

DROUGHT AND MURRAY CAVE, COOLEMAN PLAIN
NEW SOUTH WALES

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ABSTRACT **

The drought culminating in 1967-8 opened watertraps in Murray Cave to permit the re-exploration and survey in January 1968 of a further 1000 feet of the main passage. Previous explorations of which oral tradition persisted are now known to have taken place in 1902-3 and some details of the early visitors are presented. The characteristics of the extension are predominantly epiphreatic in nature and about half of it is episodically functioning in this way at the present time; the watertraps along it are inverted siphons in the strict sense and located at the sharpest changes in cave direction. The exploration limit consists of a rockfall beneath a doline, which appears therefore to be in part a collapse doline. Beneath two other dolines the cave has no sign of collapse, though tall avens reach towards the surface; these dolines are due to surface solution only. The forward part of the cave is overlain by a short, steep dry valley; the relationship between the two remains problematic but there is good reason not to regard the dry valley as the determinant of the cave's location. The evidence is now stronger for an earlier hypothesis that the cave was formerly the outflow cave of nearby River Cave, a perennially active stream cave. It also seems likely that the episodic activity of Murray Cave is due to flood overflow from River Cave.

The hydrological regime of the cave is compared with precipitation records of the nearby stations. The episodic flow through the cave does not require an abnormally wet winter; it can follow fairly quickly after complete emptying of the watertraps and approaches an annual event. Opening up of the watertraps is a much less frequent event. The available data do not permit determination whether a series of low rainfall years is necessary or a single pronouncedly dry year is sufficient. On either count it seems probable that the cave opened up twice or more times between the known occasions of 1902-3 and 1968 in the period 1909-53 when the cave was infrequently visited.

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