

to be bank scour and erosion, and major road works located at the head of one tributary. Quantitative observations have thus far been mainly confined to the master site, and a preliminary stage-discharge rating curve has been established for this site (Fig. 4). The discharge of the system varies between $0.5 \text{ m}^3 \text{ s}^{-1}$ at low flow and an estimated $15\text{--}18 \text{ m}^3 \text{ s}^{-1}$ in high flow conditions, and there is a seasonal variation in baseflow discharge ($0.5 \text{ m}^3 \text{ s}^{-1}$ in summer, $1.5\text{--}2 \text{ m}^3 \text{ s}^{-1}$ in winter).

Suspended sediment concentrations in the system are generally low, the highest so far recorded being 840 mg per litre at $10 \text{ m}^3 \text{ s}^{-1}$. It is notable that a great scatter of points occurs on the state-suspended sediment plot (Fig. 5), indicating that the sediment load may not be related directly to discharge, but may be influenced by factors such as season, antecedent conditions, limb of the hydrograph and source, particularly if bank collapse is dominant. Preliminary observations in the Glow-worm Cave indicate the need for concentration on that section of the system since as much as 50% of the suspended load may be deposited in the cave at moderate flows ($2\text{--}4 \text{ m}^3 \text{ s}^{-1}$).

Conclusion

The work thus far has indicated a number of avenues which require closer examination. It is hoped that as a result of this project, proposals may be developed to aid in improving the water flow through the Glow-worm Cave so that sedimentation is limited and the valuable glow-worm assemblage may be maintained.

Reference

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ATEA KANADA

JULIA JAMES*, RANDALL KING † and NEIL MONTGOMERY††

Abstract

The Atea Kanada, located in the tropical rainforest of the Southern Highlands of Papua-New Guinea was investigated during the 1976 Muller Range Speleological Expedition. In the course of the expedition, 4 kilometres of cave passage in the Atea Kanda were mapped, a 5½ kilometre survey between the Atea sink and its resurgence undertaken; and a preliminary speleological study was made of the Atea system. Various results of this investigation : area physiography, hydrology, cave map and description, geology and the cave's future potential as a contender for the Southern Hemisphere depth record are discussed.

(The full text of this paper is to be published in *Helictite*, 14(2): 5-26)

* Dept. of Inorganic Chemistry, University of Sydney, NSW 2006

† 9 Wyong Road, Mosman NSW 2088

†† 18 First Avenue, Epping NSW 2121

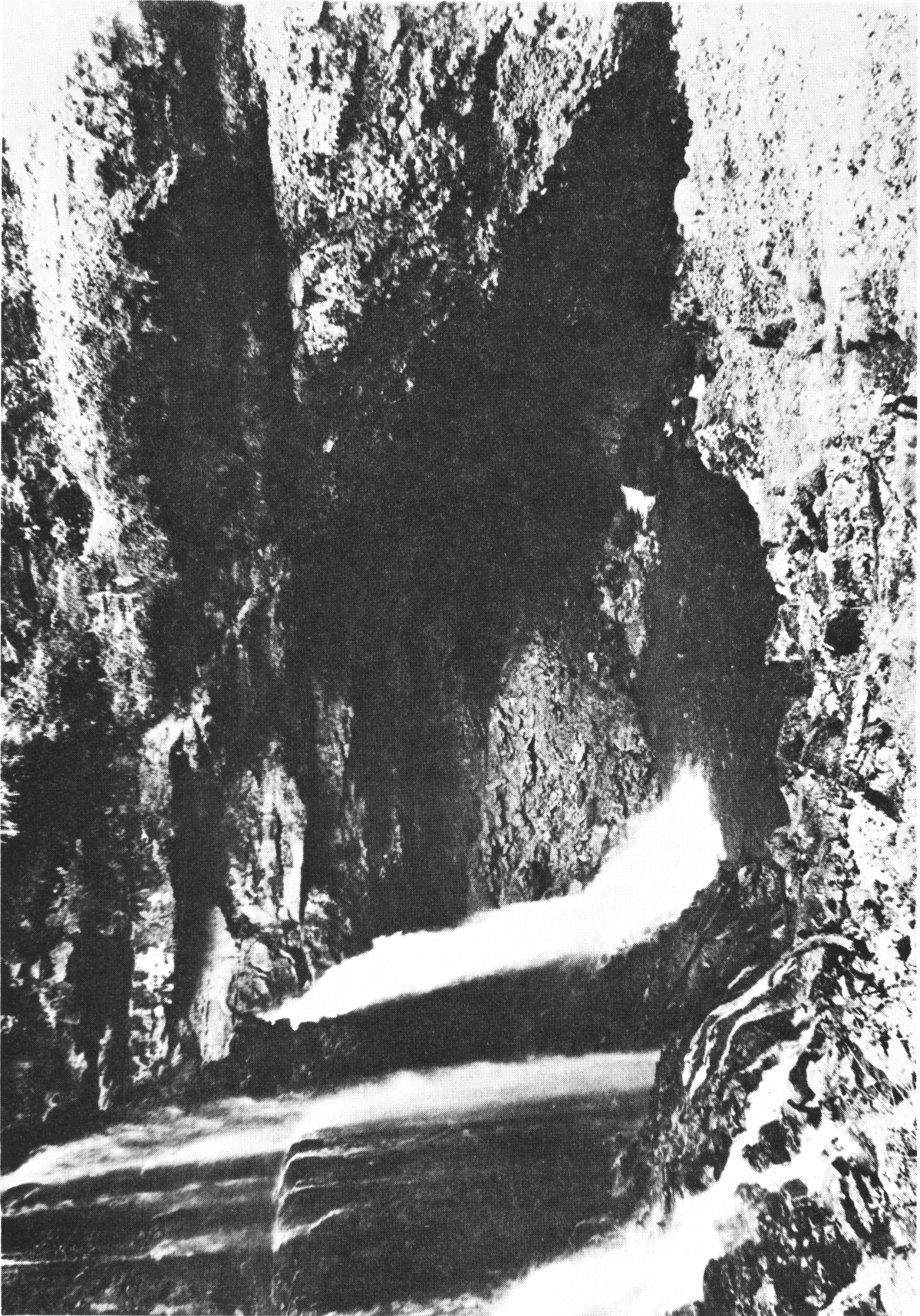


Plate 12. Atea Kanada entrance doline.