

## POLLBALLINY; THE 1974 EXTENSION

by  
I. H. CASSELY

### *Pollballiny*

O.S. 6-in to 1-mile, Clare, sheet 4

Total length 2,500m

Entrance B1a, E.71.0cm, N.33.7cm.

Tackle required: 6-m ladder and tether. First pitch.

[E.28.0in, N.13.2in].

Td. Balliny South.

### HISTORY OF EXPLORATION

In 1936 the Yorkshire Ramblers Club (Bartlett 1936) entered Pollballiny and explored the cave for 800m. In 1956 and 1957 this society explored the cave to a sump at 1350m and produced a survey and account (Banfield and Ineson 1958). The cave probably remained unvisited, apart from parties having the misfortune to mistake its entrance for that of Faunarooska, until the Summer of 1974 when it was revisited by members of the U.B.S.S. The sump which had prevented progress in 1956 was found to have an airspace throughout its length and was duly passed. Within 10m progress was again halted, this time by a boulder choke. Subsequent trips with a hydraulic car jack forced boulders apart sufficiently to allow a small caver to pass through a tight squeeze and discover some of the most spectacular cave passage in North West Clare. Work with a lump hammer enabled cavers to follow and explore the cave to a second boulder choke thus extending the cave 1250m beyond the "sump" and increasing its total length to 2500m.

A small party returned in the new year of 1975 to survey the extension and to pass the second boulder choke. The former objective was achieved though the choke thwarted this and other attempts to pass it.

### DESCRIPTION OF THE CAVE

#### *The Original Cave to the "Sump"*

A comprehensive account of the cave to the "sump" has already been published, so a brief description will suffice here. Pollballiny is an excellent example of chert controlled development. From the entrance to the "sump" six distinct chert beds are passed through. Occasionally the slope of the cave is less than the strata dip, though both are small, and then the same chert bed may be descended through two or three times. The close spacing of these chert beds has limited the

passage size and crawling is necessary for much of the cave. Often a chert false floor bisects the passage reducing the caving to a flat out crawl.

The general trend of the old cave is south-west turning north 100m before the "sump". A dry inlet enters the cave from the south at this turning point. The original surveyors noted much evidence of shattering in the north-heading section and also reported an aven 70m before the "sump". A recent, more detailed inspection has revealed that this section is of larger dimensions (perhaps 3m high and 2m wide); however it is almost completely choked with boulders. The present water course has undercut or meandered past the older cave providing the caver with low wet passages. Shortly before the "sump" there is an attractive grotto illustrated in plate 22.1.

The "sump" is a low (0.6m) bedding plane, 18m in length, 3m wide, and two thirds full of water, which despite its unprepossessing appearance, provides no restriction to the wet-suited caver.

#### *The "sump" to the Scalloped Bedding Plane*

Immediately after the "sump" the roof rises to 2m at the head of a chert-topped waterfall. From here a blocked, heavily-calcited passage, 2m high and 1m wide, can be seen running parallel to and on the left of the "sump". After descending the 2.5m-waterfall the stream can be followed in a large passage, (4.5m high, 2m wide) for only 5m before it disappears into the first boulder choke. A muddy climb against the left wall and a 6m crawl over boulders, heavily encrusted with moon-milk, leads to a downward climb through boulders. Here a constricted downward-sloping tube is followed via an awkward squeeze is regained. To the left, upstream, the passage is impassable after 12m. Downstream the 1.7m-high, 0.6m-wide passage continues for 7m until blocked, at stream level, by boulders. A climb through the boulders at roof level reveals a larger cave estimated to be 9m high, 3m wide, though the lower half is boulder filled. After 3m a short downward climb to rejoin the stream marks the end of the boulder choke.

The stream continues north in a large meandering passage, (estimated to be 16m high, 3m wide), with shelving on either side, (plate 22.2) for 55m. Here the stream disappears under the left wall into the scalloped bedding plane.

The north-heading passage continues for 30m with a gradual rise of the floor, due to infilling, until it is completely choked with large calcited boulders. On the left, 15m before the terminus, a vertical rift, (3m long, 0.7m wide and 3m deep) leads to the Bypass of the scalloped bedding plane. Opposite the rift, on the right, there is a hanging inlet. An airy 10m-climb revealed 10m of walking-sized passage, followed by 75m of flat out crawling to an impenetrable bifurcation of the passage. This inlet has not been surveyed but appears to follow the north-south jointing. There is no known sink for the water that formed this passage and it is thus assumed to be percolation water.

### *The Scalloped Bedding Plane*

Pursuing the course of the stream, the low, 0.6m-high bedding plane is followed for 8.5m to a 1m chert-topped waterfall. The passage doubles back underneath the waterfall in a heavily scalloped, clean washed, bedding plane of typical dimensions, 0.6m high and 2.5m wide. This unpleasant section bears west for 60m to the head of another chert-topped waterfall. A small amount of water seeps into the right hand side of the passage throughout its length. Dye tests have shown that this water originates from Hawthorn Swallet.

### *The Bypass*

The Bypass to the Scalloped Bedding Plane is slightly more spacious though very muddy. It has not yet been accurately surveyed. It is entered via the rift mentioned earlier and can be followed through a series of 1m-high crawls to join the Scalloped Bedding Plane just before the lower chert-topped waterfall. Two small inlets provide water from Hawthorn Swallet; some of this water seeps through into the scalloped bedding plane, but most sinks into the mud and reappears lower down the cave. (Water also enters the lower cave from Hawthorn Swallet by independent routes.)

### *The Scalloped Bedding Plane to the Terminal Boulder Choke*

This section is the most impressive part of the cave. The 3m-chert-topped waterfall marking the end of the Scalloped Bedding Plane is the last chert feature seen. The roof to the end of the cave has only a slight bedding dip. Ceasing to be chert controlled, the floor descends rapidly so that at the terminal choke the passage is over 30m high. To the top of the first pitch a cross section of the passage averages 10m by 10m. This contrasts sharply with the crawls of the old cave.

60m from the chert-topped waterfall there is a choked inlet at roof level, 7m wide and of unknown height. A large quantity of loosely packed glacial debris, including sandstones and granites, has spilled out onto the floor of the cave. This choke has been dug sufficiently to show that its roof slopes steeply upwards, as illustrated in section p-p on the survey. The bulk of the water from Hawthorn appears to the right of this choked inlet from a bedding plane at roof height. This bedding plane extends the whole length of the north side of the passage, (a-b, plate 21), back to the chert-topped waterfall. Small amounts of water enter the cave at various points. 45m below the choked inlet is the first pitch, (6m), and the second pitch, (4m), follows almost immediately. Below her the character of the cave changes slightly to a 3m-wide meandering streamway; the roof over 25m above is often obscured by boulders or meanders. The third pitch is a 3m-climb down through boulders; no tackle is necessary.

The terminal boulder choke extends almost the full height of the passage and appears to be an internal collapse. Progress has been made 50m into the choke but there is no indication of an obvious way on. It is

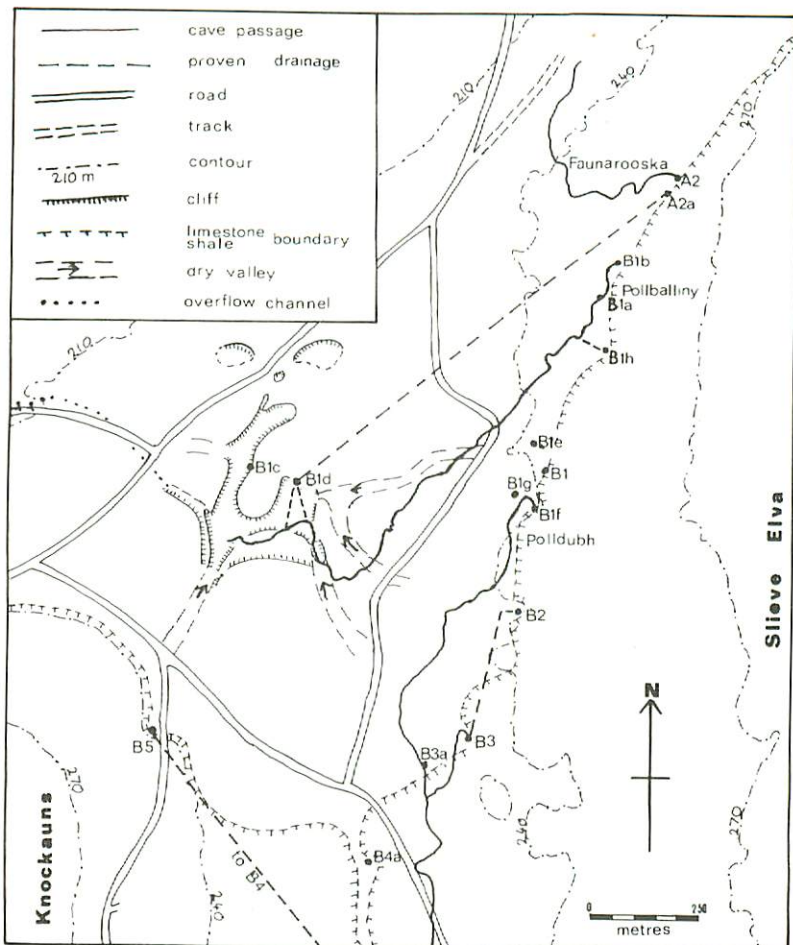


Fig. 64. Map of area. Based on the Ordnance Survey of the Republic of Ireland by permission of the Government. (Permit No. 2784).

Sites from N-S. A2a, Hawthorn Swallet. B1b, B1a, B1h, major swallets for Pollballiny. B1e, B1g, B1f, B2, B3, B3a, B4a main swallets for Polldubh. B1d, Resurgence/swallet for Hawthorn Swallet water (A2a).

also choked at roof level. The stream can be partially followed and drops at least 6m still in the choke.

### *The Surface Features*

Pollballiny in relation to surface features is illustrated in figure 64. To the east and south are the shale-capped highlands of Slieve Elva and Knockauns respectively; to the north-west the land slopes steeply to the sea. The main underground drainage in the area collects into three cave systems, Faunarooska and Pollballiny flowing to the west, and Poldubh flowing south to the Coolagh River.

Centrally sited on the fig. 64 is a large, irregularly shaped closed depression where several dry valleys converge. The best description is by Collingridge (in CNWC, ch. 3, p.51) and summarized here. The base of the depression is 10m below the surrounding clints and this is reached in two steps. The first step is marked by the discontinuous line of cliffs in figure 64, (it is at this level that the dry valleys enter). The second step is an enclosed, 6m-high, line of cliffs. The floor is strewn with glacial debris covered with grass; although slightly marshy in places, no flooding has been observed. The most southerly of the valleys on the western side appears to have been some sort of overflow channel, possibly leading to the dry gully which descends steeply the 230m to the coast. Alternatively, it has been suggested that Pollballiny may have resurged at the head of this valley (Banfield and Ineson 1958).

At Bld (figure 64), the water from Hawthorn Swallet (A2a) resurges, at the base of the upper level of cliffs. After being piped through a cattle trough the water sinks, reappearing in Pollballiny. The surplus water sinks steeply down, barely 2m from the resurgence, to reappear in Pollballiny. To the south of this resurgence there is an area of tangled slabs and boulders. Here a 10m-square slab of limestone has been tilted through 40° relatively recently as the fluting and surface clinting is evidently the result of erosion whilst in a horizontal position and no features relating to its new position have yet been produced. Blc, which is independant of all known water systems, has its entrance in the cliff face just below the surface. It extends for 9m to a small chamber where it encounters a cross rift rising to the north and towards the surface. The depressions clustered to the north are grassy hollows 9m deep, cliffed on their northern sides.

No surface spring is known for the waters of Pollballiny. Two dye tests to S3, the resurgence of the Coolagh River Cave, have proved negative (Perratt and Tratman 1975). It seems probable that the Pollballiny water runs to the submarine resurgence S5 (Clare 4 E.51cm, N.46cm) off Trawee. The technical difficulties of water sampling 10m under the sea have so far prevented any successful dye traces to S5; however, under flood conditions, violent eruptions of peaty water have enabled an accurate position to be fixed for this site (Nuttall, *pers comm.* 1974).

## DISCUSSION

The 1974 extension to Pollballiny is worthy of discussion for two reasons, apart from its spectacular size. The theory that the cave is small because the catchment is small (Banfield and Ineson 1958) is obviously in need of modification. Secondly, its accurate resurveying has placed the cave and its extension in an interesting position relative to the closed depression (figure 64).

It has been suggested (Tratman and Perratt 1975) that the closed depression was formed in the immediate post glacial period. The shale catchment covering Slieve Elva and the Knockauns at this time must

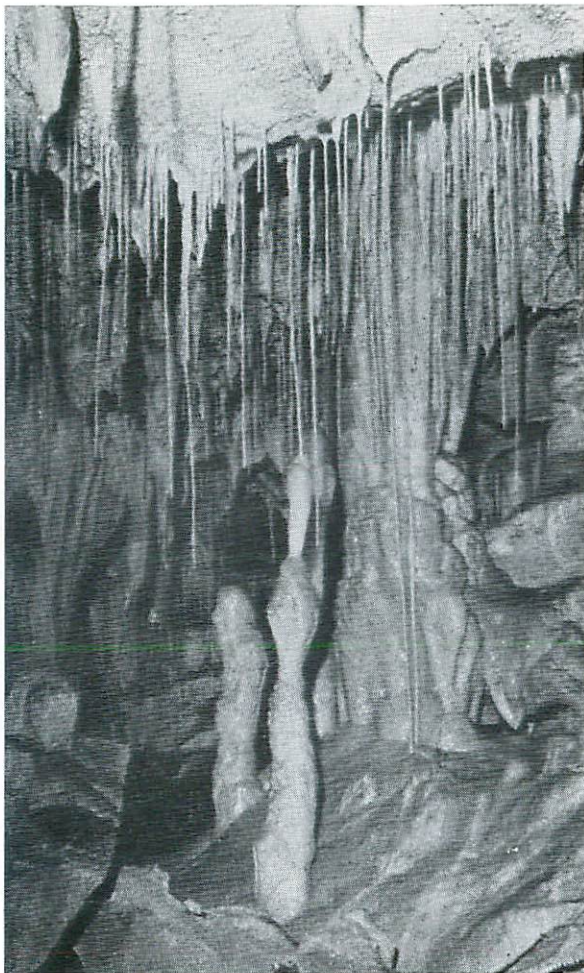
have extended to the depression, subsequently retreating with the development of small valleys. These now dry valleys show that the catchment of the depression comprised the areas now drained by Pulldubh, Pollballiny and possibly as far north as Faunarooska. Swallet development and further shale retreat has led to the present hydrology. It has been noted (C.N.W.C. p.146) that the increasing tendency of the caves to drain southwards in order Faunarooska, Hawthorn Swallet, Pollballiny and Polldubh is in accord with the change in dip from  $0^\circ$  at Faunarooska to  $2^\circ$  south at Polldubh.

In Pollballiny, the north-heading section of the cave is situated directly under one of the dry valleys entering the depression, figure 64. This passage, starting at the southern end with a dry inlet and blocked with boulders at the northern end, is where enlargement starts, though this is not always apparent because of considerable choking by old debris at roof level. This part of the cave may have been formed when the depression was still active and would thus pre-date the present Pollballiny stream.

The Bypass is obviously an earlier development than the Scalloped Bedding Plane; its thick coating of mud was deposited during its abandonment. The massive passage enlargement after the Scalloped Bedding Plane is primarily due to the end of chert control, although the hanging inlet and Hawthorn Swallet have increased the flow of water. There is no direct evidence to suggest that this part of the cave is older than the present stream. The choked inlet (section p-p, plate 21) has a steeply rising roof; it may go directly to the surface but would almost certainly be completely choked with glacial debris slumped from the floor of the depression. It may be that this inlet was once the point of access for the water from Hawthorn Swallet. The entry of this water over a 100m length of cave demonstrates that no single underground route has yet evolved.

So far in this discussion on the nature of the depression mention has been made of its stepped sides and the entrances of the dry valleys, which do not incise the lower set of cliffs. These facts suggest that the area bounded by the inner line of cliffs is the result of a massive collapse. The formation of a large cave in this area is feasible as (a) the catchment would have been enormous, and (b) the development would be below the chert controlled levels. Although there is no way of proving this hypothesis without more research it has some circumstantial evidence in its favour:—

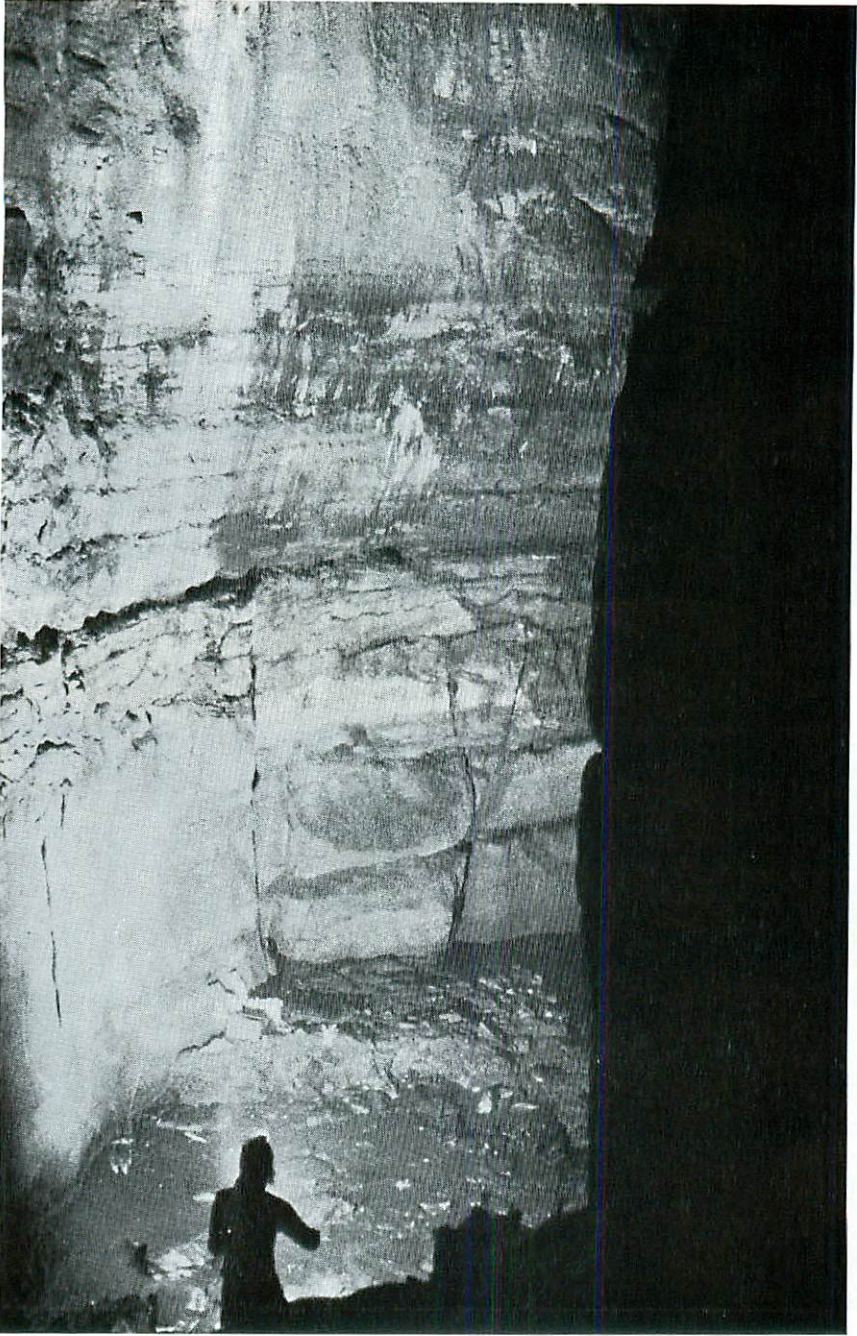
- (1) the north-south section of Pollballiny is choked at its northern end; a possible inlet to an older system under the depression?
- (2) There are smaller depressions to the north of the large depression.
- (3) Blc forms no part of the present day drainage.
- (4) There are collapse features in the floor of the depression, south of Hawthorn Swallet resurgence Bld.



*Plate 22.1.* The Grotto upstream from the Sump.  
*Photograph: Julian Walford.*



*Plate 22.2.* Shelves along the north-going part of the cave.  
*Photograph: Julian Walford.*



*Plate 23.* The large passage upstream from the terminal choke. *Photograph:* Julian Walford.



## FUTURE PROSPECTS

The current limit to Pollballiny lies 200m vertically and 1.8km horizontally from the sea. Though the terminal boulder choke has, so far, resisted all assaults, the rewards for success could be enormous.

## ACKNOWLEDGMENTS

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## REFERENCES

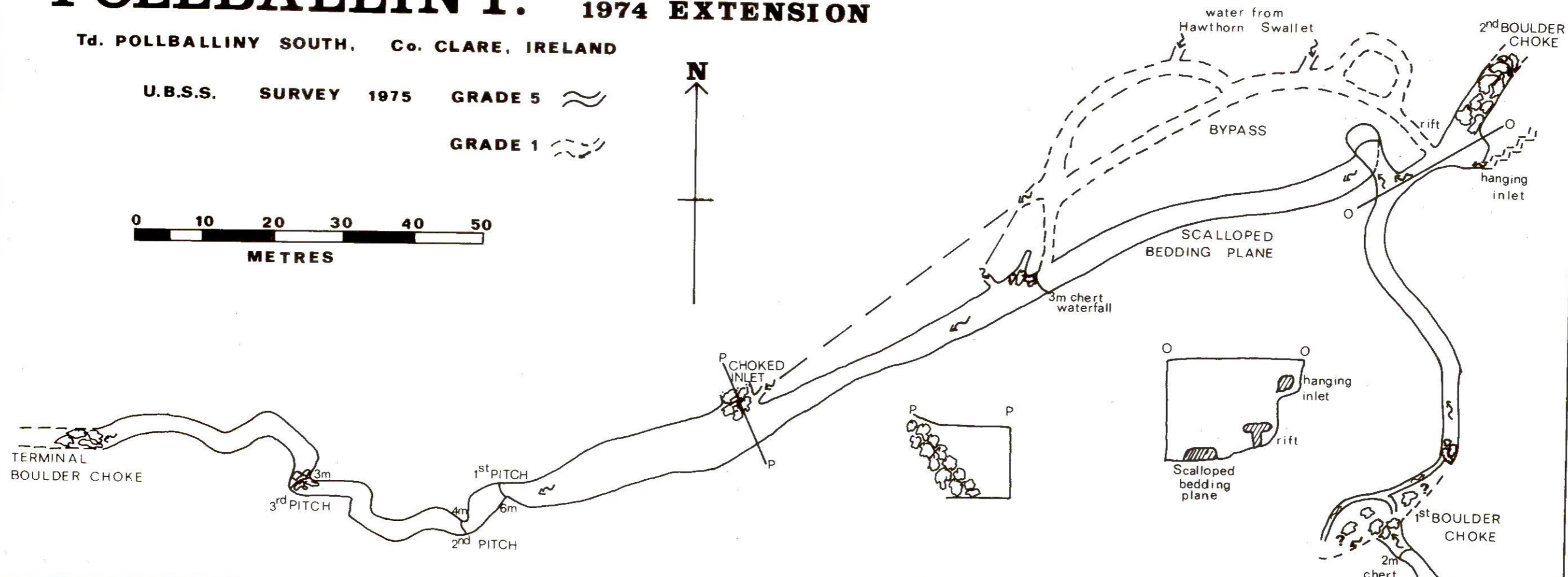
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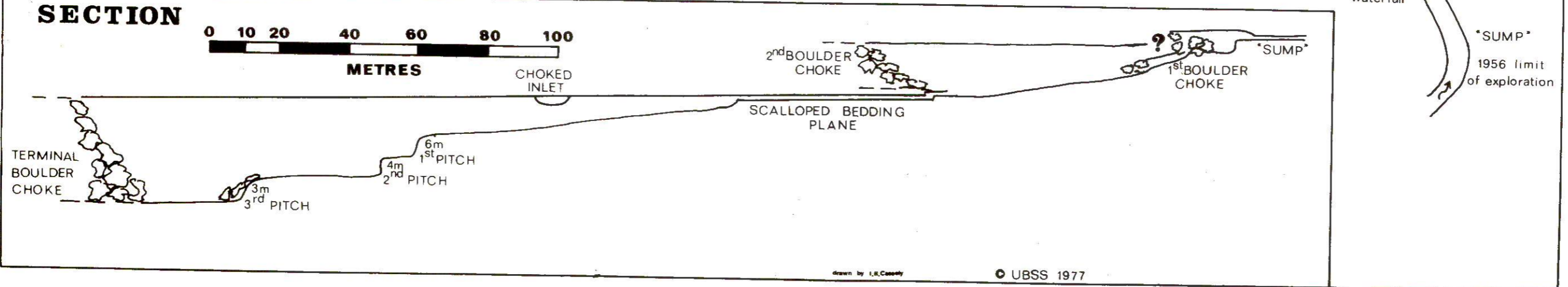
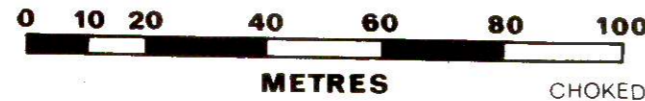
Td. POLLBALLINY SOUTH, Co. CLARE, IRELAND

U.B.S.S. SURVEY 1975 GRADE 5 

GRADE 1 



## SECTION



drawn by I.R. Caspary