It was a most awe inspiring sight to see this great mass of smoke, a greyish orange and purple colour just billowing overheard [sic] and sort of rolling over itself and accompanied by the sound of the roar of hundreds of mighty furnaces.

Dennis Taylor (1943)

**Fisher and Renewed Activity from Tavurvur**

Concerns expressed in early 1941 about future volcanic activity at Rabaul were to a large extent set aside by the greater anxiety of a likely war in the Pacific. The Second World War had broken out in Europe in September 1939, and Japan in 1941 was expanding militarily in the western Pacific and eastern and south-east Asian regions. Nevertheless, a small but vulnerable Australian garrison, Lark Force, was dispatched to Rabaul in March–April 1941. It was made up largely of soldiers of the 2/22nd Battalion of the 23rd Brigade, 8th Division, 2nd Australian Imperial Force. The battalion was supplemented by smaller units, one of them the New Guinea Volunteer Rifles which was made up of white residents of Rabaul, including volcanologist N.H. Fisher. Consideration was given by the Australian Government to strengthening Rabaul and its magnificent caldera harbour as a major military base in view of the Japanese threat, but this required the resources of the United States, which had not yet entered the war.

Tavurvur and Vulcan volcanoes had not been active since 1937. Fisher, however, had been noticing geothermal changes on parts of Tavurvur since August 1940, and a series of tectonic earthquakes had been taking place in the region — including a particularly powerful one just 30 kilometres west of Rabaul on 14 January 1941 — which Fisher related to the increased volcanic unrest. Vigorous gas emissions were evident in growing fumarolic areas on Tavurvur and temperatures by April 1941 were in excess of 300 °C. These are all signs that a volcano may be about to become active. Gas was being expelled with a ‘roar like a train’ by 27 May, and then Tavurvur broke out into full explosive eruption on 6 June, the first of many, but intermittent, eruptions that would last until December 1943. Fisher’s systematic tracking of the temperature rises at Tavurvur is an excellent example of how simple instrumental monitoring of

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volcanoes — in this case using hand thermometers inserted into the ground to measure temperatures — can be taken as a warning of impending eruptive activity.

Figure 49. Tavurvur volcano is shown producing a small vulcanian eruption in this photograph, which is believed to have been taken on 25 June 1941. Similar clouds were emitted from Tavurvur until after the Japanese invasion of 23 January 1942.

The eruptions during 1941 produced spectacular night-time displays of incandescent strombolian-vulcanian type. Dust and ash that periodically swept over Rabaul town during the south-east season were a considerable nuisance to Rabaul residents, but the town was not affected significantly by the new eruptions, which were generally small. They were, nevertheless, a further reminder of how unsuitable Rabaul town was as a centre of Australian administration, and indeed as a site for any expansion as a major military base. Discussions followed between the Australian Government in Canberra and the now knighted Administrator, Sir Walter McNicoll. A proposal to transfer the Territory’s capital to Lae on the New Guinea mainland was approved by the Australian Cabinet in the first week of September. The Australian flag was lowered on Namanula Hill in late November when the Administrator and his wife moved to the mainland and the new capital. Shifting all of the Administration’s bureaucracy from Rabaul, however, was no simple task and was expected to take several months to complete, particularly as wartime budgets were austere. The full transfer in any case was interrupted by the Pacific War.

Japan attacked Honolulu, Hawaii, on 7 December 1941 and Japanese forces advanced southwards towards the Territory of New Guinea in January 1942. Rabaul was bombed in early January and then again on the 20 January in advance of a land invasion by the Japanese Nankai Shitai, or South Seas Force, early on the morning of 23 January. The under-resourced Lark Force was soon overwhelmed, the Europeans dispersed or captured, and the Japanese took possession of Rabaul even as Tavurvur continued its period of eruptive activity. Fisher, Clem Knight and others escaped capture by walking southwards to the south coast of New Britain, commandeering a small boat, and sailing to Australia-occupied Papua. Australian volcano monitoring at Rabaul was thus abandoned, at least for the time being.

Kizawa and the Sulphur Creek Observatory

The Japanese navy immediately began developing Rabaul as a military base for its planned advances further south, including the proposal to capture Port Moresby, initially by sea, but when that failed, by sending land troops southwards over the Owen Stanley Range from the Gona area on the north coast of Papua. The navy took advantage of the large, deep, caldera harbour and the commercial wharfs of Rabaul town. Simpson Harbour became a major

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3 Johnson & Threlfall (1985).
4 See National Archives of Australia (1941) for official correspondence.
5 8 December, New Guinea time.
6 Wigmore (1957), Nelson (1992), and Stone (1994).
fleets anchorage, including a submarine base and seaplane mooring, as well as a deep-water port for major shipping, all protected by six nearby airfields and anti-aircraft batteries.

The Japanese military authorities soon recognised the volcanic risk to its operations in and out of the harbour at Rabaul, particularly from Tavurvur, the eruptions of which had welcomed the occupying force. Japan has a long documented history of domestic volcanic disasters and, by 1942, it also had a long history of instrumental monitoring of its active volcanoes at home. The response of the Japanese military to dealing with the volcanic threat at Rabaul was therefore much swifter than had been that of the Australians and Germans before 1937. A request was sent to Tokyo for the secondment of a volcanologist to serve in Rabaul, and Dr Takashi Kizawa, a civilian seismologist with the Central Meteorological Observatory in Japan, arrived in Rabaul in May 1942 to begin monitoring of the volcanoes.

Kizawa spent his first few weeks at Rabaul familiarising himself with the volcanoes and attempting to find any information about them that might have been left behind by the Australians. He received an order on 10 June to report by 10 August on the feasibility of forecasting eruptions and likely volcanic disasters at Rabaul. Kizawa recommended that a volcano observatory be established on the northern side of Sulphur Creek, less than three kilometres from Tavurvur, but was hesitant in promising a reliable eruption-prediction capability. Nevertheless, a large building for the observatory, together with a new wooden gate and the sign K Corps Volcanological Research Institute, in Japanese, was erected at Sulphur Creek in very short time. The observatory was equipped with two seismographs — a Japanese-made two-component Omori and a German three-component Wiechart — together with two tromometers. Kizawa later redesigned the Omori to measure not just ground vibrations from earthquakes but also changes in the slope of the ground at Sulphur Creek, by slowing down the speed of the drum recorder such that it made one revolution only every seven days. This allowed him to interpret the tilting of the seismograph itself and so conclude that the tilt of the ground at the observatory was being caused by Tavurvur volcano.

The Japanese advanced rapidly during early 1942 to occupy virtually all of the Australian Mandated Territory of New Guinea as well as the main islands of the

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7 The Japanese produced film footage of Tavurvur in eruption, evidently to satisfy the interest of the Japanese public. Clips of the footage were included in a video produced by Film Australia (1993).
8 Nitta (1980).
9 Kizawa (1951, 1961) and Kusaka (1976). Two-component seismographs, such as the Omori, produce twin traces by measuring an earthquake’s ground vibrations on two horizontal parts pre-set at 90 degrees to each other. A three-component seismograph such as the Wiechart has an additional third part that measures the earthquake in the third dimension. Differences between the different traces are indicative of the character of any particular earthquake — its size, closeness, direction of travel, and so forth.
British Solomon Islands Protectorate, but they met resistance later in the year from the Allied forces at the Battle of the Coral Sea, the landings at Milne Bay, and on the Kokoda Trail just west of Lamington volcano. The Japanese were more successful during the Battle of Savo Island in the Solomons on 8 August 1942 when they inflicted considerable losses on the American and Australian navies, including the sinking of the Australian cruiser HMAS *Canberra*. The inactive Savo volcano lay squarely in the channel battleground between Florida Island and Guadalcanal, where the strategically important Henderson Airfield was being defended by the Americans.  

**Figure 50. Seismologist Takashi Kizawa is here working with seismographic equipment at the Sulphur Creek Observatory, Rabaul, probably in 1943.**

Source: Kusaka (1976, one of several unnumbered photographs between pp. 160 & 161). Digital copy provided by Y. Nishimura, Hokkaido University.

Kizawa did not witness any eruptions from Tavurvur during his first 18 months at Rabaul, but from 11 October 1943 onwards he recorded a series of earthquakes that culminated in a strong, sharp earthquake beneath Rabaul on 16 October, followed by aftershocks, and also detected the changes in slope of the ground at the observatory using the Omori instrument. He thought that the earthquakes and ground tilt were a reflection of changes within Tavurvur itself and that all the energy in the volcano had not been expended by the earthquake on 8 August 1942.

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10 McCarthy (1959).
the 16th. This, he concluded, was corroborated when Tavurvur broke out into explosive activity on 24 November at the start of a period of activity that lasted about a month.\textsuperscript{11} The eruptions were small, the winds of the north-west monsoon drove the ash mainly away from the town, and the Japanese forces were not significantly affected by them. These were the last volcanic eruptions to take place at Rabaul for another 51 years. Kizawa’s work was the first to indicate that a combination of seismology and ground-tilt measurements might be useful in forecasting eruptions at Rabaul, complementing Fisher’s demonstration of the importance of ground-temperature monitoring.

Japanese troop numbers at Rabaul reached almost 100,000 in 1943, and intensive bombing of the Japanese base by Allied aircraft began in October of that year.\textsuperscript{12} Ground shaking from bomb impacts complicated the seismograph traces being collected by Kizawa, and instrumental observations became even more difficult when the bombing reached its peak in February 1944. Rabaul became encircled militarily in April, and the Japanese forces were blocked and bypassed as the Allies swept northwards towards the Philippines. The observatory at Sulphur Creek was in a conspicuous position for Allied bombers approaching Rabaul from the south, scientific monitoring there became impossible and the observatory was eventually destroyed by air strikes. Bombs were also dropped by Allied aircraft into the craters of Tavurvur in the false hope of triggering a volcanic eruption. This was witnessed by Kizawa himself who, rather than being bemused, was impressed by the inventiveness and determination of the Allies.\textsuperscript{13}

The Japanese who were trapped at Rabaul endured the rest of the Second World War in an extensive and ingeniously constructed network of tunnels dug into the pumice deposits — particularly the ignimbrites — of Rabaul volcano, and which they used successfully for protection against the ongoing air attacks. The town, and surface installations in general, were being systematically razed by the Allied bombing raids, and so digging underground facilities was the only sensible strategy for Japanese survival. More than 500 kilometres of tunnels had been constructed by the end of the war, ranging from simple dugouts and caves to labyrinths of timber-supported roofs and walls for use by virtually all of the Japanese resources — from personnel, to barges, to gun emplacements.\textsuperscript{14} Particularly significant features volcanologically were the caves of a Japanese submarine base that were dug into the cliffs on St Georges Channel south of Cape Tavui, and linked to a concealed railway serving Rabaul.\textsuperscript{15} The submarines were able to gain close and unseen access to the coastal caves by means of deep

\textsuperscript{11} Kizawa (1951).
\textsuperscript{12} United States Strategic Bombing Survey (1946) and Stone (1994).
\textsuperscript{13} T. Kizawa (personal communication, 1981).
\textsuperscript{14} United States Strategic Bombing Survey (1946).
\textsuperscript{15} Stone (1994).
water close to the shoreline. The precipitous sea floor here is now known to be the upper part of the western wall of the 10-kilometre-wide Tavui submarine caldera which, however, would not be identified as such until 1985.

Figure 51. Rabaul is here being attacked from the south by Allied bombers on 2 November 1943. The Japanese volcanological observatory can just be made out on the far bank of Sulphur Creek, the narrow inlet of water in the foreground, as shown by the arrow.

Source: Australian War Memorial (AWM 100146).

Kizawa also retreated underground. The destroyed Sulphur Creek Observatory was useless for any further volcano-monitoring work and, in February 1945, Kizawa constructed the beginning of an underground observatory near Latlat village in the caldera cliff overlooking Vulcan, where he thought that there was a smaller risk of being bombed. A simple seismograph was built by assembling pieces from the instruments at Sulphur Creek. Kizawa made plans to extend the tunnel and live there, but was prevented from doing so by food shortages. The Second World War ended in August 1945 and Kizawa attempted to continue his scientific work at Vulcan, but in October he was interned in Liguan Group Camp

prior to repatriation to Japan the following year. Kizawa posted messages on the door to the Vulcan observatory, which contained the still-operating seismograph and other instrument pieces, before leaving it for the last time:

For the coming generation, these machines have wrought each function to the civilised world and progress of the scientific world during the war … I offer them to the people of the future … The machines in this room should be presented to the Australian Corps … 17

Eruptions at Goropu Volcano, Papua

An unexpected and still little-known volcanic eruption surprised Australian military personnel who were stationed in the Tufi area of south-eastern Papua in 1943–1944. Four columns of ‘smoke’ and ash were seen by coastal villagers in October 1943 in the hills south of Tufi and Victory volcano, as well as other unexpected clouds in November. 18 Earthquakes had been felt in the Tufi area during the previous two years. Rumours spread amongst villagers that the Japanese had an aerodrome in the hills, as suggested by aircraft diverting over the smoking area. Japanese forces in mainland New Guinea by this time, however, had been forced northwards back over the Owen Stanley Range in their failed bid to take Port Moresby. Fighting was continuing in the ranges and coastal areas of New Guinea, but not in south-eastern Papua.

Australian civil administration had ceased in February 1942 and the Australian New Guinea Administrative Unit, ANGAU, controlled the Australian territory, which was now being increasingly abandoned by the Japanese, including the Tufi area. The ‘smoke’ in the hills south of Tufi was in fact from volcanic vents in a gently sloping area known locally as Waiowa at the northern foot of the Goropu Mountains in the Owen Stanley Range, from where eruptions had never been reported previously and where no volcano was known to exist. The aircraft were not Japanese and their pilots were flying over the volcanic area simply out of curiosity.

A much larger eruption took place on 27 December 1943, producing a 5,000-metre-high cloud of volcanic ash that caused great concern at Wanigela on the coast to the north-north-east:

People were screaming and running in all directions and kids and babies were crying and wailing, [and] the place was in a panic. … It was a most awe inspiring sight … No wonder the people were frightened. Jack and I were scarred [sic] stiff. 19

17 Kizawa (1961), p. 3.
18 Marsh (1944).
There were additional eruptions on 13 February and 23 July 1944 and a fourth and final one is thought to have taken place on 31 August. The exact number of eruptions during the entire eruptive period, and any significant differences between them, however, are unknown because no systematic visual observations were made and the eruptions were not studied at the time by either volcanologists or geologists.20 Occasional ash falls that affected Port Moresby, Lae, and Tufi were light, and there were no reported deaths or significant damage to coastal villages and gardens closest to the active area. Nervous villagers nevertheless evacuated after the December eruptions to the larger settlements of Tufi and Wanigela, where there were still some Europeans, and from where the villagers were later supplied with emergency provisions by the ANGAU administration. This represents, even though on a small scale, the first example of any colonial authority in the region showing primary concern for the safety of Melanesians under threat from an active volcano, by supporting them with emergency supplies after they had left their homes and gardens. This contrasts with the case of Rabaul in 1937, when the welfare of the European citizens of Rabaul town was the primary concern.

ANGAU officers also visited the volcanic area at Goropu from time to time, and some photographs were taken from the air by others on different occasions — including shortly after the war — so the general character of the eruption can be assessed from these sources, particularly the ANGAU field reports. The Goropu area today is shrouded by vegetation, except for a 200-metre-wide crater lake or explosion pit — technically known as a maar. The crater looks, from the air, like a water-filled hole in the ground although in fact it occupies the summit of a low-angle cone representing the build-up of new volcanic material around it. The crater or pit is one of several vents that were active at Goropu, or Waiowa, volcano at different times, although the exact number is unclear, and it appears to have been the only crater active at the end of the eruptive period in 1944.

Maars form typically as a result of hydrovolcanic eruptions where small amounts of magma rise to the surface and encounter water trapped below the ground. The explosions that result from contact between hot magma and groundwater are particularly violent and cause both rapid break-up of the magma itself as well as the violent expulsion upwards and outwards of different materials from the vents. Some of the material may be non-volcanic, as in the case of Goropu where pieces of ancient metamorphic rocks and fragments of an old sea floor forming the geological core of the Owen Stanley Range, were flung out. Hydrovolcanic eruptions also form water vapour-rich clouds that rise in great columns, as well as lateral or directional ‘blasting’ of the immediate area.

20 See, however, Baker (1946).
Figure 52. Villagers from Uiaku stand on and near large volcanic bombs in the devastated area at Goropu volcano, probably on 4 December 1943. Trees have been stripped of branches and foliage, an active crater can just be seen in the middle background, and a depression or old riverbed in the foreground, has silted up.

Source: D.R. Marsh.

A former ANGAU officer, Lieutenant D.R. Marsh, noted that after each eruption witnessed by him in the crater area ‘the build-up of dust around the crater wasn’t very high, but it blew itself off each time and sort of almost flattened it out until perhaps [after] the last one or two explosions, it built up a bit’.21 Other evidence for this hydrovolcanic blasting at Goropu volcano include stripping of vegetation from trees, snapping of trees trunks, the blowing down of trees, pitting of tree trunks by volcanic material ‘as though with a heavy machine gun’,22 bubbling of mud in the active craters, mud rains, surface flows of mud, changes in surface-water drainages, and silted streams. The extent to which the volcano ‘dried out’ towards the end of the eruptive period is unknown and so there is some uncertainty whether hydrovolcanic eruptions continued up to the end of the active period. No lava flows emerged from Goropu, however, although there were unconfirmed reports of crater glow being seen from the air during the day.

21 D.R. Marsh (personal communication, 2005).
22 Marsh (1944), p. 2.
Figure 53. Goropu volcano is shown here in this detail from a 1973 topographic map, together with its single crater lake and low-angle cone. The grid has spacings of one kilometre.

Source: Royal Australian Survey Corps, Sheet 8778 (edition 1), Series T 693.

The new volcanic area that formed at Goropu in 1943–1944 is separated from the much larger Victory volcano to the north, which was previously active in the late nineteenth century and which some Europeans suspected initially must have been the source of the new eruptive activity. There are, however, small areas of young volcanic rocks and hot springs that are strung out to the west of Goropu23 as far as the Managalase Plateau immediately south-east of Mount Lamington, where there are many small volcanic cones, craters and maars. Most of these other areas, however, were not discovered until after the war, but together — Goropu included — they may represent a discontinuous volcanic field or series of ‘fields’ stretched out along the slopes of the Owen Stanley Range. Volcanic fields are characterised by numerous — hundreds in some cases — but generally small, so-called ‘monogenetic’ volcanoes — that is,

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23 Smith (1981) referred to the youthful volcanic nature also of the small Sessagara Hills, including Mount Maisin, just a few kilometres to the north-east of Goropu volcano.
volcanoes like Goropu which form during short eruptive periods and may never again become active. Conduits that delivered magma to the surface become solidified and new magma batches break out elsewhere in the ‘field’ forming a new eruptive centre.

Goropu is not the only historically active volcano along the northern fall of the Owen Stanley Range. A small, basalt cinder cone called Kururi on the Managalase Plateau is thought to have been active sometime in the first half of the twentieth century, although even less is known about this eruption than the one at Goropu. An Australian geologist mapping the Managalase area in 1963 heard stories from elderly men at Kururi village who recalled witnessing ‘fire and smoke’, perhaps between the two world wars.24

Hiroshima, Surges and Postwar Recovery

The 1941–1943 eruptions at Tavurvur, Rabaul, and the explosive activity at Goropu in 1943–1944 dominate the known history of eruptive activity during the Pacific War, and comparatively little is known about eruptive activity at other volcanoes. This deficiency may represent another example of attention being directed away from the reporting of volcanic eruptions because of the major global distraction of a world war, just as seems to have happened during, and indeed continuing from, the Great Depression.25 There appear to be no records of wartime eruptions even at Manam, although the volcano may well have continued its activity, presumably at a fairly low level. Some minor activity took place at Ulawun,26 and lava must, as usual, have been flowing on Bagana, judging by a comparison of wartime aerial photographs.27 Furthermore, a newly formed volcanic island in the caldera lake at Long Island was seen on aerial photographs taken in 1943. The island had been absent when Fisher saw the lake in 1938, but villagers — after further eruptions at Long in 1953 — reported there had been minor eruptions in the lake in 1933, 1938 and 1943.28 The reporting for these exceptions, however, is not comprehensive.

The Pacific War came to an end on 15 August 1945 following the atomic bombings of Hiroshima and Nagasaki, Japan, on 6 and 9 August. Newsreels and photographs of the high-rising, eruption-like, ‘mushroom’ clouds were dramatic imagery, marking symbolically the beginning of the atomic and nuclear eras, including the further testing of nuclear weapons and the beginning of the

24 Ruxton (1966), Ruxton et al. (1967) and B.P. Ruxton (personal communication, 2006).
28 Best (1956).
Cold War. The United States began atmospheric tests in the shallow waters on Bikini Atoll in 1946 and close-up observations were made there of the character of the explosions. Striking features of the test explosions were not only the radioactive clouds mushrooming into the sky but also a ring-shaped basal cloud that swept outwards at an estimated initial velocity of more than 50 metres per second. Atomic-test scientists coined the term *base surge* for these rapidly expanding and surface-hugging clouds and attributed them to development of an increasingly widened explosion crater and progressive destruction of the explosion-crater rim. Volcanologists would later adopt this concept of ‘base surge’ in identifying similar, flat, disc-like clouds in hydrovolcanic eruptions taking place just below the surfaces of seas or lakes.\(^{29}\) Groundwater-driven surges almost certainly caused much of the damage at Goropus in 1943–1944, although they were not recognised as such at the time.

![Image of a base surge](image-url)

**Figure 54.** An example of a base surge is seen in this photograph taken in May 1955 from the western side of the caldera rim on Long Island, about five kilometres away from the active volcano. The surge is radiating out from the volcanic vent across the surface of Lake Wisdom. Tolokiwa Island can be seen in the far distance, beyond the eastern rim of the caldera.


ANGAU passed Australian administration of the two, formerly separate, prewar territories to a single civil-government authority of a new Territory of Papua and New Guinea in the months after the formal Japanese surrender in New Guinea.

\(^{29}\) Moore (1967).
on 13 September 1945 and after approval by the newly formed United Nations.\textsuperscript{30}

The Australian military had demonstrated that a combined administration was possible. The new Administrator of the Territory appointed under the Australian Labor Government in 1945, was Colonel J.K. Murray, previously principal of the Queensland Agricultural College. Murray was based in the new capital of Port Moresby in Papua, rather than at Lae which had been the prewar choice of a capital for the Mandated Territory. The new capital certainly would not be at Rabaul town, which had been razed by Allied bombing. The Australian military in 1945 had begun erecting its temporary accommodation at Rabaul, but the town remained a shambles for many years. One Administration officer in 1947 wrote:

\begin{quote}
All Administration buildings are temporary and insecure against theft, and the living conditions of the staff is [sic] of the worst … . The Chinese Community of about 1500 souls are living in hovels which never would be tolerated in ordinary times … . The conditions existing in Rabaul is [sic] most depressing. The sanitary arrangements are deplorable, the old Army type of pit latrines are still being used and the water supply is being obtained from wells … . Flies and mosquitoes are becoming very troublesome. On 1st January Army withdrew their Malaria Control and Sanitary squads from the township and I fear for the health of the community. … The foreshores of the harbour are littered with wrecks of all kinds.\textsuperscript{31}
\end{quote}

One reason for this situation was lack of funding in the immediate postwar environment for infrastructure reconstruction in the town, but another more significant one was ongoing and contentious discussion on whether Rabaul should be established in the same place at all\textsuperscript{32} — the same debate that had taken place after the May 1937 eruption. N.H. Fisher gave his opinion that the most sensible approach — bearing in mind the volcanic threat and the fact that so little remained of the original town anyway — would be to build afresh somewhere outside the caldera.\textsuperscript{33} Murray was of the same opinion, favouring the longer term development of Kokopo, the former German administrative centre, but little could be done to advance a final decision in Canberra. European and Chinese business interests gradually returned in Rabaul, developing into a lobby group which favoured remaining there, despite the depressed condition of the town.

Murray, aware of the contents of the report by Ch.E. Stehn and W.G. Woolnough, and no doubt influenced by his own scientific background, also supported immediate re-establishment of volcano monitoring at Rabaul, but extracting

\begin{flushright}
\textsuperscript{30} Downs (1980).
\textsuperscript{31} McDonald (1947).
\textsuperscript{32} Johns (1996).
\textsuperscript{33} Fisher (1946).
\end{flushright}
approval from Canberra was difficult on this matter, too. Earthquakes, however, were felt in the town during 1949 and particularly on 17 October, again raising fears of the risk to Rabaul from volcanic and earthquake activity. Percy C. Spender had been appointed the Australian Minister of External Territories late in 1949 under the new Liberal Government of R.J. Menzies, but Murray — whose own favourable appointment had been made under Labor — had an uneasy relationship not only with Spender, but later with Spender’s successor, Paul Hasluck, in 1951. Murray’s frustration by February 1950 is indeed palpable:

In view of the fact that the Commonwealth has not seen it fit to appoint a Vulcanologist for duty at Rabaul, I consider it to be especially necessary that some suitable person should make a weekly inspection of all the vulcanological centres mentioned in the list of phenomena [presented in the Stehn-and-Woolnough report].

The main reason for delay in appointing a volcanologist was the non-availability of suitably trained geoscientists immediately after the war. This shortage was in fact being addressed by the Australian Government through the Commonwealth Reconstruction Training Scheme for ex-service personnel, and Murray, perhaps also in part as a result of his own persistent lobbying, did not have to wait too long. Australian geologist G.A.M. ‘Tony’ Taylor, then 32 years of age, was selected for the position of the Territory’s volcanologist at Rabaul. Taylor came to the run-down town in April 1950 to begin what would be a highly successful career in volcanology — propelled initially by his work during the Lamington eruption of 1951 — but which would come to an end prematurely while undertaking fieldwork on Manam volcano in August 1972.

Changing the Volcanological Leadership

German-born Stehn, Fisher’s co-investigator in 1937 of Rabaul’s volcanic nature, had been transported from the Netherlands Indies to British India at the outbreak of the war with Japan. He had died in internment in India on 17 May 1945 shortly before war’s end. Fisher, however, had returned to Rabaul in 1946, mainly to assess the postwar condition of the observatory that he had established in 1940. Fisher found Kizawa’s tunnel behind Vulcan, removed the Japanese seismograph, and sent it to Australia. Fisher told me in 2006 how he had driven down to Sydney from Canberra to pick up the seismograph from the Sydney wharfs, and the instrument was then forwarded to Melbourne for repairs and maintenance. The old seismograph can be seen today in the recording room at RVO headquarters where it is referred to rather nostalgically as ‘the old Omori’.

34 Murray (1950).
35 Bemmelen (1949).
Fisher, also in 1946, was appointed Chief Geologist in the Commonwealth of Australia’s Bureau of Mineral Resources, Geology and Geophysics (BMR) — Australia’s first national geological survey — which had been created in April of that year.\(^{36}\) This promotion, and Taylor’s appointment, meant that Fisher would no longer have the same hands-on involvement in volcanology that he had previously. His prime responsibilities from now on would be overseeing the systematic geological mapping of the Australian continent and the new Territory of Papua and New Guinea, together with the postwar search for mineral resources. He would, however, maintain a supervising involvement with volcanology in the Territory in his new capacity and indeed a strong interest in the subject for the rest of his life.

The British too were interested in the search for mineral resources in the immediate postwar environment. The former British Empire had disappeared altogether and been replaced by a new Commonwealth of Nations. Even the name ‘British’ had been dropped from the title of the Commonwealth in 1949. British geologist John C. Grover came to Honiara in the British Solomon Islands Protectorate in April 1950 — the same month as Taylor’s arrival in Rabaul.\(^{37}\) Grover’s career there would cover 17 years during which a focus on the young volcanoes of the protectorate would be included only as part of his wider duties as senior geologist in geological mapping and investigation of resource potential. His volcanological interests would involve not only Savo but also a submarine volcano, Kavachi, in the New Georgia Group south-east of Bougainville Island.

Eruptive activity at Kavachi had been noticed in 1939 by villagers from nearby Vanguna and Ngatatokae islands, although there had been earlier stories of undated ‘fire on the water’, and there was activity too in 1942.\(^{38}\) The volcano was given its name in 1966 after Kavachi, a legendary sea god of the Marovo district in the New Georgia Group. The name is a shortened form of *Rejo te Kavachi*, meaning ‘Kavachi’s oven’. Further volcanic activity at Kavachi was reported for late 1950, which continued — evidently intermittently — until 1953.

This timing of the eruptions at Kavachi in 1950–1953 overlaps with that at Lamington volcano in Papua in 1951–1952, again raising — together with eruptions from other volcanoes — the possibility of a ‘time cluster’ of eruptive activity in Near Oceania during the 1950s.\(^{39}\) The Lamington eruption, however, had considerably greater impact than did those at Kavachi. It produced a major disaster including a death toll that has not been exceeded since by any other subsequent natural geophysical event in Australian-administered territory.

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\(^{37}\) Grover (1955a).

\(^{38}\) Grover (1955b) and Johnson & Tuni (1987).

\(^{39}\) See, for example, Michael (1969).
Figure 55. The reconditioned Omori seismograph is seen here in operation at Rapindik, Rabaul, in the early 1950s. Rapindik is near the north-western shore of Greet Harbour, even closer to Tavurvur volcano than was the Sulphur Creek Observatory where the two-component instrument was first used by Kizawa in 1942.

Source: M.A. Reynolds. Geoscience Australia (no registered number).

References


Film Australia, 1993. *Waiting for the Big Bang*. Film Australia, Lindfield (video).


