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DOOLIN CAVE, THE SMITHY COMPLEX

by

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Townland: Glasha Beg.
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ABSTRACT

A survey is given of the Smithy Complex of the Doolin Cave System and of the associated surface sinks. It is argued that the complicated nature of this series and the lack of a passable connection with the surface in this area is due to the acute angle at which the surface stream meets the shale/limestone boundary and to the heavy debris load carried by the stream.

INTRODUCTION

The Doolin Cave System consists of approximately 10 km of streamways and high-level oxbow passages. The Smithy Complex is a series of small active and semi-active passages found at the head of the main streamway and here the water from the Doolin Road Sink or Smithy Sink is first encountered underground. The complex is named after an old smithy that used to operate near the sink.

The system was first discovered by the Society in 1953 and the early work of discovery was described in these *Proceedings* in 1956 (Robertson *et al.*). Prominent amongst the explorers was the late Dr Oliver Lloyd and in subsequent years his name became closely linked with the system. In 1964 he wrote a full account of the cave as then known (Lloyd, 1964) and this was followed by the publication of his description and survey of the high-level extentions discovered in the middle part of the system in the 1960s (Lloyd, 1973).

After the publication of the 1973 paper, Lloyd (1981) undertook to write the description of the cave for the Society's guide book of the area, *Caves of County Clare*. Whilst revising the survey for this book, he realized that one passage, the Smithy tributary, had not been surveyed accurately. However, re-surveying this passage took longer than had been expected, as several complications arose which required further work during subsequent expeditions. Firstly, there were found to be two interconnected passages, not one; then it appeared that the points at which the water entered the system from the Doolin Road Sink were out of relation with the surface sinks, some passages seeming to be too far north and east. In consequence, a radio-location was carried out to tie the surface and underground surveys together. Lastly, a new connection was found between the Smithy tributaries and Smithy aven, but this is not shown on the survey, as it is in the extensive shatter belt responsible for the formation of the Smithy and Beautiful Grottoes and has since collapsed. The work of re-survey was sufficiently complete for the cave passages to be shown on the survey published in *Caves of County Clare* (Lloyd, 1981) but due to some unknown error, that drawing is distorted.

Lloyd did not complete his work on the Smithy Complex, as although the last piece of data he required was obtained by the author (with others) in 1985, he had died three days previously. A detailed study of his survey data and other notes, combined with further field-work, has eventually enabled his last piece of work on Doolin to be presented.

DESCRIPTION

The accurate relationship between the cave passages and the surface streams and sinks is shown on the plan. The Smithy tributary north branch is at a higher level than the east branch. In each case, exploration was stopped by the passage becoming too small to follow. On the surface, as many as fourteen discrete sinks or collapses have been identified.

The relationship between the sinks and the cave passage is a complex one and does not obey the usual rules of swallet retreat (Ollier and Tratman, 1969, p. 62). Normally, the newer or most recently active sinks would be the furthest upstream, new sinks being progressively formed as the shale cap over the limestone is eroded by the surface stream. However, in this area, the various sinks appear to operate almost at random and the upstream passages have been abandoned in favour of more downstream ones. It appears that there are two reasons for this. Firstly, the surface stream, the Aughoonla, meets the shale/limestone boundary at a fairly acute angle, so that, in effect, the stream meets the limestone over a much wider area than if it intersected the boundary at right-angles. It is therefore able to utilize a larger number of fractures as potential sinks, each of which is used and developed to a much smaller extent than would otherwise be the case. In additon, it has been observed that this stream can deposit or remove considerable amounts of debris, mostly shale gravel, very quickly (Savage and Hobbs, 1964, p. 194). The effect of this is to change, largely at random, the sinks that are active or blocked at any given time. These two factors have resulted in the formation of a network of small passages immediately below the surface, all of which are blocked to a greater or lesser extent by stream-borne debris. It is therefore unlikely that a passable route into the cave exists, or would remain open in this area. At present a five metre length of canyon passage can be entered from the most southerly sink; the stream does not follow this passage, but sinks in its floor almost immediately and the passage is solidly choked.

This passage is said to have been dug open by cavers from Cork in 1987 (P. Cronin, pers. comm.). It seems that their efforts only served to block the sink with the result that after the next storm, it overflowed onto the nearby road, the only recorded occasion that this has happened, until the water pressure forced the blockage open again.

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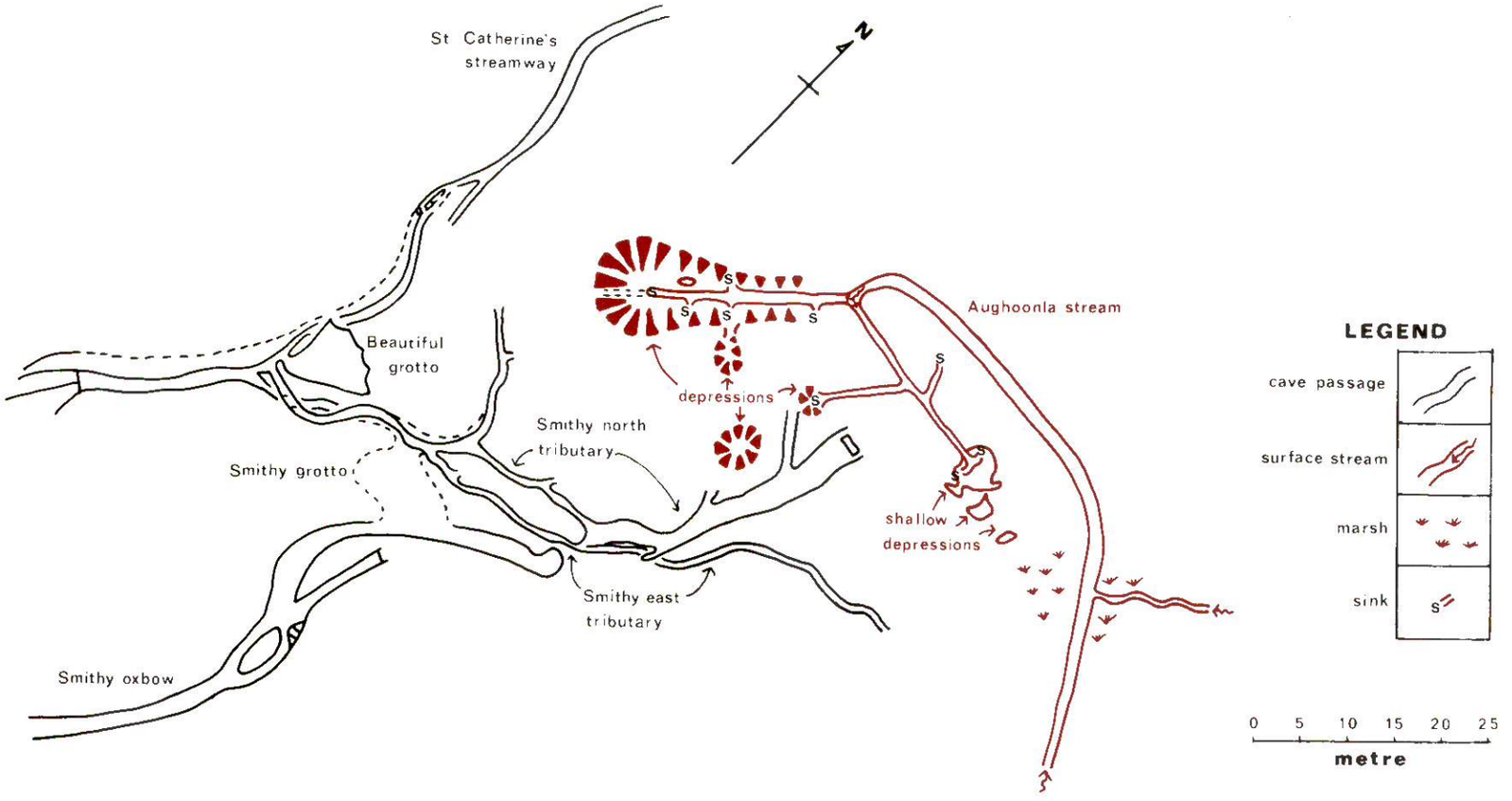
DOOLIN CAVE SYSTEM

THE SMITHY COMPLEX



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