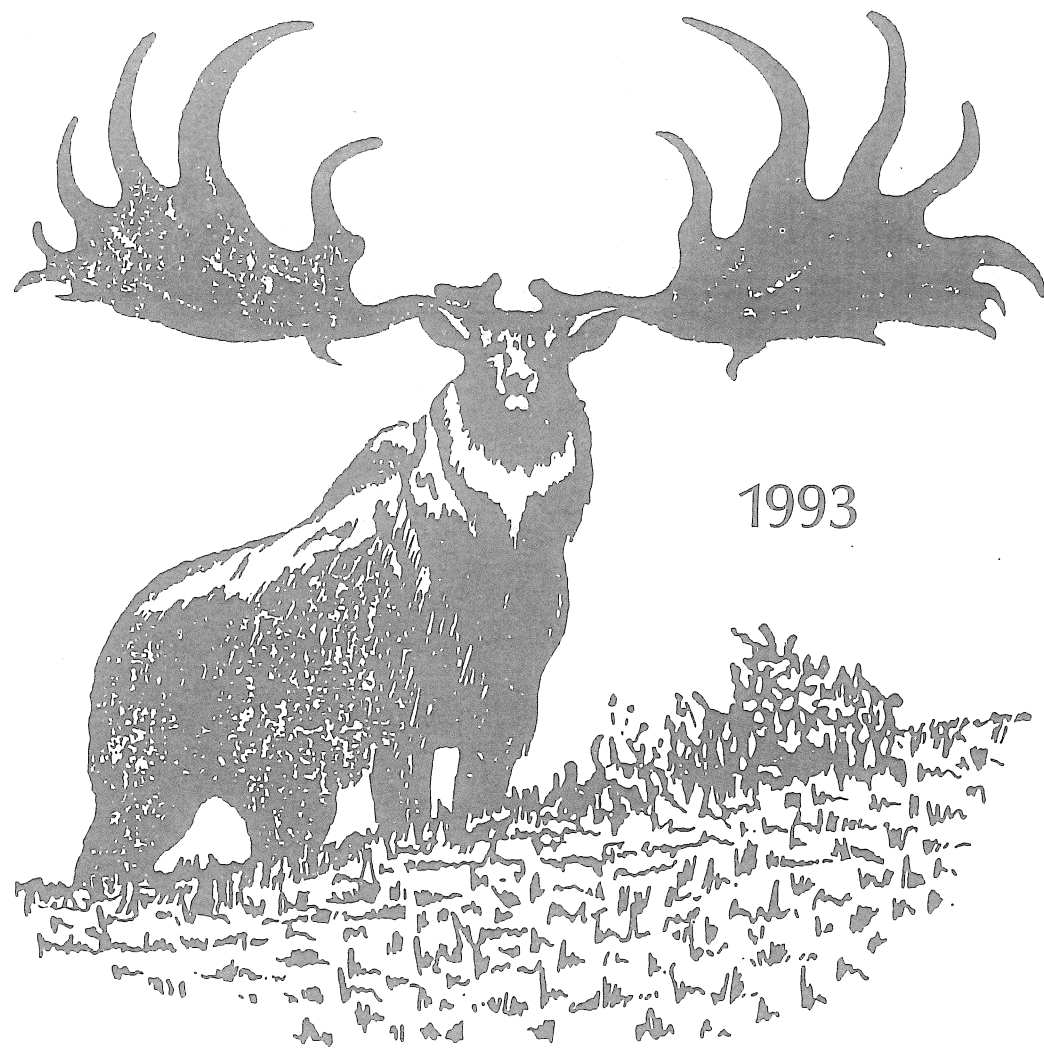


IRISH ASSOCIATION FOR QUATERNARY RESEARCH



1993

FIELD GUIDE No. 16
SOUTH FERMANAGH, NORTHERN IRELAND

Irish Association For Quaternary Studies
Cumann Staidear Re Cheathartha na-Eireann

*A FIELD GUIDE TO SOME ASPECTS OF THE QUATERNARY
HISTORY OF SOUTH FERMANAGH.*

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on behalf of the Committee of the Irish Association for
Quaternary Studies.

IQUA Field Guide Number 16

Some of the information contained in the guide represents
unpublished research work which should not be
reproduced without the consent of the author concerned.
Permission for access to all sites detailed in the text should
be sought before entry.

The area covered during the field meeting is included on
sheet 7 (Enniskillen) of the Ordnance Survey of Northern
Ireland, the one-inch map, third series.

ISBN 0 947920 15 3
ISSN 0790 4096

Preface

Each autumn some part of Ireland is 'invaded' by a convoy of vehicles. The participants in the IQUA autumn field meeting have come to see, to speculate, to discuss. The meeting is a most egalitarian event. The participants may be amateurs with extensive knowledge of the Quaternary of Ireland or professionals in one or more of the Quaternary disciplines. Some are native Irish, others are from further afield. All have a common interest in the Quaternary history of Ireland and all willingly participate in the discussions in the field and at the social events which follow.

Over the years field guides have been published to accompany the trips. The value of each guide does not diminish once the field meeting is over. Field guides remain as useful references and reminders for further excursions and are eagerly sought after by those visiting areas where aspects of Quaternary impact have been highlighted.

This guide follows this tradition. In common with all of the previously published guides, its contents draws together published and unpublished data and reflects the interests and expertise of the contributors and the editor. It is not intended to encompass the entire south Fermanagh area, it is a guide to selected sites.

Fermanagh has a wide range of unique landscape features which have not escaped the notice of Quaternary scientists nor the tourism and leisure industries. The landscape is one of the most well-watered and diverse in Europe. It is also a vulnerable landscape. For example, the cave system at Marble Arch, which has attracted many thousands of tourists to the area, is under increasing threat from flooding

as upland blanket peat is stripped from the Cuilcagh Mountain area.

Our visit will concentrate on the geology, geomorphology, archaeology and palaeoecology of the area. We are constrained by time, sites which are omitted are no less important. The editor and contributors would urge further visits and continuing research in this varied and challenging area.

Within the text there is a compilation of published and unpublished information referring to places we will visit on the excursion that will be of assistance in our understanding in the field. The reader's attention is drawn to the original publications for full details.

Outline of the IQUA 1993 autumn field meeting

Saturday 2 October

Introduction to the Quaternary of south Fermanagh at the County Museum, Enniskillen.

Visit to Marble Arch Caves and surrounding surface sites of geological and geomorphological importance.

Visit to a range of archaeological sites spanning time periods encompassing the Neolithic to Early Christian Periods.

Sunday 3 October

Further sites of Geological and geomorphological interest. The botanical and mammalian palaeoecology of the south Fermanagh region. Choice of sites will depend on weather conditions and water levels in the Sillees- Ross Lough area.

About the contributors

Tim Fogg

Tim is an internationally acclaimed expert on caves. He has an extensive knowledge of the geology and geomorphology of south Fermanagh. Recently he was one of a team researching the hitherto unexplored Xing Wen cave system in Sichuan Province, China.

Greer Ramsay

Greer is an archaeologist with a particular interest in Bronze Age studies. He has carried out considerable research on Bronze Age metalwork.

Janie Crone

Janie too is an archaeologist with much experience in the Early Christian period in Ireland. Dietary practices are one of her main interests.

Fred Carroll

Fred is a naturalist and local historian. His knowledge of the south of the county is of the quality which comes solely from knowing the area 'like the back of his hand'. Recently Fred has published new researches into late Pleistocene and early Holocene mammalian studies in Fermanagh.

Valerie Hall

Valerie is a palaeoecologist who has carried out research on the development of the landscape of the north of Ireland over the last four thousand years. She is researching environmental topics linked to volcanic ash falls in Holocene deposits throughout the north of Ireland.

Section 1

INTRODUCTION

Over the last few years there has been an upsurge of interest in environmental and cultural issues at both international and local level. The Irish Association for Quaternary Research encourages and fosters such enthusiasm as many people discover, for the first time, the rich and varied landscape of Ireland's many regions, each with its specific record of ancient and recent environmental change.

This guide differs somewhat from those previously published. In this section there are given some general outlines which are aimed especially at those people who are not experts in Quaternary sciences but who would wish to use the field guide to enhance their understanding and appreciation of the Quaternary history of south Fermanagh. It draws largely from previously published material. Its purpose is to provide a basis for a fuller understanding of the site based reports in Section 2.

GEOLOGY AND GEOMORPHOLOGY

Some aspects of Quaternary glacial processes and karst formation in Fermanagh

In their excellent publication *The Quaternary History of Ireland* (Edwards & Warren, 1985), the editors state 'Our record of Irish Quaternary history begins late in the Quaternary Period. The start of this period may have been two million years ago; for the time being we remain largely ignorant of events for perhaps 90% of the Irish Quaternary sequence. Nevertheless the visible landscape provides many tantalizing glimpses of its origin'. This statement is especially true for those attempting to unravel the complexities of geological and geomorphological processes which moulded the landscape of Fermanagh, for the processes which once formed the landscape were later the agents of its erosion

There is now a well established framework for glacial events in Ireland. Studies in the Fermanagh area have contributed to a fuller understanding of glacial, interglacial and interstadial processes and time scales. It is not known how many glaciations occurred in Ireland as, without knowing the number of interglacials, glaciations cannot be counted. The retreat pattern of the western and northern margins of the ice sheet is not clear but there was probably a general southern retreat of the ice front from the northern coastal area to the Tyrone/Fermanagh region and the Lough Neagh basin.

The interstadial organic deposits in Fermanagh go some way to clarifying the glacial record and suggest at least two major glacial events (Fig. 1). At Derryvree and Maguiresbridge organic silt deposits are trapped between two glacial tills. There is no indication of interglacial deposits between the tills from either site so it is likely that both deposits are from the same cold period. The organic

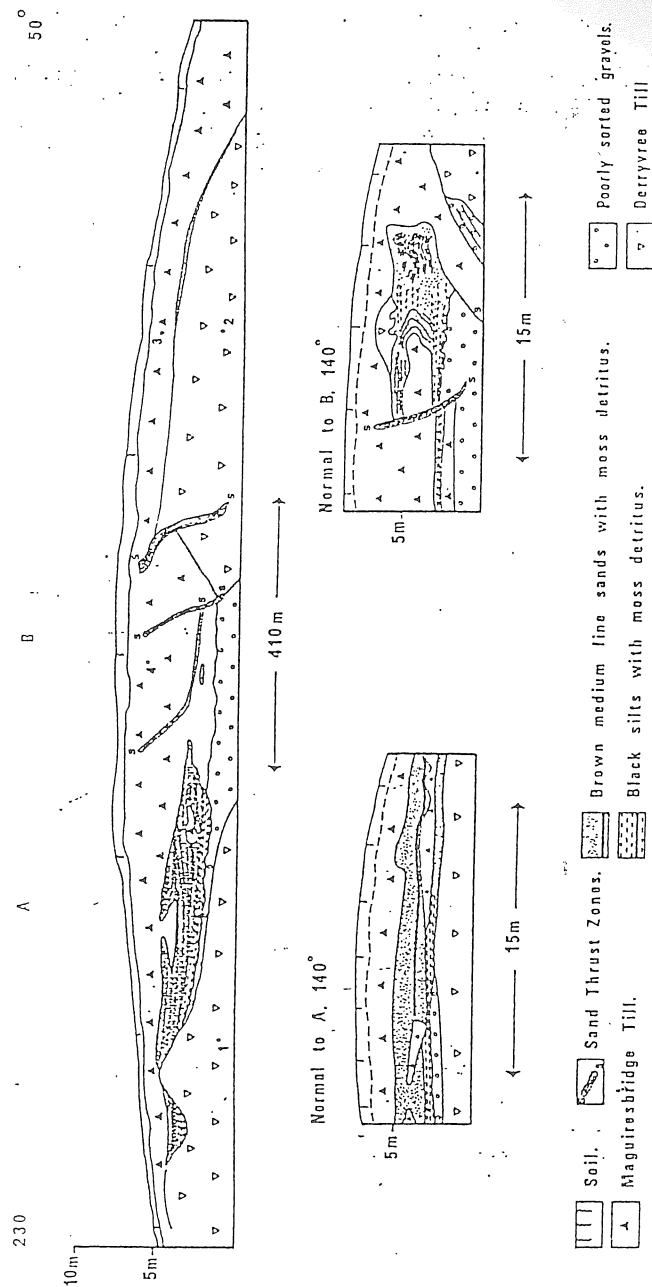


FIGURE 1 Deposits observed in the north-west side of the road cutting at Derryvree and two short temporary cuttings normal to the main cutting. From Colhoun *et al.*, 1972.

deposits gave a radiocarbon date indicating that they are about 30,500 years old. It is notable that the terms Fermanagh, Derryvree and Maguiresbridge Substages are accepted subdivisions of the most recent cold stage in one form of the Irish Quaternary stratigraphic sequence.

The interstadial organic deposits from Derryvree and Maguiresbridge were trapped within drumlins, traditionally described as circular mounds to well developed streamline till forms with blunt stoss ends and gentle, elongated slopes. Drumlin formation in this area is unusual with at least some of the Fermanagh drumlins being composed of younger material enveloping a core of older drift. The marshy depressions which separated the drumlins may have served as glacial meltwater channels conducting meltwaters southwards and south-westwards to Upper Lough Erne during the final decay of the last ice-sheet as it retreated north-eastwards from this area (McCabe 1969).

Further evidence of glacial processes have been identified in Fermanagh. Head deposits, which in Ireland are interpreted as resulting from solifluction, have been observed. Near Lisnaskea and at Belcoo there are some particularly fine examples. Similarly, ice-wedges have been recorded in the Maguiresbridge area (McCabe *et al.*, 1978).

In addition to the evidence for glacial processes shaping much of the Quaternary landscape of Fermanagh, it is clear that a good deal of the landscape has washed away! When mildly acidic rain reacts with alkali limestone the rock slowly dissolves. Around the Marble Arch Caves there is an extensive area of cracked and eroded limestone. Karstification proceeds where the rock is cracked. Instead of running along the surface, the acidic rainwater vanishes down ever deepening vertical fissures.

Water will only move laterally when it reaches the water table again but if this should drop then the downward processes will continue afresh. The Marble Arch Caves display some fine examples of the results of karstic processes including a subterranean lake at the base of the

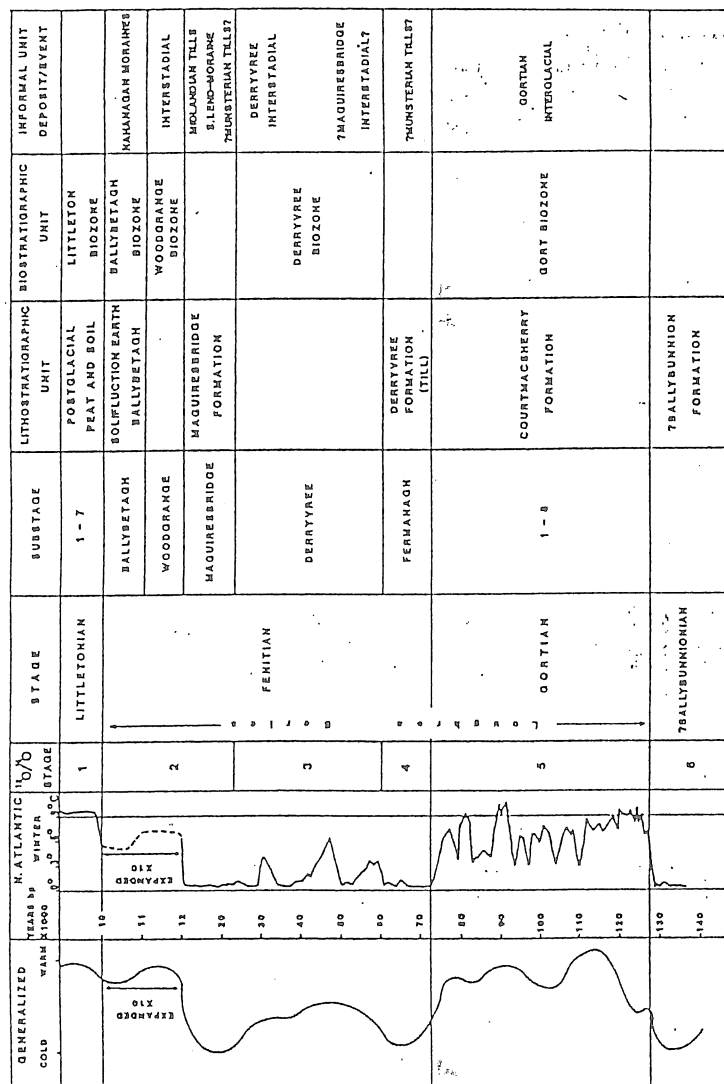


FIGURE 2 The Irish Quaternary stratigraphic sequence showing suggested correlations with the generalized deep-sea $^{18}O/^{16}O$ palaeotemperature curve.

system. A most valuable account of the caves in this area and in Cavan is given in Jones (1974).

ARCHAEOLOGY

Dominated by the extensive waterway system of the Erne, Fermanagh has many areas of outstanding natural beauty and special scientific interest. It also contains a wide range of impressive archaeological monuments.

The Mesolithic

Despite the undoubted attraction of the lakelands for hunting and fishing, the material evidence of Fermanagh's first settlers remains elusive. The earliest evidence of human occupation in the county occurs around 6000 BC with a range of chert tools found on the shores of Lough MacNea Lower. Those artefacts are characteristic of the late Mesolithic and recent field work has also uncovered similar implements from the Silles river. The use of chert to fashion such tools contrasts with areas like Co Antrim which has an abundance of primary flint sources.

The Neolithic

The introduction of farming around 4000 BC marked a major development in society throughout Ireland. For the first time burial practices can be identified and the range of Neolithic tombs characteristic of the period are well represented including excavated examples at Aghanaglack, Ballyreagh and Tully. Many implements used by these first farmers survive in the area and include a rare example of a wooden handle from Maguiresbridge used to haft a polished stone axe. These axes were used to cut down trees prior to agriculture and are one of the most common artefacts from the period.

The Bronze Age

With the discovery of metallurgy about 2500 BC, bronze artefacts began to replace those of stone (Fig. 3). One of the most well known monuments from the Bronze Age is the burial mound or cairn from Topped Mountain. As well as containing human remains, a dagger and a strip of gold were recovered. The gold strip was used to help secure or decorate the organic handle of the dagger which had decayed. The metallurgy of the gold is a contentious issue but its source may have been in the Sperrin Mountains.

Despite the survival of burial mounds like Topped Mountain, most of our knowledge of the Bronze Age in this region is derived from objects. These include swords and spears, many of which have been recovered from rivers where they may have been deposited for ritual purposes. Fermanagh has a particularly dense concentration of swords which must indicate a high level of prehistoric activity.

The Iron Age

The end of the Bronze Age and the introduction of iron technology (600-300 BC), associated with Celtic speaking people, remains an enigmatic transition. Iron Age sites are rare. Iron objects corrode quickly and are few in comparison to the large numbers of metal objects from the Bronze Age. Among the Iron Age sites in Fermanagh are the Kiltiarny burials and the carved figures such as the Janus figure on Boa Island.

The Early Christian Period

Perhaps the most well known aspect of Fermanagh's archaeology are the monastic settlements on Devenish and White Island. Devenish with its round tower and church was

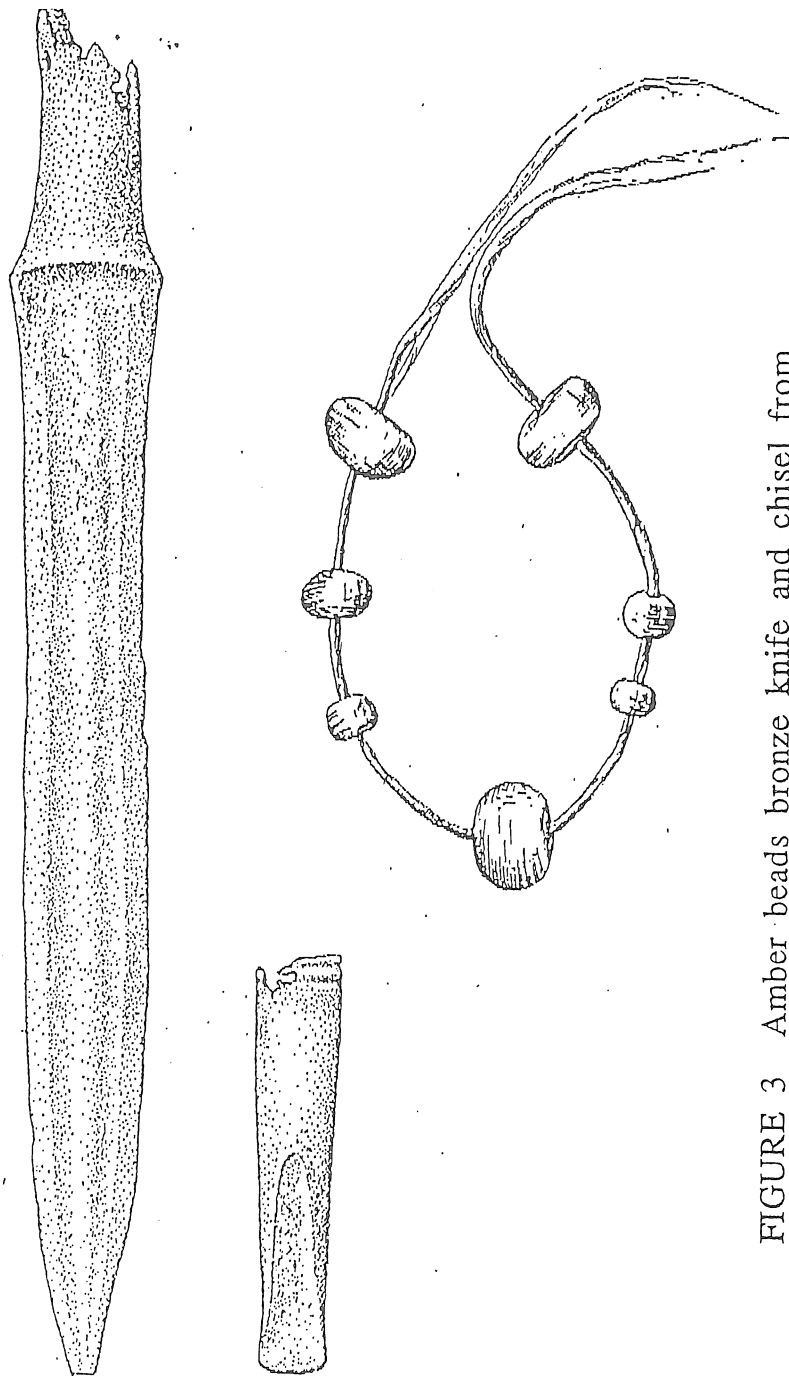


FIGURE 3 Amber beads bronze knife and chisel from
Killycreen West, Belcoo.

founded in the 6th century by St Molaise. It was raided by Vikings in AD 837 and burned in AD 1157.

As in many other parts of Ireland, Fermanagh has many raths. These are the farmsteads of the Early Christian Period, 5-11th centuries AD, and are characterized by an earthen bank and ditch within which the house was sited. The earliest of these structures date to the Bronze Age, although the majority are later, 9-11th and 17th centuries AD.

The Recent Past

Many areas of the north of Ireland were greatly influenced by colonization or 'plantation' in the early years of the 17th century. Indeed, later aspects of Fermanagh's history and archaeology are perhaps best represented by a fine range of plantation castles. Tully Castle has recently been restored and includes a medieval herb garden. Enniskillen town was founded by planter William Cole who also built the twin turreted Watergate, a symbol now synonymous with the town. The work of recording and interpreting the archaeological sites of Fermanagh continues including an active excavation and field work programme. Hopefully a full inventory of sites will soon be published by the Environment Service (Archaeological Survey) while the high preservation rate of monuments in Fermanagh is something to be encouraged.

Greer Ramsay

PALAEOECOLOGY

Remarkably few pollen analytical investigations have been conducted in the Fermanagh area yet those which have been published include important sites of yielding detailed data on interstadial and Holocene vegetation histories of this part of the north of Ireland. Recent studies on late Pleistocene and Holocene deposits has increased greatly the fossil record for Giant Irish Deer (*Megaloceras giganteus*) (Fig. 4) and Red Deer (*Cervus elephas*) in the north of Ireland. Volcanic ash or tephra studies are a new field in Irish Quaternary science. The first site investigated in Fermanagh is reported in Section 2.

The Middle Midlandian palaeoenvironment of south Fermanagh

During February and March 1969 road excavations in Derryvree townland, Co Fermanagh, cut obliquely through a north-east to south-west trending drumlin 2km north-east of Maguiresbridge. The excavations revealed a freshwater deposit of silts and fine sands containing a flora and fauna of full glacial aspect, which have given a radiocarbon date of $30\,500 \pm 1170/1030$ BP. The flora and fauna indicate that open tundra vegetation and a periglacial climate prevailed in the area at this time (Colhoun *et al.*, 1972).

In the organic deposit there was pollen of herbaceous plants in a poor state of preservation and macrofossils of a number of moss species. The assemblages are of outstanding phytographical interest as they revealed for the first time something of the Irish flora of the last glacial period. Most of the pollen taxa were those of herbaceous plants which are associated with tundra vegetation. Even where dry-land vegetation was present it may have been sparse. It is highly unlikely that the few pollen grains of *Pinus* and *Corylus*

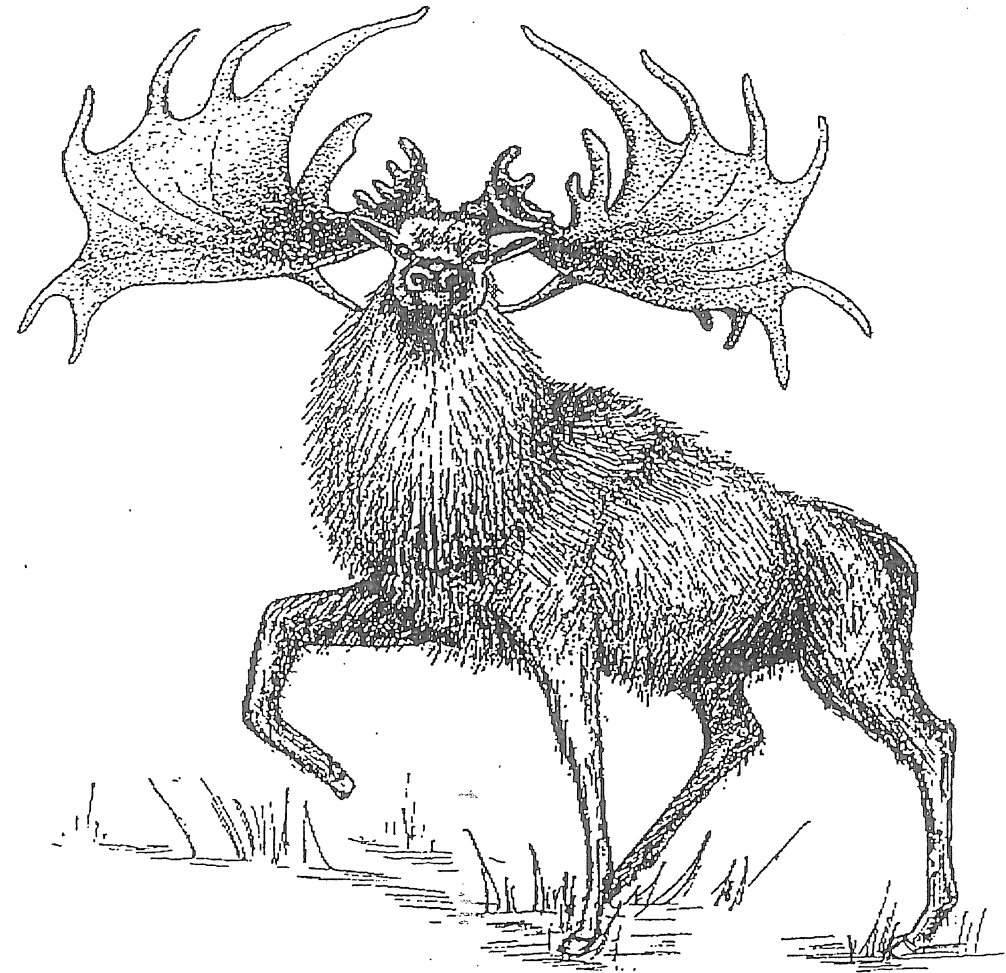


FIGURE 4 The Giant Irish Deer (*Megaloceras giganteus*)

detected are indicative of trees growing in the vicinity of the site as it is thought that these grains were transported over great distances. Insect assemblages from the site showed that populations of terrestrial and aquatic taxa were present.

One interesting speculation in the paper from which this text is derived is that the absence of dung beetles implies the absence of large mammals. Researches on earlier deposits from Aghnadarragh, Co Antrim (McCabe *et al.*, 1987) revealed the earliest known remains of mammoth (*Mammuthus primigenius*) in Ireland.

The Holocene vegetation of south Fermanagh

Areas of limestone do not provide the vegetation historian with ideal deposits as the porous nature of limestone tends to bias against the formation of terrestrial deposits suitable for analysis. Where deposits develop, for example, in caves which are liable to flooding, pollen is often poorly preserved and possible inwash of material makes interpretation of pollen percentage records difficult. The same can be said of other palaeoenvironmental indicators such as opaline plant silica or phytoliths which are also preserved in organic deposits. In addition, any attempts at radiocarbon dating deposits from limestone rich areas are fraught with problems.

Pollen (Jones & McKeever) and phytolith (Thompson & Maloney, 1993) investigations have been performed on deposits from sites linked to the Marble Arch Cave system. In April 1987, Gareth Jones and Madelaine McKeever published findings from deposits which were exposed during the opening of a new show cave. Pollen was recovered from two organic rich bands in a sand and gravel bank. The authors stress that the low pollen counts, partly resulting from the aggressive cave environment, and the lack of a secure dating regime is problematical.

Nevertheless, this very valuable publication shows trends which will continue to be of interest as palynological research in this neglected region continues.

Hazel is thought to have dominated the pollen record of this area for a lengthy period, probably from about 7500 BP to the commencement of intensive farming around 1700 BP. It is suggested that the deposits from the caves may be younger than 7500 BP as there are large amounts of Alder (*Alnus*) pollen in the sediments. Increases in alder in the Irish Holocene pollen record have been dated to about 7000 BP, a period known as the Boreal-Atlantic Transition when the climate is believed to have become wetter thus favouring the expansion of trees like alder.

The history of pine (*Pinus sylvestris*) at this site is interesting, especially as current research throughout the British Isles refines the time scale and climatic influences about 4000 BP when pine became almost extinct in many areas. At this site pine may have been extinct by 3500 BP. Extensive Ash (*Fraxinus excelsior*) woods are a notable feature of the landscape of the Marble Arch area today but little is known of their history. The cave deposits show the appearance of ash pollen at low levels and it is suggested that the tree flourished in the locale about 4500 BP (Fig. 5).

The field of phytolith research is in infancy in western Europe therefore the publication on palaeoenvironments of Pollnagollum (Pollnagollum of the boats) by Thompson and Maloney (1993) is unique (Fig. 6). Like the pollen in the Marble Arch deposits, it seems that phytoliths were transported to the site by water and that their source was grasses and possible sedges growing in the vicinity of the doline. Little environmental change in this area is implied by the results of the phytolith analysis but, like Jones and McKeever, Thompson and Maloney state that depositional and post-depositional processes probably distort the results of the investigation.

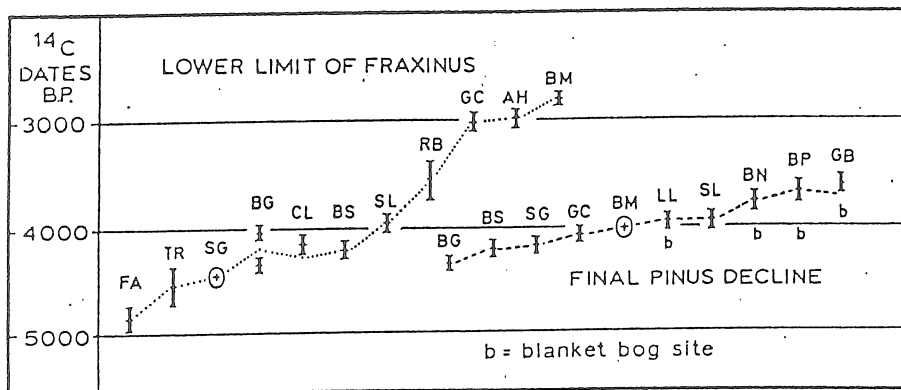


FIGURE 5 Summary of the radiocarbon dates for the arrival of ash and for the decline of pine in Ireland. From Smith and Pilcher, 1973.

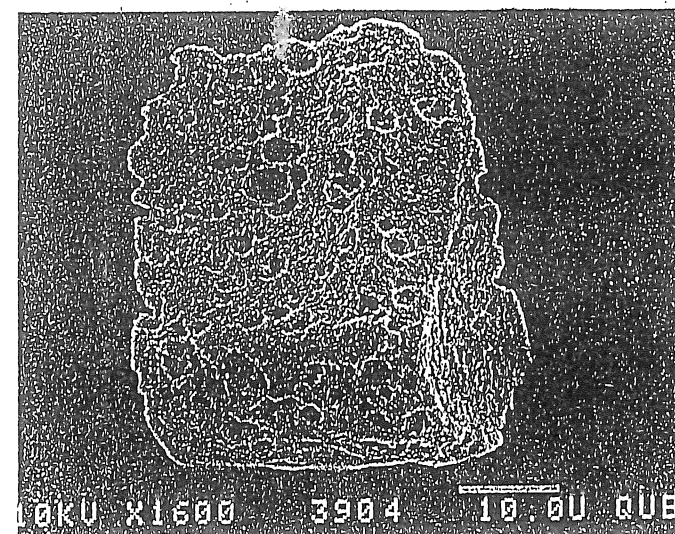


FIGURE 6 S.E.M. of a rectangular phytolith showing corrosive pitting. From Thompson and Maloney, 1993.

Modern vegetation types as a key to the landscapes of the early and mid Holocene

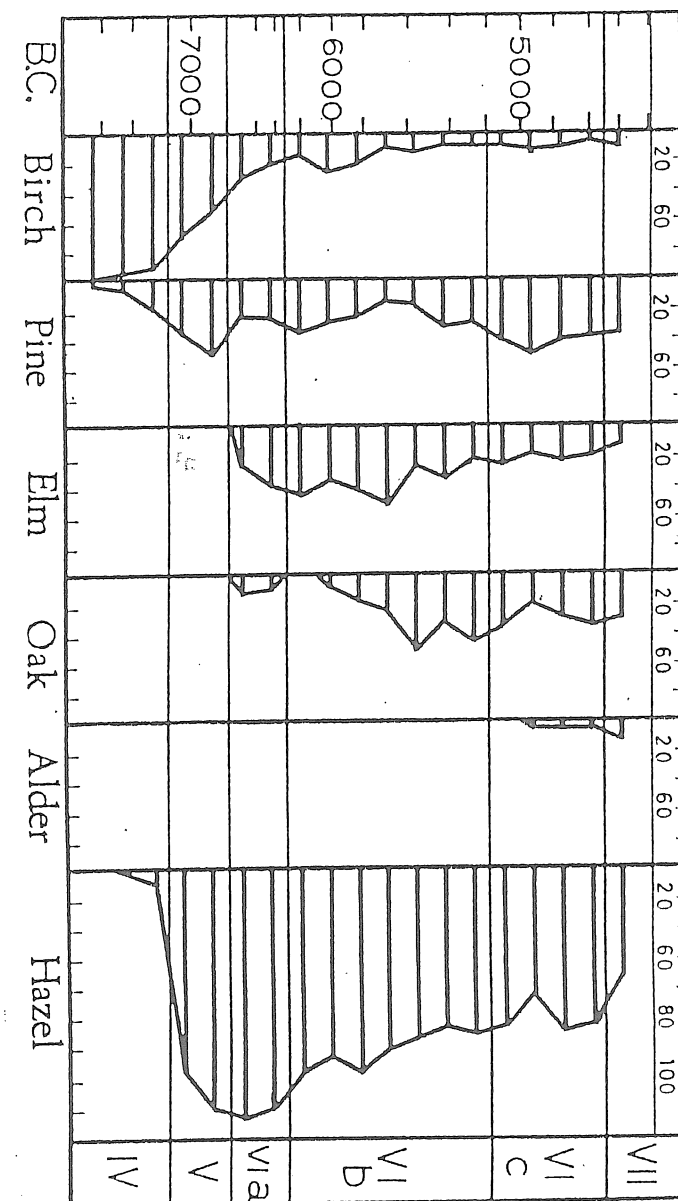
The editor is well aware that, when faced with a pollen diagram (Fig. 7), the majority of people find it next to impossible to envisage the component pollen curves as representing a changing vegetation system. In the south Fermanagh area there remain various wooded landscapes of value to those wishing to gain an impression of how lowland Ireland might have appeared at various periods throughout the last 10 000 years.

Grasping the scale and complexity of Ireland's wooded past is made much easier if present vegetation systems can be used as analogues of those which are now almost totally eradicated from the lowland landscape. Fermanagh still contains small patches of a number of the wood and scrub vegetation types which were prevalent in Ireland at various times over the last 10 000 years.

Percentage pollen diagrams of vegetation types from almost all of lowland Ireland from about 6000 years ago have high percentages of arboreal (tree) pollen types. These include Birch (*Betula*), Pine (*Pinus sylvestris*), Willow (*Salix*), Elm (*Ulmus*) and Alder (*Alnus*). In some diagrams the ash (*Fraxinus excelsior*) pollen curve is significant. The majority of pollen diagrams from Irish lowland sites at this time have substantial pollen percentage curves for oak (*Quercus*) and hazel (*Corylus*). Translating these fluctuating curves into an impression of woodland is made significantly more difficult as there is no direct linear relationship between pollen percentages and the percentage cover of the components of the vegetation. For example, hazel is notorious for producing vast amounts of pollen.

The great deciduous forests of the Irish lowland landscape of 6000 years ago almost defy imagination, but at Correl Glen there is a an oak wood which still maintains something of the lust damp atmosphere of those ancient woods. The pollen

FIGURE 7 A simple pollen diagram showing changes in proportions of the major tree species between 8000 and 4000 BP. The oldest samples are at the bottom and the youngest at the top.



diagrams of Smith (1958), O'Connell *et al.* (1987) and Mitchell (1988) and come to life in such surroundings.

The more open aspect of the ash woods surrounding Claddagh Glen may be like those which probably flourished in this area from 4000 years ago. Ash was a late-comer to the forests of Ireland but it might have flourished on the lime-rich soils of Fermanagh. Attempting to envisage the ash woods of the past in this region is a particularly speculative exercise as so little of its vegetation history is known.

Recent palynological investigation of the north Irish lowland landscape of the last 2000 years (McCallen, 1974; Hall, 1990) has shown that, up until about 250 years ago much of this region had hazel scrub interspersed with grazing and arable land. In the north-east especially this scrub has been all but eradicated as land was cleared and improved for agriculture. Only in south Fermanagh does this once common mix of scrubby and grazing land survive. It could be said that here in Fermanagh we may still see aspects of our landscape which have changed little over about the last 4000 years.

Tephra studies

Tephra or volcanic ash study is the newest Irish Quaternary science. For many years palaeoecologists have suggested that traces of volcanic ash occur in Late Pleistocene and Holocene deposits in the British Isles. In 1989, Andy Dugmore of Department of Geography in the University of Edinburgh published the first findings of tiny fragments of bubbly tephra in blanket peats from Caithness in the north of Scotland (Dugmore, 1989). Chemical characterization showed the tephra as having come from the Icelandic volcano Hekla. Within months tephra from the same volcanic eruption was detected in lowland raised bog peats from Fallahogy in Co Londonderry.

Tephrastratigraphic investigations have now been carried out at sites as far apart as north Donegal and south Galway. These studies have opened the way for palaeoecologists working throughout the British Isles to use tephra layers as a means of linking sites over a wide geographical area. Each tephra layer has a unique chemistry so where chemically identical layers are found the deposits in which they are found are all of the same age.

Layers in peats which have developed over the last one thousand years can be linked chemically to Icelandic eruptions of known historic date. Recently tephra from the 1362 AD eruption of Oraefajokull was identified in peat from Sluggan Bog, Co Antrim. Older layers have been dated by multi-sample high precision radiocarbon dating. This method was used to give a much refined date of 2310 ± 20 BC for the eruption of Hekla known as Hekla 4 (Hall, Pilcher & McCormack, 1993).

Deposits from the last two thousand years are very difficult to date by conventional single sample radiocarbon dating due to fluctuations in the radiocarbon calibration curve (Pearson *et al.*, 1986) but a tephra based time scale - a tephrochronology - for the recent past in Ireland and possibly for a number of areas around the north Atlantic seaboard is now a possibility. Tephrastratigraphies of lowland raised bog peats from a number of sites in Counties Antrim, Londonderry and Mayo have shown that tephra events are much more frequent over the last 4000 years than in the preceeding 6000 years with very many in the most recent peats.

Many of the layers are made up of tephra shards which have a characteristic shape and colour. Not all layers are composed of colourless glass. There is a striking brown layer just above the Hekla 4 layer in a number of deposits and one of the most historic layers is composed of pieces of brown glass about 60 micrometers long with some smaller shards of white tephra. This brown and white mixed layer has been chemically characterised and has now been found

in peats from a number of sites in Scotland and Ireland. As yet, its source in Iceland is not known so it has been given the local name of the 'Loch Portain Layer', after the site in Scotland where it was first found.

Until it can be linked to an Icelandic eruption its date must be surmised from associated palynological strata. The layer was clearly marked in peats from Fallahogy Bog, Co Londonderry before the upsurge in pollen types thought to mark increased agricultural activity in the 18th century. At this stage a working date range around the 17th century is practicable. As further tephra layers are chemically characterized and linked to Icelandic eruptions of known historic date a high resolution time frame will be constructed of great value to those investigating the palaeoenvironments of the recent past in this part of Europe.

Mammalian Studies

In March 1984 large numbers of Red Deer (*Cervus megaceros*) bones, of at least four individuals, and a Wild Boar bone, were found in dredgings taken from the Sillees River in Co Fermanagh (Fig. 8). The archaeology and faunal history of the Sillees - Lough Ross area is the subject of recent published research by the author (Carroll, 1992). Human bones and artefacts including a Bann flake, a polished stone axe-head, a copper dagger, an iron spearhead and a bronze penannular brooch were also found at the site. No bones of domesticated animals were present.

Red Deer remains are rare in early Irish archaeological settings. They are absent from such early Mesolithic sites as Mount Sandel on the River Bann and Lough Boora in Co Offaly, Professor Woodman of the Department of Archaeology, University College, Cork, has suggested that Red Deer did not arrive in Ireland until long after the arrival of man. He states that 7000 year-old Red Deer finds

| Red Deer Bone | | Left Bank and Outflow | Carr Br. | K'Hommon | Wavecut | Rt. Bk. | N. Carron |
|----------------|---|--------------------------|----------|----------|---------|---------|-----------|
| ANTLER FRAG. | | 7 | 5 | 6 | | 1 | 1 |
| SKULL | | | | 1 | | | |
| ATLAS | | 1 | | 1 | | | |
| OTHER V'BRAE | | + | + | | 1 axis | | |
| SACRUM | | 1 | | 2 | | | |
| STERNEBRAE | | 1 | | | | | |
| SCAPULA | L | 1 | 3 | 1 | 1 | | |
| DO. | R | 1 | 1 | | | | |
| HUMERUS | L | 2 | 1 | 1 | 1 | | |
| DO. | R | | 1 | | 1 | | |
| RADIUS | L | 2 | | 1 | 1 | | |
| DO. | R | 3 | 2 | 1 | 1 | | |
| INNOMINATE | L | 2 | 1 | 3 | | | |
| DO. | R | 4 | | 2 | | | |
| FEMUR | L | | | 1 | 1 | | |
| DO. | R | 1 | | 1 | 1 | | |
| TIBIA | L | 3 | 4 | 3 | 1 | | |
| DO. | R | 3 | 1 | | 1 | | |
| ASTRAGALUS | | | | 3 | | | |
| CALCANEUM | | | | 2 | | | |
| CANNON ANT. | L | 3 | | 1 | | | |
| DO. | R | 1 | | 1 | | | |
| CANNON POST. | L | 4 | | | 1 | | |
| DO. | R | | | | 1 | | |
| PHALANGES | | 4 | 2 | | | | |
| ULNA | L | | 2 | 2 | | | |
| DO. | R | 1 | | | | | |
| DENTARY | L | 1 | | | 1 | | |
| DO. | R | | | | 1 | | |
| Min. No. Inds. | | 4 | 4 | 3 | 1 | (1) | 1 |

FIGURE 8 Numbers of Red Deer bones at sites within the Ross Lough - Sillees area.

from Ormeau Bridge and Sydenham Station in Belfast are the earliest Red Deer in Ireland. He further suggests that Red Deer remains occur at some Later Mesolithic sites, but that the animal played a minimal role in human activity at this time.

In addition, two finds of Red Deer bones in the Sillees region indicate that the animal was present in Ireland at a much earlier date. Red Deer bones from Ross Lough and an antler tine from north Carron Lough, were both eroding out of a clay deposit, presumed Late Pleistocene, from about 14 000 to 13 000 years ago. In both cases the Red Deer remains were closely associated with Giant Irish Deer bones providing a good time control in the estimation of their age.

There is only one title reference to fossil Red Deer in the Irish literature and remarkably enough this refers to a find of Red Deer fossils in the Sillees region. A paper by Professor Haughton describes how, in 1863, the bones of at least six Red Deer were found during the drainage of a small lake near Bohoe, in Fermanagh, 'in the marl underlying bog, in the same situation, geologically speaking, as that in which the *Cervus megoceras* has always been found in Ireland'. Again these Red Deer well pre-date the 7000 year-old specimens which have been claimed as the earliest Irish occurrences.

It was the initial find of a concentration of large numbers of Red Deer bones at the Sillees that led to speculation that prehistoric human activity might have been responsible for this accumulation. It was further speculated that Mesolithic activity might have been involved. A Bann flake, a classic tool of the Later Mesolithic in Ireland, was found at the Sillees, strengthening the possibility that the bone assemblage had accumulated as a result of Mesolithic hunting by humans. Many of the bones display breakage patterns that might suggest extraction of marrow for human consumption. Radiocarbon dating of these finds is ongoing and will be the subject of a research paper (Carroll & McCormick, forthcoming).

The majority of the finds of Red Deer from the Sillees came from a peat layer with some bones *in situ* in the undisturbed peat. The rest had been within the peat layer as they were more or less covered by peat having come to the surface as rainwash and frost-heave affected the disturbed deposit.

The Bann flake indicates that the Sillees contains a deposit or buried surface which encompasses some part of Later Mesolithic time. It is probable that this is within the peat or thin silt since the other strata are of Pleistocene age. This allows the possibility of Mesolithic human utilization of Red Deer, which were present in abundance at the same spot location. The contemporaneity of humans and Red Deer, at least in the later Mesolithic, has been established in other parts of Ireland.

The possibility of a Mesolithic human connection with wild animal bones remains and is not precluded by other artefacts from the Sillees showing later human activity but the faunal remains of later times are quite different. On such sites the majority of bones are of domestic animals. Later again, in Bronze Age times, Red Deer remains are remarkably scarce.

Archaeological sites with large accumulations of Red Deer bones are rare in Ireland, with the Sillees site seemingly the only one to have human remains as well. The human bones from the Sillees are in the same condition as the Red Deer bones - darkly stained, broken and cracked which suggests similar conditions and duration of burial. Radiocarbon dating would go a long way towards establishing their temporal context.

No remains of Mesolithic humans have ever been found in the whole of the British Isles. If these human bones could be shown to date from Mesolithic times they would be the earliest humans found in Ireland. Altogether then, this site on the Sillees produced strongly suggestive evidence of a large scale linkage between Mesolithic humans and Red Deer.

In June 1992, on the north shore of Lough Ross, a spread of a large number of Red Deer (minimum number of individuals three) was found by the author. In the midst of the bones was another Bann flake. The bones and the Bann flake were found on a flat erosion surface which was otherwise undisturbed, being within the peat at a horizon just immediately above the white marl. This undisturbed association provides further linkage between Mesolithic man and Red Deer and to represent the second instance of a Sillees river site being complicated by the superimposition of later human material.

The Sillees and Ross Lough sites have produced the first strong evidence of a large scale utilization of Red Deer by Mesolithic Man in Ireland. The Sillees - Ross Lough region is often flooded, but given a spell of dry weather, the sites re-emerge newly eroded from under the waves. The sites are accessible and may yet produce further finds.

Frederick Carroll. Adapted from Carroll (1992).

Section 2

This section details sites to be visited during the field meeting and contains hitherto unpublished data. The reports do not follow a strict format. In some cases descriptions only are given. These are intended as base-line studies to stimulate discussion in the field. In other cases rather more lengthy comments in laboratory based finds are given. The section contains information which is interpretive and speculative. It is hoped that it will stimulate further discussion and investigation of this region.

Geology and geomorphology

Marble Arch Cave is situated at the head of the Claddagh Glen. It is a superb example of a well integrated dendritic stream cave. There are three main sinks, Pollasumera, Monastir and Sruh Croppa sinks. The sinks are not at the Namurian/Limestone boundary but on the northern side of a dolerite dyke which appears to have inhibited cave development to the south. The area is a classic example of mud reef knoll scenery. There are no cherty limestones in the area and the cave passages are all of impressive proportions. A map of the site is given in Fig. 9.

Site 1 Gortmacannel Rock (Grid ref. H 134 338)

An impressive mud reef knoll near the scenic loop road. The view from the summit to the east reveals the Brookfield townland which has a number of sinks associated with the Tullyhona Cave system (Grid ref. H 153 337). Approximately 2km south-eastwards is a large shallow depression with Dooneen Rattling Hole (Grid ref. H 136 337). The drainage of this area and of that further to the southeast is all associated with the Prod's Pot-Cascade Cave System (see site10).

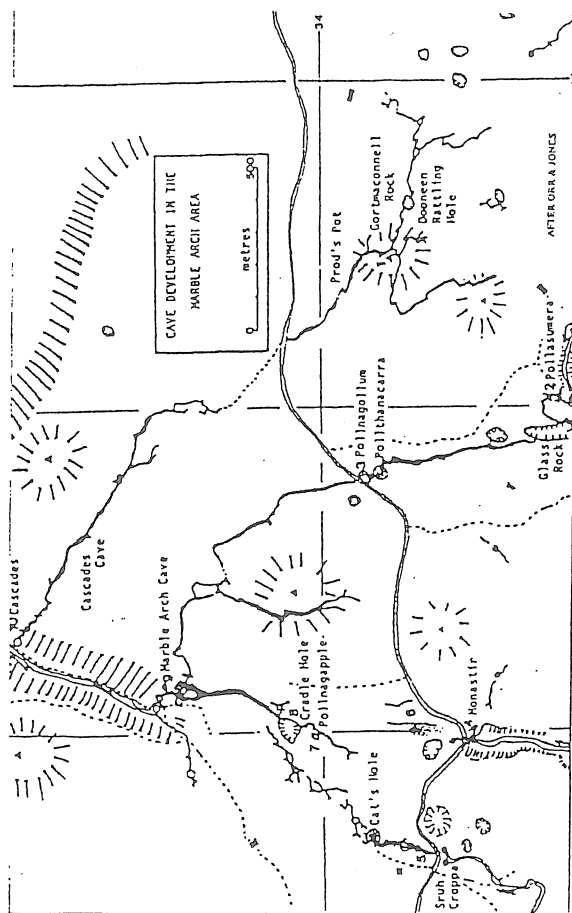


FIGURE 9 Sites of geological and geomorphological interest in the Marble Arch area.

Site 2 Pollasumera (Grid ref. H 130 331)

This, the sink of the Owenbrean river, is one of the three major sinks for the Marble Arch system. Unfortunately there has been extensive collapse (Glass Rock) and it is not possible to follow the water underground for any distance. The entrance has been known to overflow in heavy flood.

Site 3 Pollnagollum (Grid ref. H 127 338)

A collapse feature leading into the underground Owenbrean river. It is possible to follow the passage upstream almost to Glass Rock. Archaeological excavation in the cave beneath the nearby Pollthanasarra yielded human and animal remains dated at 3300 BP.

Site 4 Monastir Sink (Grid ref. H 127 338)

This is the sink of the Aghinrawn (Monastir) river and the second major point of the engulfment for the Marble Arch System. The 30m cliff has been flooded to half height on occasion. Upstream of the sink are some naturally illuminated rifts and a fine gorge.

Site 5 Sruh Croppa Sinks (Grid ref. H 116 336)

The third sink normally passes underground at the bridge but in flood flows as far as Cat's Hole (Grid ref. H 116337), a large cliff-sided swallow hole.

Site 6 West Gorge (Grid ref. H 120 336)

A short but impressive dry gorge between Monastir and Cradle Hole (see site 8) with a fine limestone arch and short caves.

Site 7 Pollnagapple (Grid ref. H 120 340)

A steep-sided depression leading to the underground Aghinrawn river. Downstream connects to Cradle Hole (site 8). Upstream the passage continues for about 200m to a sump.

Site 8 Cradle Hole (Grid ref. H 120 341)

An impressive collapse feature formed on the junction of the underground Sruh Croppa and the Aghirawn rivers. At the southern end an opening leads to the Aghinrawn river which enters a sump but can be followed upstream to Pollnagapple (site 7). At the northern end an opening leads to a series of interconnecting passages leading to the Main Chamber and the entry of the combined waters of the two sinks. It is impossible to cross the lake at this point to enter the Grand Gallery of Marble Arch (see site 9).

Site 9 Marble Arch Cave (Grid ref. H 121 344)

At the head of the Claddagh Glen the Claddagh river emerges from a sump pool beneath a cliff. It flows out and under the magnificent Marble Arch, the last remaining fragment of the final passage. Access to the underground passage is by three large depressions above the rising. The usual entrance is the south easterly one which gives access to dry passages leading to the Grand Gallery. The water from Pollasumera joins the other two rivers at the junction having entered via Skreen Hill passage; this passage reaches almost to Pollnagollum (see site 3) although there are several sumps en route and breakdown prevents the connection being made.

Marble Arch is a fine example of a cave of emergence. Opinion is divided as to whether or not it is a mature phreatic cave system invaded and altered by a mature vadose stream system. Recent dating of calsite material from

high in the roof in the Show Cave area gave a radiocarbon date of 70 000 BP.

Site 10 Cascades (Grid ref. H 1228 3498)

On the right bank of the Claddagh Glen downstream of the marble arch Cave an impressive resurgence cascades down. This is the water from the Prod's Pot-Cascades Cave system. Prod's Pot entrance is located in Dooneen Rattling Hole and it may be followed underground for about 3km via a series of sumps to Cascades Cave. The entrance for this is to the right of the resurgence and some 20m higher up the bank. This is the only cave entrance in the area located in the underlying argillaceous Glencar limestone. The cave is interesting in that, while passage for the first 100m or so is very narrow and low, once it reaches the 'reef' limestone it assumes proportions of up to 15m high and 10m wide.

Site 11 Claddagh Glen (Grid ref. H 122 349)

The contact between the argillaceous Glencar limestone and the 'reef' limestone is clearly seen in the left bank of the river.

Tim Fogg. Adapted from Drew, Jones and O'Reilly (1977).

Archaeology

Archaeology of the Marlbank area provides a rich record of man's influence on this landscape over the past 8000 years.

Clyhannagh (Grid ref. H 1071 3548)

These most impressive remains of a dual court tomb from the Neolithic period represent one of the types of burial monument known as megalithic tombs. Megaliths are the communal burial places of the first farmers and are often seen as ceremonial centres as well as territorial markers. A court tomb generally contains a stone gallery that is divided into a number of corbelled chambers and covered by a trapezoidal-shaped cairn and a roofless U-shaped courtyard. More unusual are the dual court tombs - these being a series of chambers with a court at each end. Clyhannagh court tomb is an example of a dual court tomb. It is built on a limestone plateau and surrounded by hazel trees. Two galleries are linked by a shared back stone, each gallery having three chambers. There is no surviving evidence of the courts and most of the cairn material has been removed.

Killykeeghan (Grid ref. H 1076 3409)

Here at Killykeeghan is a fine example of Bronze Age rock art. The earliest stone sculpture in Ireland is associated mainly with a type of megalith known as a passage grave. The most famous of these is at Newgrange in the Boyne valley. Passage grave art takes the form of abstract patterns of spiral and lozenge shapes. In addition, a large number of rock outcrops and erratic boulders are decorated but, in these instances, with patterns known as cup and ring marks. These are found mainly in Counties Cork, Kerry and Donegal with a few outliers at Killykeeghan and Reyfad in Fermanagh. Cup and ring marks are sometimes found on the

Bronze Age burial type known as a cist and are now generally considered to be Bronze Age in origin.

Most cup and ring marks are concentrated in Cork and Kerry where major outcrops of copper ore occur with the only mines in Ireland of proven Bronze Age date, possibly linking the art form with early prospectors and mining communities. A limestone boulder in Killykeeghan townland is decorated in this fashion. There are two deep cups encircled by rings and a smaller cup with a penannular ring. The Bronze Age period is well represented in the Marlbank area. Sites include cairns on the summit of Cuilcagh, wedge tombs at Greenan, Kilnameel and three in the Burren.

Killykeeghan (Grid ref H 1094 3421)

Coaghan (Grid ref. H 1185 3536)

The Early Christian period dates from 500 AD to 1100 AD. During this period, Ireland was politically divided into many small units called kingdoms. Society was completely rural, the countryside being dotted with farms that practised both arable and pastoral agriculture. Evidence of secular society throughout Ireland is provided by tens of thousands of farmstead sites called raths or ring-forts. Characteristically these are circular ditch and bank enclosures of about 20-40m in diameter, the internal bank material coming from the ditch. Most raths are univallate meaning simple single ditched sites but others are made up of two or three banks. The banks and ditches are probably not for defence, as the term fort implies, but to show social status. The same type of site, known as a cashel, is common in stony areas with the bank replaced by a dry stone wall.

Coaghan rath is excellently preserved in damp pastureland on the fringe of the limestone upland. It is a classic example of a univallate rath, 25m in diameter with steep, stone revetted sides and enclosed by a narrow ditch. Killykeeghan

cashel is well preserved in an area of limestone with classic karst features. The enclosure is 30m in diameter and with no obvious signs of an original entrance. Some field boundaries in this area may have been contemporary with the cashel or may be of prehistoric origin.

Killesher (Grid ref. H 1225 3584)

The church and graveyard site is approached along an ancient trackway in a field overlooking Lower Lough McNea. The graveyard is a raised area, 55m in diameter, surrounded by a circular stone-built retaining wall. The line of a possible outer ditch can be seen from northwest to southwest. At the centre of the graveyard are the ruins of Killester medieval parish church. A fragment of a stone cross was with a figure of Christ crucified and on the reverse and a circular boss in high relief with an encircling moulding was found amongst the loose stones at the site.

The church, which is either an early church or monastery, is a simple rectangle in plan with a badly restored east gable wall and window. It is associated with St Lasair who went to *Cill Lassarch* at the head of *Loch Mic nEn* and 'blessed a noble and stately church there'. The earliest date of the church is uncertain although the stone cross fragment dates from the 9-11th centuries. The window of the medieval church suggests a 16th century date but on a map drawn about 1610 the church is shown as roofless. The church was restored sometime after this and remained in use until the middle of the 18th century.

Janie Crone

Palaeoecology

Tephra studies

Gortahurk (Grid ref. H 135 405)

Most lowland bog in Fermanagh, south of Lough Erne, is unsuitable for recent tephrostratigraphical investigation as the tops of these bogs have been cut for fuel. Nevertheless, some recent peats remain and a small pocket of such a deposit was present at Gortahurk on the south slope of Belmore Mountain. A vertical cylindrical column of peat 55cm long was cut downwards from the surface by inserting lengths of plastic guttering. This was subsampled and prepared for tephra analysis by the combustion method described by Pilcher & Hall (1992).

Microscopic examination revealed two tephra layers. One layer poorly represented in the topmost 0-5cm sample and another well marked in the 20-25cm sample. The lower layer is the object of much interest as it has the same mix of small white and larger brownish tephra shards which are known to represent the Loch Portain tephra at other north Irish sites.

The author cautions against linking tephra layers across sites on the basis of shape, colour and the bubbly quality of the shards alone. If at all possible, tephra layers should be identified by chemical characterization. There are instances, and this may be one of them, when such a council of perfection is hardly possible. At sites such as this, where peat deposition has occurred in a steep-sided hollow, surface run-off which enhances tephra concentration is offset by inwash of inorganic debris. Electron microprobe analysis of samples containing copious amounts of inorganic material is extremely difficult, even where every effort has been made to eliminate the non-tephra component of the matrix.

maintained. It is likely that woods such as these have flourished in the limestone areas of Fermanagh for at least the last 3000 years.

Hazel scrub on Marlbank (Grid ref. H 12 35)

It is only over about the last 250 years that the enclosed landscape of the north Irish lowlands took shape. Prior to that time, land was not divided by neat fences and hedges, rather it was a more diffuse mixture of scrubby woodland interspersed with pasture and arable agriculture. Extensive areas of the agricultural landscape of Ireland from the Bronze Age to the Medieval period must have looked like the Marlbank area today. A close examination of the limestone grasslands with their patches of hazel reveals a species rich environment which supports a variety of birds and invertebrates.

Valerie Hall

SOME USEFUL ADDRESSES AND TELEPHONE NUMBERS

Fermanagh Tourist Information Centre, Wellington Rd.
ENNISKILLEN (Enniskillen 323110/325050).

Marble Arch Caves (tour bookings and information),
Marlbank, Co Fermanagh, (Florencecourt 8855).

Further information on the archaeological sites of Fermanagh can be obtained by contacting the County Museum, ENNISKILLEN (Enniskillen 325000) or the Environment Service, 5-33 Hill St. BELFAST (Belfast 235000).

Acknowledgements

On behalf of the Committee of the Irish Association for Quaternary Studies, the editor thanks the Staff of the County Museum, Enniskillen for their interest and efforts in contributing to the field excursion and the field guide. Richard Watson and the staff at Marble Arch Caves showed every co-operation. A special word of thanks to Tim, Jane, Greer and Fred who so willingly gave time and expertise at the meeting and in the preparation of the guide. The editor of the *Clogher Record* kindly agreed to publication of ammended extracts from the 1992 issue. The editor thanks her husband, George, for his comments on the lay-out of the text of the guide.

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