

## BULLOCK POT, Co. CLARE, IRELAND

by

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*Bullock Pot*

E11 (Self 1981)

O.S. 1:10560, Clare Sheet 5, E 1.2, N 16.6 cm

Altitude 213m

Townland, Cooleabeg

Length of streamway 789m

### ABSTRACT

A description and survey of the cave Bullock Pot is given. The cave runs east of the shale-limestone boundary and near its end picks up a large stream, believed to be the main stream from the Pollnagollum-Poll-elva System. The cave is unusually arduous for Co. Clare. Also presented is a surface survey of the sinks between Bullock Pot and Poll-cragreagh, which is the next major cave to the south, and a discussion of the past hydrology of the area.

### HISTORY OF EXPLORATION

This cave got its name from an incident which occurred long before the U.B.S.S. started work in Co. Clare. A bullock fell into the open swallet by the roadside and into the 7m long chamber beneath the road. Since the beast could not turn round and was not equipped with a reversing mechanism, two men went in, stunned it and dragged it out.

It was always assumed that the cave was impassable beyond this point, but in 1978 Trevor Faulkner wrote to one of the authors (C.A.S.) drawing his attention to an article (Faulkner 1970) describing an exploration made in this cave of 20m, and suggesting that it wanted looking at again. Two of our smaller members, Phil Buckberry and Bob Peat, were persuaded to have a look, which they did on 17.4.1979, pushing it to the first pitch. Their account of the cave passage was not a flattering one, so the cave acquired a bad name. The next day the two of them re-entered the cave with Sam Moore and 7.5m of ladder. They reached the second ladder pitch and gave the cave an even worse name. On 30.4.1980 the cave was pursued to the end by Charlie Self and Julian Griffiths. A line survey was started on 14.7.1980 by Mick McHale, Martin Warren, Janet Cooper and Mike Martin and continued to just beyond Fat Man's Corner. The party decided that the cave did not fully deserve its reputation. The line survey was completed on 16.7.1981 by Mick McHale and Tony Boycott, while Steve West and Martin Warren pushed up the 'Poll-elva Inlet'. On 6.4.1982 the first 54m of cave was surveyed using metric tape and compass, to confirm that the cave passed under the road. The surface survey was done by Oliver Lloyd during the Julys of 1979 and 1980, using metric tape and compass.

## DESCRIPTION OF CAVE

The cave lies 2m west of the road, 100m along the road from the wall which leads down to Pollelva to the east. The entrance is a pothole 2m deep to a point where the stream enters. A roomy entrance chamber extends for 7m under the road and is then partly obstructed by fallen boulder slabs. A narrow canyon passage leads off and the cave continues narrow and tortuous, so that one frequently has to crawl flat-out in the stream. At 47m from the entrance an upper level passage develops. This is a tight crawl and after 14m enters a rift chamber, 4 x 3m and 6m high. The main streamway is rejoined from the right at 64m from the entrance. The alternative and normal route is to crawl in the stream through a narrow duck at 54m, but this is impassable in wet weather. The meandering rift continues about 3.5m high to the first pitch. Often it is possible to crawl in the upper level, but the wet crawl in the stream is less strenuous. The chert nodules in the floor gave it the name 'Acupuncture Crawl'.

At 137m the first pitch (6.2m deep) is reached. It starts in a narrow rift 5m high. A ladder may be belayed to a limestone projection above the pitch on the right. At the foot of the pitch is a chamber 12m high, 9m long and 7m across, with an inlet stream entering 2.5m up the right hand wall from a rift which closes down. A meandering cavern (2 x 1m) is then followed to 250m. At 260m there is an inlet on the right, 2.5m above the stream, 0.5m high and 0.25m wide, difficult to climb into. A stream enters here from a small tributary passage which appears to run alongside the main stream. This marks the beginning of 'Thin Man's Gallery', a narrow canyon which continues to 'Fat Man's Corner' at 355m, where a squeeze around a corner has to be passed at stream level. At the far side the passage is keyhole shaped and too narrow for us at stream level, so it is necessary to climb two metres and traverse at roof level for 10m. This upper level is singularly awkward when carrying tackle. The lower part of the passage then widens but having regained the streamway the water suddenly disappears into an inaccessible slot. The water returns and at 389m there are cascades 3 and 2.4m high leading to the head of the second pitch (18m).

The second pitch has a belay on the left and drops down 6m and 3m onto chert ledges, reaching the floor after another 9m. A back-up belay is recommended and needs a very long tether. The chamber at the bottom is 9m long and an estimated 30m high. There is a drip inlet on the left. A canyon passage 1 x 1m follows and lies in the *Productus* bed so characteristic of the roof of Pollnagollum.

At 464m 'Inlet A' enters from the right, carrying a stream the same size as the Bullock Pot stream. This may be entered on a bearing of 280° for 10m to a rift aven. Upstream are cascades 5m high, not climbable, but along a bearing of 200° is a small muddy canyon passage (1 x 0.5m) which was followed for 40m and continues.

Downstream from the junction of these two streams the passage is the roomiest in the cave and is known as 'Productus Promenade'. At 539m a tight dry canyon passage enters on the right. At 659m the main

# BULLOCK POT

Td. Cooleabeg, Co. Clare, Ireland

U.B.S.S. Survey, 1979 - 1982

Scale  
20 0 100  
Metres

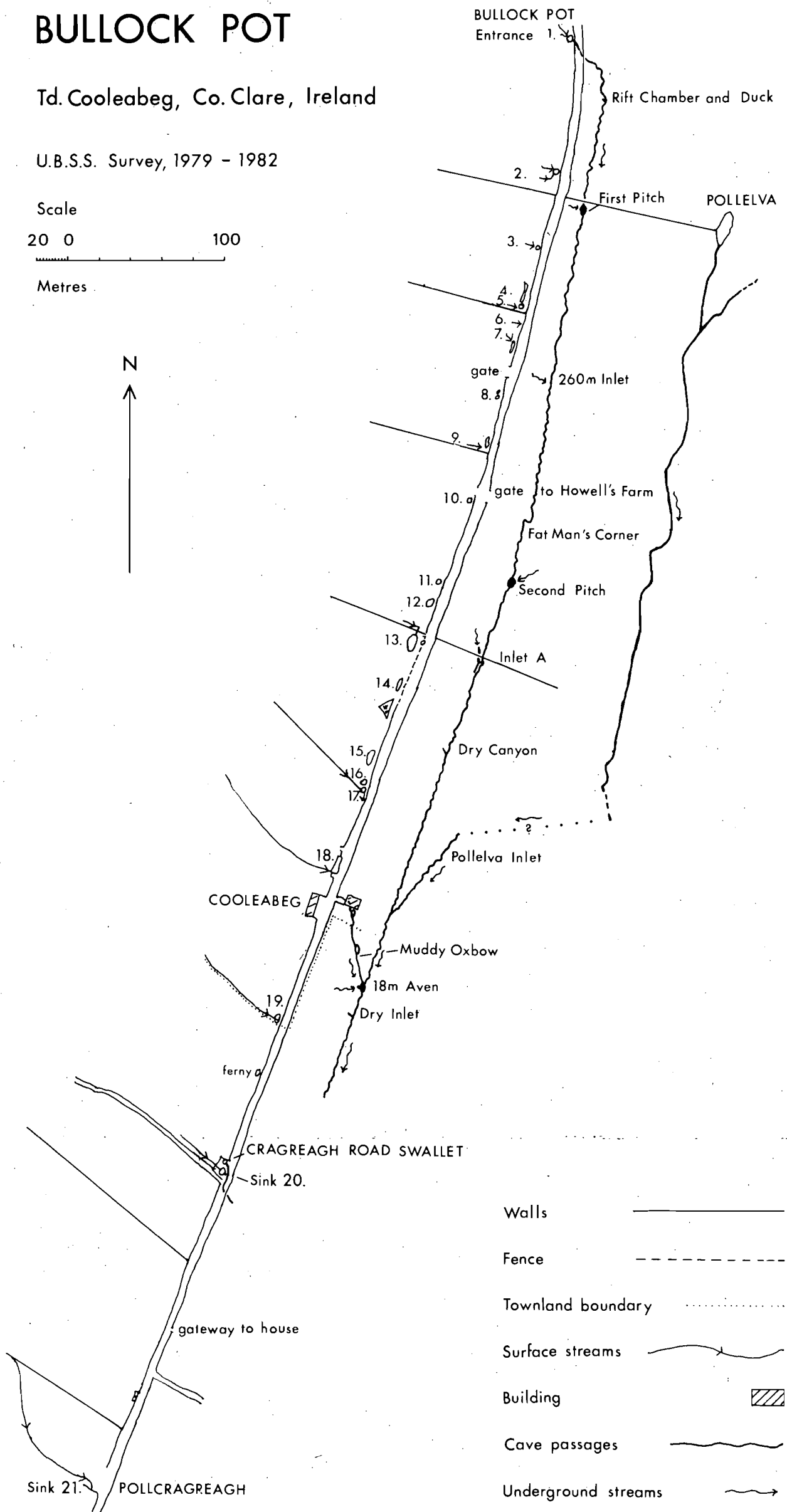


Fig. 28 Survey of Bullock Pot and overlying sinks. These have been numbered 1 to 21.



passage is joined by a large tributary from the left, which has just dropped down over a step 0.6m high into *Productus* Promenade. It carries about twenty times as much water as the Bullock Pot stream and has been called the 'Pollelva Inlet', on the assumption that it is the main streamway of the Pollelva-Pollnagollum System. It has been followed upstream for 80m along a bearing of 40°. The passage (0.6 x 0.6m) has an airspace of 0.3m.

The main passage is now 2 x 1m with fresh mud on the ceiling and runs on a bearing of 200°. At 679m it dips down through the *Productus* bed and its size is now 1 x 0.5m. At 709m there is an aven 18m high with two inlets on the right. The larger one takes a waterfall which can be climbed 10m to a ledge, from which it can be seen that the passage continues 8m higher up in a southerly direction, but this part has not been entered. The smaller inlet, bearing 350°, was followed for 40m to a rift sump and muddy oxbow. A second rift sump was then seen, probably a continuation of the first, and the muddy oxbow continued to a point where a waterfall could be heard.

At 729m there is a dry inlet on the right (main passage 0.75 x 2m). At 789m there is a gravel choke with many roof pendants. The passage has an air space of only 0.1m and was followed no further. At this point the cave is 290m north of the surface sink of Pollcragreagh. The resurgence for the water is at Killeany Rising, some 600m to the south-east. With the exception of the Pollelva Inlet, all the major inlets enter from the right. It is assumed that they derive from the eleven active swallets along the roadside (Fig. 28).

## SURFACE SURVEY

### OF SINKS AND SOAKAWAYS BETWEEN BULLOCK POT AND POLLCRAGREAGH

There were three objectives in this surface survey. One was to provide a map of surface features to go with the Bullock Pot survey. A second was to pin-point each opening, because the Irish Diaries contain many notes about exploration of these swallets without saying just where they were. In consequence the openings are unidentifiable. This need no longer be so. The third reason was the possibility of eventually finding out which swallets fed which inlets in Bullock Pot.

A distance of one kilometre was surveyed along the roadside from Bullock Pot to the sink for Pollcragreagh. Openings and soakaways have been numbered from 1 to 21 (see Fig. 28).

1. *Bullock Pot*.
2. Pothole (1.2m deep x 1.2m diam.) at junction of two streams. Red mud. No way on.
3. Sink (1.5m from wall) into a shallow muddy pool with rushes but no bushes. No cave.
4. Linear N-S depression (10m long x 1.5 x 0.5m). No stream, no pool, no cave.
5. Small sink (5m from wall) into a limestone hole (0.4 x 0.3 x 0.2m deep). No cave.
6. Small stream sinks under wall into hole (0.3 x 0.2m).
7. Rift 4.5m long running N-S, 4m from wall, 0.6m wide, taking trickle at north end.

At its south end is a cave (3m long x 1 x 0.5m) ending in a crack to daylight via a depression (1 x 0.6 x 0.6m). Water trickles away in a little floor gully, too tight.

8. Two soakaways (4m from wall) each 1 x 0.5m and the deeper 1m. Blocked with earth.

9. Just north of the old wall marked by a line of fir trees, 3m from wall, stream sinks into limestone down hole (0.7 x 0.5m) choked with boulders. No way on there. Associated pit to north (1 x 1 x 1m deep).

The third hole (3m from the road) is 2m deep to a cave (0.5 x 0.8m) with a mud floor (E 11a). After 1.5m crawling there is a tight right hand corner. A dig would be very awkward. It is in fact on an S-bend and the boulders overhead are loose.

Just by the old wall which runs W-E is a narrow rift 5m from the road. After 2.5m to the south it is choked with mud.

10. Depression in limestone (2 x 0.7 x 0.8m deep) 1.5m from wall. At the eastern end is an impassable triangular opening (0.3 x 0.3m) leading to a cave 2m deep x 1m diam., partly filled with rubbish.

11. Soakaway (3m from wall) 1m deep to hole (0.2 x 0.2m) in earth. No cave.

12. Pit (5m from wall) 5m diam. and 2m deep, filled with willow and domestic rubbish. To the south is an opening 1m high x 0.5m wide obstructed by a dead dog. Dig-gable but too much rubbish.

13. There is an old wall here with a stream descending on the north side. The stream runs south through the wall 6m from the road and enters a large pothole (15 x 5m) with willow bushes. At the south end at a depth of 2.5m it is horribly choked with rubbish. At the north end 4m down it is full of loose boulders. Below is a waterworn passage (1.5m wide x 1m high) filled with rather loose boulders. It was not pushed.

Just by is a ditch which drains into No. 14.

14. Wet depression (3m from road) 2m wide.

15. Depression for drainage channel from road. Limestone exposed, no hole. Small hawthorn and a lot of willow.

16. Depression 2 to 5m from wall with large hawthorn. No hole.

17. At the end of willow hedge running W-E and following incised drainage channel, stream soaks away by wall or drains south into marshy ground.

18. Pond (2m wide) 2m from road fed by stream entering from along old field boundary. Soakaway.

19. Sink (3m from wall) with stream entering from the west along a channel filled with willows (E 11b). There is a triangular opening (0.5 x 0.5m) 2m below the surface. The cave passage goes south 3.5m parallel with the road and then bends 70° to the right. It is then too tight but appears to open out and go south.

20. *Cragreagh Road Swallet* (E 11c). There is an obvious sink (0.3 x 0.5m) for the stream coming off Slieve Elva and running north of and parallel with the old track up the mountain. The entrance to the cave is not the sink but a hole (0.4 x 0.5m) 1.5m to the north of it. The cave has been followed for a total of 30.1m. The stream runs in a tunnel (0.4 x 0.6m at most) well decorated with flowstone gour pools. 13.3m from the entrance is an inlet from the right, well decorated, but it closes down. 16m from the entrance is a drop of 1.5m. A dry upper level passage continues above for 10m and still continues. The original stream passage



after the drop continues at the same size for another 14m, when there is a second drop of 1.5m into a water-filled pool (0.1m deep). The water goes off bottom left into an impassable passage. A dry rift continues ahead but is very contorted. After another 1.5m there is a tight right hand bend, which might be pushed.

21. Sink for *Pollcrageagh* (E 12).

## DISCUSSION

Before discussing the geomorphology of Bullock Pot we would first like to use this opportunity to summarise current opinions on the original hydrology of the area. Of particular interest is the Pollnagollum-Pollvelva system, the major cave of the area and, incidentally, the longest cave in Ireland (see Fig. 29).

Collingridge (1962) made a very detailed study of the Pollnagollum-Pollvelva caves and came to the conclusion that most of the lower passages are "out of adjustment with the topography of their region" and therefore are "older than the present cycle of erosion". In many cases the present streams are misfits in these passages, excavating an older infilling of sediment. He suggested that the cave "must have been formed before the last glacial advance (Würm II)". Though the glacial nomenclature has changed since 1962, we are in agreement with this broad conclusion.

At the time of the initial development of the system, probably during the last interglacial period (Ipswichian) but perhaps during a warm interstadial of the last cold stage (Devensian), Pollnagollum and Pollvelva potholes were underground vertical features located near the shale margin. The shales were more extensive than they are today and may even have been present in the vicinity of the col between Slieve Elva and Poulacapple, providing the catchment for the abandoned passages that join the Pollnagollum mainstream from the east. An alternative idea is that this catchment was an area of impermeable moraine on the limestone, left behind by a previous glaciation. Whichever is correct, no traces now remain.

The original underground drainage all met in the region of the Maze. The drainage from Pollvelva was along the minor jointing direction to the east, via the Craven Canyon. The passage was still vadose when it was joined by the Pollnagollum Main Streamway and the combined streams continued east via East Tunnel. Since the present resurgence at Killeany is obviously post-glacial, Collingridge presumed an original resurgence for the water in the centre of the valley between Slieve Elva and Poulacapple, in roughly the same position as the highest modern flood resurgence above Killeany Rising. Because of the relative altitudes of cave and resurgence, Collingridge's scheme does not allow any significant erosion of the surface since the cave was first formed, either by glacial action or by simple surface weathering. And yet considerable erosion occurred higher in the valley, where all traces of the catchment for the fossil eastern tributaries of Pollnagollum have been removed.

Subsequent to Collingridge's work, studies have been made much further east at the Fergus River Risings near Kilnaboy, where water from a wide area of the south and central Burren is now known to resurge. Of particular importance, Cullaun Five has been proved to drain 10km south-east from southern Poulacapple to resurge into the low-lying River Fergus. Pollnagollum could easily have drained 13km in the same direction, and what of Cullaun Two (which has given negative dye results on several occasions to the Killeany-St Brendan's drainage system)?

During the late Devensian cold period, frost shattering and glacial stripping of the shale cover produced a lot of loose sediment that was eventually washed into the caves and the lower passages of the Pollnagollum system became choked. The water found a new route, following the major jointing direction south to a new resurgence at Killeany, the passage formed being the Pollelva Streamway. That Pollnagollum did not originally drain in this direction suggests that at the time the Killeany Valley was not deep enough for such a resurgence. Above ground, swallets developed at the new shale margin. Pollismorahaun (Upper Pollelva), E3 (Upper Pollnagollum) and Bullock Pot are three of the many so formed. Bullock Pot and the Pollelva Streamway thus seem to have been contemporary passages, taking their water separately to the post-glacial resurgence at Killeany. It seems likely that the two caves join somewhere beyond their present explored limits, perhaps combining with the stream passage from Pollcragreagh in the phreatic zone near the rising.

On the evidence presented so far in this paper, Bullock Pot is a typical post-glacial County Clare cave: a simple stream canyon passage draining down the major jointing and, unlike the older and more complex Pollnagollum, a pretty boring one at that. What lifts Bullock Pot out of mediocrity is the Pollelva Inlet. The quantity of water entering at this point is so great that it must be the Pollnagollum-Pollelva mainstream and yet it enters as an inlet. The passage is very small, considering the volume of water it carries, and drops 0.6m into Productus Promenade of Bullock Pot. If the two caves were to join, one would expect the much smaller Bullock Pot stream to be in the 'hanging' passage. This suggests that capture of the Pollnagollum water by Bullock Pot was a relatively recent event and that the Pollelva Streamway loses its water shortly beyond its present explored limit and continues dry towards Killeany Rising. But why should the smaller passage (Bullock) capture the larger (Pollelva)? The two caves are developed in the same bed so there is no gradient advantage. The answer may be that the lower parts of Pollelva Streamway (beyond the known limit) are blocked with sediment. Since the retreat of the ice cap and the infilling of the passages of Pollnagollum with glacially derived mud, blocking the original water outlet East Tunnel, the Pollelva Streamway has in turn become blocked and the water has found a new outlet through Bullock Pot.

Turning now to the geomorphology of the cave, Bullock Pot displays the mainly vadose, southerly development typical of Co. Clare. Discounting tributaries, the cave consists of a single passage. However, in



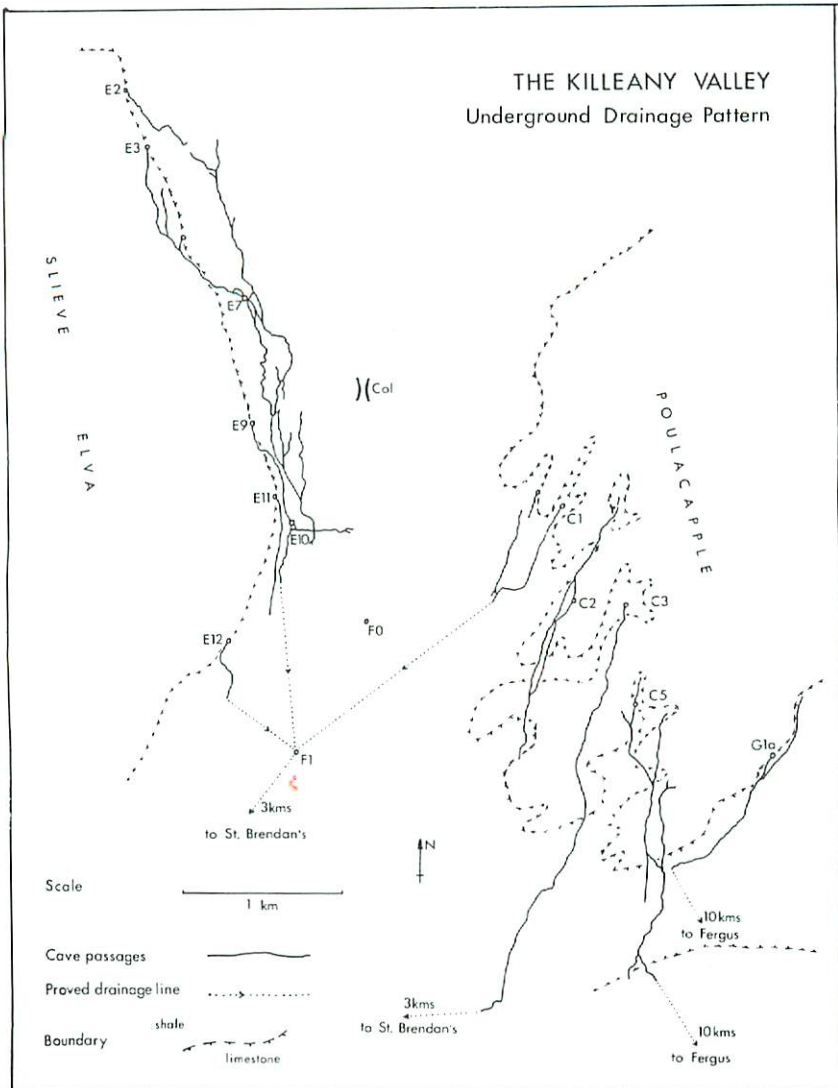


Fig. 29.

**DRAINAGE OF THE KILLEANY VALLEY**

E7 Pollnagollum, E9 Pollismorahaun, E10 Pollelva, E11 Bullock Pot, E12 Pollcragreagh, C1 Cullaun One, C2 Cullaun Two, C3 Cullaun Three, C5 Cullaun Five, G1a Pollcahermacnaghten, FO Flood Resurgence, F1 Killeany Rising.

the entrance series (as far as the first pitch) the cave is split into two distinct levels: a low and wet passage carrying the stream, and an upper dry level of sometimes synchronous and sometimes independent meanders. This split level development is common in Co. Clare, particularly in the first few hundred metres of a cave where rapid vadose downcutting causes a changing meander pattern of the streams in their early courses. Separate stages of development do not need to be



considered, as further down the cave the levels coalesce into a single passage.

Both the first and second pitches in Bullock Pot are chert-topped waterfalls. Distinct bands of chert in the limestone have arrested the downcutting streamway and left it perched above the local hydrological base level. The pitches occur where joints allowed the water to penetrate these chert layers: again, typical features in Co. Clare. The hydrological base level on this side of Slieve Elva appears to be at about the level of the *Productus* bed. This bed is a localised concentration of the fossil *Productus giganteus* and forms a distinct horizon in the rock, which dips at about  $2^{\circ}$  to the south. The underground stream gradients are of a similar order, so this *Productus* layer is commonly seen in the caves—from Branch Passage Gallery to Pollelva Streamway in the Pollnagollum system, as well as in *Productus* Promenade of Bullock Pot. The chert horizons also seem locally extensive with a particularly impermeable layer at about 25 metres above the *Productus* bed. A thick chert bed is present above the big pitches in Pollnagollum, Pollelva, Pollcragreagh and Bullock Pot. Though this could be the same lens of chert, we cannot use it as a marker bed as chert is often laterally impersistent in the limestone. Also, there are too many chert beds to be sure of distinguishing between them.

### THE SURVEY

Bullock Pot was deemed unsurveyable by conventional methods. It was noted however that it had developed along the major jointing, which fairly closely followed the  $196^{\circ}$  bearing, except for two measurements beyond the second pitch, where the cave was running at  $200^{\circ}$ . A line survey was therefore made with a piece of courlene cord 10m long, so that no great degree of accuracy is claimed. As an afterthought the first 54m of cave were surveyed properly with tape and compass, as far as the duck. This confirms that the cave passes under the road and then runs south, about 35m east of the shale-limestone boundary. A topographic sinuosity (survey distance : distance between end points) of 1.1 was calculated from the first 54m of cave and in plotting the rest of the cave plan this foreshortening has been allowed for.

### COMMENT

From the survey it would appear that the distance between upstream Pollelva Inlet and downstream Pollelva Streamway is very short in a north-south direction, but there is a considerable misclosure east-west. This may be true, but more likely the misclosure is due to the way in which the survey was carried out. Close as the caves may be, the prospects for a connection seem slim. The linking passage will be very small, very wet and could even be partially obstructed by sediments. Prospects beyond the explored end of the Bullock Pot streamway are no more encouraging; if the obstructing cobbles were removed the passage would still be low and, approaching the resurgence, increasingly wet.

The sinks and caves between Bullock Pot and Pollcragreagh do not seem to hold much hope for further exploration. But who knows? Some cavers are smaller than others.

## REFERENCES

- |                     |      |  |
|---------------------|------|--|
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