

APPENDIX B: A POSTCOLONIAL TIME SERIES

What follows is representative of the kind of ongoing interest shown in Mount Lamington and the mountain Orokaiva in some of the years following the independence of Papua New Guinea in 1975. The list is by no means complete, or even comprehensive, but it may serve as a starting point for any subsequent history, similar to this one, that may be written following the next volcanic eruption at Mount Lamington.

1980: An explosive volcanic eruption at Mount St Helens, Washington State, US, on 18 May 1980 had both similarities and differences to the one at Mount Lamington in 1951. A mass of magma—termed a ‘cryptodome’—located just beneath the summit of Mount St Helens pushed out the northern flank of the volcano, causing gravitational collapse of the flank and creating a large debris avalanche (e.g. *Nature* 1980). This was followed by a ‘lateral blast’ similar to the ‘ash hurricane’ pyroclastic flow at Mount Lamington. The Mount St Helens eruption was studied in great detail by many scientists leading to a vast number of publications on the 1980 volcanic activity and its effects (see, for example, *Science* 1983). Some of these scientists later visited Mount Lamington to make comparisons between the two volcanoes.

Nature. 1980. ‘Mount St Helens’ Eruption. Summary Papers on Seismology, Volcanology, and Effects on Climate’, no. 285 (5766): 529–35. doi.org/10.1038/285529a0.

Science. 1983. [Nine papers]. 30 September, no. 221 (4618): 1369–97.

1981: The Orokaiva historian, Maclaren Hiari of Popondetta—then a journalist with the Papua New Guinea Office of Information—published an article on the 1951 Lamington disaster on the occasion of the 30th anniversary of the eruption (Hiari 1981).

Hiari, M. 1981. 'Lamington'. *Paradise* (Air Niugini in-flight magazine), January, no. 27, 5–8.

1982: Fieldwork was undertaken at Mount Lamington by Richard Hoblitt, a volcanologist from the United States Geological Survey (USGS), and by staff from the Rabaul Volcanological Observatory, to 1) compare the products of the eruption at Lamington in 1951 with those at Mt St Helens in 1980, 2) assess the potential volcanic hazards at the volcano and 3) inspect and take temperatures at the summit dome (Hoblitt 1982; de Saint Ours 1988; see also Thompson 2000). Debris-avalanche deposits were identified and similarities drawn between the 1951 pyroclastic flow deposits at Lamington and the 'blast' deposit at Mount St Helens.

de Saint Ours, P. 1988. 'Potential Volcanic Hazards from Mt Lamington, Northern Province, Papua New Guinea'. *Geological Survey of Papua New Guinea* 86 (12).

Hoblitt, R.P. 1982. 'Reconnaissance of the Area Devastated by the January 21, 1951 Eruption of Mount Lamington, Papua: August 10–18, 1982'. Unpublished administrative report, United States Geological Survey.

Thompson, D. 2000. *Volcano Cowboys*. New York: St Martin's Press.

1982: The concept of a 'Volcanic Explosivity Index' or VEI was introduced as a way of measuring and comparing the size or 'bigness' of explosive eruptions worldwide (Newhall and Self 1982). VEIs range from 1 to 8, based incrementally on the volumes of material produced by eruptions, ranging from 'small' to 'very large'. The Lamington 1951 eruption, like that of Mont Pelée in 1902, has a VEI of 4 thus classifying as 'large' (Siebert, Simkin and Kimberley 2010). The 1951 eruption, however, is still significantly smaller than, say, that at Krakatau in 1883 (VEI-6) and smaller even than at Mount St Helens in 1980 (VEI-5).

Newhall, C.G. and S. Self. 1982. 'The Volcanic Explosivity Index (VEI): An Estimate of Explosive Magnitude for Historical Eruptions'. *Journal of Geophysical Research* 87 (C2): 1231–38. doi.org/10.1029/jc087ic02p01231.

Siebert, L., T. Simkin and P. Kimberley. 2010. *Volcanoes of the World*. Washington, DC: Smithsonian Institution.

1983: A second, redesigned edition of BMR Bulletin 38 on the 1951 Mount Lamington eruption (Taylor 1958) was published. The redesign, by Frank Roberts of BMR, included redrafting of diagrams—especially the bulky, fold-out, figures 11–19 of the first edition—and embedding the photographs and other illustrations in appropriate parts of the text, thus improving accessibility and readability of the account.

Taylor, G.A.M. 1983. *The 1951 Eruption of Mount Lamington, Papua*, 2nd ed. Bureau of Mineral Resources, Bulletin 38. Canberra: Australian Government Publishing Service.

1983: A detailed petrological study was conducted on rock samples collected in 1979 from the 1951 lava dome of Mount Lamington (Arculus et al. 1983). The analysed rocks had chemical compositions expected of an andesitic volcano related to plate subduction even though no Wadati-Benioff Zone is present beneath the volcano. The magmas, therefore, appear to have originated from parts of the Earth's upper mantle that had experienced subduction earlier in geological time (see also Johnson 1987a). A striking feature of the analysed samples is the presence of pieces of the crustal ophiolite through which the magmas had risen towards the surface.

Arculus, R.J., R.W. Johnson, B.W. Chappell, C.O. McKee and H. Sakai. 1983. Ophiolite-Contaminated Andesites, Trachybasalts, and Cognate Inclusions of Mount Lamington, Papua New Guinea: Anhydrite-Amphibole-Bearing Lavas and the 1951 Cumulodome'. *Journal of Volcanology and Geothermal Research* 18, 215–47. doi.org/10.1016/0377-0273(83)90010-0.

Johnson, R.W. 1987a. 'Delayed Partial Melting of Subduction-Modified Magma Sources in Western Melanesia: New Results from the Late Cainozoic'. *Pacific Rim Congress* 87, 211–14.

1984: A major, global review of the features and origin of large volcanic debris avalanches and related avalanche amphitheatres was published internationally, giving attention to well-known collapses such as those at Galunggung (see Figure 3.10), Bezymianny in 1956, Sheveluch in 1964 and Mount St Helens in 1980 (Siebert 1984). Avalanche amphitheatres are typically 1–3 kilometres in width but are larger in the direction of the collapse, as created at Mount Lamington in 1951.

Siebert, L. 1984. 'Large Volcanic Debris Avalanches: Characteristics of Source Areas, Deposits, and Associated Eruptions'. *Journal of Volcanology and Geothermal Research* 22, 163–97. doi.org/10.1016/0377-0273(84)90002-7.

1984: Two RVO volcanologists undertook a ‘hazard-rating’ assessment for 14 historically active and 22 ‘dormant’ volcanoes in Papua New Guinea (Lowenstein and Talai 1984). Hazard scores were assigned to each volcano on the basis of past eruptive activity, the size of hazardous areas and the populations at-risk. Rabaul ranked as the most hazardous volcano and Lamington as the second most.

Lowenstein, P.L. and B. Talai. 1984. ‘Volcanoes and Volcanic Hazards in Papua New Guinea’. *Geological Survey of Japan Report* 263, 315–31.

1985: A major report on the economic organisation of an Orokaiva village, Koropata 2, includes an extensive bibliography on Orokaiva history and related subjects (Newton 1985). Another version of the Sumbiripa myth was recorded during this research: Sumbiripa ‘told his wife to take her tapa cloth off ... When she did, he had intercourse with her and “kaboom”, the mountain went up’ (J. Newton, personal communication, 2017).

Newton, J. 1985. *Orokaiva Production and Change*. Pacific Research Monograph 11. Canberra: Development Studies Centre, The Australian National University.

1987: A review was undertaken of volcanoes in Papua New Guinea that retain evidence of gravitational collapses and the formation of avalanche amphitheatres and debris-avalanche deposits, including Lamington volcano (Johnson 1987b).

Johnson, R.W. 1987b. ‘Large-Scale Volcanic Cone Collapse: The 1888 Slope Failure of Ritter Volcano, and Other Examples from Papua New Guinea’. *Bulletin of Volcanology* 49, 669–79. doi.org/10.1007/bf01080358.

1988: In retirement, volcanologist at the RVO after 21 January 1951, John Best, sent a formal letter to the minister in charge of the BMR, Canberra, concerning events at the RVO during the week of 15–20 January 1951. Best set out systematically the difficulties that his colleague and friend Tony Taylor had had, from Tuesday 16 January onwards, in persuading District Commissioner J.K. McCarthy to allow him to visit Lamington to assess the volcanic unrest being reported in radio broadcasts. Best wrote that ‘the scientific-world, or more precisely part of it, has been duped by BMR, per medium of Bulletin 38, for 30 years. I have deliberately used “duped” because the deceptions incorporated in Bulletin 38 (in both editions) were devised by BMR staff’ (Best 1988, 1). Best does not state who devised the deceptions and why.

Best, J.G. 1988. Copy of unpublished letter to Senator Peter Cook, minister for resources and energy, Canberra, including two appendices dated 1 November 1988. Appendix A is entitled 'A Chronology of Events as They Involved G.A.M. Taylor, Volcanologist, Territory of Papua and New Guinea, during the Period January 15–21 1951'. R.W.J. Collections: Box 7B: G.A.M. Taylor Documents 1967–2014, Folder 4, sleeve 94.

1988: This year was also marked by the release of an important hazard-assessment report on Mount Lamington. It was designed for use by provincial authorities in the Lamington area and was written by Patrice de Saint Ours, a volcanologist at the RVO. He described the nature of the hazards to be expected: earthquakes, volcanic gases, explosions, ashfalls, pyroclastic flows, mud flows, lava domes and flows, and flank eruptions (de Saint Ours 1988). Maps of areas most likely to be subjected to ashfalls, flowage hazards and flank eruptions are presented, and emergency management advice is provided for long-term development planning and for emergency planning and management.

de Saint Ours, P. 1988. 'Potential Volcanic Hazards from Mt Lamington, Northern Province, Papua New Guinea'. *Geological Survey of Papua New Guinea* 86 (12).

1991: Plans were made by the editorial committee of *Una Voce*, the journal of the Papua New Guinea Association of Australia, to prepare an account of the 1951 Lamington eruption on the occasion of the 40th anniversary of the disaster on 21 January 1991. Contributions were invited from readers, but publication did not take place because of conflicts with the information being provided (see the following issues of *Una Voce*: December 1990, page 18; March 1991, page 3; March 1992, page 25). These conflicts included, particularly, bitter differences of opinion expressed between former District Commissioner David Marsh and Police Superintendent George Allen over whether bodies were buried at the Mount Lamington Memorial Cemetery at Popondetta and thus whether the memorial park was a true cemetery (Marsh 2005–06; Speer 2005–14).

Marsh, D. 2005–06. Unpublished correspondence with author. R.W.J. Collections: Box 33B, Lamington Eruption 1951, Correspondence and Memoirs, H–Mars, Folder 17.

Speer, A. 2005–14. Unpublished correspondence with author. R.W.J. Collections: Box 32: Albert Speer Correspondence on the Lamington Eruption 1951.

1994: Eruptions at Tavurvur and Vulcan volcanoes in Rabaul Harbour in September devastated most of Rabaul town and much of the surrounding area. The need was identified for an upgrade of Papua New Guinea's national volcanological service, based at the RVO. The Australian Government provided 20 years of support, from 1995 to 2015, through its international development assistance program and by means of a scientific 'twinning' arrangement between the RVO and the Australian Geological Survey Organisation, formerly BMR, and now called Geoscience Australia, Canberra (Nancarrow and Johnson 2015). Five volcanoes were identified as 'high risk': Rabaul, Ulawun, Pago, Manam and Lamington. Seismometers and tiltmeters for monitoring eruption precursors were installed at each of these last four 'remote' volcanoes, including high-frequency radio links that permitted the transfer of early warning signals of potential eruptions to the recording room at RVO headquarters in Rabaul. Public awareness campaigns were also carried out among the at-risk communities at each volcano, including in Oro Province. Radio links were also provided for local volcano observers who could maintain regular, scheduled reporting to the RVO, including an observer at Popondetta for Lamington volcano.

Nancarrow, S.N. and R.W. Johnson. 2015. 'Rabaul Volcanological Observatory Twinning Program'. Unpublished project-completion report submitted to the Department of Foreign Affairs and Trade. Geoscience Australia, 9 December 2015.

1998: Ulawun volcano in New Britain was selected as an international 'Decade Volcano' as part of the UN-sponsored International Decade for Natural Disaster Reduction during the 1990s. The focus of a workshop held at Walindi, New Britain, in 1998 was on the gravitational collapse of volcanic cones (IAVCEI Workshop 1998). Ulawun was selected—rather than, say, Lamington—because of its considerable steepness, great height, ongoing eruptive activity and close proximity to a coastline (hence its tsunami-generating potential). The lessons learnt, however, are applicable to Mount Lamington.

IAVCEI Workshop. 1998. *Volcanic Cone Collapses and Tsunamis: Issues for Emergency Management in the Southwest Pacific Region*. Report of the Workshop on Ulawun Decade Volcano, Papua New Guinea. [Papua New Guinea]: International Association of Volcanology and Chemistry of the Earth's Interior.

2001: Explanatory notes for a new geological map of the Buna area including Mount Lamington were completed, although the map itself has still not been published (Davies and Williamson 2001). Several lineaments on the volcano are identified as radial faults, including part of the Ambogo River valley.

Davies, H.L. and A.N. Williamson. 2001. 'Buna—1:250,000 Geological Series'. Explanatory notes to accompany Buna 1:250,000 geological map: Geological Survey of Papua New Guinea, Explanatory Notes SC/55-7. Port Moresby.

2001: Sixty-eight Australians attended a reunion at Palmwoods, inland from the Sunshine Coast of Queensland on 21 January 2001 to commemorate the 50th anniversary of the Lamington eruption (Boag 2001–05). The reunion, mainly of former administration staff and relatives, was organised by Alan Boag, his wife Win (née Swift) and Geoff Littler, all three of whom—together with three others attending the reunion—had been involved in shifting the evacuation camp at Ilimo back across the Kumusi River to Saiho in April–May 1951. Peter 'Fred' Kaad was also in attendance.

Boag, A.D. 2001–14. Correspondence between Boag and author. R.W.J. Collections: Box 33A, Lamington Eruption 1951, Correspondence and Memoirs, A–G, Folder 4.

2002: Rumours and stories emerged in the Popondetta area in the first three weeks of April that possible volcanic activity was taking place at Mount Lamington (Itikarai and Bosco 2002). Fire, smoke, high temperatures and dead vegetation were reported from the summit area of the mountain, together with noises from the volcano. People visiting the summit lava dome reported becoming dizzy and their dogs fainting. Some schools in the area were closed as a precaution. RVO volcanologists investigated but found the reports to constitute a false alarm. Their report may represent the best documented example of a false alarm at Lamington volcano since 1951 and up to this time.

Itikarai, I. and J. Bosco. 2002. 'Investigations at Lamington Volcano, Popondetta: 21st–25th April 2002'. Rabaul Volcanological Observatory, unpublished report.

2003: Mrs Pamela Virtue and her husband Gerry visited Popondetta in January. They located the neglected memorial cemetery and identified the brass plaques for the graves of Pamela's father, District Commissioner Cecil Cowley, and her brother Erl (Cowley and Virtue 2015). This was an

emotional but eventually cathartic time for Mrs Virtue who had been very apprehensive about such a visit after 52 years of absence. Mrs Virtue was recognised and honoured by many local people and she and her husband attended a commemoration service in Popondetta on ‘Eruption Day’, 21 January. They met eruption survivors and encountered many expressions of ongoing local grief. They also attended a ceremony at Kiorata village, near what formerly had been Isivita, during which she was given a Papuan name, Ruja, and invited to return for Eruption Day the following year. Ruja—or Suja in other versions of the myth—is the wife of Sumbiripa, the local name for Mount Lamington.

Cowley, A. and P. Virtue. 2015. *The Volcano’s Wife: The Great Untold Story*. Calwell, ACT: Inspiring Publishers.

2004: The Virtues returned to Oro Province for the fifty-third anniversary of the 1951 eruption, this time accompanied by their son, Mark, and by filmmaker Mike Dillon who made a documentary video of the visit (Cowley and Virtue 2015). A track through to deserted Higaturu had been prepared, where another emotional gathering took place in honour of Pamela née Cowley. Local people had decorated the site to represent the former graves of Cecil and Erl. The Eruption Day commemoration was held at Kiorata where the governor’s representative told a version of the Sumbiripa and Ruja story in which ‘Ruja was pregnant and she blew up, not Sumbiripa’ (Cowley and Virtue 2015, 193).

Cowley, A. and P. Virtue. 2015. *The Volcano’s Wife: The Great Untold Story*. Calwell, ACT: Inspiring Publishers.

2007: A four-person team from RVO and the Port Moresby Geophysical Observatory carried out a two-week volcanic-hazard awareness program in February among communities on the northern and western sides of Mount Lamington (Mulina, Baisa and Kuduon 2007). They gave PowerPoint talks, showed volcanic-hazard videos and distributed pamphlets, posters and copies of volcanic-hazard maps adapted from those prepared by de Saint Ours (1988). Villages within the defined hazard zones on Mount Lamington had been continuing to expand owing to population growth, meaning that volcanic risk was increasing again. Recommendations included establishment of a reliable high-frequency communication system and better use of the local radio station. The system of roads that link people in high-risk areas with the main, recently sealed, Kokoda–Popondetta road should be improved to enhance its use for evacuation routes. There was no road access to communities on the southern side of

Lamington. A hazard-awareness program was needed there, which should include communities on the eastern side as well. Any provincial evacuation plan should be tested by carrying out mock evacuations involving the communities themselves. Cyclone Guba produced severe damage across south-eastern Papua New Guinea in November, including Oro Province, and resulted in 149 fatalities.

de Saint Ours, P. 1988. 'Potential Volcanic Hazards from Mt Lamington, Northern Province, Papua New Guinea'. *Geological Survey of Papua New Guinea* 86 (12).

Mulina, K., L. Baisa and J. Kuduon. 2007. 'Community Awareness and Preparedness on Volcanic Hazards at Lamington Volcano, Oro Province'. Unpublished report, Rabaul Volcanological Observatory.

2007: A simple, disaster management methodology for comparing the four phases of prevention, preparedness, relief and recovery—actually at Lamington in 1951 and predictively in 2007—was devised and presented at an international volcanological conference in Japan (Johnson et al. 2007). Prevention and preparedness each scored higher in 2007 compared to 1951. Another conclusion was that the total score for prevention and preparedness in 2007 was still lower than that for relief and recovery (seven compared to 16). Further disaster-risk reduction work is required in the Lamington area, a situation that applies to most areas established as disaster prone throughout the world.

Johnson, R.W., K. Mulina, J. Kuduon, H. Patia and A. Simpson 2007. 'Comparative Assessment of Disaster Management Conditions at Lamington Volcano, Papua New Guinea in 1951 and 2007'. In *Abstracts Volume/Cities on Volcanoes 5 Conference, Shimabara, Japan, 19–23 November 2007*, 117. [Japan] : The Volcanological Society of Japan.

2009: An art exhibition of 34 works of barkcloth, or *nioge*, produced by Omie women who live high on the southern flank of Mount Lamington, was held at the National Gallery of Victoria (NGV) in Melbourne. Earlier exhibitions of their work had taken place in Sydney in 2006 and 2009 and in Perth in 2007. A description of the cultural context of the Omie art was provided by author and historian Drusilla Modjeska in the catalogue for the NGV exhibition (Modjeska 2009). The spirit of Mount Lamington volcano is called 'Huvaemo' by the Omie, rather than Sumbiripa, the name given by the Orokaiva, their traditional enemies to the north.

The eruption of 1951 is accounted for by Huvaemo reacting angrily to the restless, wandering souls of the numerous soldiers killed during the World War II who had nowhere to rest (see also Modjeska 2012).

Modjeska, D. 2009. 'Fabric of Wisdom: The Context of Omie Nioge'. In *Wisdom of the Mountain: Art of the Omie*, by Sana Balai and Judith Ryan, 21–30. Melbourne: National Gallery of Victoria.

Modjeska, D. 2012. *The Mountain*. Sydney: Vintage, Random Press.

2010: A commemorative newspaper article was published, summarising the volcanic disaster of January 1951 (Hiari 2010). Attention was drawn again to the gruesome weeks of clearing up after the disaster and to the speed with which numerous burials had to be made for safety and health reasons. Some local people had been returning to live again in the former disaster area and had discovered skeletons in the ruins of the old Higaturu Government Station and the Sangara Mission.

Hiari, M. 2010. 'The Mount Lamington Tragedy Remembered'. *Sunday Chronicle*, 23 January. sundayfeatures.blogspot.com/2010/01/mt-lamington-tragedy-remembered.html (site discontinued). R.W.J. Collections: Box 33B, Lamington Eruption 1951, Correspondence and Memoirs, H–Mars, Folder 11, sleeve 22.

2010: RVO volcanologist Herman Patia attended a consultative stakeholders meeting of the Northern Province Restoration Authority in Oro (Patia 2010). Presentations were given by provincial and local government leaders on the considerable flood damage caused by Cyclone Guba in the province in 2007. Patia, in contrast, gave a presentation on planning for volcanic hazards in the event of a volcanic eruption at Mount Lamington, focusing on the disaster of 1951. He highlighted the volcanic-hazard awareness-raising visits that RVO had made to communities in the province in 2004 and 2007. Another community awareness visit would take place in November.

Patia, H. 2010. Unpublished correspondence between Herman Patia and author. R.W.J. Collections: Box 33B, Lamington Eruption 1951, Correspondence and Memoirs, H–Mars, Folder 11, sleeve 17.

2010: Two Russian volcanologists accompanied by RVO volcanologist Herman Patia undertook fieldwork at Mount Lamington (Belousov et al. 2011a, 2011b). Their aim was to restudy the volcanic deposits of the 1951 eruption and to make comparisons with other similar eruptions that had taken place at volcanoes such as Mount St Helens in 1980 and

at the Kamchatkan volcanoes of Bezymianny in 1956 and Sheveluch in 1964. Results from the fieldwork complemented those obtained in 1982 by USGS volcanologist R.P. Hoblitt, and were presented jointly at two international conferences.

Belousov, A., M. Belousova, H. Patia and R. Hoblitt. 2011a. 'Deposits and Dynamics of the 1951 Pyroclastic Density Current of Mount Lamington, Papua New Guinea'. *Geophysical Research Abstracts* 13. European Geophysical Union General Assembly.

Belousov, A., M. Belousova, H. Patia and R. Hoblitt. 2011b. 'In the Shoes of Tony Taylor: Results of Reinvestigation of the 1951 Eruption of Mount Lamington, Papua New Guinea'. Unpublished PowerPoint presentation at IUGG General Assembly, Melbourne (copy in author's possession).

2011: Members of the family of Kevin Woiwod, who was killed in the 1951 eruption, visited Oro Province and attended the 60th anniversary of the Lamington disaster (Woiwod 2010–14). They were Kevin's brother, Bernard 'Bernie' Woiwod; his niece, Kathleen Hirst; and David Woiwod, Bernie's grandson and a television journalist. A documentary video of the visit, including interviews with survivors and eyewitnesses, was made by David Woiwod and cameraman Aiden Boem. The Mount Lamington Memorial Cemetery from colonial days in Popondetta was still in a neglected state in 2011 and Bernie Woiwod began efforts to have a new memorial built at Hohorita village in honour of all the victims of the eruption (Woiwod 2010–14; Woiwod 2014; McCullough, 2014–15).

McCullough, P. 2014–15. 'A Man on a Mission'. *Peninsula Essence* (Mornington Peninsula, Victoria) 15 (Summer): 72–75.

Woiwod, B. 2010–14. Unpublished correspondence between author and Bernie Woiwod and other family members. R.W.J. Collections: Box 33C, Lamington Eruption 1951, Correspondence and Memoirs, Mart–Z, Folder 27.

Woiwod, B. 2014. 'Do the Right Thing for Victims of Mt Lamington: A Proper Memorial Can Be Part of Kokoda Track Experience'. *National Weekender* (Port Moresby), 28 November, 4.

2012: An insightful novel about interracial relationships in Papua and New Guinea—love, work, motherhood, loss and so forth—was published to acclaim by literary reviewers in Australia. The story starts in the years just before Papua New Guinea self-government and takes place in and between Port Moresby and the Northern District (Modjeska 2012). The novel's title is *The Mountain* (the mountain is Huvaemo or Mount

Lamington) and the story focuses, in part, on the Omie people who live on the southern side of the volcano. The novel includes the story about the ghosts of numerous soldiers who had been killed during the war (see also Modjeska 2009). Their souls were wandering about lost and angry, having no-one to bury them, which upsets Huvaemo and results in the disastrous volcanic eruption of 1951. Further:

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

Modjeska, D. 2009. 'Fabric of Wisdom: The Context of Omie *Nioge*'. In *Wisdom of the Mountain: Art of the Omie*, by Sana Balai and Judith Ryan, 21–30. Melbourne: National Gallery of Victoria.

Modjeska, D. 2012. *The Mountain*. Sydney: Vintage, Random Press.

2012: Mrs Pamela Virtue (née Cowley) drew attention in the magazine *Una Voce* to the neglected and overgrown state of the Mount Lamington Memorial Park at Popondetta in 2003, referring also to Bernie Woiwod's more recent visit to the cemetery (Virtue 2012). The poor condition of the park was in stark contrast to the 'immaculate condition' of the adjacent military Kokoda Memorial Park, which was being managed by the War Graves Commission based in Canberra. Both Mrs Virtue and Woiwod had contacted the Australian Government about the need for improved governmental maintenance of the Mount Lamington park but had received no positive responses. Mrs Virtue raised the possibility of her returning to Popondetta and having the bodies of her father and brother removed and reburied somewhere else where they could be given more appropriate respect.

Virtue, P. 2012. 'Popondetta Memorial Park to Mt Lamington Eruption'. *PNGAA Una Voce* 1 (March): 64.

2014: Staff from the RVO and the Volcanic Disaster Assistance Program (part of the USGS) participated in a joint workshop at RVO headquarters aimed at determining the relative threat levels of 52 Papua New Guinea volcanoes (RVO 2014). The methodologies and criteria used in the assessment were based on those devised by Ewert (2007). Rabaul volcano maintained the highest ranking, as determined previously by Lowenstein

and Talai (1984). Lamington volcano, however, dropped to seventh position in the ranking but was grouped with nine other volcanoes in a ‘high threat’ group.

Ewert, J.W. 2007. ‘System for Ranking Relative Threats of US Volcanoes’. *Natural Hazards Review* 8 (4):112–24.

Lowenstein, P.L. and B. Talai. 1984. ‘Volcanoes and Volcanic Hazards in Papua New Guinea’. *Geological Survey of Japan Report* 263, 315–31.

RVO (Rabaul Volcanological Observatory). 2014. Nine unpublished lists, maps and guidelines resulting from the Papua New Guinea volcanoes threat-assessment workshop held in Rabaul, East New Britain.

2015: A book called *The Volcano’s Wife* written jointly by the late Amalia (or Amalya) Cowley and her daughter Pamela Virtue was published privately (Cowley and Virtue 2015). The authors tell the dramatic story of the Cowley family, their involvement in the Lamington disaster of 1951 and the emotional difficulties faced by Mrs Virtue in having to cope with the deaths of her father and brother. This moving account has a cathartic finale, but the need to dispose of the trauma completely was not so easily dealt with. Mrs Virtue later took the advice of a sharma that she should give away her remaining copies of the book to take the ‘weight’ from her and so release the trauma. Mrs Virtue still, however, has the honorary but troubling title of Ruja—the ‘Volcano’s Wife’—to put behind her (Virtue 2018).

Cowley, A. and P. Virtue. 2015. *The Volcano’s Wife: The Great Untold Story*. Calwell, ACT: Inspiring Publishers.

Virtue, P. 2018. Unpublished correspondence with author. R.W.J. Collections: Box 36B, Lamington Eruption 1951, General Correspondence 2017–19, Folder 9, sleeves 45–52.

2018: An Australian anthropologist, Victoria Stead, drew attention to local Orokaiva people recognising the historical value of Higaturu, which had been destroyed by the 1951 volcanic eruption and was the place where wartime public hangings had taken place. Higaturu’s history was becoming a ‘resource’ like gold or oil palm that might attract outsiders and thus forms of local wealth resulting in improved lifestyles, but possibly also the risk of outside exploitation and profit from outsiders. This:

Mobilisation of history-as-resource also speaks to other concerns, including about the relationships of insiders and outsiders across time, and the proper attributions of guilt, responsibility, and entitlement within colonial and postcolonial landscapes of remembrance. (Stead 2018, 16)

Stead, V. 2018. 'History as Resource: Moral Reckoning with Place and with the Wartime Past in Oro Province, Papua New Guinea'. *Anthropological Forum* 28, 16–31. doi.org/10.1080/00664677.2018.1426439.

This text is taken from *Roars from the Mountain: Colonial Management of the 1951 Volcanic Disaster at Mount Lamington*, by R. Wally Johnson, published 2020 by ANU Press, The Australian National University, Canberra, Australia.