

Copy 2
COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

1954/59

PRELIMINARY REPORT.

BAM ISLAND

MADANG SUB-DISTRICT

NEW GUINEA

by

J. G. Best

PRELIMINARY REPORT

BAM ISLAND

MADANG SUB-DISTRICT, NEW GUINEA

Introduction:

On the 4th November, 1954, the first report of eruptive activity at Bam Island was received at the Observatory, Rabaul. Mr. M.A. Reynolds was at that time engaged on an investigation at Tuluman Volcano, Manus Sub-district. As he had most of the field equipment with him the writer signalled a request to him to proceed to Bam to investigate this report. On the afternoon of the 5th it was learned that the Lorengau radio was out of operation and that Reynolds had not received the signal. The writer departed Rabaul at 0700 hours 6th November, 1954, and arrived at Wewak at 1200 hours. The m/v, "Ela" was made available and the writer departed Wewak at 0300 hours together with Cadet Patrol Officer R.G. Noble for Bam Island, arriving there at 1300 hours that day. The writer spent a little over a day on the island and returned to Wewak on the 9th November.

Recent Investigation:

On enquiry it was learnt that the present active period had commenced on the 3rd August, but had apparently gone unnoticed by outside agencies and as a result was not reported. A further phase occurred on the 6th October, on this occasion it was seen from Manam Island but not reported. The latest phase of activity was witnessed and reported by the Master of the m/v. "Buka". In addition, it was learnt that a similar outbreak had occurred at the end of 1946. Enquiries by the writer in July 1953 had not unearthed this information.

Physiography and Population:

Bam Island is the upper tip of a substantially submarine volcano. The crest has an elevation of about 2,000 feet above sea level, but is probably 8,000-9,000 feet above its base. The island is somewhat oval in shape, at sea level, about 1 1/2 miles long and 1 mile wide. The coast is rugged and lacks safe anchorages. On a narrow flat about 100 feet above sea level on the northern flank of the cone, the natives have erected their village within a 3/4 mile radius of the crater. Portions of the flanks of the cone up to about 1,000 feet above sea level are utilised for the production of foodstuffs.

Recent Activity:

The recent investigation revealed that the present activity consists of only mild explosions, ejecting well crystallised lava, which though incandescent when ejected was solid.

Seismic activity only accompanied the actual explosions and was not premonitory.

This pattern suggests that the eruption was caused by an explosive escape of gasses accumulated from cooling lava within the volcano. The absence of premonitory seismic activity suggests that there is no movement of fluid lava up to or within the cone.

The eruption of 1946, mild in nature and causing no damage was probably initiated by the same agencies. It is thus probable that the present period will follow a similar course.

There is, however, a difference between this and the 1946 activity; on the former occasion, only one period of explosive

activity was manifest, whilst to date four periods of explosive activity have occurred. This may be of little significance; however, on the other hand continued release of pressure higher up in the conduit may permit an upward movement of fluid lava from below, in which case a more severe eruption could ensue. In the event of a moderate to severe eruption the outermost extremities of this island would be well within the danger zone.

In order to determine whether a more intense phase of activity is likely to occur it would be necessary to maintain continuous observations on this island.

Suggestions.

In my radio of 10th November, 1954, to you, originated at Wewak, I suggested that consideration be given to the complete and permanent evacuation of this island, my reasons for this are set out hereunder:

(1) The island is of such minute dimensions, that all of it would lie in the danger zone in the event of a moderate to severe eruption.

(2) The island is comparatively isolated and it is possible for premonitory phenomena and indeed, actual eruptions to occur there, unknown to outside agencies. This has just recently been strikingly demonstrated.

(3) In the event of a more violent eruption occurring, the only avenue of escape for these people, is the sea. They have canoes but not sufficient sea going ones to evacuate the entire population.

(4) In order to predict the eruptive pattern of a volcano it is desirable to know a considerable portion of its history. With Bam, even the pattern of activity over the past ten years is uncertain.

I realise that the evacuation and re-settling elsewhere of a population poses problems of considerable magnitude and as a result have been loath to suggest it.

However, the fact cannot be ignored that these people are not only inhabiting an active volcano but are perforce living uncomfortably close to the crater.