in Waseta. Acting Assistant District Officer S.H. 'Bunny' Yeoman was stationed at the Sub-District Office in Kokoda, and the Kienzle brothers were at their nearby Yodda Valley property (Kienzle 2013). Both of these locations were well to the west of Mount Lamington but were in full view of the changing mountain.

Administration Patrol Officer Geoff Littler was at Higaturu headquarters during the first half of January 1951 when Mount Lamington seemed to be in its normal peaceful state. He was about to be transferred to distant Ioma to relieve the patrol officer there, W.W. 'Bill' Crellin, who was anxious to take recreation leave after first visiting headquarters at Higaturu (Littler 2005). However, Littler did not reach Ioma until Thursday 18 January. This late arrival meant that Bill Crellin did not

arrive at Popondetta until the evening of Saturday 20 January, too late to proceed to Higaturu that same day. Each of the patrol officers in later life was grateful to the other for providing the circumstances that prevented their deaths at Higaturu on Sunday 21 January.

## Monday 15 to Wednesday 17 January

Monday 15 January is regarded as the first day of the volcanic ‘unrest’, although there may well have been signs of change on the mountain before this. Visibility is not always good during the ‘north-west’ season, meaning that clouds can cover the summit area of the mountain at different times of the day. Earlier volcano-related earthquakes beneath Mount Lamington would have been recorded had there been a seismograph on the mountain. A few people did say they had felt small, localised earthquakes before 15 January (Taylor 1958). Further, and notably, Sister Pat Durdin at Isivita Mission on the evening of 1 January 1951 had written to her family ‘that there was a strange light in the sky and wondered if it had anything to do with volcanic activity’ (Kettle 1979, 139).

Several people on the Monday morning saw landslide scars on the inner faces of the peaks, which they described as ‘brown streaks in the forest of the steep slopes’ (Taylor 1958, 19). This is the first indication that the upper parts of the volcano were gravitationally unstable. The attention of Toby Henderson on this Monday was drawn by their Papuan cook at Sangara Rubber Plantation to a white vapour or smoke rising from the base of the Lamington peaks (Henderson 1951, 1; Taylor 1958, 19). The cook was not believed initially when he said that this was a ‘bad omen’, but he was from the Tufi area and apparently had witnessed the Waiowa or Goropu eruption of 1943. The ground in the crater area had evidently become hot and was starting to kill off areas of vegetation. Cloud concealed the mountain later in the afternoon.

Unrest increased slightly on Tuesday and the vapour column was seen from Higaturu for the first time. More extensive landslides moved down the slopes of the inner peaks and John R. Gwilt observed from Sangara Plantation that the vegetation had been removed from the inner slopes by late afternoon (Gwilt 1951). A ‘swarm’ of earthquakes was felt widely in the area at 4.00 pm, and Amalya Cowley counted 30 shocks at Higaturu from then up to 8.00 am the next day (Cowley 1953, 1). More powerful shocks were felt at Isivita north-west of the crater where the movement was described as the ‘whole earth rocking’ (Taylor 1958, 19).

The mountain became visible at 10.30 am the next morning, Wednesday, when:

The first spiral of dark grey ash or smoke was noticed rising very high into the sky in a perfectly straight line but not from the top of the mountain—it seemed to come from the valley in between the hills leading up to Lamington and the mountain itself. (Cowley 1953, 2)

The volcanic emissions increased in volume and density throughout the day. Earthquakes were now being felt with monotonous regularity in the area. No luminous effects, however, such as volcanic glow from red-hot rocks or lava, were observed in the column that night.

These first three days, 15–17 January, were just the beginning of the escalating geophysical unrest. How much news about the worrisome events had been sent out during this period by different people in the district to other parts of the Territory, including to administration headquarters and to the media in Port Moresby, is still unclear. District Commissioner Cowley would not have wanted to appear nervous and indecisive to his superiors in distant Port Moresby, but he had no experience of managing volcanic crises or evacuations, and there was no government disaster plan for the Lamington area. The evolving situation was a quandary, and an extremely difficult one administratively because of the considerable uncertainty and the absence of any reliable volcanological prognosis. Would any evacuation apply just to the people in the immediate Higaturu–Sangara area, perhaps even just to the Europeans, or would it apply to all of the thousands of mountain Orokaiva who lived on and near Mount Lamington, particularly those closer to the summit crater on the north-western side of the mountain? Amalya Cowley, writing many years later in her memoirs, recalled that:

All this time Cecil ... was in contact with Port Moresby ... no one seemed to be in a panic. Personally, I was terrified but kept calm despite how I felt. From the first moment of the eruption (Wednesday morning) Cecil was sending reports of it to the authorities in Port Moresby. He radioed asking for a full scale evacuation. He also asked for a volcanologist to come over and examine the mountain, but neither eventuated. (Cowley and Virtue 2015, 90; see also Cowley 1953)



## Thursday 18 January

Many people on this day became aware of the eruption for the first time. Sister Jean Henderson, for example, at Erero Mission on the north coast, heard in the morning a large explosion and saw black smoke appearing. Local people ‘hopped on top of the houses to get a better view and they said “we think a drum of petrol must have exploded at Higaturu”’ (Henderson 2001, 4). Sister Henderson and others were travelling by boat that morning to Gona, and they recognised while at sea that Lamington was in fact a volcano in eruption. Father Benson at Gona warned them that tsunamis might be expected along the coast and advised the visitors to return to Erero and to warn coastal villages of the threat. Sister Henderson thought that a volcanic eruption may mean that mission staff at Isivita and Sangara would come to Erero, so she ‘had some beds made up’ (Henderson 2001, 4).

The rate of cloud emission increased markedly and by nightfall it was described as ‘gushing forth at a great rate’ (Taylor 1958, 20). The cloud colour ranged from black to grey and there were spasms in the emission activity at the crater. The Cowleys previously, in the early hours of Thursday morning, had heard a roaring from the mountain, and once daylight arrived and visibility had improved, they saw through a telescope set up outside their house a newly built hill from which the ash column was emerging and in part flowing over the sides (Cowley 1953).

Earthquakes became more numerous and by midday were almost incessant at Higaturu. They were also being felt at both Isivita and Waseta. Some people were becoming alarmed. Photographs were taken (Figure 4.2). John Gwilt at the Sangara Rubber Plantation reported:

That night in a clear moon-lit sky, flashes of light, more brilliant than lightning, were visible in this vast column, with noises that sounded like thunder; up to this point there did not seem to be any subterranean rumblings, although there were plenty of earth tremors. (Gwilt 1951, 1)

Sleep that night was difficult for some people.

District Commissioner Cecil Cowley sent the following radiogram from Higaturu to the Department of District Services and Native Affairs (DDS-NA) in Port Moresby in the early afternoon of 18 January:

CONTINUOUS EARTH TREMORS COMMENCING  
EVENING 16TH AVERAGE SEVENTY PER DAY STOP  
LAMINGTON COMMENCED ERUPTING 11 OCLOCK  
THIS MORNING 18TH STOP SIX SPIRALS VERTICAL  
STOP LANDSLIDES PLENTIFUL IN VIEW ALSO STREAM  
FLOWING DOWN STEEP RAVINE SAND COLOURED  
STOP DIFFICULT DETERMINE EARTH WATER OR LAVA  
STOP VAST SMOKE BILLOWING WHOLE NORTHERN  
MOUNTAIN SIDE 2 PM STOP ESTIMATED DISTANCE  
FROM HIGATURU EIGHT MILES STOP CONSIDER NO  
NEED ALARM BUT YOU MAY CARE INVESTIGATE BY  
AIRCRAFT STOP WILL KEEP YOU INFORMED STOP  
SUGGEST RADIO CONVERSATION 4.30 PM TODAY.  
(Deputy Administrator 1951, 3)

The proposed afternoon radio-telephone call took place at about 4.00 pm between Cecil Cowley in Higaturu and Sansom, a DDS-NA officer in Port Moresby. A radio-telephone service monitor, Mr Jefford, accompanied Sansom and he also listened in to the conversation. However, radio static—evidently caused by the volcanic eruption—interfered significantly with the clarity of the conversation. The crux of an important issue that emerged later was whether Cowley during that call had asked for a volcanologist, accompanied by Sansom, to come to Higaturu to provide the district commissioner with professional advice (Deputy Administrator 1951; Phillips 1951c). A 24-hour radio communication link was established at this time for emergency communication between Higaturu and Port Moresby.

Cowley's radiogram to Port Moresby also formed the basis of an international telegram that was sent in the evening by Judge Phillips from the administration to the Department of External Territories in Canberra and hence to the minister, Percy Spender (Administration 1951a). That evening, the acting administrator, Judge Phillips, decided that he would go to the Lamington area himself to assess the situation. He arranged to fly down to Popondetta airstrip the next morning on an Avro Anson aircraft that was already on charter to the administration (Deputy Administrator 1951).

Among the newcomers to Higaturu Government Station were three cadet patrol officers. Two of these, Athol J. Earl and Ian James, wrote quite different kinds of letters on 18 January to their respective parents in Australia:

Things have been happening here the last two days. We started off yesterday with earth quakes, they were not very bad but frequent, every three to five minutes this 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 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 ... The District Commissioner has been on the radio to Port Moresby and we have an emergency crystal ready if anything happens. Tomorrow a plane is being sent out to view it from the air and see how it is going. Who knows what's going to happen? Higaturu may be wiped off the map. (Earl 1951, 1–3)

As I write the whole house is shaking and loud rumblings can be heard now and then in the distance. On the night of the 16th we experienced small earth tremors which continued right through the night up till now ... On the morning of the 18th, this morning, smoke began to rise, and by the time darkness fell tonight it was gusting forth at a great rate ... the smoke was mostly rising into the air, at times it was a very vivid black, but other times it was fairly light-covered ... There was a flow of something on one of the ravines, but we are unable to make out whether it is water, lava or earth ... There is no need for alarm here, as we are quite a few miles from it, and it does not look as if it is ever going to throw up flames ... It is absolutely safe here and we are really lucky having a bird's-eye view of the fun and games going on on the mountainside. Wouldn't be surprised if a geologist or a vulcanologist came out to have a look. (James 1951, 1–2)

Another young man at Higaturu was Kevin Woiwod, a carpenter working for the Department of Works and Housing at this time. Woiwod was an enthusiastic amateur photographer, developing his own negatives at his accommodation at the government station. He developed prints of photographs taken that day of the eruption cloud. The letters from the two patrol officers and the Woiwod photographs would be mailed from Higaturu in time to catch the aircraft mail-pickup at Popondetta on the next day, Friday. Woiwod evidently sent his photographs to a local newspaper, or newspapers, and these were later published in Australian newspapers (see Figure 5.9b).



**Figure 4.2. Photograph of eruption taken by Kevin Woiwod on 18 January 1951**

This photograph of the eruption cloud at Lamington volcano was taken by Kevin Woiwod on Thursday 18 January, presumably near or at Higaturu. It appeared later in published newspapers (see, for example, Figure 5.9b(iv)). This uncropped and digitally enhanced version of the Woiwod photograph is from a loose print in the papers of Ivan Champion held in the Fryer Library, Brisbane, where it is wrongly attributed to Allan Champion and given the wrong year (Champion 1950).

## **Friday 19 January**

News of the eruption on the previous day, Thursday, appeared on the front page of the *South Pacific Post*, a weekly newspaper published every Friday in Port Moresby (*South Pacific Post* 1951a). The news article was entitled ‘Mt Lamington Erupts’ and it highlighted the statement that: ‘The District Commissioner, Mr C.F. Cowley, reports that there has been no loss of life, nor is there any immediate danger’ (1). It also stated that emergency contact would be maintained with Port Moresby through the Department of Civil Aviation radio network and that Judge Phillips would be flying down to Higaturu that day.

Light-coloured ash was seen in the morning lying on the summit peaks of Mount Lamington. The spasms in the crater emissions had become more pronounced and were becoming more visible to people over a wider area. Anthropologist Marie Reay at Waseta made a note in her diary that in the morning she saw 'a great column of smoke rising from the direction of Isivita. Mt Lamington had erupted for the first time in recorded history' (Reay 1951, 1). Some local people from Isivita came down to Waseta and spoke with her and said that they had not seen or heard of Mount Lamington having been in eruption previously. According to Reay, they explained the cause of the eruption by saying:

1. might be kerosene or benzine start fire in the mountain.
2. might be god punishing the people—jesus christ died for we and we no do what god says.
3. atiti—might be spirits. (Reay 1951, 1, original lower case)

Acting Administrator Judge Phillips arrived at Port Moresby airport, Jackson's Strip, at 7.30 am, but his scheduled Avro Anson flight to Popondetta was delayed because of mechanical difficulties (Deputy Administrator 1951). He arranged, while waiting for the repairs to be completed, for his wife to take, at his own expense, a seat on a Norseman aircraft that was also going to Popondetta so that she could see a volcano in eruption. Mrs Phillips arrived before her husband at Popondetta airstrip where a crowd had gathered, some of them to farewell Allan Champion and his family. Champion had just completed his term as deputy district commissioner at Higaturu.

Judge Phillips eventually arrived at Popondetta having made an aerial inspection of the column of vapour from Lamington, which at first seemed to him like 'an unusually high tower of cumulus cloud' rising 20–25,000 feet high, but in places it had slightly greyer 'folds' and there was a slow upward movement of the column (Deputy Administrator 1951, 4). Phillips, after landing at the airstrip, engaged the district commissioner in a discussion about the eruption. Cecil Cowley expressed surprise on having seen both the administrator and his wife arrive at Popondetta. He had expected instead a volcanologist and Samsom to disembark from the aircraft, as requested on the radio the day before.



**Figure 4.3. Photograph of eruption possibly taken by Allan Champion on 19 January 1951**

A strong emission of ash from Mount Lamington is seen in this photograph taken from Higaturu presumably before 20 January. This digitally enhanced copy is from a paper print held in the papers of Ivan Champion in the Fryer Library, Brisbane, where it is attributed to Allan Champion (1950). The reverse side of the print reads: 'Mount Lamington erupts before the final devastation. Allan Champion 1950 [1951]'. However, the name of the photographer and the date of the photograph are both uncertain. The photographer could have been Kevin Woiwod and the print may have been carried out of the area when Allan Champion left from Popondetta airstrip on Friday 19 January (see also Figure 4.2).

Judge Phillips later recorded his impressions of the eruption cloud, as seen during his short time at the airstrip:

It was not moving violently at all, but rising so gently and slowly that one had to look at it for an appreciable time to detect movement ... it was not spasmodic and did not emerge in violent bursts: in short, it looked as if the initial force of the volcano had spent itself and as if the forces underneath had found

sufficient outlet. The appearance of that column reminded me of that of the column from the volcano that erupted at Vulcan Island at Rabaul in 1937, several days after the actual eruption, when the Vulcan column was beginning gradually to subside. (Deputy Administrator 1951, 5)

Phillips also noted at Popondetta airstrip that:

The ladies present appeared understandably anxious, particularly Mrs. Cowley, who at moments seemed to break down, but Mr. Cowley was cool and confident, and tried to calm his wife's nervousness ... Mrs. Cowley came to me and said that she was thinking of her children and did I not think there should be an immediate evacuation ... I said that I did not think an immediate evacuation was necessary but added that, if the volcano got violent, she should 'get into that jeep and go to Kokoda', or words to that effect. (Deputy Administrator 1951, 5, 7)

After providing this advice, Judge Phillips flew back with his wife to Port Moresby for the weekend. The eruption at Lamington escalated that afternoon.

Amalya Cowley had an interest in radio broadcasting that stemmed from her wartime ambition to be a radio announcer at a radio station in Canberra—'she had a beautiful speaking voice', recalled her daughter Pamela (Cowley and Virtue 2015, 55). This interest had continued at Higaturu where she responded to a request from the Australian Broadcasting Commission (ABC) radio station 9PA in Port Moresby for information about the eruption (Cowley 1953). At 3.45 pm on Friday 19 January, Amalya Cowley sent a radiogram to the ABC (Correspondent 1951), the first half of which read:

CORRESPONDENT COWLEY STOP LAMINGTON  
BELCHING STEADILY CONTINUOUSLY MAXIMUM  
INTENSITY MIDDLE FRIDAY AFTERNOON THIRTY  
FOUR THOUSAND FEET HEIGHT FIVE MILES LENGTH  
BASE GRAY BILLOWING COTTON WOOL VIOLENTLY  
AGITATED CLOUD STOP MORNING CLOUD WHITE  
WITH DULL RED BLACK SPEARLIKE BLOW TORCH  
THROUGH CENTRE TO HALF HEIGHT STOP NO  
NOISE OCCASIONAL DISTANT RUMBLING STOP  
(Correspondent 1951, 1)

In strong contrast, the second half of Amalya Cowley's radiogram focused on a legend about Mount Lamington:

LEGEND SUMBIRITA MANS NAME KAMIKARI MEANS  
SHUT IN STOP THE IMPRISONMENT OF SUBITITA  
SWEETHEART DOG FOUND ENTRANCE TO BOWL  
NEAR SUMMIT STOP SUMBIRITA LOVE OVERTURES  
PREVAILED AGAINST SWEETHEART PROTESTATIONS  
STOP MOUNTAIN CLOSED ENTRANCE WITH STONES  
IN ANGER STOP BOWL ROSE SLOWLY SUMMIT DOG  
THROWN OVER SIDE TEST POSSIBILITY ESCAPE  
CRUSHED DEATH STOP TRAPPED SWEETHEART DIED  
LINGERING DEATH STOP NEIGHBOURS VISITED  
BOTH CALLED OUT FOR EXPLANATION WEEKS  
LATER SUMBIRITA ADMITTED RESPONSIBILITY GUILT  
CALLED AGAIN MONTH LATER NO ANSWER END  
LEGEND. (Correspondent 1951, 1)

This version of what would become a frequently told story about Mount Lamington and the legendary Sumbiripa, or Sumbirita, is of interest in that it matches, more or less, the mountain myth recorded in 1948 by H.M. Corderoy, although Sumbiripa and the wife are not named specifically in the earlier version. A point of interest, too, is the timing of Amalya Cowley's record—that is, in the same week that Lamington becomes recognised unequivocally as an active volcano. The story had been told some time earlier to Cecil Cowley by 'a village chief at Higaturu' (Cowley 1953, 2). It is not clearly a volcano-related story, however, unless 'bowl' refers to a crater or volcanic vent, or—even more speculatively—if the bowl was inverted and it refers to a mound or 'dome' of formerly viscous lava.

District Commissioner Cowley, meanwhile, was at Higaturu without the volcanological expertise he had hoped for and requested. In addition, his superior, the most senior officer in Port Moresby—the acting administrator of the Territory—now believed there was no need for concern about the likely course of eruption. There would be, decided the administration, no evacuation. This was despite the fact that there were people remaining in the Lamington area, such as the anxious European women at Popondetta airstrip, who felt otherwise. Cecil Cowley had been provided with a 24-hour emergency radio link with Port Moresby should the situation worsen, but this assumes that electrical interference from the volcano would not again produce radio static and thus affect the clarity of any voice exchanges.



Volcanologist Tony Taylor recorded briefly that he had heard about the Lamington volcanic activity from a radio broadcast on Friday 19 January, but he did not state specifically that this was the *first* time he had heard of the mountain's unrest (Taylor 1951). The statement, however, contrasts with a detailed record made by Taylor's volcanological colleague and friend John G. Best, who, writing mainly from memory 37 years later, said that Taylor had told him he had heard about the Lamington events from radio broadcasts as early as Monday 15 January, and that Taylor had approached the district commissioner in Rabaul, on the north-eastern tip of New Britain, about the matter (Best 1988). The district commissioner in Rabaul was J. Keith McCarthy, a well-known former 'New Guinea' officer from before the war who had lived through the volcanic eruptions at Rabaul in 1937 (McCarthy 1971a, 1971b). McCarthy, however, was uncertain about what should be done concerning the Lamington reports, according to Best, as there had been no request from anyone in authority in Port Moresby for the services of a volcanologist. Further, Mount Lamington in the distant and former Territory of Papua was not known, either by him or Taylor, to be an active volcano.

There was also some confusion about whether the reports of volcanic activity were actually for Goropu or Victory in the Tufi area, which were known to be active volcanoes, rather than for Mount Lamington. Then there was the practical problem of Taylor travelling at short notice from Rabaul to Popondetta by air—especially the availability of a seat on an aircraft to Lae or Port Moresby and then to Popondetta. As the administrator himself, Colonel Murray, was due to arrive in Rabaul on Saturday 20 January, he could be asked directly for a decision (Best 1988). Murray was touring plantations in the Gazelle Peninsula and Duke of York Islands, and on Saturday was scheduled to open an extension to club rooms of the East New Britain Ladies Club, followed by a 'ball in the evening and presentation of debutantes' (*South Pacific Post* 1951a, 2). Tony Taylor met the administrator on the Saturday; Murray agreed that Taylor should inspect Lamington volcano and, further, that he should accompany him on a return flight to Lae leaving early on Monday morning.

How reports of the volcanic unrest at Lamington came to be broadcast by the ABC as early as Monday 15 January, as stated by Best, is unknown. Was Best's memory and reporting of the facts correct after so many years? Could Amalya Cowley have had a general agreement with the ABC to send news items from Higaturu that she thought might be of interest

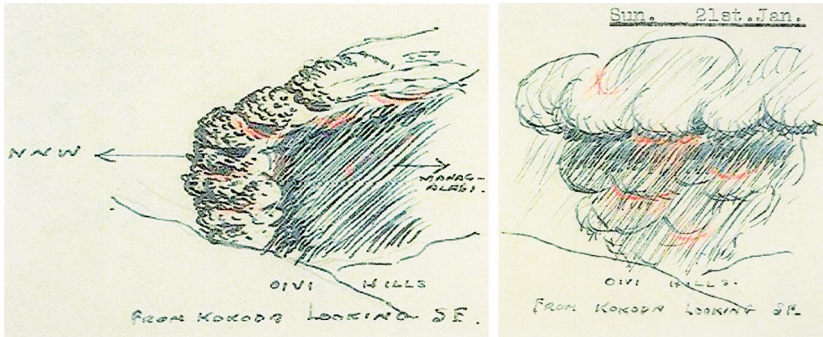
to listeners, bearing in mind her interest in radio broadcasting? If so, had she sent earlier messages to Port Moresby that week? Whatever the case, Taylor did not leave Rabaul until the morning of Monday 22 January. Would Taylor arriving at Higaturu any earlier have made any difference anyway in terms of what would happen next?

## Saturday 20 January

Saturday was a clear day, enabling many observations to be made of the escalating volcanic activity. The active area in the old crater had enlarged, and there were, according to Margaret de Bibra, as many as four or five active vents. Mission mechanic Rodd Hart at Jegarata village directly facing the open crater area reported that the sounds that had been emerging from the mountain for three days were like those of a 'gigantic underground railway' (Hart 1953, 1). Wallace Kienzle in the Yodda Valley noted in the morning that 'the activity was most marked with what appeared to be no longer than 3–5 minute intervals between fresh burst[s] of energy pushing those fresh clouds up in a practically continuous stream' and that a wind carried the top of the eruption column at 25–30,000 feet towards the south (Kienzle 1951, 1).

Later, Mr Yeoman made a sketch of the 'bent' eruption cloud (Figure 4.4) and recorded that the column during the day, as seen from Kokoda, had the:

Appearance of [a] black wall with straight face towards the sea, turning over at the top of the wall and back towards the Managalasi. Behind the sea face and beneath the bent over column of smoke the sky was pitch black—like black night. Through the field glasses, the billowing smoke had something of the appearance of a cauliflower and was similar to an oil fire. The smoke was illuminated from within by huge, curved, red flashes of light. (Yeoman 1951, 1)



**Figure 4.4. Sketches by S.H. Yeoman of eruption clouds on 20–21 January 1951**

These are Assistant District Officer Yeoman's sketches of the contrasting eruptions at Mount Lamington on Saturday 20 January (left) and Sunday 21 January.

The monsoonal winds of the 'north-west' season were causing this heavy ash fallout on southern side of the volcano in country occupied by the Koiari-speaking Managalasi and Omie people. The nature of the destructive effects south of the mountain during these first six days has not been recorded by Europeans, but clearly the damage at least to gardens must have been substantial. The Omie live high on the south-western slopes of Lamington and called the mountain Huvaemo, attributing special spiritual powers to her (Modjeska 2009). Historian and novelist Drusilla Modjeska much later collected a story told to her by the Omie, which she used in her book *The Mountain*:

Before the eruption, there had been signs that the mountain was angry. Cassowaries and bandicoots came into village, wild boars came close to the houses. There were great storms with lightning in the sky, and though rain fell, the rivers ran dry, the water pulled back up into the mountain. When the water returned it was hot. (Modjeska 2012, 140)

No ash fell to the north of Mount Lamington on the more populous country of the mountain Orokaiva during the preceding six days. Ash fall might have taken place there during the 'dry' season when south-east trade winds blow, which is not to say that the Orokaiva were any the more fortunate. Hypothetically, however, some fallout might have influenced decisions to leave any ash-affected area. Much worse was to follow for the Orokaiva in any case.

Reverend Robert Porter, Sister Pat Durdin and Barbara Lane were at Isivita Mission during this time and, by Saturday, were concerned about the safety of local people living nearby, and of themselves (Anonymous 1951f; Porter 1951a, 1951b, 1951c). They were closer to the active crater than were people living down the mountain at Higaturu, Sangara and Waseta, and they felt many of the earthquakes more strongly. The previous day, Barbara Lane had suggested to Porter that he contact the district commissioner for advice, but Porter delayed, ‘half influenced by the fear that he might be thought too “jittery”’ (Anonymous 1951f, 18). Porter, however, changed his mind on the Saturday:

Lamington now looked very fierce. The [active] crater now seemed to be much more on our side ... The smoke was much denser than before, and indeed was hardly like smoke at all. It was just a grey mass which seemed to curl out of the ground like toothpaste squeezed from a tube ... The people were terrified and several from the villages of Hamumuta, Pinja, and Popondota came to live on the mission station. I wrote to the [district commissioner] to ask his advice about any further people coming on the station. Fr. [Dennis] Taylor came to us in the afternoon to see how we fared and to re-assure us that all would be well. (Porter 1951b, 1)

Reverend Taylor’s reassurance derived from his personal volcanological experience of the explosive eruption at Goropu in 1943–44 while stationed at Wanigela Mission south of Tufi. He said that, in comparison to what was happening now at Lamington, Goropu ‘was far more severe, but yet there had been no loss of life’ (Porter 1951a, 25). Taylor had earlier expressed a similar opinion to the Cowleys at Higaturu (Cowley and Virtue 2015). This declaration by the priest-in-charge at Sangara Mission, therefore, was in accord with the view of the acting administrator, Judge Phillips, who on the previous day had made an assessment, based at least in part on his own previous experience with the eruption at Rabaul in 1937, that there was no reason for concern. The representatives of Church and State in the Lamington area were in apparent agreement that no evacuations were necessary at this time. District Commissioner Cowley sent policemen out with messages to communities and churches—where there would be services the following day, Sunday—informing people they would be told if any further action was necessary.

This final and crucial decision not to evacuate was made by four European men, primarily by Judge Phillips and Reverend Taylor—one of them a lawyer and the other a priest—and secondarily by their subordinates,

Cowley and Porter. Phillips and Taylor were attempting to appear knowledgeable and authoritative about volcanic eruptions based on their respective personal experiences at other volcanoes, and, therefore, to appear in control of the volcanic crisis. Local people, women in general, and the white planter community seemed to have had little influence. The concordance of Phillips and Taylor on this matter is all the more striking in recalling that the administration and the mission had had their differences, if not conflicts, in the postwar years up to 1951.

Porter's description of the Lamington eruption column being a 'grey mass' curling out of the ground is volcanologically significant because it is indicative of a densification of the ash cloud and, thus, the potential for overloading of the ash column. These are conditions that can lead to collapse of a heavy eruption cloud and to the creation of hot, surface-hugging flows of ash and gas that will move outwards and downslope gravitationally. Such flows may have formed at times on the Saturday, but, if so, they were small, did not travel far, and were not reported unambiguously (Taylor 1958). Further, no new extrusions of viscous lava domes were observed taking place in the crater area, and this too would have some later significance among the volcanological community.

Reverend Taylor came to Isivita that Saturday afternoon accompanied by two local schoolteachers, George Ambo and Albert Maclaren Ririka (e.g. Anonymous 1951f; Patience 2001; Johnston 2003). Both men were enrolled as participants in the course for teachers being run by Margaret de Bibra at Sangara, but had come with Reverend Taylor to assist the mission staff at Isivita who were having to cope with an increasing number of people arriving in the hope of some kind of reassurance if not protection. Reverend Taylor meanwhile, and fatefully, returned to Sangara Mission that afternoon. George Ambo and Albert Ririka however—and equally 'fatefully'—stayed overnight at Isivita. George Ambo later became the first Papuan bishop of New Guinea and Albert Ririka an ordained priest.

Cecil Cowley had been in touch with Port Moresby by radio-telephone at about 3.00 pm. The conversation was again interrupted by strong radio static evidently caused by the volcanic activity, and Cowley could not complete a message concerning the state of the volcano. Several operators tried to hear the message, but Cowley is reported to have said 'not to mind, it was not very important ... [and that] he will try again tomorrow morning' (Deputy Administrator 1951, appendix C, 2).

Amalya Cowley had been having sleepless nights at Higaturu because of the threatening seismic and eruptive behaviour of Mount Lamington. She was encouraged by her husband, and by the Stephens, to spend the night at Sangara Rubber Plantation, and she reluctantly agreed, comforted that her daughter Pamela would be accompanying her (Cowley and Virtue 2015). Cecil drove them to the plantation and returned to Higaturu to stay on duty that night. Erl remained with his father at the government station. The plan was that Amalya Cowley and Pamela would be picked up the next morning and driven back to Higaturu. That night, the number of felt earthquakes appeared not only to decrease but also to do so fairly abruptly after about 8.00 pm, and they may have ceased altogether by Sunday morning (Taylor 1958, fig. 12).

Spectacular luminous effects were seen after nightfall that were later judged to be characteristic of the more vigorous phase of the eruption up to that time (Taylor 1958). Wallace Kienzle noted from Yodda at night that he was:

Able to see what appeared to be fireballs bursting in the mass of the clouds above 10,000 feet. These were not visible as long streaks of flame but only as short tails immediately prior to bursting in a red glow. Definitely not to be compared with lightning. (Kienzle 1951, 1)

John Gwilt at Sangara observed after nightfall that:

A new phenomena appeared in the shape of whirling stars reaching the full length of the column, intermittently mixed with brilliant flashes of light; these whirling stars gave the impression that they were [being] seen through a dense fog. (Gwilt 1951, 2)

Agricultural officer 'Blue' Morris at Waseta noted 'horizontal flashes' as well as 'flaring patches of blue light' like the spasms of flame seen when a gas jet backfires (Taylor 1958, 22). Margaret de Bibra at Sangara Mission set down her experiences of that eventful week on the following morning, expressing her deep concerns about the 'new' volcano.

## Climactic Explosions on the Sunday Morning

### Aircraft and ash cloud close encounters

Two Qantas Empire Airways aircraft were in-flight and uncomfortably close to Mount Lamington at the time of the devastating eruption at 10.40 am on Sunday 21 January. Their occupants obtained spectacular and frightening views of the enormous and rapidly changing cloud including the lateral movement of its base (Qantas 1951; *Pacific Islands Monthly* 1951b; Taylor 1958; Sinclair 1986). Captain Arthur Jacobson was flying a Douglas DC3 'Dakota' aircraft at a height of about 2,900 metres on a normal 'Bird of Paradise' flight from Port Moresby to Rabaul via the Kokoda Gap. He was above a layer of cumulus cloud and saw to his starboard side a continuous column of black ash rising from the crater. The column penetrated another layer of cloud above him at about 4,300 metres, above which the cloud was expanding greatly (see Figure 5.9a(i)). Then, at about 40 kilometres north-west of the volcano, and at 10.42 am, he observed:

Dark mass of ash shoot up from the crater and rise, within two minutes, to 40,000 feet [more than 12 kilometres], forming a huge expanding mushroom-shaped summit. The base of the column expanded rapidly as if the 'whole countryside were erupting'. (Taylor 1958, 24)

The Qantas aircraft was in danger of being engulfed by the enormous eruption cloud, so Captain Jacobson put the sedate Douglas into a fast descent reaching a speed of about 215 miles per hour (350 kilometres per hour). However, even then the DC3 'was unable to draw away from it for at least five minutes ... and the apex of the explosion [by then] had reached a height of approximately 50,000 feet'—that is, more than 15 kilometres (Qantas 1951, 9). Photographs were taken from on board the DC3 that later became widely reproduced in different publications (Figures 4.5 and 5.9a(i)).

**Extracts from letter by Margaret de Bibra, Sunday 21 January 1951  
(White 1991, 45–47)**

We have a volcano! Just at our back door too. 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 earth tremors; at first occasional ones such as we [had] experienced before, and then they became almost continuous and the face of Lamington became scarred with great patches of bare earth, caused by landslides. Then one morning—January 18th—after a night of continuous tremors, smoke appeared. At first there was only a little. Then it came pouring out in great thick puffs high into the sky, wreathing and curling in awe-inspiring cauliflower shapes ...

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What do the people think? We are carrying on our work as usual, though we run out from time to time to watch it ...

The Papuans?—well, most are calm, many are apprehensive and some really frightened, especially those whose villages are near the mount. It is all understandable, in fact it is to their credit that there is no panic. Lamington has not been a volcano within the memory of living man, nor in the legend of the people. True, Lamington is feared as the home of spirits, and no local man—even Christian—will venture to the top. As one of our Church Councillors said, ‘The mountain people do not understand. They are afraid. We understand a little and we are afraid too. Our fathers did not know of it. The trembling of the earth yes, but not the fire. At night it is like a torch and we do not understand the sign.’

What will it mean? ... How will it affect the faith of new Christians? Can we make them understand what a volcano is, or will it be a return to old fears and superstition? ... Will you think of the people here, particularly the Managalas people, and those near our stations of Sewa and Sehaperete [on the distant northeastern side of the mountain]? Pray for them and for us, that out of this good may come, and as the dead mount came to [the letter ends abruptly at this point].

The second Qantas aircraft in the area was a smaller De Haviland DH84 ‘Dragon’ being flown by first officers Ross Biddulph and Fred Barlogie on a charter flight from Lae to Popondetta (Qantas 1951; Henry 1951; Horne 1976; Sinclair 1986; Bullard 2017). Two government officers from the Department of Agriculture, Stock and Fisheries were on board. They were accompanying D.H. Urquhart, a cocoa expert and a representative of the Cadbury’s chocolate company. The aircraft was approaching Popondetta airstrip and about to land when they saw the fast eruption cloud advancing towards them, appearing as if the entire side of Mount Lamington had blown out. They saw Higaturu Government Station being enveloped and blotted out. Biddulph banked the aircraft



steeply and flew away at full speed from the advancing cloud that he estimated, by roughly calculating the speed of its shadow on the ground, to be twice that of the Dragon aircraft. He headed back to Lae, but not before Urquhart had taken low-level and close-up photographs of the threatening eruption cloud. The negatives of these photographs have not been found although at least one photograph was published in Australian newspapers (Horne 1976). One of the many stories about the cause of the eruption was that an aircraft flying close to Mount Lamington had dropped a bomb on the mountain and then flown away (Belshaw 1951b). That mistaken aerial bomber may have been the Dragon piloted by Biddulph.

The basal expansion of the cloud noted by the pilots took place when the rapidly moving and ground-hugging ash flows descended the flanks of the volcano, particularly the northern flank. The flows eventually came to a halt, however, and dumped their load of hot ash and lava fragments. The remaining, strongly heated, clouds of light ash, gas, vapour and air then rose up from the hot area of devastation as if, falsely, from innumerable surface vents. This caused a 'draw back' of the clouds, thus seeming to reverse the direction of flow.



**Figure 4.5. Photograph of eruption cloud on 21 January by Captain Jacobson**

The dark volcanic cloud from Mount Lamington is seen here between two levels of cumulus cloud in this starboard view from the Qantas DC3 flight flying northwards. Hot lateral flows of ash and volcanic gas are beginning to emerge from the base of the cloud, especially on the right, down the southern side of the volcano as shown by the arrows (Taylor 1958, fig. 11). Photograph supplied courtesy of Geoscience Australia (negative number GB/1886).

## Observations of the ash cloud from the ground

On the morning of Sunday 21 January, Patrol Officer Jim Sinclair and Medical Officer Dr Olgerts Ozols were about 270 kilometres north-west of Mount Lamington. They had been patrolling the area of the Buang villages of south-west Morobe Province and were about to walk back to their headquarters at Mumeng on the Lae-Wau road, when, wrote Sinclair:

At about 10.45 a.m. on Sunday I was lying on my canvas bunk, reading, when I was hurled from the bunk to the black-palm floor by a convulsive heave of the entire resthouse. The impact half stunned me, and as I was lying on the floor I felt a series of deep rumbles, and a little later a dull, grinding shudder that seemed to run up the long pilings of the house from the very centre of the earth. Olgerts, who was outside, rushed up the sapling ladder. 'Something very bad has happened, Jim', he said, 'Listen to the people.' From the village came the screams of women and the frightened wails of children. But there was no further movement of the earth, and after some discussion we dismissed the occurrence as a more than usually severe 'guria' or earth tremor. (Sinclair 1981, 77)

They were told about 'the volcanic eruption of terrible force in the Northern Division of Papua' on reaching Mumeng that evening and did not report seeing the Mount Lamington volcanic cloud. The volcanic explosion was heard in other distant places, including Finschhafen and even at Talasea on the north coast of New Britain (Crane 1971).

Views of the high eruption cloud from Lamington on the Sunday morning were seen by people at Kokoda and in the Yodda Valley, about 48 kilometres west of the active crater. Witnesses there were well placed, theoretically at least, to see the laterally directed ash flows racing northwards down the slopes of Mount Lamington, except that the wind direction seemed to have changed from the previous day and was now blowing towards them, 'thus we lost what I would call a profile view of yesterday', wrote Wallace Kienzle (1951, 1). The higher parts of the ash cloud were now being driven by high-level winds that were different in speed and direction from the normal, low-level 'north-west' season winds at this time of year. The cloud by mid-morning had become darker and was moving closer towards them in the Yodda Valley, streaks of lightning were evident and, by 10.55 am, the cloud was almost overhead. Hot black ash began to fall on roofs. The Kienzle family at their Mamba property

had been relaxing after breakfast when the house shook violently and an intense rumble was heard. House servants ‘screamed and ran for cover and, as the sky turned black and blocked out the sun, they panicked even more, believing the end of the world had come’ (Kienzle 2013, 255).

The *kiap*, Bunny Yeoman, reported the same darkening and ash fallout at nearby Kokoda Government Station, and noted the same electrical phenomena he had seen on the previous day (Yeoman 1951). He also wrote that lights had to be used in houses because of the darkness produced by the now enveloping cloud. Yeoman later provided a rough sketch of the shape of the cloud while it had been approaching Kokoda, which contrasts markedly with the one he drew of the ‘bent’ ash column the previous day (Figure 4.4, right).

Wallace Kienzle and some reluctant helpers set off from Mamba to see what could be done down the road towards Mount Lamington and to check on their storerooms at Kumusi River and Sangara:

As he came closer to the scene, he saw first-hand the shocking devastation. The rivers and creeks flowed black with ash, and in among the debris, the charred bodies of victims floated grotesquely. Wallace stopped and collected what bodies he could, stacking them by the side of the road. He [later] grabbed supplies like blankets and basic food items from the trade stores at Mamba, and he handed these out to the stunned survivors, many of whom were badly burned. (Kienzle 2013, 255)

The view southwards from Erero Mission on the coast, 40–50 kilometres north of the Lamington disaster area, was equally impressive, as recalled by Sister Jean Henderson. She was on her way to work in the hospital wards that morning when:

There was a mighty explosion, several, not just one but quite a few ... large black clouds filled the sky and there was a darkness ... and as I watched, unbelievably the large dark clouds began to roll back. At the edge of the black cloud was a brilliant golden light, fantastic to watch. The Papuans were terrified, and they were worried because they had young families living and working with the Government [at Higaturu] and with the Sangara mission station. (Henderson 2001, 4)

Sister Henderson also wrote that, on Thursday 18 January, local people at Erero thought after hearing a large explosion and seeing 'black smoke' that 'a drum of petrol must have exploded at Higaturu' (Henderson 2001, 4). She later recalled that a patrol officer, possibly Murphy, had told her previously that Mount Lamington was a volcano.

People at Erero Mission escaped any volcanic fallout from the distant eruption, but the situation was much more devastating for those at Isivita Mission, which is about 9 kilometres north-west from the active crater itself and slightly closer to it than even Higaturu Government Station. From Isivita Mission on the morning of Sunday 21 January, Mount Lamington had the same fierce appearance it had had the previous day; however, at 10.15–10.30 am the irregular rumblings gave way to a sustained and uniform roar that increased in volume. Then 'to our horror we saw this grey mass of thick smoke moving swiftly towards us at ground level' (Porter 1951a, 25; see also Porter 1951b, 1951c; Anonymous 1951f; Strong 1951; Patience 2001). Part of a lateral flow of ash and gas was about to envelop the mission.

Reverend Porter, Sister Durdin and Barbara Lane retreated for safety to the main mission house, crowding in as many local people as possible, but they were surprised when the threatening, ground-hugging flow of ash stopped suddenly in the mission grounds. The missionaries discovered outside a remarkably sharp, demarcation line between green grass on one side and thick volcanic debris on the other, a boundary seen also at other places just outside the area of devastation on the flanks of Mount Lamington. People at Isivita on the 'green' side of the line had escaped the flow of ash, but not so those on the other side of the 'draw back' line, as recorded by Reverend Porter:

The mass of smoke gradually lifted, and I went outside to observe the situation. Dozens of terrified people were running on to the station, covered in pumice. Their two eyes emerged from completely grey bodies. I ran up to Isivita village (200 yards from the station) and urged all and sundry to come to the station. They did not require much urging. The poor dears were terrified and there were pitiful scenes. (Porter 1951a, 25)

Porter returned to his own house by which time the mission house was filled to capacity, and people were beginning to fill other houses on the station:

The next phase was about to begin ... The heavens now proceeded to pour down everything on us. Pumice fell again, sand, and small stones. But the most terrifying thing of all was the darkness which now descended on everything. The sun was completely blotted out, and at 11.30 a.m. it became darker than any night I have ever known. The blackness was relieved only by fierce streaks of lightning, followed closely by deafening bursts of thunder ... Sister Pat [Durdin] prepared dressings for the first burns case which had just come in ... It was now [at 1.00 pm] that the most pitiful and awful scenes of all were witnessed. People with the most terrible burns imaginable began to stream in for treatment. (Porter 1951a, 26)

Porter at this point urged those who were well enough 'to get away as far as possible from Lamington, and as quickly as possible, and they needed no second bidding' (26). He told them to make for Sasambata downslope west from Isivita but he later found out that most of the evacuees had gone down to Agenahambo village on the main road between Popondetta and Awala. Porter then returned to the mission house to do what he could to assist Barbara Lane and Sister Durdin:

The entire floor 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. The best we could do was make dressings from lint and vaseline and apply them to their charred bodies. About forty were treated at the Mission, but there must have been many who could not reach us. Soon Sister was busy with the morphia, which must have been a blessed relief for these unfortunates ... In the mid-afternoon our first case died. (Porter 1951a, 26)

A large grave was dug in anticipation of more deaths to come.

## **Awala Plantation evacuation**

Awala Plantation was several kilometres north-west of Isivita and the devastated area, and so was spared the disastrous impact of the ash flows. However, it did experience severe ash fall from the higher-level, westward-drifting cloud, leading to damage of its plantation crops of rubber, coffee and cocoa, and to slow evacuations along the Waseta–Popondetta road. Clen Searle, the owner-lessee of the Awala Plantation, which adjoined the road, had had a long association with the Awala area, including during WWII when he trained as an army commando and was given advanced

telecommunications equipment and training for surveillance of Japanese movements in the Northern Province (Searle n.d.). Searle, before the war, had been a radio engineer at the Amalgamated Wireless Australasia radio station in Port Moresby (Searle 1936). He now had his own radio communications equipment at the plantation.

Pat Searle was at Awala Plantation on the Sunday morning preparing for a lunch to be attended by 13 guests, including Dickie Humphries and the Locke family, together with the Hendersons from Sangara Plantation (Searle 1995). The Hendersons would also be driving out along the road to pick up their daughter, Mary Rose, who since Friday had been staying at Awala Plantation with the Searle children, Peter and Rhonwen. Other Europeans in the Awala–Waseta area on this Sunday morning were agricultural officer Blue Morris, who was normally based at Popondetta, and anthropologist Marie Reay, who was staying at the Waseta Rest House. Blue Morris was in the area, on this Sabbath day-of-rest, working with hulling equipment that was being provided to local rice growers on nearby native plantations.

Many years later, Pat Searle recalled in some detail the effects of witnessing the ‘huge thick black cloud’ that was advancing towards them at Awala. It was ‘starting to fill the whole of the heavens’ (Searle 1995, 236), and it triggered the spontaneous evacuation of people from the plantation once the fallout of ash began. The Searle family, together with Mary Rose Henderson, took a jeep—its canvas roof now covered with corrugated iron sheets for protection—and drove westwards along the Kokoda Road towards Waseta, which is about 4 kilometres further from the volcano. Some plantation workers had already left Awala on a tractor-trailer, but many others had to escape on foot. Then:

Quite suddenly we were in a complete blackout, so dark it was impossible to see a hand in front of your face. Severe thunder and lightning had long started when the heavens opened up, showering tons of stones, dust and debris on the world we had known. The air became stifling, it was almost impossible for Glen to see the road, with the jeep lights so very dim in such intense blackness and falling ash and we stopped in the darkness ... Very, very slowly, we moved on again at a snail’s pace. (Searle 1995, 237–38)

To their surprise they came across Blue Morris at the roadside in a bush hut, 'his tractor going full bore running the rice thresher! He said work had continued there, being the best solution to what was still happening' (Searle 1995, 238). There is no record of the conversation that Clen Searle had with Blue Morris, the sole government employee in the Awala-Waseta area at that time; however, after arriving at the Waseta Rest House at about 1.00 pm, Searle decided to return to Awala to radio government authorities in Port Moresby about the critical situation. He had problems doing so as the usual weekday circuit in Port Moresby was closed each Sunday, but he used a different radio crystal, got through to the Port Moresby airport, and then asked for the weekday circuit to be opened immediately. The 'outside world' had been contacted.

Ongoing activity at the volcano later in the afternoon was interfering with radio communications, so Clen Searle temporarily transferred the radio and its aerial to Waseta for further traffic the next morning, setting up the aerial in a mango tree that, by coincidence, he had used in July 1943 in sending coded messages to army headquarters in Port Moresby. The Searle family group, now including Marie Reay, spent that night at Waseta.

Blue Morris had decided earlier to drive westwards from Waseta to the Kumusi River to see what was happening in the general Wairopi area, possibly to check whether evacuation was still possible in that direction. He took with him the two young European girls, Rhonwen Searle and Mary Rose Henderson, perhaps in the hope of getting them over the river and finding transport to evacuate them to Kokoda. The rivers crossed by them 'all came down swiftly from the upper areas of Mt Lamington, and some were warmed by hot mud, and as they flowed covered thickly with ash the fish were gasping and dying, floating to the surface in great numbers' (Searle 1995, 241). A load of fish and eels was gathered and brought back to Waseta Rest House where the hungry evacuees all sat around, with their helpers, and enjoyed a fish feast (see also Morris 1951).

Fish populations had been reduced in the rivers and, perhaps more important economically, the ash fall damage to crops had been substantial, such as at Awala Plantation:

All was an ashen grey: all colour obliterated by the pervasive ash on every leaf and bough. The coffee trees stood like grey cylindrical bottle brushes about two metres high, the lateral branches angled down from the familiar horizontal. The ground was covered inches deep in ash. There was not a sound except for the breaking of

the rubber tree branches ... The incremental weight of the ash accumulated on every leaf was devastating; rubber wood is known to be quite brittle and susceptible to damage in windstorms.

[Also] ... numerous trees in the rainforest kept falling to the ground ... the constant wrenching and the tearing off of great branches from trunks of many trees made loud and continuous noises. There might be a momentary pause, but the noise of their falling would start again, as the branches, heavily weighted with ash from the eruption during the many hours of darkness, plunged below, finally crashing to the ground. (Searle 1995, 239–40)

Most importantly, however, the many hundreds of people living on this north-western flank in the so-called 'Isivita District' were without homes and gardens because of the damaging ash falls. Most of these people had escaped the deadly ground-surface flows of ash down the northern flank, but they became refugees congregating at, or near, the road west of Awala Plantation and towards the Kumusi River.

## **Sangara Plantation evacuation**

People at Sangara Rubber Plantation about 9 kilometres east of Awala and along the road towards Popondetta were also having to manage extreme volcanic conditions (Stephens 1951, 1953; Gwilt 1951; Schleusener 1951; Cowley and Virtue 2015). Sangara Plantation was much more extensive than the one at Awala. Its main buildings near the road were less than 5 kilometres north of the now destroyed Higaturu and only 2 kilometres from the northern edge of the devastated area. The plantation also had a larger staff, both European and Papuan, and, like the people at Isivita Mission, they endured the shock of seeing burnt people who were escaping from the edge of the volcanic devastation emerge onto the main road.

Laura Stephens, who was hosting Amalya Cowley and daughter Pam, recorded the drama:

I was just about to announce that [morning tea] was ready when a terrific explosion occurred. The noise was loud and sharp, almost like a series of detonations right along the range ... But this was different [to a normal explosion]. Instead of reaching its peak and then dying down, the explosion kept growing and coming toward us at a terrific rate. I called out in alarm to my husband ... 'Come quickly', I said. 'The whole range seems to have disintegrated and is coming this way!'. He came in, looked for a few seconds, and then



said quietly, ‘Come, all of you. We are getting out. Don’t stop to pack anything’. We left everything as it was and went outside to a truck, which fortunately was parked in the compound.

... the cloud was spreading and coming on. It enveloped the sky and hung over us like a great umbrella. It was black and opaque, and the noise it made was like a huge roaring and hissing, so loud one could hardly hear oneself talk. We drove in semi-darkness to the Manager’s [Mr Henderson’s] and to the other Assistants’ houses [including the Gwilt] and picked them and some servants up ... Each moment it was getting darker, and the cloud was coming nearer in a rolling movement with that indescribable hissing noise ... [The truck became stuck] and we stood there simply waiting for death that we knew was inevitable, once the cloud reached us. (Stephens 1953, 219–20)

The experience was no less terrifying for Mrs Cowley and her daughter Pam, who recalled waiting ‘for this nightmare to engulf us. I panicked and started screaming, “I’m too young to die!” till Mr [Stephens] told my Mother, “Stop that child screaming”’. Amalya Cowley calmed Pam, took her face in her hands and said gently: “Don’t look Pammie. Put your head on my shoulder. We’re going to God”’ (Cowley and Virtue 2015, 96–97). Then, however:

While we were standing, we looked up, and the rolling movement of the enveloping lethal gas seemed to halt for a split second—then it rolled back! It was an amazing phenomenon. At that moment, it seemed nothing less than a miracle, and we thanked God for the respite, then discussed further means of escape. (Stephens 1953, 220)

The laterally cascading ash flow had indeed stopped close to them, perhaps just 2 or 3 kilometres away, and about halfway between the plantation and Higaturu. The flow had dropped its load of hot ash and rocks, and now was reversing its direction by drawing in air from its surrounds, just as observed at Isivita Mission in even closer circumstances. Laura Stephens wrote that:

It was still roaring and hissing, even on its backward journey. Even where we were, breathing had become difficult. There was a heavy sulphurous smell in the air, and it was dry and hot. (Stephens 1953, 220)

**Slightly edited extracts of letter by Bill Schleusener to his parents,  
21 January 1951 (Schleusener 1951)**

10.30 a.m. Sunday. Things are crook and I'm writing fast—just 5 minutes ago I nearly went thru the roof with noise of a bang—God knows I think a mountain must have blown away—a pall of smoke, the like of which it's impossible to describe came forth at at least 100 [miles per hour] sideways and has absolutely covered everything—I saw it sweep over Higaturu and No 1 Plantation and heading this way, but with a slight north [unfinished]

Now 11.30. A little more calm now—I left off back there to stem a tide of panicking locals and had a spot of bother until I was heeded by the mob. The cloud ... [was] rolling along toward [us] jet black ... Finally got mob to wait and not 5 mins after down came the muck—mud galore which lasted nearly 20 mins, and you want to see my station—there's nothing standing, or what is isn't apparently worth two bob.

Then the cloud came, filled with lightning and thunder and the locals scared almost white, screeching and asking me what to do—Hell, I hadn't a clue myself—however I packed 'em in the store, under the store, and here we are coughing like blazes. After mud (my house not the best protection with leaf roof—hence store) came grit and gravel and now there's inches of it over everything—a white grey colour. I've women 'n kids stacked in with pieces of wet calico over each one's face, and outside the powder is coming down. I've heard of a dead world, but this is the first I've seen—no wind or noise now, just a thick fog, a frightful bloody smell and we're just waiting for the muck to clear—I've been to inspect a couple of creeks and they're just grey slush.

12.45 p.m. Perhaps a little calmer again state of affairs now. I've packed the workers to their houses with strict instructions what to do if there's any more ... just what's going on I don't know cos can't see a thing—God what desolation ...

2.45 p.m. Fog seems to be dispersing, but not the locals. I've dozens hanging about now—one worker has come from No. 1 [plantation]—news from Higaturu I can't count on, but I think it's pretty well wiped out ... Many of the No. 1 workers are around with their goods and chattels ready to blow, but I'm not moving yet ...

4.50 p.m. now. Just received note from returnees (local Orokaivas)—Higaturu is apparently gone, and most Europeans dead—the road between Sangara [plantation] and Higaturu missing so nobody has been up. Villages on the road wiped out, dead and dying all over the shop in hundreds, and trucks are apparently carrying the wounded to Popondetta ... The workers won't go to their rooms so I've got 'em by the score about the store for the night—which I hope will be calm. Daytime panic one thing, but night another. I'm finding it hard to credit that people at Higaturu are no more!

They decided to escape north-eastwards along the road to Popondetta even though the rolling flow had seemed to be moving in a similar but parallel direction, off to one side:

And the nightmare drive began. For about five miles, we were pelted with mud and pumice ... My husband [Steve], who was driving the truck, was the most uncomfortable of all. The windshield had become caked with about two inches of pumice in the very early

part of the drive, and he had to stick his head out of the side door, where he was soon half-blinded with the mud in his eyes. At frequent intervals along the road, we stopped and picked up fleeing natives with their wives and children. By the time we got to Popondetta, there wasn't an inch of unoccupied space on the whole truck. (Stephens 1953, 220)

Bill Schleusener was a junior European employee at Sangara Rubber Plantation. He was living in his own locally made house in the cocoa area of the plantation and missed the speedy evacuation of his colleagues to Popondetta. Schleusener was in his mid-20s and still single at the time. He had the remarkable experience of writing down in a letter to his parents, and in memorable style, his impressions and thoughts about the eruption and its impacts as they happened (Schleusener 1951).

## **Popondetta Disaster Centre and the Second Eruption**

Popondetta in the afternoon was becoming crowded with arriving Europeans—the Hendersons, Stephens, Gwilts, Cowleys and Miss Margaret Rae—and, increasingly, by many injured local people. Margaret Rae had been staying overnight with the Hendersons and had been visiting her fiancée, Terry Hoolihan, who was on the staff of Works and Housing at Higaturu. Accommodation at Popondetta was limited to the family homes of the two agricultural officers, Fred Kleckham and Blue Morris, and the manager of the local Buntings store, Jack Scurrah. There was no radio communication at Popondetta and there were no medical facilities either—neither mission nor administration—although Marjorie Kleckham had had training as a nurse. A European woman, Mrs Gleeson, was due to give birth at Higaturu at any time and Marjorie Kleckham was 'to do the confinement' (Kleckham 2010, 45). However, Dr Martin at the Higaturu hospital had advised Mrs Kleckham to stay at home in Popondetta and not to return to Higaturu until Monday morning (see also Kleckham 2003). Mrs Kleckham had three of her own children, one a baby whom she was still breast feeding.

Two other Europeans also escaped to Popondetta that day. They were Rodd and Madeleine Hart who were still on their honeymoon away from Higaturu at Jegarata Mission 'in a sort of Peter Pan house—almost in the treetops' (Benson 1955, 6) and about 5 kilometres south of Popondetta.

Jegarata is on the Banguho River, which drains from the crater area of the volcano and is on a direct line of sight. The Harts saw from Jegarata the black eruption cloud spreading out into a gigantic mushroom shape, and they quickly left the mission when the cloud was overhead. They later recorded:

It was now about half an hour since the eruption had begun. Suddenly we saw emerging from the dust haze in the distance a tongue of grey pumice-like dust ... [as a] cloud which moved forward with great rapidity in our direction. The people with us and ourselves were experiencing difficult with breathing and beginning to cough. We made off down the road to Popondetta leaving all our belongings behind us. (Hart 1953, 1)

They had been facing south-westwards almost in direct line with the central axis of the northward-advancing front of ground-hugging ash flow that, as at Sangara Plantation, fell short of them by a few kilometres (Figure 4.1). The Harts did not record any 'draw back' clouds but they might have seen them if they had stayed.

Marjorie Kleckham at Popondetta later told her own story of the eruption:

We were out in the rubber patch fixing the small trees, and also showing the children the volcano and explaining it to them. Suddenly there was a terrible explosion, it came up like a huge mushroom of smoke, gradually this spread over the whole area ... As we were standing there taking photographs of the eruption a boy came running with a note from Jack Scurrah, it was just 'It looks as if Higs' gone [i.e. Higaturu is gone]'. Then we saw Jack coming down the road towards us. He and Fred had a talk and decided to start walking to Higaturu to help, as soon as the dust cleared.

I had to prepare food for everyone, got all the bandages and medical supplies I could collect together. Get the machinery cleared out of the sheds, spread tarpaulins across the floors of the shed and make an emergency war hospital for people. I ... also collected all the 44 gallon drums I could find and sent boys with every available bucket to carry water to fill these drums and tubs. It was very fortunate I did this; the streams ran hot and filled with mud and dead fish and other animals. When I had this much under control, I went into the house and started cooking pastry and scones. A truck [the one driven by Mr Stephens] arrived from Sangara rubber estates, the windscreen was inches thick in

mud—the people on the back had the pandanus floor mats over their heads; they and the mats were also covered in mud ... Fred and Jack had met this truck, but they had kept on walking into Higaturu. (Kleckham 2010, 46)

The European women from Sangara Plantation who had arrived at Popondetta stayed there with Mrs Kleckham and Mrs Morris, but the European men turned the truck around and headed back along the road towards Sangara and Higaturu. This required great determination as they were driving back towards the still active volcano and were not to know what further eruptions might bring, nor indeed what they would find in the disaster zone. They soon encountered, however, Reverend Dennis Taylor who had been brought by mission boys to a place close to the road called Monge, or Maungi. Reverend Taylor had been able to escape from the devastated area:

He was very badly burned all over his body, but his fortitude was amazing. All he could say was that he had left his family [at Sangara Mission] to go for help and that someone should try to get to them. (Stephens 1953, 221)

Taylor was brought back in the truck to Popondetta for what little medical care could be provided by Mrs Kleckham and Mrs Hart.

Meanwhile, the truck and the European men had gone back towards Sangara. It was joined in time by two other vehicles, and the drivers began travelling back and forth along the road in a shuttle, picking up survivors and bringing them to Popondetta. The old Yodda Road had become an emergency ‘lifeline’—of sorts:

A steady stream of burned and shocked people began staggering and crawling in [to Popondetta] ... The groans of the living and the wailing of those who recognised their dead are something I shall hear to the end of my days ...

The men brought us harrowing tales of the sights along the road toward Sangara and Higaturu district ... All along the road trees had fallen, and those that had not fallen were entirely bare of foliage. Often the trucks had to stop to clear the road of victims who lay where they had fallen in their attempt to escape the cloud. At Andemba ... heavy timber across the road made it impossible to get farther ... Over everything lay an unearthly silence, broken occasionally by the rumbling of the mountain. Bodies lay piled in the villages, on the ground, and in the houses. (Stephens 1953, 221–22)

The rescuers who entered Andemba village on the side road leading in to Higaturu were Rodd Hart, Fred Kleckham, Jack Scurrah and Elliott Elijah, a Trobriand Islands cooperatives officer who worked with Fred Kleckham at Popondetta (Murray Administrator 1951k; Crane 1971). The group had to work at great speed as ash was still falling and there was the ongoing fear of a further eruption, as would in fact take place later that evening. Their priority was to find survivors. No burials could be undertaken, and they were unable to enter Higaturu itself. Their courageous visit to Andemba village would later be the subject of unfortunate mis-reporting to the news media in which Elliott Elijah's behaviour became a topic of criticism that proved to be unjustifiable.

Fred Kleckham and Rodd Hart drove in a mission jeep all the way back along the road to Awala having failed to get into Higaturu (Searle 1995). Use of radio communications from Higaturu was out of the question so Clen Searle's radio set at Awala was seen as the only option. Messages were sent out by them from Awala to Port Moresby, advising of the deadly disaster, although, by this time, the authorities—and especially aviation authorities in Lae—were becoming aware of the seriousness of the situation in the Lamington area. Captain Jacobson had earlier reported by radio his ash cloud encounter to Qantas officers in Lae who 'immediately prepared an aircraft in case a request for assistance came through' (Qantas 1951, 9–10). Further, Captain Biddulph and his passengers in the Qantas Dragon aircraft, which had no radio, had arrived back in Lae by 12.50 pm giving further news of the eruption to aviation authorities (Sinclair 1986). The administration in Lae was also informed and the district commissioner of Morobe, H.L.R. 'Horrie' Niall, arranged for the administration vessel *Huon* to sail from Lae on the Sunday evening arriving the next morning at Cape Killerton. Authorities in Port Moresby also were now aware of the need to organise a medical response and began making arrangements for a Department of Health team to reach Popondetta as soon as possible on the following day. The Australian Red Cross Division in Port Moresby was asked to 'stand by' for assistance, particularly in relation to the care of evacuees reaching Port Moresby from the disaster area (e.g. Ahearn 1951a; Wardrop 1951b).

Captain W. 'Bill' Forgan-Smith was Qantas chief pilot for New Guinea. He and his crew took off for Popondetta in a large Douglas C47 from Lae at 4.18 pm following instructions from the Department of Civil Aviation in Port Moresby 'to the effect that Higaturu had been off the air since 10.30 that morning, that Mount Lamington had erupted and that the

area was covered in volcanic dust' (Qantas 1951, 10). The relief aircraft was loaded with drums of water, sacks of rice and flour, cases of meat and medical supplies (Sinclair 1986). They:

Flew in perfect weather to Cape Ward Hunt, but from here on, dust haze and a heavy cloud of dust at the actual volcano had made it almost dark ... We circled Cape Killerton at about 300 feet, but could see no Europeans. We flew on down the coast for about 10 miles, but observed nothing ... [and then decided] to follow the track [inland] to Popondetta. As we progressed we could see hundreds of natives all walking towards the coast with their belongings on their backs; the dust was very thick and all was a greyish colour. (Qantas 1951, 10)

The welcome sound of the aircraft was heard above Popondetta at about dusk. However, the optimism was short-lived:

We beckoned frantically for them to land, but apparently they took our gestures to mean we were all right. I shall never forget how my heart sank when that plane departed. (Stephens 1953, 222)

Marjorie Kleckham wrote later that she had even, in desperation:

Grabbed a bundle of the babies napkins [in order to form the words] 'Please land on the ground' ... I felt so elated that I might be able to get some of the badly burned people out ... [but] they flew away. I've never felt so deflated as I did at this, there were all these people needing special treatment and there a big plane flew away empty of passengers. (Kleckham 2010, 48)

The captain had indeed misread the waving of the desperate Europeans at Popondetta. Although the small airstrip was still green and serviceable, he noted that there were no SOS signs or symbols on the ground (Henry 1951). Mrs Kleckham's longer request to 'Please land on the ground', written using babies' nappies, may well have been impractical. Nevertheless, the crew dropped a 'bundle of loadsheets', the reverse side of which contained the message that a government trawler would arrive at Cape Killerton at noon the next day (Qantas 1951, 10). The aircraft then headed back to Lae. Those on the ground were left to work out how best to endure the night ahead of them. Was the Popondetta airstrip now unsuitable? Did the aircraft's departure mean that all outside help would now come from the coast? How best could the Europeans deal with the dead and injured at Popondetta?

A decision was made to shuttle the injured by truck to the coast at Cape Killerton. Stevie Stephens was one of the drivers. 'The truck carried several loads of the injured there and left them in the care of some mission people until the cutter could arrive next day' (Stephens 1953, 222). Other European men were still down the road at Sangara Plantation, collecting what extra supplies might be required back at Popondetta. The Awala group was still at Waseta where Pat Searle noted that:

Around 8.30 pm noises began again with the constant growling of thunder, while the lightning was frightening in its intensity, lighting up the night sky too often and for too long. Once more the heavens opened with further weighty onslaughts of ash and debris, the heaviest for several hours, while eight or more of us sat under a fragile sago-frond roof! (Searle 1995, 241)

The precise time of the start of this second major eruption is unknown—some people said it was about 9.00 pm or even later, some earlier—which is not surprising given the night-time conditions and the attention of survivors being focused on coping in a disaster zone and so not closely timing events. Nevertheless, a radio schedule arranged by Clen Searle for 8.45 pm could not take place because of the electrical disturbance caused by the eruption (Taylor 1958). The second eruption also caused great concern, especially for people worrying whether it was to be a repeat of, or even greater than, the one in the morning. The night-time darkness and the volcanic noise added to the fear and apprehension of those still alive in the disaster area. The pyrotechnics of the second eruption were spectacular even at distant Gona, on the coast, as recorded by Elsie Manley:

It was more fearful than the first, for it showed up more ... Here at Gona it was like shells bursting overhead; no noise, just the sight of them bursting like rockets; more smoke, rumblings loud and long, and terrific lightning. (Manley 1951, 5)

John Gwilt also witnessed the second eruption—which he thought may have started forcefully at about 9.30 pm—from the back of a truck leaving Sangara for Popondetta. His description of his southward view as the truck progressed north-eastwards later proved valuable to volcanologist Tony Taylor in deducing that the second major eruption, though powerful and terrifying, was different to the one at 10.40 that morning:

The eruption was plainly visible in the bright moonlight ... the column was now racing towards us from behind; ahead and above us was the moon ... the column which appeared to be infinitely



wider than the previous one in the morning ... [had] a dull red half-circle of what appeared to be a large blood red moon shape, stationary over what I considered to be the direction of the crater. This moon-shaped light was penetrating and visible as seen through dense smoke ... [and] was visible on numerous occasions as we climbed from lower to higher ground. Shortly after, a wind blowing approximately from sou' sou' east, and at a height of several thousand feet ... was forcing the canopy above us in the direction of the moon ... Some minutes after the moon was covered by the canopy, a wind arose approximately nor' nor' west again checking and rolling back this vast canopy ... the wind had folded the canopy again for the second time that day towards Mt Lamington; we arrived [at Popondetta] in moonlight. (Gwilt 1951, 4–5)

Stevie Stephens was at Cape Killerton with a truck when he saw the second major eruption towards the south. Laura Stephens wrote:

It appeared that the cloud, visible through the intermittent flashes of lightning, had enveloped Popondetta. [Stevie] stepped on the gas as hard as he could and returned to meet a party of us—women and children from Popondetta—on the road. We too had feared that the cloud might reach Popondetta and had started out on foot toward Killerton. However, it didn't travel that far, and the men bundled us back into the truck and took us to Popondetta once again. (Stephens 1953, 222)

The second eruption, but evidently not the earlier one at 10.40 am, was also heard by Bishop Phillip Strong and others at about 9.00 pm on the coast far to the east at Dogura. They 'heard a loud report as of an explosion which seemed to be high up above us like a shell bursting overhead' (Strong 1981, 212). Boys in the dormitories thought it was a coconut falling on the iron roof, and others thought that someone must have been dynamiting for fish. Bishop Strong recorded in his diary for 21 January that he vaguely recalled someone saying that Mount Lamington was a volcano, just as Sister Henderson had recalled.

Meanwhile, inland Popondetta remained a *de facto* 'relief' centre overnight. Despite the absence of proper medical services:

All the women worked tirelessly all day, all night, and into the next morning. All we had for treatment of burns was tins of dripping [i.e. cooking fat]. Every native was given a place to lie down in the shelter of a roof. The women (European women) put dripping on

all of their burns and Jack Scurrah did a marvellous job of keeping us supplied with food from the trade store. He also had his staff making buckets full of hot Bovril and lacing it with Rum to ease the native's [sic] pain. We had no morphia, nothing except Rum and Whisky to give them to ease their pain. We got this from the trade store. (Kleckham 2010, 47)

Urgent notes had been sent by runners from Popondetta to both Sister Nancy Elliot at Gona Mission on the north coast and to Sister Jean Henderson at the Eroro Mission near Oro Bay to the north-east, asking for medical supplies and assistance. The missionary at Gona, James Benson, recalled them receiving a note from Madeleine Hart: 'Dennis Taylor here badly burned; come at once with plenty of dressings. Haste.—Maddy' (Benson 1955, 6). Sister Elliott and some young men soon left Gona carrying medical supplies and walked through to Cape Killerton where they saw some of the growing number of bewildered evacuees who had arrived there. A truck was available for the onward journey to Popondetta, but the driver refused to go. Father Benson recalled the driver's words:

Me! ... me go back to that hell where the spirits are so angry they are slaughtering their own people—whole tribes of them; what would they do to me, a Buka man? No! I never go back there. Besides, there is no petrol in the truck. (Benson 1955, 6)

Sister Elliott, accompanied only by Simon Peter Awado, then walked all the way through to Popondetta (see also, for example, Manley 1951; Tomkins and Hughes 1969; White 1991). They arrived at about 3.00 am, shortly after Reverend Taylor had died of his burns. Their morphia supplies were given to people in most need of them.

Sister Jean Henderson at Eroro received her note for assistance the next morning (Monday): 'Mt Lamington blown up, all lives feared lost, medical help needed urgently and drugs' (Henderson 2001, 4). She prepared some dressings and drugs, picked a team of medical workers, and set off by road, not knowing what to expect; they took picks and shovels in case they had 'to dig people out'. Father John Anderson, the relieving priest at Eroro, also left for the disaster area that morning. The Eroro group met distressed local people close to Popondetta and, on arrival, found that 'thousands of people had assembled' (Henderson 2001, 5; Henderson 2007). Father Benson, who had come up from Gona, told them of the death of Dennis Taylor.

There had been little sleep for those who had spent the night at Popondetta. A realisation of the scale of the disaster, and of a large number of dead and injured, had gradually become clear. Grieving had begun and trauma had set in. Amalya Cowley had asked Stephens for ‘the truth as far as he knew it about the fate of Higaturu and its inhabitants’ and had to accept that both her husband, Cecil, and son, Erl, were unlikely to have survived (Cowley and Virtue 2015, 102).

Some vague hope existed at Popondetta regarding the arrival of the relief vessel at Cape Killerton that was now on its way from Lae. Trucks were once more in action and some reliable information was obtained ‘that help for the injured could be secured more rapidly by aeroplane than by cutter, so the survivors had to be brought back to Popondetta’ (Stephens 1953, 222). However, these hopeful signs were not available to those still stranded, isolated and dying at the Isivita Mission on the volcano close to the active crater and who, potentially, were much more vulnerable to the effects of the second eruption.

## **Isivita Mission and Blue Morris**

Reverend Porter reported that, at Isivita, the second eruption started shortly after 9.30 pm when, after a pause, a constant and regular roar began that was much louder than the one in the morning, and there ‘seemed to be noises like exploding fireworks just above the roof’:

Then falling matter began again—not only dust and sand this time, but quite large stones. I urged Mrs Lane and Sister [Durdin] to get under the table, which would at least give some protection if the roof fell [in]. The noise by this time was deafening. I am sure not one of us believed we would survive this second blast. It was even more terrifying than the first, the only difference being that the darkness of the night relieved the darkness that accompanied the eruption. We ‘sat it out’ underneath the table, praying continually. But yet it passed, and we found ourselves still with the roof on and still sound in body. Of course, there were no casualties from this one, and so we just spent the night talking, and longing for the dawn. I have never known a night to pass more slowly. (Porter 1951a, 27)

The missionaries roused themselves at first light on Monday 22 January 'amidst the smell of death all around us':

Eighteen people had died in the Mission House that night. 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. Immediately we set to work to dig more graves. (Porter 1951a, 27)

A note arrived at Isivita from Rodd Hart who advised the missionaries to leave just as soon as possible, and they accepted that evacuation was now the best option. The Isivita villages were deserted and only seven burn victims remained with them. The missionaries found, to their surprise, that their jeep could start and so they began to move slowly down the mountain track, Albert Ririka in front cutting away the worst of the fallen trees. They met Blue Morris 'who seemed somewhat surprised to see us alive. He was on his way through the villages looking for survivors, and what a grand job he is doing!' (Porter 1951a, 27; see also Morris 1951). Blue Morris advised them to go down to Waseta rather than all the way to Popondetta. They were able to use Clen Searle's radio at Waseta for messages to their families. 'It was here that we first learned of the Sangara and Higaturu tragedy, and, though we were to an extent prepared for it, yet the final confirmation stunned us' (Porter 1951a, 27).

Later that Monday, Blue Morris drove back up to Isivita and then beyond to villages within what he called 'the blast area' (Morris 1951, 4). Trees had been blown down but lay in different directions, only some of the trunks pointing towards Higaturu. Blue Morris found the body of a man at Hamumuta village, later describing its condition in some forensic detail and noting that most of the dead man's thigh had been 'eaten away by a dog and several fowls' (Morris 1951, 5). He also noted the nature of the volcanic deposits around and under the body and deduced that the man had been killed by the Sunday morning eruption rather than the one in the evening. Morris kept moving on until a 'column of smoke broke in a billow' fairly close to him. This unnerved him and he:

Ran away and forgot to make any observations until I put my hand on the ground, going under a tree at Hamumuta. The ground had a constant even vibration—immeasurably slight; I checked to see if it was [just] myself, but it was not. (Morris 1951, 6)

Blue Morris's later report was basically an observational one in volcanology, even though Morris was himself an agricultural officer by training. Morris provided short descriptions of the eruptions of Sunday 21 January as he saw them from the Waseta–Awala area. He also gave particular attention to the different volcanic materials that were falling at different times, as well as the thicknesses of the deposits they produced on the ground. For example, Morris at about 11.00 am first felt 'drops of slightly damp mud' and had the impression 'the first drops of rain had collected sufficient dust to make a damp mud' (Morris 1951, 2). Heavier pellets were like mudstone and could be broken by squeezing. Other more water-rich drops were so wet that they splattered when they landed on the ground. Morris still later observed that the ash fallout was a dry, 'dark grey powder, granulated like sugar, but not gritty' (2). The evening eruption, in contrast, produced walnut-sized stones:

They were of a crystalline nature, very much like granite in appearance, and appeared to have been fused by heat. Some were flat on the base and honey-combed, others were irregular, but all were very light in weight. (Morris 1951, 3)

## Assessing the Observations

Volcanologist G.A.M. Taylor arrived at Popondetta on Monday 22 January. He had not witnessed any of the extraordinary eruptive activity on the day before, or on any of the previous days, so one of his tasks was to gather as much scientific information on the eruption as possible. He did so by interviewing many of the mainly European eyewitnesses who had survived, asking key observers to provide their own written accounts of what they had experienced. Reports, letters to family and photographs all comprised a valuable collection of information of what had happened up to and including Sunday 21 January. Taylor spent much of the next two years collecting additional information obtained from his observations of ongoing eruptive activity, field studies of the eruptive products and researching reports on similar eruptions elsewhere in the world. All of this additional work, however, built on the foundation of the reports by eyewitnesses, none of whom had training in geoscience or in volcanology and its use of technical terms. Several key points can be highlighted from the eyewitness observations.

1. Perhaps the most valuable attribute of the observations is the record of a gradual build-up of volcano unrest that began at least one week before the climactic eruption of Sunday 21 January. The volcanic disaster was, therefore, heralded, at least in retrospect. However, the authorities were unclear on how to interpret the warning signs and did not know how to manage the escalating crisis.
2. A notable aspect of the observations of the eruption clouds, starting on Saturday 20 January, if not before, is of the clouds being heavy or 'densified' with ash, so much so that Reverend Porter, for example, referred to 'a grey mass which seemed to curl out of the ground like toothpaste from a tube' (Porter 1951b, 1). The heavy ash column on Sunday morning was unable to sustain its upward motion but rather carried the potential for gravitational collapse.
3. The high rising eruption cloud on the morning of 21 January was described as 'cauliflower' or 'mushroom' shaped, but these shapes changed when the eruption column collapsed—that is, when the base of the cloud expanded and hot, laterally directed clouds of ash, volcanic gas and vapour spread out on all sides of the volcano.
4. Dramatic, if not terrifying, descriptions were given by survivors of the fast, ground-hugging, ash clouds advancing towards them, particularly at Isivita, Sangara Plantation and Jegarata. These volcanic clouds were recognised as being the principal cause of the numerous deaths in a main area of volcanic devastation on the northern flank of the volcano. The term 'blast' was used commonly in descriptions of this deadly impact. Volcanologists now use the more general term 'pyroclastic flows', where 'pyroclastic' means 'fire-broken'. Smaller 'flows' of indeterminate material—landslide, water or lava—in the crater area were also recorded for Thursday 18 January.
5. One of the more striking aspects of the descriptions by some local eyewitnesses was the way in which the pyroclastic flows, although advancing threateningly towards them, suddenly stopped and then, almost miraculously, drew back, reversing their direction of flow and leaving behind a sharp 'draw back' line on the ground. This reversal of direction, and indeed of fortunes, takes place where pyroclastic flows come to rest, dumping their loads of ash and debris. New clouds then rise quickly from the hot, newly deposited surface materials. Colder surrounding air is drawn in, which pushes back against, and in a direction opposite to, that of the original flow. Some volcanologists have used the informal, and not especially popular, descriptor of

‘phoenix clouds’ for this now well-known phenomenon of ash clouds ‘rising again’ from pyroclastic flows that have stopped well away from the main source vent of the eruption. A phoenix in Greek mythology is a long-lived bird that cyclically regenerates itself obtaining new life by rising from the ashes of its predecessor.

6. Blue Morris’s descriptions of the volcanic materials deposited by the eruptions of 21 January are also noteworthy. Some parts of the eruption clouds were wetter than others and some of his descriptions refer to what geologists call ‘accretionary lapilli’, which are formed by the wet accretion of small ash particles by rain drops. Also, the larger, drier fragments he described from the evening eruption were probably of pumice containing visible crystals of what petrologists call ‘phenocrysts’ and that probably were mainly of the light-coloured mineral feldspar.
7. John Gwilt’s observations on the Sunday evening from the back of the truck on its way to Popondetta are also significant. Tony Taylor later concluded from Gwilt’s report that no significant pyroclastic flows, like those in the morning, were produced by the second, night-time, eruption, otherwise Gwilt’s view of the ‘blood-red half-circle’ over the crater would have been obscured by the flows as they raced down the northern flank of Mount Lamington, emitting great clouds of ash from their surfaces. This means also that there could have been no ‘draw back’ effect creating a phoenix cloud or clouds as in the morning eruption.
8. Formation of the devastated area on Mount Lamington was accompanied by dramatic changes in the shape of the mountain itself, changes that became apparent only when visibility allowed suitable views in the hours and days ahead. Even the occupants of passing aircraft were unable to see the new summit crater because of the pervasive volcanic clouds covering the summit area. The height of the mountain had been reduced by several hundred metres and a huge crater, about 1 kilometre in diameter and open to the north, could be seen at the head of the Ambogo River. The impression gained by early observers was that the northern side of the volcano and its summit had been blown out explosively towards the north as a result of the catastrophic eruption. This, they thought, created a forceful ‘lateral blast’ like that of an atomic bomb, that resulted in the area of total devastation and the destruction of Higaturu and Sangara Mission

to the north. Thus, one newspaper inaccurately, but understandably, and perhaps misquoting Taylor, reported that:

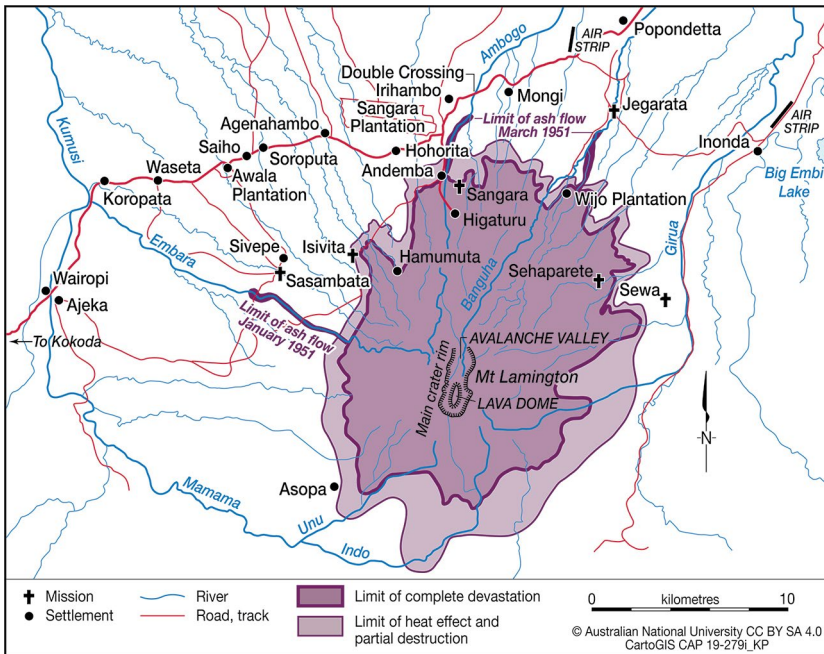
A segment ... has been blown right out of the mountain. A chasm, varying in width from three-quarters of a mile to one and a half miles, runs straight from the crater towards the stricken town of Higaturu. Mr Taylor estimates that at least 2,000 feet of the 5,000 foot mountain was blown off in Sunday's big explosion. (*South Pacific Post* 1951b, 1)

However, Laura Stephens, who appears in print as a careful and accurate writer, observed that 'the whole range seems to have disintegrated and is coming this way!'. The term 'disintegration' is of some interest and may be appropriate if the new, enlarged crater formed as a result of collapse rather than by an outwards explosive blast.

9. Visibility was not good throughout the Sunday but survivors gained a clear impression that a large area on the northern flank of Mount Lamington had been devastated, particularly those survivors who attempted to gain access to the area on the Sunday and Monday. Jack Scurrah's minimalist statement on the Sunday morning that 'It looks as if Higs' gone' encapsulates that impression rather well. Thousands of people, in fact, had perished in settlements within what was called an area of 'complete devastation' including those at the government station at Higaturu and Anglican mission at Sangara.

The full extent of the devastation, including destruction on the southern side of the mountain, was not realised until later when volcanologist Tony Taylor mapped the area in detail. Taylor noted that the central area of complete devastation was surrounded by a much narrower zone of 'partial destruction' defining the limits of the heat effects (Figure 4.6). People died in the central area but had some chance of escape in the peripheral zone. Not shown on Taylor's famous map, however, is the extent and thicknesses of the air-fall ash that fell over a much wider area, causing considerable damage to gardens, homes and plantations that had escaped the impact of the pyroclastic flows.





**Figure 4.6. Map of limits of devastation at Mount Lamington**

The limits of complete devastation, and of heat effect and partial destruction, as mapped by Taylor (1958, fig. 52) are here superimposed on the map shown in Figure 4.1.

#### **Acknowledgement by G.A.M. Taylor (1958, 12)**

As a measure of the morale and calibre of the people who inhabit these isolated communities of the Territory, I should like to draw attention to the fact that little more than an hour after the catastrophic eruption of 21st January and long before the news of the event had reached the outside world, a handful of survivors from the marginal settlements found their way into the dust-fogged area of devastation and began to evacuate the wounded.

Finally, I wish to pay tribute to the courage and fortitude of all those who worked in the Lamington area during the emergency. Long hours, arduous duties and an abiding fear of further eruptions were all met with an infectious spirit of courage and self-sacrifice which was an inspiration to those whose duty lay in the area.

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