ABSTRACT

Seeking the Master Cave — the Junee River Karst System

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The Junee River karst system in the southern Tasmanian June–Florentine karst area is home to most of Australia's deepest caves. Hydrological theories began to sprout amongst the local caving community in the 1950s and took shape during the 60s and 70s. An injection of enthusiasm and technological improvement in the 80s and 90s resulted in great leaps forward in proving the concept. The 2000s saw a new generation of explorers plumbing the depths in search of the missing links. In 2019 the search continues; piece by piece the puzzle is coming together but we still don't really know what the picture on the box is or even how many pieces there might be. That's all part of the fun, really.

The Junee–Florentine is a large 'Gordon Group' outcrop of Ordovician limestone (approximately 15,000 ha). It comprises of two sub-areas: the Junee and the Florentine. The Florentine region (~10,000 ha) to the west is typically of low relief and comprised of multiple small independent drainage systems while the Junee region (~3000 ha of surface limestone) is a complex single drainage system with up to ~400 m depth potential and ~7,500 ha of catchment area. Water enters the system via a large number of swallets spread over the whole area but all water exits from the Junee Cave resurgence in the south-eastern corner of the karst region.

Junee Cave and the major sink Growling Swallet were discovered by explorers in the early 20th century but organised cave exploration and hydrological theories (in the form of the Tasmanian Caverneering Club) didn't appear until the mid-1940s. The JF was remote in those days and trips were infrequent. In 1957 Growling Swallet was surveyed to -174 m (Australian depth record at the time) and in the 1960s theories about possible sources for the water rising at Junee Cave were put forward and tested in the field. In the late 1960s swallets like Cauldron Pot and Khazad-Dum were located during the search for Junee Cave's source. The volume of water sinking into these caves didn't match the volume of the Junee River though so the net was cast wider. In 1972 the theory that Growling was hydrologically connected to Junee was confirmed with a positive dye trace.

With the expansion of forestry activities in the Junee, Tyenna and Florentine river valleys access became easier and multiple cave discoveries followed. Easier access and the advent of new technologies resulted in more and more discoveries. The arrival of Single Rope Technique accelerated the exploration rate significantly. A decade by decade account of major cave discoveries from the 1960s to the end of 2018 is provided.

Exploration is ongoing as there are still major gaps between sections of known master cave. The work is hard but the rewards exciting every time a new piece of the puzzle that is the Junee 'master system' is discovered. The JF should keep plenty of cavers busy for generations to come.