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BOUGAINVILLE VOLCANOES MOUNT BAGANA & LAKE LOLORU

by

C.D. Branch

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Helicopter and ground inspections of Lake Loloru and Mount Bagana, S.B. 56-8 Sheet area, were made by C.D. Branch from 3rd to 9th October 1964. Mount Balbi was not visited because the supercharger on the helicopter was unserviceable and it could not climb above 6000 feet (but see Branch, 1964). The co-operation of the members of the Forestry Department field camp at Jaba, who were using the helicopter at this time, is gratefully acknowledged.

Lake Loloru Crater

Three days were spent examining the thermal areas at Lake Loloru and comparing them with the details in Reynolds B.M.R. Record 1955/93. Generally, all thermal areas are more overgrown by a vine-like bracken that makes access difficult, and the temperatures are little changed.

In Zone A located in the valley between the dome and crater wall on the north-western side, dimensions of the area have not changed noticeably since 1955. However, most temperatures are cooler. Reynolds reported temperatures of 88°C and 90°C in the central and south-eastern parts of the zone, but the present temperatures range from 40°C in bubbling springs to a maximum of 88°C in a loud steam vent. The spring at the north-eastern end of the zone is 60°C, two degrees warmer than before. About 100 feet upstream from the thermal zone, cold SO₂ bubbles through the bottom of the creek, and the stream water is 32°C.

Vegetation is encroaching on Zone B on the northern slope of the dome, but the thermal activity is similar to that present in 1955. The sibilant escape of steam can be heard from half a mile away, and nearer the smell of SO₂ is strong. In the zone the steam is escaping mainly from the sulphurous areas, commonly from sulphur stalagmites six inches high. Temperatures range from 93°C to 97°C.

Zone C near the summit of the dome was not visited, but from the air it appeared little changed from Reynolds' description.

No temperatures were measured by Reynolds in Zone D, located on the dome between Zone B and the northern end of Lake Loloru. The area is almost entirely overgrown by bracken and activity is restricted to the uphill end of the zone. Temperatures in the western part of the zone range from 58°C to 66°C, and in the eastern part from 54°C to 76°C. Only a trace of sulphur remains in the area, and the smell of SO₂ is faint.

Zone F, on the south-western flank of Lake Loloru Crater was inspected only from the air, and no sign of thermal activity was seen.

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Mount Bagana Volcano

The most prominent activity from Mount Bagana is the continuous, voluminous emission of steam from the whole summit area. The volume increases markedly in the early morning following heavy rain during the night, but decreases to normal about 0800 hours. Every 10 minutes a mild steam explosion, sometimes containing a little brown ash, is ejected from a small crater on the western side of the summit area and ascends rapidly to 2000 feet above the summit. A deep red glow is seen above the summit at night.

The summit area was inspected closely from the helicopter at 0600 hours on the 7th, and the height above sea level determined as 5800 feet. The area resembles a strong solfatara field, with thick sulphur deposits common around the margin. Steam is emitted at only a low pressure and the temperature is probably between 150 and 200°C.

The 1952 lava flow down the western flank of the volcano (Best, B.M.R. Record 1956/14) is a prominent topographical feature and the whole flow is still steaming strongly. In parts it is 150 feet thick and is probably only partly crystallized. The slopes of the volcano adjacent to the flow are also steaming, and temperatures measured at about 3000' a.s.l. are 89°C and 99°C.

A new lava flow is slowly advancing along the northern side of the 1952 flow and the snout is about 3200' a.s.l.. The flow is blocky, about 100 feet thick, and advancing a few inches per hour.

In addition to the thermal area on the western slopes of the volcano, the other main thermal area is the snout of a blocky flow low on the north-eastern slope of the volcano, above where the flow has dammed a stream to form a small lake. The flow appears to be the most recent from the volcano in the air photographs taken in 1947, and the area is now covered by a cane-like grass. It was not visited. A specimen from the upper part of the flow is a green andesite.

A small camp was established for two days at 4000 a.s.l. on the eastern slope of the volcano. During this time no noises or earthquakes emanated from the volcano. A tectonic earthquake on the 7th, felt widely over southern Bougainville, and as intensity 2 M.M. on Bagana, appeared to have no effect on the volcanic activity. An attempt to climb Bagana to measure the temperature of the fumarole at the crater was abandoned about 400 feet below the summit.

There is no evidence of any recent nuee ardentes from Mount Bagana, and the present activity appears mild and stable.

REFERENCE

BRANCH, C.D., 1964 - The Mount Balbi Volcano Complex, Bougainville, T.P.N.G. Bur.Min.Resour. Aust.Rec., 1965/21 (unpubl.).