gastropods (Appendix 1).* In this are developed mud stalagmites. Thus there must have been initial passage formation, then probably some infilling, followed by collapse of the roof to form the present floor of blocks. Then followed a fast-flowing stage with a considerable stream, which in its turn was followed by a quieter sand and mud deposition stage. The mud stalagmites of Mud Chamber may indicate that here at least this stage is over now.

Several stages of stalagmite formation can also be distinguished in the section from the entrance to Shingle Cavern, and this formation frequently overlies pebbles, mud and collapsed boulders. In Shingle Cavern a boss of stalagmite 4 ft. in diameter has been vigorously redissolved, exposing a section across its diameter. This has been since partially obscured by a further deposition of calcite. Despite its "dead" appearance the latest stage of calcite formation throughout the cave would appear to be one of deposition rather than redissolving, though the soft nature of much of the formations is worth reemphasizing.

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APPENDIX 1

LIST OF NON-MARINE MOLLUSCA

(Nomenclature according to Ellis, 1951)

By

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Valvata cristata	708 examples
Valvata piscinalis	25
Bithynia tentaculata	1 operculum
Carychium sp.	2
Lymnaea peregra	10
Planorbis leucostoma	56
Planorbis crista	7
Planorbis contortus	96
Acroloxus lacustris	194
Ancylus fluviatilis	377
Lauria sp.	2
Discus rotundatus	Fragments
Pisidium personatum	?48
Pisidium ?hibernicum	3
Pisidium nitidum	?17
TOTAL	1,546

The molluscan fauna indicates warm conditions similar to the present. *Acroloxus lacustris* is a southern species which in Europe reaches its furthest north in southern

* The authors are very grateful to Mr. Williams for his report on these mollusca. He considers them, and therefore the mud, to be Atlantic in date (Zone VIIa).

Scandinavia. The remaining water species furnish no definite evidence as to temperatures, but the few land species present (*Carychium*, *Lauria* and *Discus* sp.) confirm that the climate was warm.

The mollusca are most likely to have lived in a gently moving river; it is improbable that they lived in a lake. The three main species vary somewhat in the conditions they prefer (Boycott, 1936). *Valvata cristata* lives in running water and likes plenty of mud and water plants. *Anyclus fluviatilis* prefers places with a quick current and a clear bottom. *Acroloxus lacustris* may live in the same river as *Ancylus*, but it inhabits stretches of quieter water where there is much submerged vegetation. All three can occur in lakes but they would scarcely be the dominant species. The fauna is definitely not that of a turlough, intermittently empty of water, such as Lough Aleenaun.

There are several peculiarities about the fauna, however, which make its interpretation difficult. In the first place, land species account for a remarkably small percentage of the total shells. In typical river mud, for instance that of the Fergus River today above Inchiquin Lough, land species account for 5 to 10 per cent of the total and are probably mostly picked up by the river in time of flood. A low percentage could mean that the deposit was laid by a river with a freedom from floods or was derived from a lake with a nearly constant water level.

Secondly, it is surprising that such genera as *Bithynia* and *Lymnaea* are not better represented. They dominate the fauna in the lowland lakes at the present time (e.g., Lough Bunny) and are the main genera in the Fergus River muds together with *Ancylus*. Perhaps a partial explanation is that the material in the cave has been strongly size-sorted. The maximum size of shell is about 3 mm. The larger shells of such genera as *Bithynia* and *Lymnaea* may have been washed elsewhere. However, even if this happened small fragments and opercula should have been found in greater numbers if these genera were abundant.

The age of the deposit is presumably not earlier than the Atlantic period (Zone VIIa), though the possibility of it being interglacial cannot be entirely ruled out. It is interesting to note that it contains no *Theodoxus fluviatilis* which now occurs abundantly in parts of the River Fergus.

My thanks are due to Mr. B. W. Sparks for identifying the species of *Pisidium*.

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APPENDIX 2

Report on the Fergus River Cave Erratics

By

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A number of erratic pebbles from the Fergus River Cave were examined. The assemblage as a whole consists of igneous-textured granite pebbles with smaller amounts of pure quartzite, clayey sandstone, porphyry dyke-like fragments and pieces of migmatite. They may be classified into four groups:

(A) This group consists of: (*a*) fine-grained aplitic granite; (*b*) hornblende–potash felspar–plagioclase granite in which the horneblende is partly altered to chlorite plus epidote; (*c*) bits of muscovite-bearing quartzite and pieces of quartz; (*d*) a schistose, fine-grained granite with chlorite after biotite; (*e*) a slightly clayey sandstone with an interesting piece of horneblende schist intruded by a migmatitic granite.

(B) This group consists of pebbles and fine-grained acid granite, other coarser grained granite, a clayey sandstone and a migmatitic granite.

(C) This consists mostly of a dark igneous rock, which is probably a chilled, acid, porphyry dyke rather than a basic rock, and some quartzite fragments are also present.