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In Search of Evidence of Cultural Occupation of the Most Northerly Point in Ireland: Focus on Contemporary Irish Archaeology

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IN SEARCH OF EVIDENCE OF CULTURAL OCCUPATION OF THE MOST NORTHERLY POINT IN IRELAND: FOCUS ON CONTEMPORARY IRISH ARCHAEOLOGY

by

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ACKNOWLEDGMENTS

While submission of a thesis is a singular event, a multitude of activities must precede submission. My determination to successfully complete my studies was always strengthened by my best friend and wife, Flo Flynn Smithe. Her understanding, patience and animated assistance helps me reach the academic goals to which I aspire.

Undertaking each new course at Loyola was not without some apprehensions. Looking back, special thanks must go to professors like McVicker, Variakojis and Breidenbach for challenging and always interesting lectures. They brought new enthusiasm to every class meeting.

Open ended and subtle direction during thesis meetings with Dr. Patricia Essenpreis established the outline and critical questions to be scientifically answered in this thesis. Her awareness of Harvard tradition in Irish studies gives her a special understanding in that geographic area of Old World archaeology.

In a very special way, the tireless efforts of my dear friend and research associate, Larry Martin, are especially noted here. While studying at Oxford, Larry gathered many pages of research notes from Oxford's numerous libraries. No question was unanswered in Larry's quests on my behalf. We will continue to compare notes and articles on anthropology as long as we live.

In Ireland, acknowledgment is gratefully made to Peter Danaher, head of the National Monuments Branch for visiting the site and walking over the site area on the day of my arrival in 1978. Kathleen Emerson, Secretary of the County Donegal Society was helpful in citing names and addresses of those people in Ireland who might share interest in my research thesis. One of those who helped is Brother Thomas Connolly of Omagh, County Tyrone. He demonstrated expert knowledge in Irish place names and provided me with valuable maps and Malin Head references. His "beannacht Dé ort féin is ar do chuid oibre" is most appreciated. Dear Mable Colhoun visited twice at Malin Head and generously shared her manuscripts and maps, a knowledge acquired during a lifetime of archaeological discovery in the area of her birth, Malin Head. Many were the fascinating discussions with Mable.

Neighbors' childhood recollections are noted here. Miss Bridget Bonner recalled an earlier day when she sat atop datum watching the cattle and doing her studies. Willie McLaughlin, from whom I purchased the site, spoke of the covering depth of "caravan peat" over most of the site, so too, the iron ore which had been mined in the adjacent area.

Ollie Farran is most knowledgeable in local traditions and history. His description of a battle nearly a thousand years ago had us almost seeing the Danes (Vikings) racing across the site to escape the seaward attack just down the strand by the O'Donnells. His

knowledge extends beyond the book and slate and he is most readily willing to share it.

Dr. Terry Barry of Trinity College, Dublin, provided initial assistance and continuing interest in my research. He typifies the friendly, knowledgeable Irishman.

While death claimed Tom Delaney at too early an age and before we could meet, Tom's cheerful correspondence and encouragement will always be in my heart. As editor of "Excavations," 1972-76, Tom provided all interested in Irish archaeology with a reporting, reference and research tool unparalleled.

The staff of the Royal Society of Antiquaries of Ireland promptly and fully responded to numerous requests for journal references. An undefined, certain kind of spirit encompasses my love of Ireland. The initial generation of this spirit, and the regular revitalization of this spirit are due to my dear friend Father James F. Moriarty. I am forever grateful for this gift of the "spirit" which Jim gives me.

The Irish say that surely St. Patrick visited a site where many shamrocks are found growing at the place. The emerald green shamrocks abound at Malin Head. Perhaps, the former Roman slave Patrick has also contributed his blessing to this work.

Walter E. Smithe
Skildren Cottage, Malin Head
County Donegal, Eire

VITA

The author, Walter Edward Smithe, Jr., is the son of Walter Edward Smithe and Margaret Valentine (Slifka) Smithe. He was born on May 19, 1936, in Chicago, Illinois

He attended St. Ferdinand Elementary School in Chicago, graduated from Fenwick High School in Oak Park, Illinois in 1954. A Bachelor of Philosophy in Marketing degree was conferred in June, 1958 by the University of Notre Dame.

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INTRODUCTION

". . . excavation by its very nature is destructive" (Ingersall 1977: 191). This paper describes the discoveries of a "no-dig" archaeological research effort in Ireland. In effect, the field work performed was ". . . archaeological prospecting, the search for a desired archaeological goal, such as a particular site . . ." (Zubro and Harbaugh 1978: 74).

During my first visit to Ireland in 1971, I formed the impression that Ireland is one immense archaeological site. Almost countless remains of earlier cultures abound in the countryside, village and city. Perhaps more than in any other country, the average Irish person has a keen interest and delightfully broad knowledge of archaeology.

Upon my return to the United States of America, I was determined to learn more about archaeology. The Anthropology Department Chairman, Loyola University of Chicago, Francis X. Grollig, S. J., led the way for me with a planned course of study. Preliminary Anthropology courses set the stage for extended graduate study which continues to prove fascinating and exciting. My midlife review of values directed me towards a new adademic field instead of an MBA as would be expected of a business graduate.

My wife, Flo, and I purchased fourteen acres of Ireland in

1977. In a dry wash on the land during a pre-purchase inspection, I picked up a stone knife. Later, a casual study of photographs revealed a peat covered field fence, but only after we had returned to the States. Curiosity was whetted for further investigation.

The enthusiastic encouragement of Dr. Patricia Essenpreis set the stage for a thesis to be written about the Irish site which I owned. After extensive correspondence, the Irish National Monuments people withheld an excavation license because of my lack of experience in Irish field work. Undaunted, the "walk-over" survey commenced in fulfillment of thesis objectives and a dream. While some stress was experienced during the thesis research, little in terms of Henry and Saberwal's findings can be claimed for the Malin Head field work (Henry and Saberwal 1969: 3-4). The discoveries and data are herein recorded.

In conformance with Irish National Monument laws, the challenges of no digging, but data collection, analysis and interpretation presented almost insurmountable obstacles. How can a temporal and cultural range for Malin Head be established? What other indications of man's presence in addition to the peat covered field fences are to be discovered and studied? Evidence at the site indicating subsistence, activities, social organization, trade, religion, political organization and settlement pattern must be discovered. Current literature, older area histories, local traditions and correspondence with Irish professionals will provide some answers to the questions raised. The search is for the way of life of a people.

The Atlantic Ocean continues to crash against Malin Head. Where the early King Nemedius (1154 B.C.) cleared the area forests, a lush green but treeless landscape captures the eye today. Here is a place of matchless beauty, a place where the trinity of sea, clouds and land are one but three. It is at Malin Head that man lived, and as long as 4,500 years ago, may have buried his dead.

While the scope of this study places specific focus on Malin Head, the broader Ulster area is considered, with ethnographic analogy drawn from around the world. With Binford, hypothesis is made concerning man's presence at Malin Head because of the peat covered field fences. Data relating to aspects of technology, economy and socio-political organization will be sought, No contemporary scientific archaeological research has been conducted at Malin Head in the past. In fact, most Ulster archaeology has been concerned with tertiary categories of research (Brothwell 1970: 33).

By direction of the Irish government, the methodology of this research restricted the site procedure, disallowing excavation in any form. Consequently, particular attention to surface characteristics of the site, personal correspondence and multi-library research proved necessary. The site distance of 4,000 miles from my usual residence required particular planning in advance of actual field work. Analysis and interpretation were prompted by the need to relate Malin Head cultural evidence to other Irish and European evidence. Analysis and interpetation could not be made in a temporal and spatial cultural void.

BRIEF HISTORY OF IRISH ARCHAEOLOGY

As has often been the case in the archaeology of any land, contributions to the understanding of archaeology are made by both natives and visitors to the land. In Ireland, old places and old things have been held both with respect and in practical disdain. The old tomb which was appropriately marked by the map-making team of the government's Ordinance Survey in 1834 is now gone; the stones were used by local people in constructing a farm building. Examples such as that abound throughout the blissful countryside in every county in Ireland.

Early Archaeological References

The traveler of the past left journals which became archaeological bench marks, bench marks in the sense that ancient monuments were placed and identified in the language of the day. Coupled with early (seventeenth-century) travelers are those writings of antiquarians, agricultureal writings and ecclesiastical records. C. S. Briggs (1978: 145) cites references dating to 1652 and thereafter which are primarily concerned with early (pre-bog) plowing marks and stone fences.

While the writings of Boate (1652 and 1685), Pococke (1752), Richardson (1768), Gough (1779) and Chichester (1816) were generally undertaken for a subject other than archaeology, numerous references

to the material remains of an earlier culture can be found in their writings.

"Parochial Survey of Ireland" gives a glance at the "shape and size" archaeology which was to continue as a legitimate archaeological pursuit to later twentieth-century Irish (and world) archaeology (Chichester 1816: 151). Of course, Irish archaeology was not alone in the pursuit of size and shape, treasure and objects of art. Archaeology in other parts of the world enjoyed the same endeavors and continues in such quest.

The incorporation of the Royal Irish Academy (1786), the Royal Society of Antiquaries of Ireland (1849) and numerous county historical societies, with usual great interest in archaeology formed a nucleus of organization for archaeological data acquisition and distribution. The numerous county historical societies survive actively to this day.

Speculation about the ways of life of early peoples is lacking. The anthropological perspective of archaeology is not present in early writings because it was not thought to be a part of archaeology. Volume III (1802: 8-9) refers to the huge (44 yard diameter) Vicar's Cairn:

> It is held in great veneration by many of those who live near it, who account it impious to carry off any of the stones. If it was even frequented by any religious sect on any particular day, for the purpose of worship, the record is totally lost. The very zealous Roman Catholics never pass or repass without bringing a stone and throwing it on the Carin to add to the common heap. They tell many stories of misfortune that have happened to those who were daring enough to remove any of the stones of this sacred

> pile and what tends to confirm them in their fancies is, that some men living near the place, having ventured to use these stones for the common purpose of building, have since that time been visited by different diseases, which they look upon as the just consequence of their impiety.

Of course, one finds interesting reference to folk beliefs. The ordinance survey reference to "customs" brings in the element of folklore and local beliefs on many maps of the country.

Twentieth-Century Writings

The 1914 "Journal of the Royal Society of Antiquaries of Ireland" presents a paper on "The Shore Dwellers of Ancient Ireland" which contains some interesting anthropological surprises. In referring to a famine tradition which is said to have existed in the early seventeenth century, one finds: "But it seems strange that a people in a famishing state would take the trouble to bring shells such a distance, and up to the top of a steep hill" (Brunicardi 1914: 187). In addition to the expected midden sizes and shell heap dimensions, Brunicardi does more:

> If it can be shown that the inhabitants of these ancient settlements used woven fabrics as clothing, the dye might be utilized to give them a rich purple color; but if they had only skins for clothing, as is more probable, it is doubtful whether they would dye their leather garments: but savage people--and it is probable that these early inhabitants were in a savage condition--generally ornaments their own skins with paint, and it is possible that early inhabitants of Connemara may have used the dye of the Purpura for that purpose (ibid.: 199).

While it is difficult to resist a Presentist viewpoint when reviewing writings of a previous day, I feel the clothing speculations are interesting and "right on" with contemporary 1980 archaeological

speculations. Describing a people as "savage" is a characteristic of the times. Another reference: "The low grade of civilization of the shore-dwellers is evident from the fact that although flint is by far the most suitable material for implements, they did not export it from one part of the country to another . . . " (ibid. 1914: 206) draws the inference that trade, at least in flints, did not occur.

Cultural Sequence

An Irish cultural sequence has been presented by several writers over the last one hundred years. Contributions to Irish Stone Age knowledge were made by the Harvard archaeologist Hallum Movius. A cultural sequence traced man back to about 6800 B.C. (Movius 1942: 143). See Table 1, Irish Archaeological Periods.

Additional Perspectives

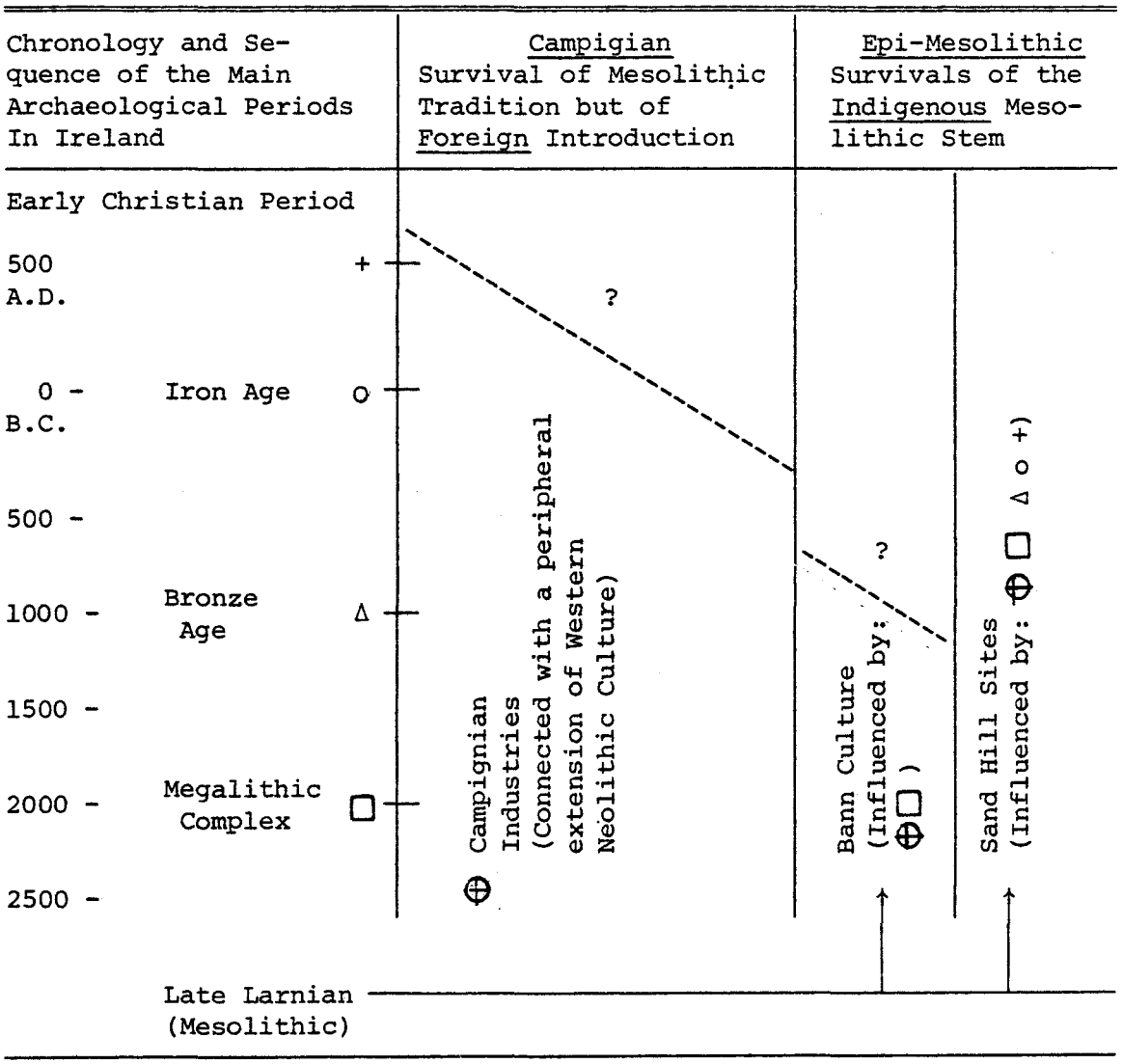
Based on types of megalithic monuments, not upon implements or weapons, Macaloster offered a sequence which uses the terms of the megalithic taxonomist and relates them to the tool/culture taxonomist:

1. Epimegalithic corresponds generally to Late Bronze and Early Iron Age
2. Deuteromegalithic corresponds generally to Middle Bronze Age
3. Protomegalithic corresponds generally to Neolithic and Early Bronze Age
4. Beachcombers corresponds generally to Mesolithic. (Macalister 1949: IX)

Piggot published a tomb oriented sequence (see Table 3).

TABLE 1

IRISH ARCHAEOLOGICAL PERIODS



Key: + Christian Age o Iron Age Δ Bronze Age □ Megalithic Complex

SOURCE: (Movius 1942: 255).

TABLE 2

EARLY ULSTER CULTURAL TRADITIONS

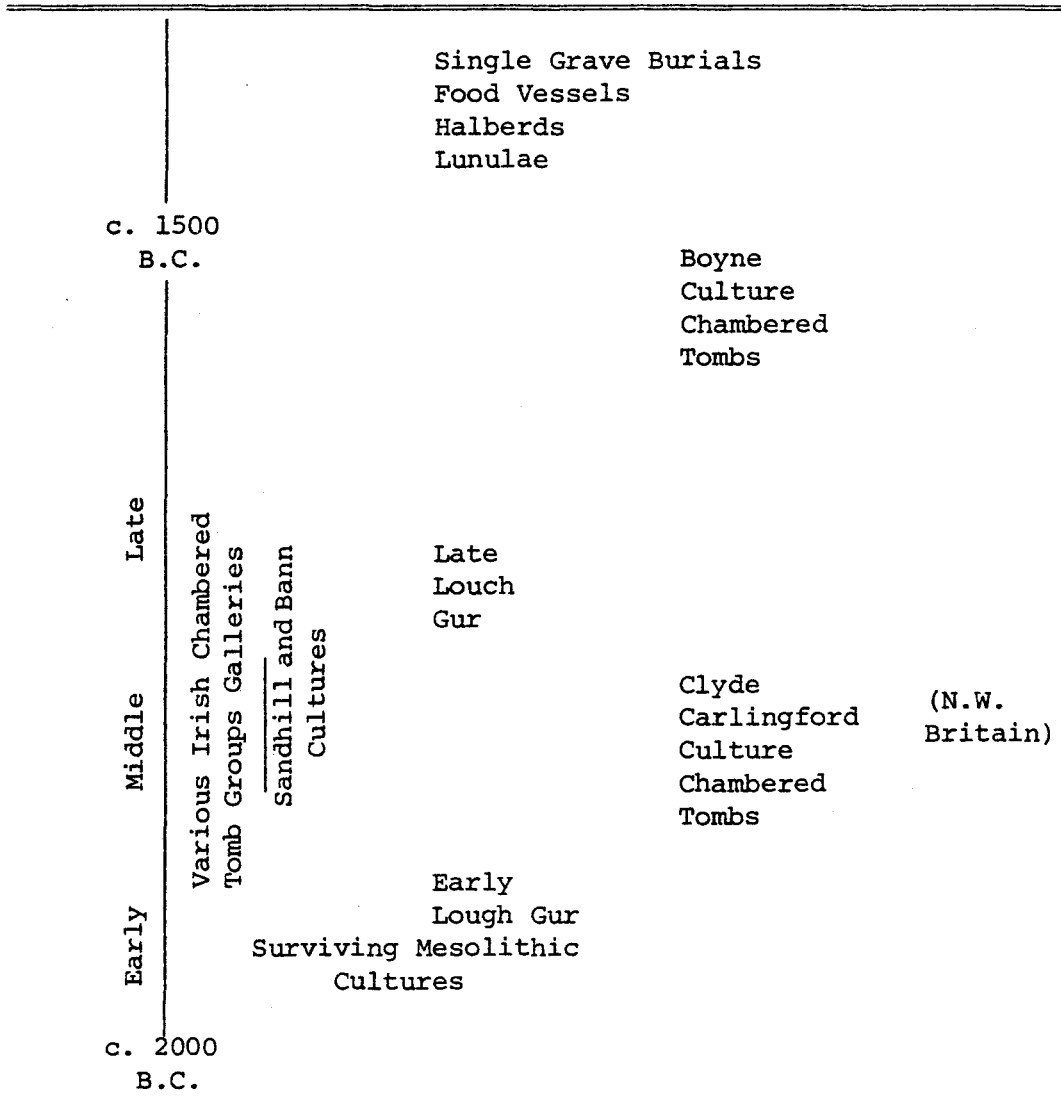
B.C.			
	Neolithic -	Cushendun	Horizon 4
		Glenarm	2
		Rough Island	2
1500 -			
	Mesolithic		
		Late Larnian	
		Cushendun	Horizon 3
		Glenarm	
		Larne - Curran Deposits	
		Island Magee	H 2 & H 3
4500 -		Early Larnian	
		Cushendun	Horizons 1 & 2
		Island Magee	Horizon 1
		Rough Island	Horizon 1
5600 -			
6000 -		Early Larnian (in situ)	
6800 -		Lough Meagh (Toome Bridge)	

Implements in Secondary Position

SOURCE: (Movius 1942: 143)

TABLE 3

IRISH TOMB SEQUENCE



SOURCE: (Piggott 1970: fig. 64)

TABLE 4

CONTEMPORARY VIEW OF IRISH ENVIRONMENTAL SEQUENCE

Climate	Archaeological Period	Flora
A.D.	Iron Christian Age	
B.C.		
Zone VIII-X Sub-Atlantic temp. of today		
1000	Bronze Age	Higher mountain blanket bogs appear and cover tombs and farmsted in West, thus preserving them.
Zone VIIb		
2000	Neolithic or New Stone Age Megalithic Complex	Birch
dry & warm 2.5° C today		Pine
Sub-Boreal		Oak
		Elm Decline Man clears forests; farming begins
3000		Sea reaches post glacial climax in Ulster
Zone VIIa Atlantic Phase		
4000		Larnian raised beaches appear
warm climax		
5000		
	5200	
Zone VI	Mesolithic or Middle Stone Age	Man appears[a]
		Oak
6000		Elm
		Ivy
		Holly
	6900	Lusithanian Fauna
7000		
12000-8000	Ice Age Ends	Birch Decline
		Kilgreany B Skeleton found[b]

TABLE 4--Continued

SOURCE: Herity and Eogan have published the most recent cultural sequence indicating climate, archaeology and flora, as well as named cultures (Herity, Eogan 1977: 3).

[a]A waste flint flake struck in Clactonian style was picked up on the surface of glacial gravel deposited as early as 200,000 B.C. near Dragheda, Co. Louth (Mitchell and Sieveking 1972). Existence of middle Paleolithic man is thereby documented near the basin of the Irish Sea (Herity, Eogan 1977: 16).

[b]Flourine test (Raftery 1963: 103) claims pre-8,000 B.C. date.

TABLE 5

CONTEMPORARY VIEW OF IRISH CULTURAL SEQUENCE

B.C.				
1000		Foreign Introduction Campignian Industries ⊕	Indigenous Bann Culture (influenced by ⊕□)	Indigenous Sand Hill Sites (influenced by ⊕□ Δ +)
2000		Connected With A Peripheral Extension of Western Neolithic Culture		
	Cushendun Horizon 4 Glenara Horizon 2 Rough Island Horizon 2	2500 - Boyne Culture (From Brittany)		
3000	Late Larnian[a] Cushendun Horizon 3 Glenarm Horizon 1 Sutton		Passage Graves Nuclear Cemetary	
		3500 - Primary Neolithic Assemblage		
	Larne-Curran Deposits Island Magee Horizons 2 & 3		Plain Pottery Polished Stone Axeheads Leaf Arrowheads Court cairns	
4000				
	Early Larnian Cushendun Horizons 1 & 2 Island Magee Horizon 1 Rough Island Horizon 1			
5000				
5600				
6000	6000 Early Larnian (in situ)			
	6800 Louch Neagh (Toome Bridge)			
7000 B.C.				

Key: + Christian Age O Iron Age Δ Bronze Age □ Megalithic Complex

SOURCE: (Herity, Eogan 1977: 27).

[a]Ninety-five percent of Movius' Early Larnian and Late Larnian is composed of primary parallel-sided or leaf shaped flint blades flakes and points (Herity, Eogan, 1977: 21).

Detailed characteristics of Irish archaeology cultures provide professional and amateur alike with guidelines for research in both the field and library. Burial data, economy (ibid.: 135), clothing, tools horticulture (ibid.: 142) and technology (ibid.: 153) comprise a comprehensive review of Irish archaeology and culture from today's scientific perspective.

This brief history of Irish archaeology is concluded on an especially high note. While less than two score of professional archaeologists practice their work on the island of Ireland, the average "man in the village" takes great interest in archaeology. While a vast number of reasons for individual interests in archaeology could be mentioned, a primary reason is the direct tie which most Irish people feel with their past; the past as excavated by today's Irish archaeologist.

In summary, by means of accounts of contemporary archaeological work in Ireland, any interested person can rapidly learn of excavation activity throughout the land by reviewing "Excavation 1972-1976." Excellent thumbnail sketches are arranged in an outstanding fashion. A great diversity of work embraces medieval urban sites, early Christian, monastic, mounds, mesolithic settlements, burials, circular stone enclosures and pre-bog field systems to mention a few. Of particular interest to Malin Head researchers in quest of area sites are:

"Excavations 1972" Report on Court tomb at Croaghbeg, Co, Donegal

	Report on iron at Reask, Co. Kerry and at Knowth, Co. Meath.
"Excavations 1973"	Report on ringfort at Lismurphy, Co, Derry.
	Report on Mesolithic settlement at Mount Sandel, Co. Derry.
"Excavations 1974"	Further evidence from Mount Sandel, Co. Derry.
"Excavations 1975"	Report on prehistoric settlement at Belderberg, Co. Mayo.
	Report on Spanish Armada wreck at Kinnagol Bay Co. Donegal.
"Excavations 1976"	Report on Mesolithic settlement at Castle Roe, Co. Derry.
	Further report on Mesolithic settlement at Mount Sandel, Co. Derry.
	Report on circular stone built enclosure at Keeldrum Lower, Co. Donegal.

The straightforward method of instant information of "Excavations" would be useful if such summary accounts of United States arachaeological work were available. Througout the published data gathering phase of this thesis research particular emphasis was placed on Donegal and Darry because of proximity. Specific references are made in later sections of this thesis, in particular, the section entitled "Cultural Evidence and Interpretation," Woodman and Colhoun references.

Fig. 1. Map of Ireland Showing the Location of Malin Head

MALIN HEAD ENVIRONMENT

"There is a pleasure in the pathless
woods,
There is a rapture on the lonely
shore,
There is a society where none in-
trudes,
By the deep sea, and music is its
roar;
I love not man the less, but nature
more,
From these our interviews, in which
I steal
From all I may be, or have been
before,
To mingle with the universe and feel
What I can ne'er express, yet cannot
all conceal."

Byron

Traditionally and through Ireland's early history, the island nation is divided into four parts corresponding to early kingdoms: Ulster in the north, Leinster to the east, Connacht in the west and Munster in the south. Since the 1922 political partition of the land into the Irish Free State and Northern Ireland, the six counties of Northern Ireland are often referred to as Ulster. However, Ulster has traditionally and in most present Irish minds, embraced the counties of Donegal, Derry, Antrim, Tyrone, Down, Fermonogh, Monoghan, Armagh and Cavan.

Location

Situated at latitude 55°21' North, longitude 7°24' West, Malin

Head is the windswept point at which the most northerly place in Ireland meets the Atlantic Ocean. "Malin Head, although the most projecting point of the coast, is comparatively low in elevation (125 feet) . . ." (Hull 1889: 3). Malin Head is located farther north than any point in adjacent Northern Ireland. The Inishowen Peninsula, at whose northerly tip lies Malin HEad, is formed by a rugged length of land bounded by the Atlantic Ocean on the north, Lough Swilly (a narrow inlet strip of the Atlantic) to the west, and Lough Foyle (another body of ocean water) on the east. An old sea bed extending about six miles from the Swilly's east shore to the Foyle's west shore was probably covered by the sea in earlier times, about 2400 BP, possible Iron Age times in Ireland. The six mile stretch lies between Blanket Nook (west) and Carrigans (east) bears sea bottom evidence.

The peninsula name, Inishowen, is the English derivative of the Irish "Inis Eoghain" which means Owen's Island. Inspections of a topographic map (Ordinance Survey of Northern Ireland, the Half-Inch Map, Sheet One, 1970), as well as an ecclesiastical division map (Bonner 1972: 29), bear out the contention ". . . at least eight islands . . ." (Swan 1939: 48) composed the Inishowen Peninsula in Celtic times. Hull regards the appropriate reconstruction as four islands (Hull 1889: 2). Bonner (1972: 10) mentions a reference to "Oilean na Malann" (Malin Island) in older records. The tide met between Culdaff Bay (on the east) and Trawbreaga Bay (on the west) and adjacent to the Malin Head site. With a present covering of peat over a deeper stratum of sand, silt and gravel, one finds another indica-

tion of an island of which Malin Head was a part. Additional geological evidence of the island nature of early Malin Head is found in the raised beach described by Hull (1889: 34).

> The most important and extensive, however, of these raised beaches is that which stretches from Culdaff to Trawbreaga Bay. Its average height is 50 feet, and most of its surface is covered with bog, which is being rapidly cut away.

Still further discussion elsewhere indicates:

> Malin further was separated from the rest of Inishowen by a strip of bog from Trawbreaga Bay to Culdaff; and it could, without difficulty, be cut off and used as a refuge for cattle by means of a few hastily made entrenchments . . . these entrenchments have now disappeared (Swan 1939: 179).

And here is more on the island nature of Malin Head:

> The moorland extends westward to Malin, surrounding as it approaches the head of Strabreagy, (Trawbreaga Bay) small elevated knolls known as the "Isles of Grellagh," in the parish of Cloncha; and it is surmised that the sea once flowed around these "islands," as marine exuvial are found beneath the bog.
>
> There is considerable indication of the ocean wave having at one time rolled across a portion of this plain from Culdaff to Binnion Hill, isolating Malin. . . . (Maghtochair 1935: 6)

Dating back to 1011, "the Annals of the Four Masters" refers to Inishowen as ". . . the island."

Geology

Malin Head consists primarily of igneous rock formations. Basalt and diorite are abundant. Flint, the stone tool makers' frequent choice, is found at Malin Head. "Flints, apparently from the Antrim Chalk however, were found in the high ground north of Culdaff, and as far west as Malin Head" (ibid.: 33).

At the Malin Coast Guard Station, approximately 12 kilometers

east from the site, and for some distance westwards, pink and white quartzites are much shattered and cleaved, the dip, in many cases, being uncertain. At the Watch Tower, approximately six kilometers east from the site, the rocks are felspathic, of a pink color, and pass into gneiss; further west there are beds of mica-schist associated with them. "At Malin Head, the pink quartzites predominate, but although altered, biotite being sometimes developed, yet the gneissose structure is not so apparent . . ." (ibid.: 27).

As one views Malin Head, the resemblance of a geological battleground between a churning earth, the unrelenting wind and an often furious sea comes to mind. Dramatic rock strikes at a sharp 80° angle points in a generally southerly direction. Maghtochair refers to ". . . frequent earthquakes . . ." in 763 A.D. (Maghtochair 1935: 31).

The beaches of Malin Head are covered with semi-precious stones referred to locally as Malin pebbles. The varieties include coral, jaspar, chalcedony, opal, agate, cornelian, topaz, amethyst, onyx and crystal (Swan 1939: 38).

A small strand of approximately ten meters wide provides easy access to the sea at the site. A gentle, grass covered hill leads to the strand and sea and is locally known as Jonesport. A convenient and accessible landing point for small boats (and possible prehistoric dugouts), Jonesport currently offers access to land from the sea in both high and low tides. Even when the Malin Head site was an island,

Jonesport could have provided commercial sea access to any settlement.

Climate

Temperatures have been temperate since the last ice receded about 16,000 BP (Woodman 1979: 361). The decline of birch about 9,000 BP came about with a warming period, where summer temperatures were warmer than today. Lusitonion flora, oak, elm, ivy and holly, with alders' appearance continued until the warm climate occurred about 6,500 BP. The sea reached it post-glacial climax at Malin Head. Evidence of man's presence at Malin Head appears at 4,500 BP. Dry and warm weather continued until about 3,000 BP. Birch reappeared, pine grew with oak as elm declined. Contemporary weather conditions of today began about 3,000 years ago (Herity 1977: 3) and are characterized by cloudy, moist conditions with a normal temperature range of 2°C to 22°C. Average annual temperature is 14°C. The warming aciton of the Gulf Stream flowing just off the Irish West coast inhibits freezing temperatures, a rarity at Malin Head. In fact, about 90 kilometers inland from Malin Head, palm trees are grown in an area which usually experiences cooler temperatures than Malin Head. Winds and thin soil prevent the present growth of trees at Malin Head. Wind speeds of 90 miles an hour are not uncommon at Malin Head with 106 miles per hour having been clocked during a 1965 hurricane. If more than 90 cm of rain falls per annum, crop harvest is threatened and acid grassland can develop (Bradley 1978: 30). The growing season for cereal crops begins at 6°C (Coppock 1964: fig. 8). Although Malin Head is the most northerly point in Ireland, a southerly aspect exists

because of the Gulf Stream influence. The moderate temperatures encourgae a number of garden vegetables and almost every Irish cottage has a garden of vegetables and flowers beside it. Annual rainfall is slightly over 100 centimeters. Moisture laden strong winds somewhat restrict agriculture to principally silage crops which become feed for cattle.

Malin Head Archaeological Site

Ten acres of the fourteen acre area locally known as "Backlands" comprise the archaeological site. To the north a 100 foot high ridge from the site boundary. The sea is over the ridge. The Six Inch Map of the Ordinance Survey identifies the ridge. Evidence of the one time presence of the sea is found thirty meters above the sea in the form of salt water mollusks on rock formations. The sand and gravel soil surface is revealed where the turf has been cut away. About one kilometer east of the site lies a smooth stone gravel pit, full of beach rolled stones. The Atlantic Ocean further defines both the west and south boundaries. Datum is a granite formation 5.5 x 4.2 meters in size and 10 meters high. As one approaches the site on a gravel road, a contemporary house of modern hexagonal design lies adjacent (east) to Datum.

History of Use of the Site

Several local residents described the use of the site with recollections from their youth. The modern surface was covered with approximately 2 meters of "caravan turf." The term "caravan turf" is

probably derived from the Gaelic "ceannaghan" turf meaning "white headed turf." Bog cotton (see Figs. 2 and 3) grows in the area and gives the impression of a white covering of the land in late June (personal communication from M. J. Gardiner, Head, Nation Soil Survey of Ireland). The caravan turf covered the site until earlier in this century when the turf was removed for use as solid fuel by local people. Bog formation, resulting in the peat accumation, dates to 2000 B.C. or longer ago. Peat growth rates vary considerably over small distances according to slope, aspect and drainage. A very general figure for blanket peat would be 0.5-1.0 mm per annum. Values considerably outside this range are possible and there are no direct estimates presently available for Malin Head from educational research or governmental authorities.

A simple answer as to why the peat formed is impossible. Ample rainfall, in itself, is not enough. It appears that the Malin Head area supported forest until perhaps 2000 B.C. Cooler, moister weather caused forest degeneration and peat formation began. An accepted explanation is that prehistoric man cut and cleared the forest and by overgrazing, over cropping and increased moisture caused soil deterioration, impeded drainage and conditions for acid bog formation (personal communications with Joy McCoy, Palaeoecology Laboratory, the Queen's University of Belfast and Alan Hamilton, The School of Biological and Environmental Studies, the New University of Ulster, Coleraine, County Londonderry) and (Barker 1975:85-104).

Additional references to peat formation and radiocarbon dating

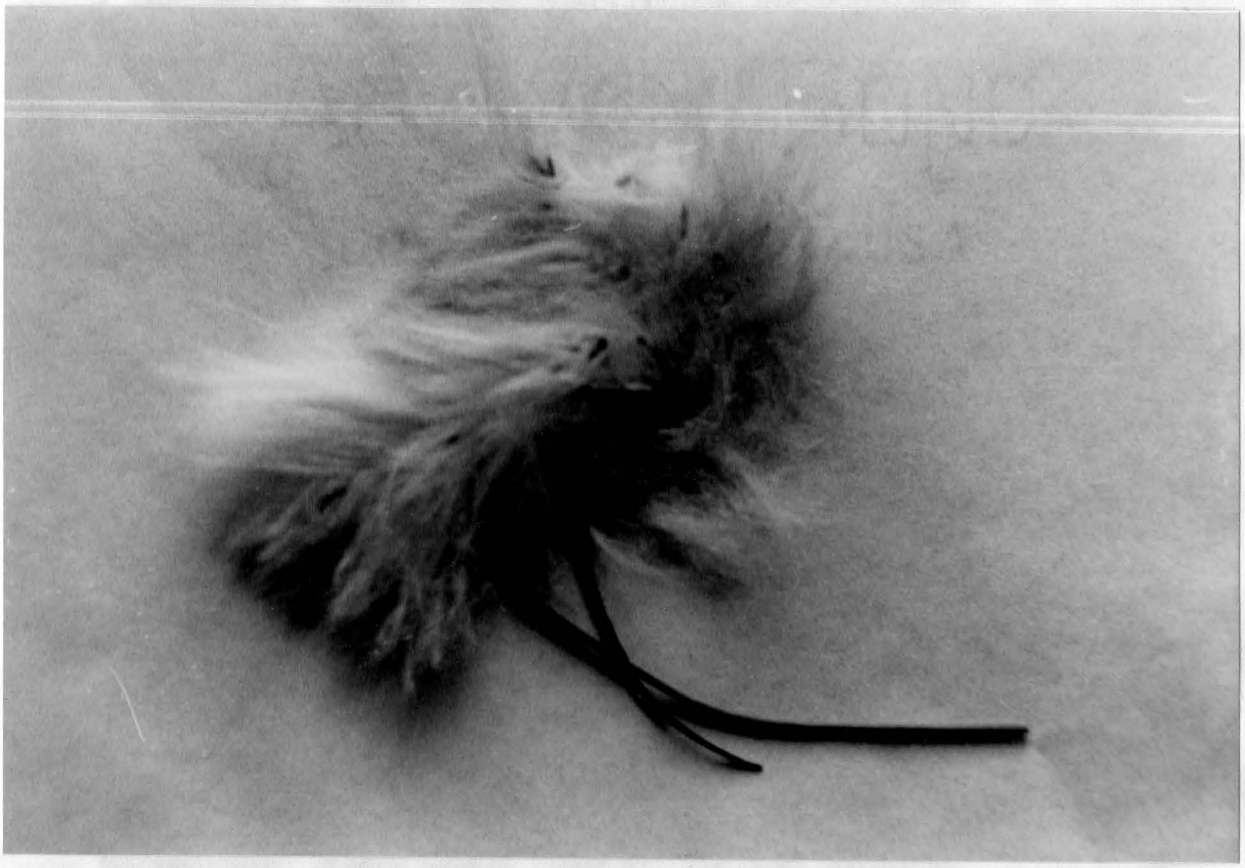


Fig. 2. Bog Cotton

Fig. 3. Bog Cotton *in situ*

of pollen was provided by R. W. Tomlinson of the Department of Geography, the Queen's University of Belfast. Pabble pollen from Loughmore Townlands, eight miles southwest of Limavady, Co. Derry indicates the agricultural phase belongs to the latest part of the Bronze Age, 2480 ± 70 to 2765 ± 70, 530 B.C. to 815 B.C. (J. R. Pilcher in Radiocarbon Vol. 13, 1971: 113). Malin Head is about 60 Km northwest of the area.

Thus, if cultural remains are found on the modern suface at Malin Head, they are at least 2,000 years old because two meters of caravan turf has covered any cultural remains until earlier in this century. It is possible that any cultural evidence discovered has laid under the peat blanket even longer (Herity 1977: 4). A soil sampling tool was used to test soil depth. Rarely was it possible to penetrate the peat below 15 cm with the soil sampling tool. The sandy gravel subsurface prevented further penetration. Local residents recall finding oak tree trunks and hazel nuts in the peat at a depth of four meters. Peat deposition rates of 0.5-1.0 mm per annum indicate an age of 2,000 to 4,000 years. However, deposition could have been faster and the basal level under the site much older if oak decline in Ireland is traced to 3000 B.C. (see Table 4). Maghtochair tells us: "Underneath these bogs are large quantities of timber; larch, fir, oak and sometines yew . . ." (Maghtochair 1935: 112).

Further indication of change is noted in evidence from the bogs:

> The presence of these remains of trees is evidence of the existence here in a remote part of great forests of fir and oak. It is worthy of note that Malin Head, where no trees can now grow, large tree trunks have been found bried in the bogs close to the edge of the sea. A major climatic change has evidently taken place since pre-historic times. (Bonner 1972: 9)

According to Willie McLaughlin, whose family held original title to the site at Malin Head about 1,500 meters east of the site, iron ore was dug and exported to England early in the twentieth century. Such presence of iron ore is positive evidence of iron working probability at Malin Head.

In providing additional background to the various ways of life during various occupation periods, it seems that the Mesolithic period was characterized in Ireland by a hunter-gather way of subsistence and court cairn burials. Farming began in Neolithic times as man cleared the forests. Passage graves and nuclear cemetaries characterized the burials of these stone tool users who began domesticating animals. The circular house form of Mesolithic times evolved to the rectangular shape of the Neolithic in Ireland. The Iron Age, with cooler, damper weather than earlier ages, brought greater animal husbandry and a new metal for implement technology. The early Iron Age in Ireland can be best appreciated by the La Tene art work of late in the first millennium B.C. The great distribution of iron made it available for more people to use. The single protected farm characterized the Iron Age.

SITE PROCEDURE

Observing the Irish law (National Monuments Act 1930, as amended in 1954), which does not allow me to excavate, a basic walking survey plan led to successful identification of extensive cultural remains. Emphasis is placed upon the concept envisioned by Clarke in the term "resource space." The technical term which "recognizes that one area of space may be a resource in its own right and much used, whilst another neighboring space may not have been used or visited at all . . ." (Clarke 1977: 9).

Datum was established as the largest, i.e., tallest and broadest rock formation at the northeast portion of the site (see Fig. 4). Datum is immediately west of the comtemporary house. Locally referred to as the "Three Penny House," its hexagonal modules resemble the old "three pence" coin.

Compass bearings and landmarks served to establish locations of archaeological features. Fig. 4 portrays the relevant positions of all discovered cultural features on the fourteen acre site of which about 1,080 meters front on the Atlantic Ocean to the south and west.

Overall, the walk-over field survey established a two meter grid. Here is how it worked. When walking on a west compass bearing to the site limit (the sea), the next pass to the east is two meters north of the previous west pass. The north-south passes essentially hatch-marked the site into grids of four square meters (2m x 2m).

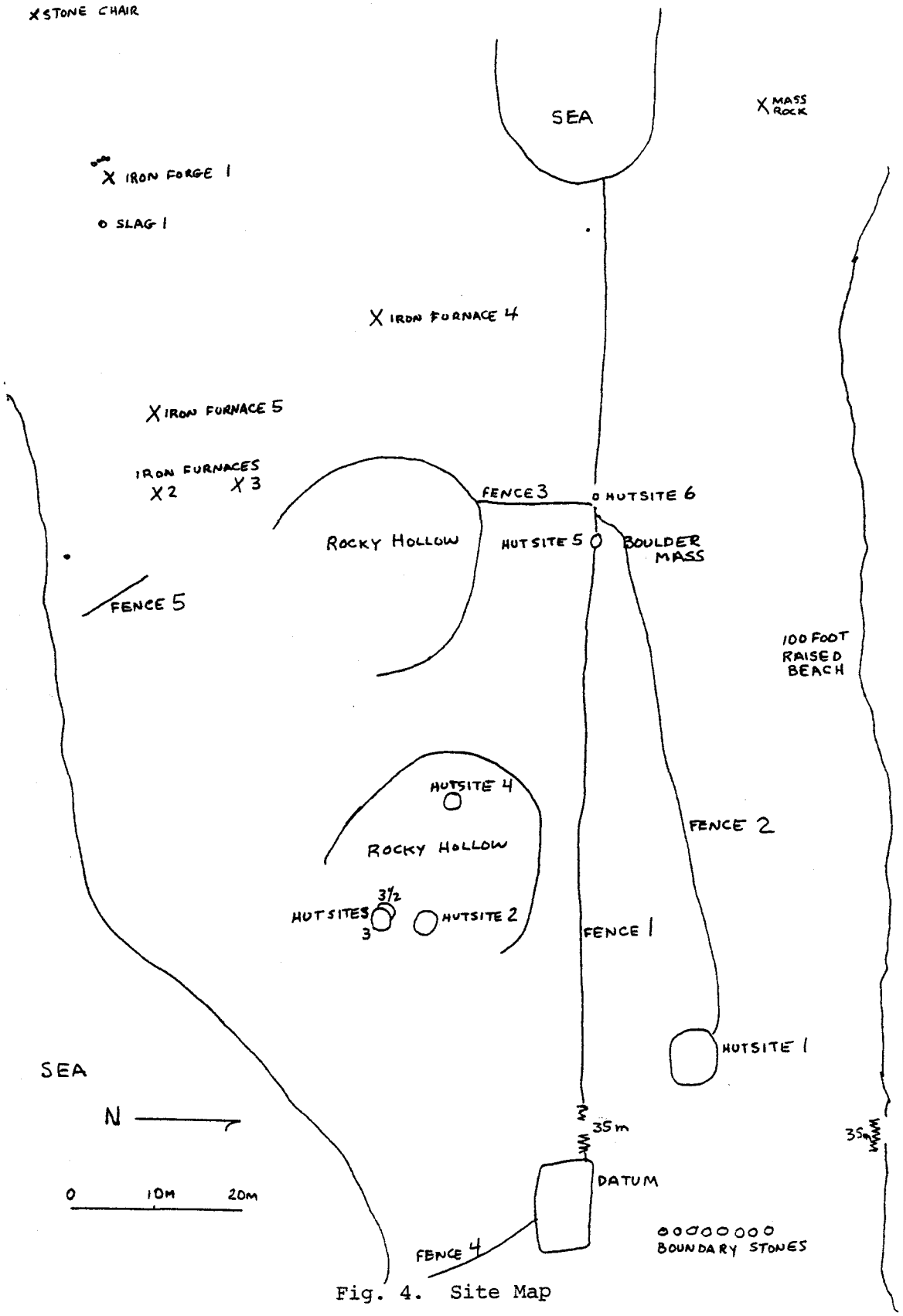


Fig. 4. Site Map

Upon sighting cultural surface evidence, an intesive one meter, or smaller walk-over ten meters in each direction was pursued, sometimes on all fours. This intensive search method led to the discovery of Forge 1 and its small cinder-like iron granules. Additionally, another nearby clump of iron slag was noted partially exposed above the grassy surface. Other iron furnaces were also discovered. Somewhat disappointingly, no satisfactory evidence of a grave was located around the stone chair, even when using the intensive method (one meter grid or less). The natural stone chair contains concentric circular line carvings, on the south side of the inside arm.

Discovery of any archaeological feature led to its plotting on the site map, photograph and some line drawings. Land contour was also observed and noted relative to the hut site areas, iron slag/ granule areas and the stone chair area.

In the immdediate vicinity of each archaeological feature, soil samples were carefully taken with an Oakfield soil sampler, model A2. A soil sample approximately 2 centimeters in diameter by up to one meter deep (with a field modification depth extended) was possible. Rarely, however, due to either collapsed wall debris under the peat or simply the shallow sandy gravel base of the land, could a sample deeper than 15 cm be gathered. Deeper soil samples can be procured in archaeologically sterile areas (non-resource areas) (at least on the surface) apart from cultural features. Around archaeological features (resource-areas), a 50 cm grid was established for

soil samples. Soil samples were either slate grey fine gravel or rich black humus. A laboratory was not established to examine soil samples.

By nudging and pushing large stones in field fences and hut sites, a deep thud sound indicated that other stones underlaid most surface stones. However, great care was taken to insure that the stones remained intact, in place. Each surface stone in an archaeological feature area was examined in situ and remained undisturbed.

Always interesting and fruitfully valuable are the resources of knowledge and recollection shared by local neighbors. As specifically noted throughout this thesis, my neighbors and friends shed light through the misty pall of time. Direct questions and discussion at the sites of cultural remains, in my neighbors' homes and in my own home added to the data and detail of Malin Head archaeology.

CULTURAL EVIDENCE AND INTERPRETATION

Cultural evidence is manifest in numerous forms: stone field fences, large boundary stones, circular stone hut sites, iron slag, granules, forge and furnaces, stone carvings in a natural stone chair. Yellen speaks of "archaeological visibility" (Yellen 1977: 362) which describes the high threshold value of stone dwellings, iron forges and field fences. All observations of cultural evidence were made without excavation of any type detailed in the chapter on site procedures and in full accordance with Irish law (National Monuments Act, 1930 as amended in 1954).

Stone Field Fences

Located generally west from a 5.5m x 4.2m rock formation west of datum, one stone field fence (Fence one) runs 157.3m to the sea. The fence is about 75 cm high with varying widths in its course. It is heavily covered with peat. This stone field fence is the archaeological detail which first caught my eye in a photograph.

Beginning on the north wall of Hut one (6.4m x 6.1m) a second peat covered fence (Fence two) extends 58.5m westward where it ends at the base of a hill; a dry wash parallels the fence to the north. Fourteen and three-quarters meters west of the point where the second fence stops, a lower and narrower (about one stone wide) fence (Fence

three) runs 180° south for 13.7m where it meets a small rock formation.

Two other stone fences run generally north and south. An 18.4m fence (Fence four) runs 160° south from datum to a path/road. About 1.5m high, it is never wider than one meter. A path/road has cut away this fence, but a local said it extended to the sea before the path/road was cut through the fence. The fifth fence is found near the quartet of Huts two, three, three and one-half and four. Lying 49.4m 220° south of the west wall of hut three, the low lying fence extends 9.2m to the sea on a bearing of 160° south.

Large Boundary Stones

At a point 9.6 meters to compass north from the east edge of datum, eight large coundary stones extend 14 meters. Their large size makes them easily visible. The stones proceed about a quarter of the distance up the 100 foot ridge to the north. Several stones have diameters over a meter in length and width on this east boundary marker of the site. Peat appears to cover other stones.

Stone Hut Sites

Five to six stone huts are readily identifiable on the fourteen acre site. The stones appear to be local and are numerous in the site area.

Stone Hut Site One

Forty-eight meters west of datum, the largest of six hut sites is found. A minimum of 75 stones are visible. More are in place under a thin peat cover. The maximum stone sizes are:

length	(N-S)	97cm
width	(E-W)	1.17m
height		64cm

The rather regular round hut site measures 6.4m x 6.1m, with a floor area of 32.3 square meters. In testing stones, i.e., exerting a minimum pressure causing a stone to move a few centimeteres and return to its original position undisturbed, it appears that underlaying stones are in place under the visible stones above the surface. The lower stones are generally not visible above the peat. Without excavating, it is impossible to determine the number of courses of stones in situ. The north wall of Hut one forms a part of a stone field fence (Fence 2). A possible entrance appears on the south section. The opening is about 3 meters. No stones appear to be under the peat at the opening. (See Figs. 5 and 6.)

Stone Hut Site Two

Hut site two is 27.5 meters south of the west edge of datum (200° compass) and 75.9 meters west (270° compass) of datum. As it is difficult to walk from datum directly to hut site two because of intervening rock formations, the rather round about plotted course to reach hut site two is listed. Hut site two is 2.75 x 2.2 meters with a floor area of about 10.7 square meters. A minimum of 26 stones

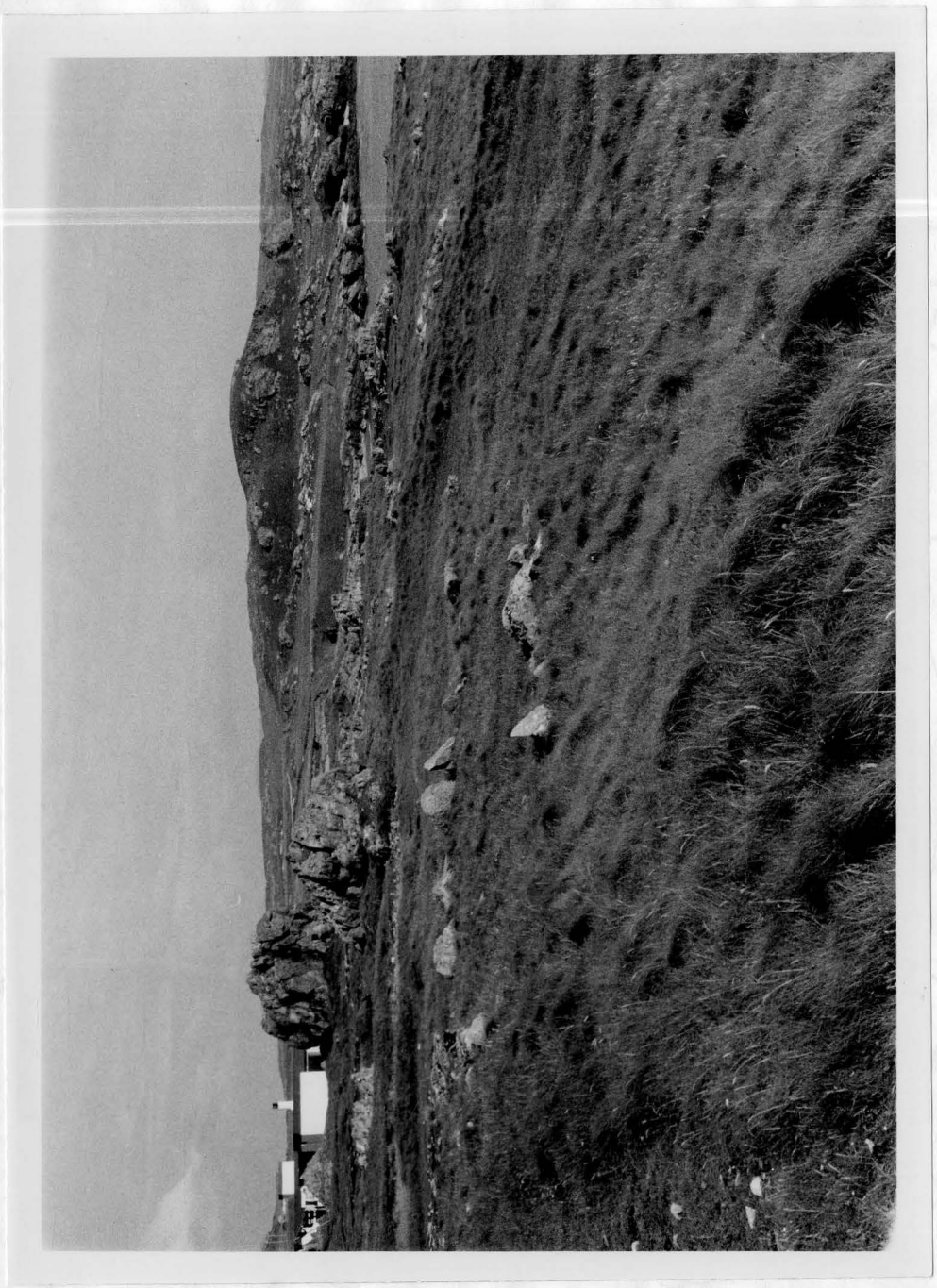


Fig. 5. Hut Site One Facing Southeast

A minimum of 75 stones are visible.

Maximum sizes
Height 64cm
Width 1.17m
Length 97cm

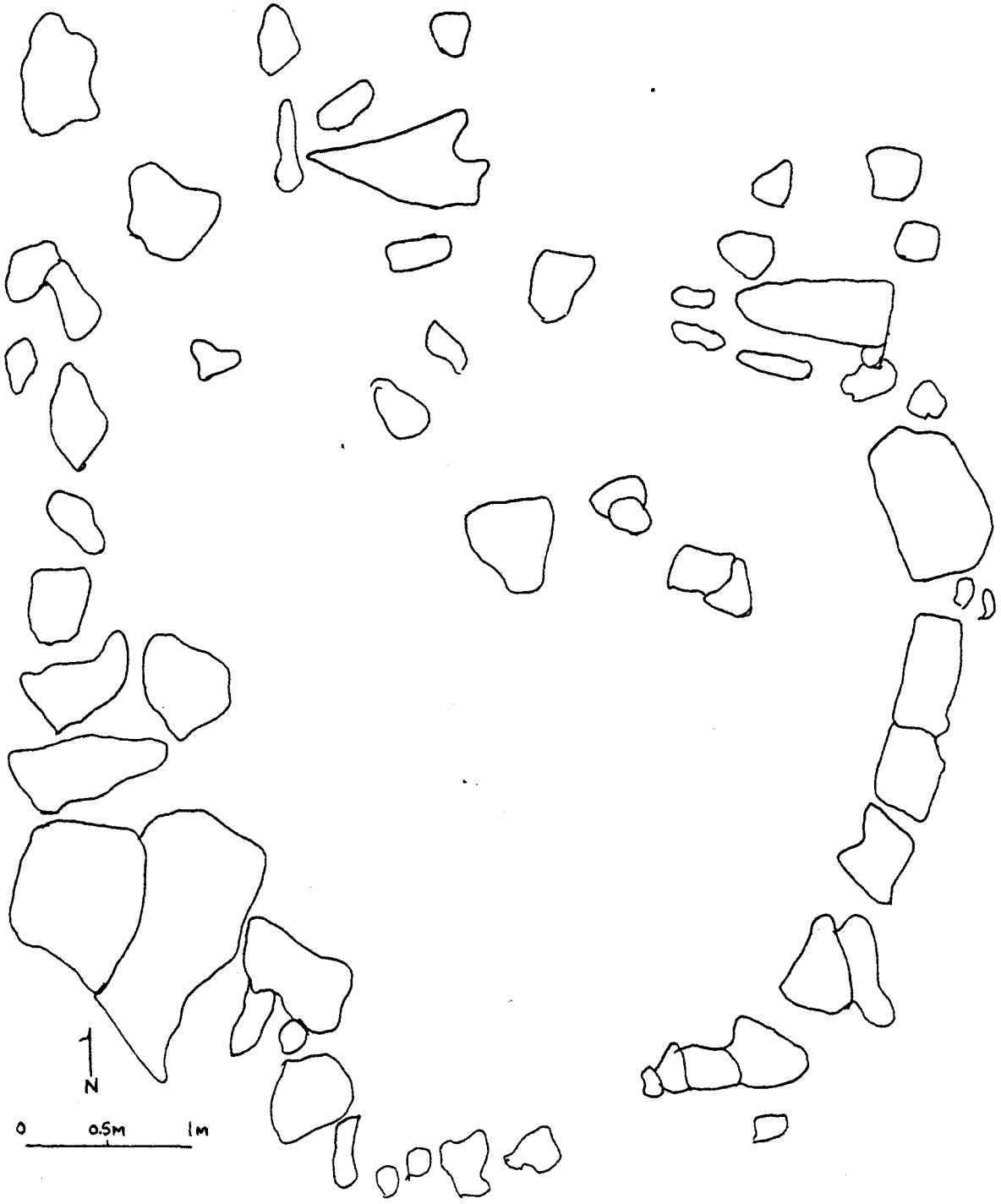


Fig. 6. Stone Hut Site One--Sketch

are aligned in a circular fashion. The maximum stone sizes are:

length	77cm
width	79cm
height	38cm

The area immediately underlying the visible stones is definitely raised indicating addtiional stones under the peat. An opening to hut two is on the south wall where a 1.83 meter stone-free area exists. (See Figs. 7 and 8.)

Stone Hut Site Three

Two and three-quarter meters south of hut site two, the circular formed stones of hut site three appear. Hut site three is 2.75m x 2.75m with a floor area of about 10.7 square meters. A minimum of 32 stones are visible. The maximum sizes are:

length	82cm
width	91cm
height	41cm

Additional stones can be felt under the peat in the general circular shape of the hut. An opening on the north wall measures 1.37m of stone-free area. A stone 84cm x 61cm lies 1.52m north of hut site three and 31cm south of hut site two. Other stones rest under the peat in the 2.75m distance between hut sites two and three. Excavation would determine if the hut sites were connected. (see Figs. 7 and 9.)

Stone Hut Site Three and One-Half

Cojoined generally on the west wall of hut site three, a semi-

Fig. 7. Hut Sites Three and Two (Background) Facing Northwest

A minimum of 26 stones are visible.

Maximum sizes
height 38cm
width 79cm
length 77cm

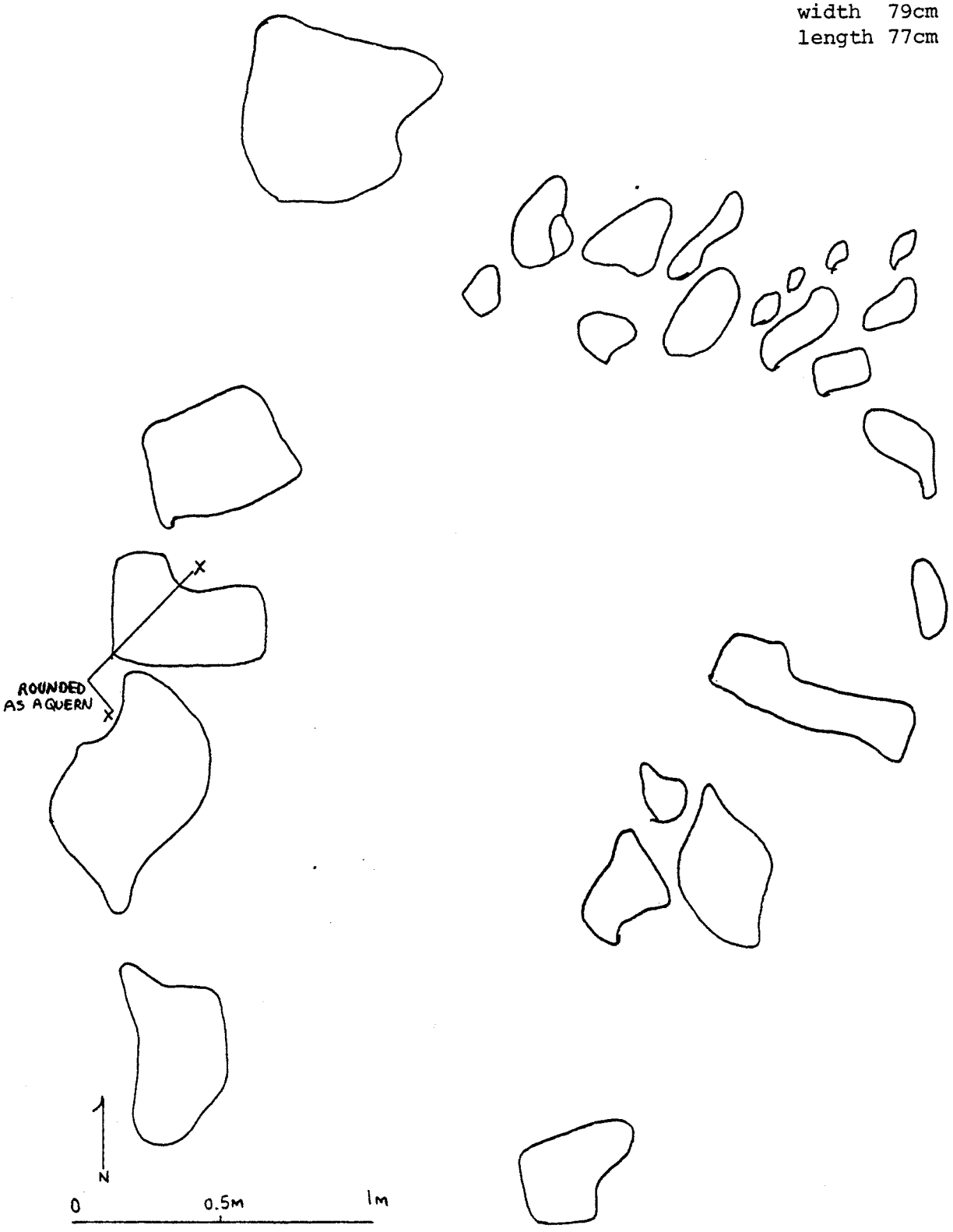
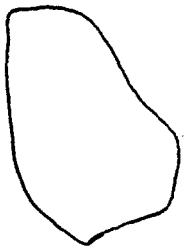


Fig. 8. Stone Hut Site Two--Sketch

A minimum of 32 stones are visible.



Maximum sizes
height 41cm
width 91cm
length 82cm

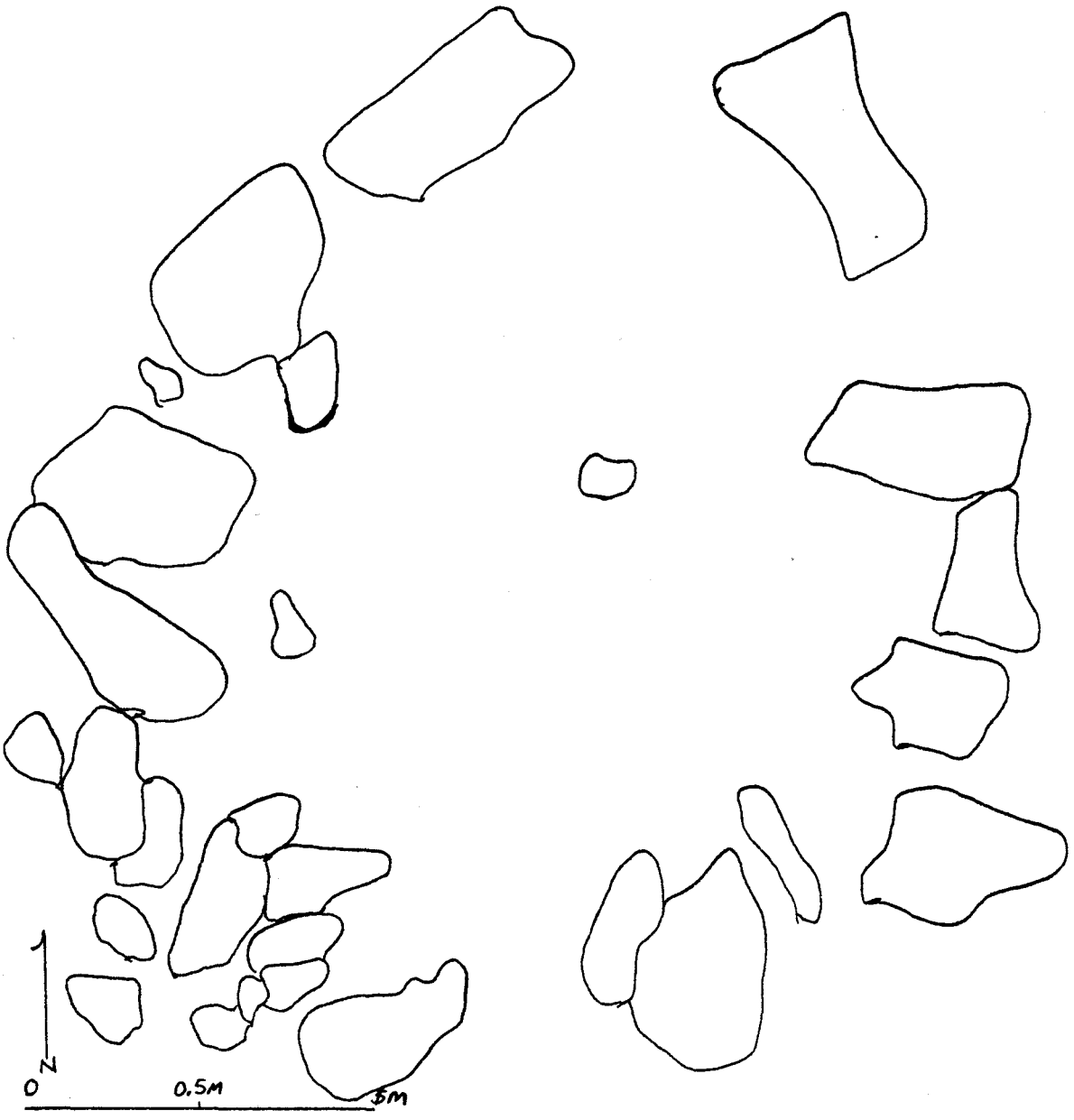


Fig. 9. Stone Hut Site Three and Three and one-half--Sketch

circular foundation of peat covered stones extends out about 1.5m with an area of about 3.6 square meters. No stone is visible above the peat surface, but there is positive evidence of their presence ascertained by touch. The semi-circular outline is easily visually determined under the peat. (See Fig. 9.)

Stone Hut Site Four

Sixteen meters to the west (300°) of hut site three, the 2m x 2m hut site four is located. The floor space area is about 3 square meters. A minimum of 13 visible stones run in two parallel lines. The maximum stone sizes are:

length	69cm
width	77cm
height	36cm

Testing (described in stone hut site one), the visible stones clearly indicates stones set on stones. One 31cm x 23cm stone is set on top and fits neatly into a larger stone. Because of no clear rectangular or circular definition, an entrance is not discernable. The ground rises slightly at the location of this site. (See Fig. 10.)

Stone Hut Site Five

Thirty-three meters north (20°) of stone hut site four and fifty meters west (270°) of stone hut site one, is the 2m x 2m stone hut site five with a 3 square meter floor area. Consisting of at least nine visible stones, a rough circle is described. The north wall of the hut site is part of stone field fence one. Two large

Minimum of 13 visible stones

Maximum sizes
height 36cm
width 77cm
length 69cm

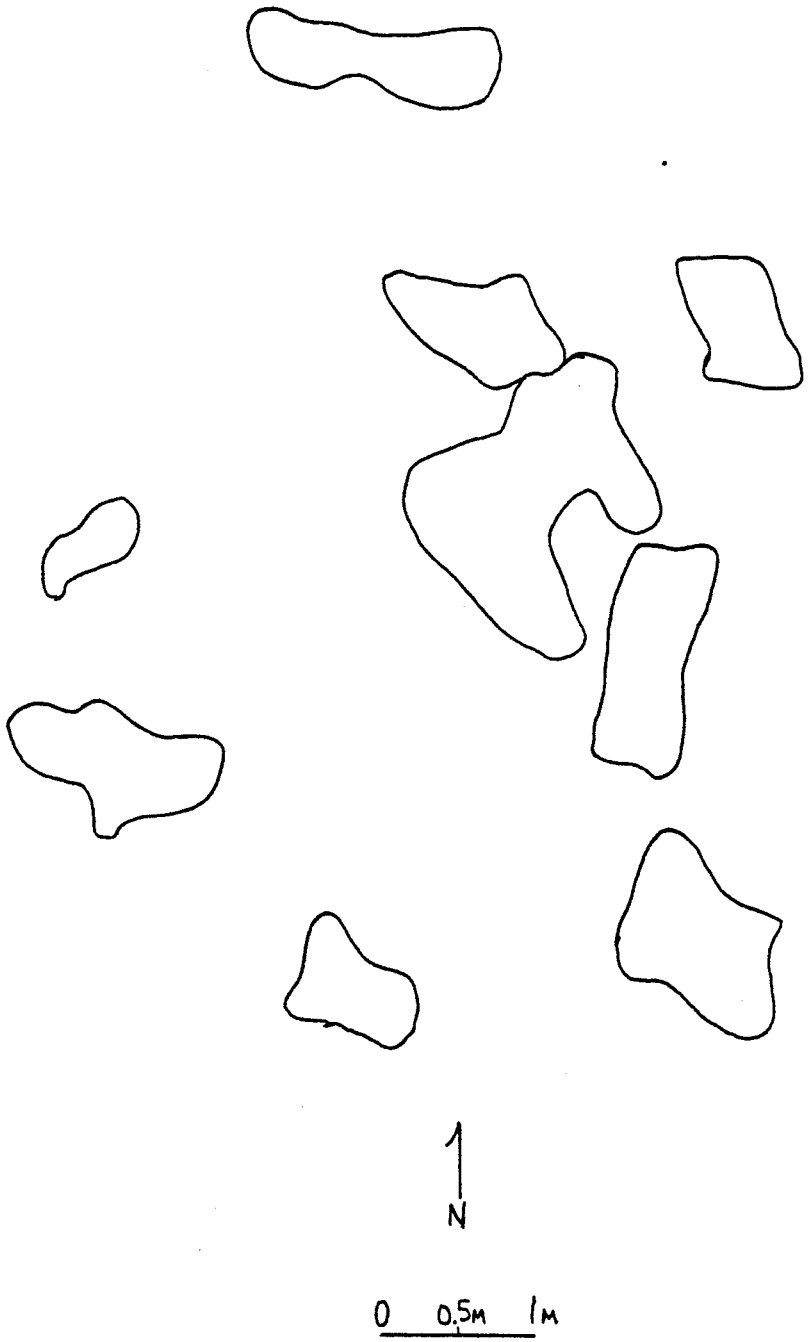


Fig. 10. Stone Hut Site Four--Sketch

65cm x 72cm and 51cm x 84cm are part of the fence. The maximum stone sizes are:

length	65cm
width	84cm
height	46cm

No readily discernable entrance in hut five is present with open gaps of from 51cm to 1.2m in five places.

To the west, 2.5 meters of hut site five, three stones may be remains of a sixth hut site. The sixth site is also part of stone field fence one. The stones in hut site six may be from hut five or from fence one (see Fig. 11).

About 40 meters west of stone hut site four, another small hollow is found. It closely resembles the hollow where huts two, three, three and one-half and four were built. No evidence of additional hut sites can be found, although a thorough serach was undertaken.

Iron Slag and Forge

Iron Slag and Forge One

Sixty-six meters west of the most seaward stone in stone field fence five, lying at the west head of a dry, slightly inclined wash, a 15cm x 8cm piece of iron slag was discovered on the surface. At a slightly higher level 13m, 210° SSW, more slag is partially exposed. The slag is about 15cm in diameter. Ten meters west of the first described iron slag, stands a 75cm tall, one meter in diameter iron

Minimum of 12 visible stones

Maximum sizes
height 46cm
width 84cm
length 65cm

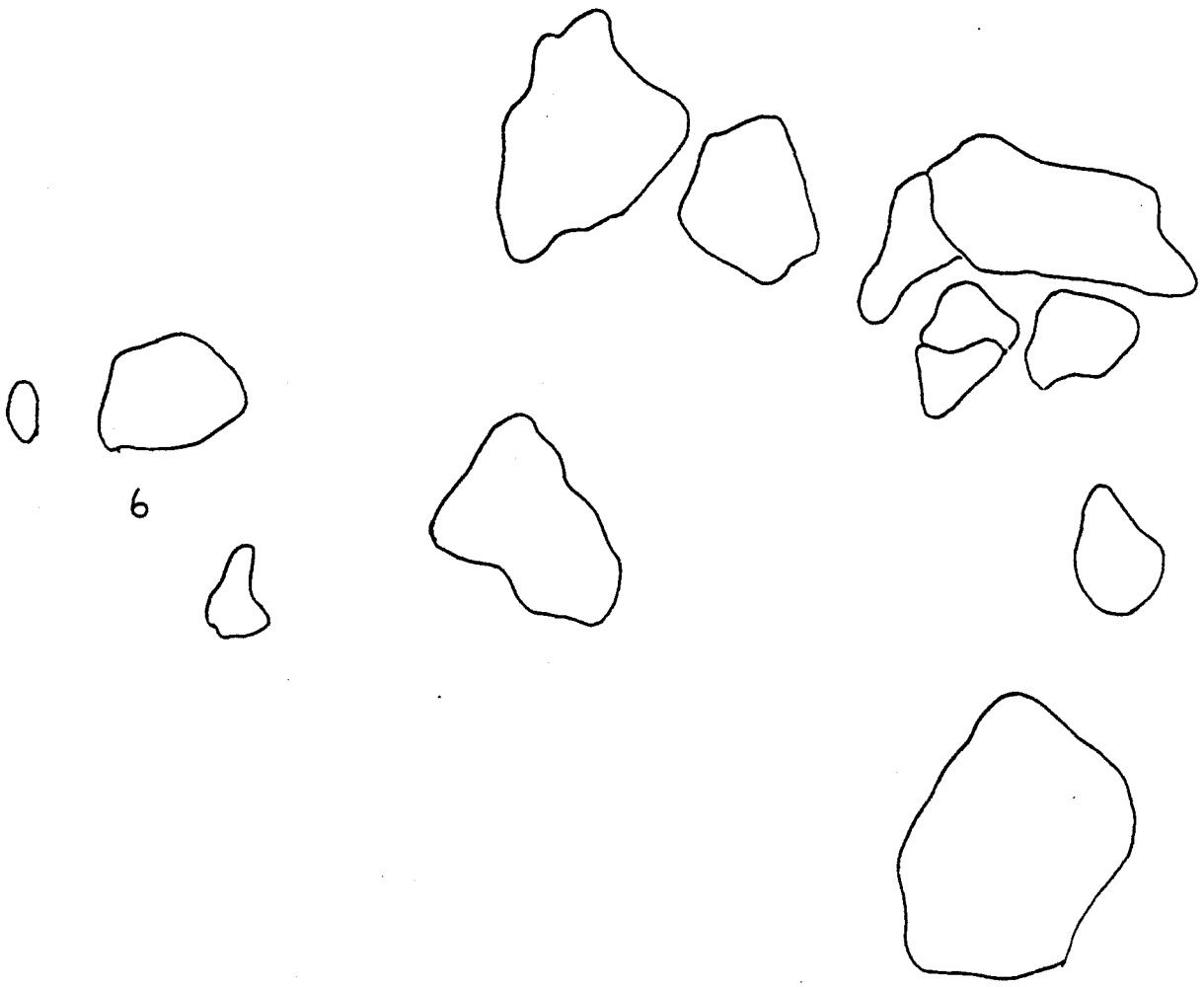


Fig. 11. Stone Huts Sites Five and Six--Sketch

forge, forge one. Iron granules (cinder-like) and iron clumps are readily visible on the east face of the iron forge. (See Figs. 12, 13, 14.) Surface evidence of four additional iron furnaces is found in the heavy concentration of loose iron granules at iron furnace designations 2, 3, 4 and 5. (See Fig. 4.) .

Iron Furnace 2

Ten meters west of the most northerly stone in fence 5 is a 4m x 4m area of iron granules. As in the areas of iron furnaces 3-5, the peat has been mostly cut from iron furnace area 2.

Iron Furnace 3

About ten meters north, northwest of furnace 2, the 0.75m x 0.75m are of granules from furnace 3 is found. The structure of the furnace itself was not obvious.

Iron Furnace 4

Continuing 21 meters to the west, northwest of furnace 3, a 0.3m x 0.3m area of iron granules is labeled furnace 4. The furnace itself is not obvious.

Iron Furnace 5

A small slightly dug out area 0.3m x 0.5m marks the location of furnace 5, approximately 11 meters west of furnace 2.

Fig. 12. Dry wash containing iron slag with Iron Forge One at the top center, facing west.

Fig. 13. Iron Forge One facing west

Fig. 14. Iron Forge One facing west indicating large cinder-like iron granules.

Stone Carving

Walking west 42m (250°) from Iron Forge one, one finda a chair-like stone structure with concentric curved lines carved into the surface of the left arm. The inside carved lines were not discovered on any other stones on the site although thoroughly searched. (See Figs. 15, 16, 17.)

Interpretation

Interpretation is undertaken in cultural terms of observed patterns. Are all important variables and interrelationships like weather, natural resources, flora, fauna and man considered? Are any other interpretive models available for study? Consider all the elements of the invironment in a systems analysis. "Thus, the initial question of prehistory can be formulated: How can information be extracted from the results of behavior stored in matter by men remote in both time and culture?" (Ascher 1977: 234). Ascher continues:

> The path of disorganization from "inhabited" through "ghost" and on to archaeological disturbance is irreversible, but it must be figuratively reversed when inferring past human behavior. This creative task can lead to alternate inferences, any one of which might be as plausible as any other. Ideally, the best solution is the one derived from the accurate retracing of the path of disorganization, but because so little is understood about the path, there is no sound basis for the elimination of any solution (ibid.: 235).

Interpretation of the existing cultural evidence at Malin Head draws from numerous sources including five volumes of the latest summary accounts of archaeological work in Ireland found in "Excavations 1972-1976." Repeated occupation and abandonment of the site appears

Fig. 15. Stone chair facing east southeast

Fig. 16. Stone chair closeup. Note carvings on right. Camera facing east southeast.

Fig. 17. Stone carvings closeup facing east.

to have occurred: 2000 B.C. stone chair carving and dwelling construction; 200 B.C. iron maker occupancy including occupation of huts (?); 800 A.D. Viking (Dane) occupancy.

The stone hut sites settlement at Malin Head lie in an area of 50m x 58m (see Fig. 4). Community or settlement is defined as a ". . . geographically contiguous group of individuals with a characteristically higher degree of face-to-face interaction among themselves than with members of other groups" (Pollnac and Rowlett 1977: 169). The boundary stones and stone field fences define the Malin Head settlement as an area of 60m (east boundary) x 184, (north boundary) with the Atlantic Ocean at the south and west boundaries. The number of hut sites accounts for the probability of a prehistoric settlement. Bell-Beaker culture spread to Ulster, Counties Derry and Antrim, from the Netherlands, Rhenish and Austrian Groups, and Reflux Groups in about 2000 B.C. (Piggott 1965: 100-1), and long before Iron Age activities. Iron forge and slag reinforces the proposition of settlement at a later date but probably not in the recorded stone hut sites discovered and mapped during this survey. It may be that the huts were built by the chair builders as dwellings. This early hut occupation leads to the speculation that the stone hut sites were already abandoned by the time iron was made at Malin Head. Otherwise, smoke from the furnaces would have regularly blown over the dwelling sites. Contemporary prevailing winds indicate such movement.

Evidence in the form of microliths and Mesolithic axes was sought to substantiate claims for 2000 B.C. occupancy. A distally-

trimmed flint implement was revealed by a local person, out of archaeological context, but attributed to the site (Woodman 1978: 352). In small topographical saddles west of the cluster of four hut sites, many flints cover the ground. They are found in wash areas and are natural flakes from the rock walls on the north and south walls. Such flint blanks provide ample material for tool making.

Food for these first Malin Head inhabitants consisted of hare, birds and fish, as well as raspberries and hazel nuts (ibid.: 344). Pigs were not yet domesticated. The red deer played ". . . a far less important tole in the Mesolithic economy of Ireland than it did in Britain and other parts of Europe" (ibid.: 362). Woodman in the Mount Sandel, Co. Derry research presents a detailed chart of economic exploitation (ibid.: 366). Social contact with sea travellers during all occupation periods is likely. The Mesolithic occupancy was a permanent settlement because of the chair and hut construction effort.

Radiocarbon dating from other parts of Ulster is of interest. References provided by R. W. Tomlinson of the Department of Geography, The Queen's University of Belfast substantiate some dating done within 48 to 148 km of Malin Head. At a depth of 227cm, sphagnum peat was dated 4110 BP ± 55 at Fallahogy, Co. Londonderry (Smith, Pearson, Pilcher 1970: 286). Amorphous peat from 126cm to 132cm at Crockbrack, Co. Londonderry is dated 5435 ± 50 or 3485 B.C. (Pilcher 1973: 601.3). Nearest to Malin Head, as previously noted, a pubble pollen series from Loughmore Townlands near Limavody, Co. Londonderry brings agri-

culture back to the Bronze Age. The pollen analytically defined agriculture phase belongs to the latest part of the Bronze Age, 2480 ± 70 to 2765 ± 70, 530 B.C. to 815 B.C. (Pilcher 1971: 111).

The Iron Age occupancy may have been constant from about 200 B.C. through Viking times, about 800 A.D. Six hut rings identified at Malin Head may date to the late Mesolithic/Neolithic and/or Iron Age; however, evidence for accurate dating is lacking. Examination of huts from other sites in the region demonstrates the existence of circular huts for both the nonsedentary Mesolithic period as well as sedentary Mesolithic and Iron Age cultures. Stone huts 2, 3, 3-1/2, 4 and 5 are notably smaller than hut one. The five smaller huts may have been dwelling sites and food storage areas with the 5.4m x 6.1m largest site an animal enclosure. While on holiday in Donegal, the head of the National Monuments Branch of the Board of Public Works visited my land/site at Malin Head. Mr. Peter Danaher identified three circular hut sites, feeling that the largest (hut site one) may have been an animal enclosure because of its larger size.

Preparation of the post-glacial fields for cultivation required removing glacial stone debris. Heaps of stones aligned with large natural rock formations formed fences which served a multiple purpose of keeping domesticated animals within the settlement and withstraining predators from easily entering the settlement areas. as well as a response to community pressures.

Land clearance shares two very clear tendencies; more demand-

ing land use and may be a sign of population pressure; another is gradual environmental decline which dislocates the settlement pattern. These changes result in expansion of existing settlements or creation of new ones (Bradley 1978: 20).

After extensive visual searching from ground level and the 100 foot ridge at the north boundary of the site, at different times of the day and during each of the four seasons, this observer was unable to define a specific field system, although it may well exist. By ethnographic analogy, we can look at crops. Wheat and barley were principal crops in Iron Age Britain. Other major plants are flax, rye, oats and beans. About 70 percent of a normal diet can be placed on grain products. Rye, oats and beans made their main impact in Iron Age times (ibid.: 90). The sea is another resource for exploitation by Malin Head people.

> . . . The cause of this shift to marine life (for food) is not certain. It has been suggested that the general lowering of temperature during the first millennium B.C. forced a greater reliance upon ocean products. (Dumond 1969: 1113)

While the last citation is drawn from Alaska, ethnographic analogy can be cited here. Seals were hunted off the coast of Donegal, primarily for their skins. The skins were used to cover frame boats and as clothing (Clark, J.D.G. 1952: 83).

Flexibility is the key word to describe subsistence behavior and social organization (Stuart 1977: 251). The land generally drains well and may have drained better in prehistoric times. A dry wash or stream bed runs parallel to field fence two. Potable springs are open

on the surface within a one to five minute walk of the hut sites. It is likely that fresh water sites existed in the prehistoric times of the settlement, although the earthquakes of 763 A.D. could have altered spring locations and the water table.

If peat is 2,765 or 5,435 or 4,110 years old, then stone hut circles are at least as old because they appear to lie below the peat level on the gravel, sub-peat surface. It seems unlikely that the hut builders dug below the peat surface to afford better insulation because weather was warmer than today and rain water could have flooded the sunken living area of the huts.

Swan (1975: 18) describes a circular hut of 7m diameter but offers no speculation on its use. Caulfield's Neolithic settlement excavations found a 9m diameter ciruclar stone structure which he describes as a probably house (1972: 22). E. Kelly excavated the foundation of a 5m diameter house where smelting activity was identified. The site was dated 500 A.D. to 1000 A.D.

In Ulster, Woodman (1974: 12) excavated a Mesolithic settlement. One circular hut was 6m in diameter. He also uncovered other huts in a slight hollow as would well describe the location stone hut sites 2, 3, 3-1/2, and 4 are Malin Head. The natural rock formation of the hollow generally shields north and west winds. Woodman cites an uncorrected C14 date of mid-seventh millenium B.C. for his Mount Sandel site. Hazel nut shells are dated by Woodman at Mount Sandel at 7010 ± 70 (Woodman 1979: 333-34). However, he found no Early Mesolithic evidence (ibid.: 333).

Clark offers a variety of information on circular huts: ". . . early in the second millennium B.C., a tradition of building circular constructions of house-like character was firmly rooted in the lowland zone" (Yorkshire, England). And further "The earliest round houses . . . are those associated with late bronze age immigrants on the Sussex Downs" (Clark, J.G.D. 1952: 164). Also ". . . circular homestead (Celtic) designed to shelter livestock as well as man . . . during the first century of our era" (ibid.: 166) is helpful. Other dating of huts gives more information. Charcoal dating from a wall slot of a round hut near Newtownards, Co. Down suggests the site was occupied at the transition between Bronze and Iron ages, 2305 ± 70 (Pilcher 1971: 451-52). At Navan Fort, Co. Armagh, a circular habitation enclosure consisting of three circular houses is dated at 2360 ± 45, on the basis of charcoal (Smith, A. g., Pearson, Pilcher 1970: 287-88). A rectangular Early Neolithic house of 3250 B.C. is dated at Ballynagilly, Co. Tyrone. A hut, roughly circular is described by Lynn (1973: 8) as 4.6m in diameter. At the end of the second millennium, the dominant house form in Britain is circular (Piggott 1965: 147). Piggott further traces ". . . circular huts or houses, timber framed or stone walled appear to go back to Neolithic antecedents"(ibid. 1965: 150). Other data relevant to dating of the huts come from construction techniques.

Without excavation, it is impossible to determine the number of courses of stone comprising the height of the stone hut walls. Re-

garding hut construction, ". . . the principle of least effort would prevail in the absence of any pay-off for further effort investment in house building" (Hunter-Anderson 1977: 309). It appears that there are rarely more than three courses of stone. The stone must be near or at the sandy gravel subsurface of the area, with the stones set down by man before the blankets of peat were laid down. If correct, then the Malin Head settlement site could be indeed quite old. The circular hut sites may have been established before the peat was laid down. Using Herity's 1000 B.C. pre-Iron Age date for the laying down of mountain peat (Herity 1977: 3), the stone hut sites featured the stone circle as a foundation for a mud and wattle construction.

A low course of stone was set around in the circle shape. Timber poles were set into the stones and positioned at the center of the circular site. The stones served as a foundation for the roof timbers; the hut builders chose the low course stone wall foundation instead of excavating the tough sand-gravel earth. Remember, too, as the land was cleared of glacial debris stones were plentiful. Roofing material of sod and thatch was laid over the timbers. Scirpous lacustris are presently scattered over the nearby area (within 1 km) (correspondence and on-site inspections report by Department of Fisheries and Forestry), and are used in thatching roofs at the present time. Certainly, if present in earlier days, the bullrush was used as a roofing material.

Three variables are relevant to house form, that is rounds vs. rectangular:

1. The number of role aspects or living aspects the house is designed for.
2. The aspect heterogeneity of the activities performed by the units sharing the house.
3. The volume of associated materials and facilities (ibid: 304-5).

Further description of the first variable embraces the two major classes of human activities. One class is the role aspect which consists of the societal activities of an individual. Another class of human activity is the living aspect which consists of biological functions (ibid.: 303). Unfortunately, data relevant to these aspects is available only in very limited form.

The Malin Head settlement is best described as a compound of small circular houses or huts rather than a village of rectangular houses.

> In nonsedentary cases, we expect to find round houses when values on our three variables (cited above) are low and rectangular ones when they are high . . . in general round houses in many different adaptive contexts, including nomadic herders, shifting cultivators, and hunter-gatherers, are enclosures for the activities of a central figure plus some sporadic or sequential activities of additional figures (ibid.: 313).

On the basis of ethnographic analogy and on the evidence of round hut sites found at Malin Head, the builders and occupants of the hut sites would be included among nomadic people, perhpas a central figure occasionally accompanied by additional figures. Such a description best typifies a pre-Iron Age people. But another time perspective for

Malin Head can also be taken from a later period during which time iron was made:

> . . . a circular hut was uncovered . . . an overall diameter of about 7.00m. . . . Thus a general pattern of occupation is beginning to emerge. Within the large oval enclosure there had been established a fairly typical habitation settlement, sometine in the Early Christian period. The main activity must have been animal husbandry, particularly cattle and pig raising as shown by the large amounts of animal bone recovered. This was supplemented by crop-raising and ancillary activities, such as grain-drying and flour milling. Other activities, normal for such a community, as for example iron working and metal casting, working in bronze, wood, bone and antler, and perhaps leather or textile working, are indicated. (Swan 1975: 18-19)

Examination of the six stone hut sites at Malin Head failed to reveal artifactual remains within the hut sites save what may be a saddle quern in hut site two (see Fig. 8). The west wall of hut site two contains a 51cm x 23cm stone with a rounded indention of about 15cm. It appears that the stone was used in grinding which implies the inhabitants had grain to mill. Accepting repeated occupancy of the Malin Head site, it is unlikely that the early hut builders created the quern (as they cultivated no crops), but the quern was made by a people (Iron Age) during a reoccupation when crops were cultivated and livestock raised.

How about population size of the Malin Head settlement? The group must be large enough for tasks of subsistence, shelter and procreation (Hale 1977: 294-97). The Malin Head population, regardless of the occupation period, would have had contact with other populations, especially because of its location on the seacoast at the northern tip of Ireland. Any traveller sailing from the east and

north of Ireland (especially Scotland and northern Europe) would round Malin Head as they sailed south along Ireland's west coast.

The lack of hearth evidence and midden evidence restricts speculation on shared living, hunting and social life. The discovery of coins is an excellent means for site dating determination. Most parts of the Celtic world knew coins by 200 B.C. This evidence implies a move was made to a money economy, but trading and barter remained most important (Piggott 1970: 252). The search for hearth, midden and coin evidence drew negative evidence. Excavation might prove differently, however.

Again, resorting to ethnographic analogy, we find:

> Total area of the dwelling floors and total population of the largest of 18 societies show a loglog regression which suggests that the population of a prehistoric settlement can be very roughly estimated as of the order of one-tenth the floor area in square meters. (Naroll 1962: 587)

With a total circular floor area of 63.4 square meters, the population at the Malin Head site is estimated at about six people, one nuclear family. The average number of stone huts in upland settlements (in Roman Britain) is five (Clark 1973: 10-11). The average distance between groups of huts (or settlements) is 2 to 3 km in Roman Britain.

No evidence of trade goods was found although "Flints, apparently from the Antrim chalk, however, were found in the high ground north of Culdaff, and as far west as Malin Head" (Maghtochair 1935: 6).

Negative evidence of plow marks leaves the cultivation ques-

tion unresolved. However, if present, "it has been suggested that the consumption yield from the cornfields of southern English Iron Age farmstead was about 50 bushels" (Piggott 1970: 252). No indications of food storage pits were found but food storage pits must be present. Even with Coles' guidelines, the pit search provided negative evidence (Coles 1973: 39). Two peat covered but 0.4m recessed areas, 1.5m in diameter were thought to be cook pits by analogy with the Irish fulacht fiadha from the sagas, but with no positive evidence (Coles 1973: 52). Binford speaks of stored food needs (1977: 4). Growing seasons must have been less than 365 days because of the very short winter hours of sun light (approximately seven). Currently, weather conditions where frost occurs are rare at Malin Head. Frost-free days would number at least 355 per annum.

About 70m ESE of datum, the two peat covered iron pits stand silent but, if contemporaneous with the occupation of the huts, offer the most secure basis for dating. Evidence of iron smelting also occurs west of the cluster of four hut sites.

> From the eleventh century (B.C.) onwards, iron objects appear in Greece and Crete . . . in continental Europe some iron objects occur in later Urnfield times (around the eighth century B.C.) and in south Italy a century earlier, but in general the first use of iron on a comparatively large scale in barbarian Europe is marked by the appearance of the long iron swords in the Czechoslovakian wagon-graves and the Hallstatt tombs of the seventh century B.C. (Piggott 1965: 186)

Could iron have been exported from Malin Head to other parts of Europe? No evidence exists but it represents an interesting speculation because of the number of furnaces surveyed at Malin Head. However, Malin Head is a small iron site compared to Stara and Nowa

Slupia Poland (Hawkes 1974: 83). Future study of the Malin Head iron furnaces should include furnaces from Iron Age north Germany and Jutland, as well as second century A.D. Ashwicken, Norfolk. The iron granules at Malin Head could be dated using TRM techniques at the site.

> Two physical properties of the universe combine to make archaeomagnetic dating possible. First, the magnetic poles of the earth shift over time. Secondly, if materials containing iron--and these include most clays--are heated beyond a certain temperature, they are magnetized to the then present position of the pole. This thermoremanent magnetism (TRM) may be later measured and its direction determined. Then on the basis of known and dated polar shifts, a good estimate of when the heating occurred can be made. One main difficulty is that the object must remain unmoved from the time it is heated until the TRM is measured. (Weaver 1977: 103)

Two iron furnace designs are present at Malin Head, the simple bowl furnace and the shaft furnace. Coles indicates iron was made in the British Isles from about 600 B.C. (Coles 1973: 140). The bowl furnace, little more than a hole in the ground is more common at Malin Head (furnaces 2-5), and is generally regarded as an early form of furnace. The shaft furnace may date to 300 A.D. to 400 A.D. (ibid.: 141). The early bowl furnace was not as efficient in usable iron production as the later shaft type. However, the bowl was easier to construct and the abundance of iron ore and fossil fuel lent less emphasis on iron production efficiency. One shaft type (forge one) appears evident and a second (furnace 2), while collapsed and somewhat scattered, may also have been a shaft furnace.

Without excavation, the true shape wall construction and depth of the bowls remain undetermined. Wynne and Tylecote describe their

reconstruction of a Roman date bowl furnace at Great Casterton, Rutland (Wynne and Tylecote 1958: 339-48). The visible surface of the hearths at Malin Head are smaller than the 1.2 meter diameter at Great Casterton described by Wynne and Tylecote. The well-preserved shaft furnace (forge one, see Fig. 13) at Malin Head relies on upright stone walls. It is impossible to determine if an inner lining of clay exists without excavation. After Tylecote (1969: 64-65) and Owles (1961: 142-62), Coles (1973: 141) presents evidence of smelting. Bradley tells us that Bronze Age smiths operated from fixed workshops for a limited part of a year and distributed their products over a 10-15 km radius in Britain (1978: 121). Perhaps the same held true for Irish Bronze Age smiths and even later Iron Age smiths.

In Iron Age Britain, cattle favored 90 to 130cm of rainfall per annum with a long grass growing season. Sheep are more mobile but sensitive to severe weather. Pigs tend for themselves preferring woodland (Bradley 1978: 30). In Ireland, greater Iron Age reliance on shoreline, shellfish and fish was evident than on cattle (ibid.: 99). Iron Age sites reveal an increased number of spindle whorls which indicates an increase in sheep as the spindle whorl is used in wool production (Bradley 1978: 37). Sheep manure is also valuable for replenishing nitrogen in arable lands. However, no spindle whorls were found at Malin Head.

> The collection of a large work force presupposed economic, political and social organization on a scale not otherwise often documented, and adds appreciably to our knowledge of human behavior even although we may not understand the reasons for the structures themselves. (Woodman 1973: 86)

Does the lack of a large structure indicate a lack of economic, political and social organization at Malin Head? The answer is negative. By the time the Malin Head people made iron, that very "iron making" fact indicates ". . . one particular aspect of a growing or complex sociocultural system" (Evans 1973: 97). The existence of scattered farms at Malin Head today indicates large structures are not required for economic, political and social organization. Of course, the modern forms of communication (radio, T.V.) provide an additional means of cohesion.

Souterrains, underground passageways, have not yet been found at Malin Head. Most British examples are Iron Age creations (Bradley 1978: 51). Overlooking the majestic sea to the west south west, a stone "chair" dominates a grassy hollow. On the SSE side of the chair, stone carvings are observed. If the fingers on a human hand could carve stone by touch, the carvings appear as semi-circular concentric lines carved into the stone. The carvings correspond in depth to the thickness of human fingers.

The discovery of stone chairs is not unusual. Near South Royalton, Vermont, U.S.A., a "Druids' Throne" is described (Fell 1977: ǂ96). The unpublished manuscript of Mable R. Colhoun cites local chair traditions of Fin McCool in the Malin Head area (Magheramore Townland specifically). Miss Colhoun located and describes the chair of Fin and also finger marks:

> Fin McCool is associated with this area (note Coolcross Hill, the hamlets of Coolcross Near and Coolcross Far, McCool's Bed and Murlogfin, see also Site 11). This last is marked on the map and

> is a large rock (Alt. 900 ft.) on the SW slope near the top of Coolcross Hill and which local tradition says Fin McCool threw, and left the trace of five fingers on the rock.

Further on in her unpublished manuscript, Miss Colhoun refers to another local tradition regarding finger marks in stone.

> St. Columb's Stone. The stone is venerated on the Saint's Holy Day, June 9th. The pair of hollows are regarded as worn by St. Columb's knees as he prayed, the other mark being where he rested his fingers when raising himself ofter his devotions. If water lies in the hollows, it is believed to have curative powers.

She also references Maghtochair (Maghtochair 1935: 80-81).

While no evidence in the form of high stones (decorated tall standing stones) has been uncovered to indicate Malin Head is a monastic enclosure, as Fanning describes Reask (1972: 14) or an early Christian settlement as Eogan excavated at Knowth (1972: 23) both the Reask and Knowth sites also contain iron-smelting furnaces.

> . . . a Gow, or smith, famous for his skill in manufacturing war-like implements, was driven before the victorious conquerors from place to place, until at last, he thought he had secured a safe retreat far up among those mountain fastnesses . . . but certain it is that for a long time he continued, in defiance of edict and proclamation, to supply the hardy mountaineers with arms of finest tempered steel. . . . (Maghtochair 1935: 69)

Certainly, the remote fastness of Malin Head would have offered security to a pursued gow.

Because of the small number of stones found in the hut site areas (fewer than even the basic circular shape) negative evidence indicates that the Malin Head settlement differs from and predates the monastic clohgan structures of the Fahan area on the Dingle peninsula of County Kerry, Ireland (O'Riordain 1971: 38). The Fahan structures

resemble stone igloos and are considered to be of the Christian era, late fifth century and younger. Furthermore, the Malin Head site is not a ring fort site because evidence is lacking for rings and/or fosses characteristic of such building (ibid 1971: 6).

Strewn about the forge areas are numerous flat, hollow stones which may be iron molds. ". . . the recognition of man's purposeful arrangements depends on distinguishing between the action of natural agents and the action of human agents" (Ascher 1977: 234). However, the use of the iron forge for farm implements and fish hooks is another possiblity. The site being on the sea with frequent high winds, a search commenced to discover other forges which would be used to favor other wind directions. As defined by contemporary wind conditions, only downwind iron making sites have been discovered.

While the Malin Head site is not identical with those referenced by Colhoun, including Mass rocks, standing stones, giant rocks, cairns and souterrains, the Colhoun references are within 20km.

While the site was observed on only the spring equinox (and not the other seasons) negative evidence suggests no calendar or similar timing purpose for the chair and hut site circles. Other references to stone carvings are related to passage graves. Photos and sketches provide an "Alphabet" of Irish passage grave designs and motifs (Herity 1974: 104). Elements of design and artistic similarity are found in Brittany (ibid. 1974: 113-15). Herity traces the Irish passage graves and Neolithic A court cairns throughout the country

(ibid. 1974: 154). His map marks court cairns across the upper third of Ireland. Missing, at this point undiscovered and unexcavated, are any Inishowen peninsula court cairns. While modern day archaeologists do not make judgments on intuition and feelings, one cannot help but sense a hushed sanctity in the hollow near the stone chair on the Malin Head site. Investigation by surface survey revealed possible collapsed cave (cairn) areas below the stone chair in and around the now grassy hollow.

A Mass rock lies adjacent to the west extremity of the site in a gentle hollow of the raised beach. During the Penal Days in Ireland, people and priests risked their lives if discovered at the celebration of Mass by the British. The semi-cloisteral location of the Mass Rock may be a traditionally sacred place dating to the pre-Christian era. It is a place of great beauty as one must say of the entire site.

With Binford's admonition echoing, ". . . make meaningful statements about the past from contemporary facts and meaningful statements about dynamics from static facts"(Binford 1977: 77), the section on Interpretation closes.

Fig. 18. Collapsed Mass Rock facing northwest.

Fig. 19. Drillings on top of Mass Rock.

SUMMARY

Speculation about the life ways of the pre-Christian inhabitants of Malin Head will continue and speculation is good. Many interesting conclusions can be drawn from the field work and research studies over the past three years. Several occupation periods have occurred at Malin Head. The earliest occupation appears to be about 4,500 years ago through Viking (800 A.D.) and contemporary times. The concentric rings carved in the arm of the natural stone chair is the signature of these early inhabitants. The circular hut builders occupied Malin Head about 2500 to 3000 BP. Their huts were constructed before major peat deposition as the stones forming their circular shape appear to reside at the basal soil level. Still later, the iron makers came to Malin Head about 2000 BP (Herity 1977: 223). Numerous iron forges are testimony to their presence. Without scientific dating methods, we cannot determine how recently the iron was made. It may be Viking times or of recent century vintage, but I suspect it has layed under the peat for many centuries.

The crops and animals are not fully documented for Malin Head, but ethnographic analogy tells us of their existence in nearby Britain. The stone fences and saddle quern is evidence of agriculturalism and herding.

". . . in Ireland . . . the early Iron Age has been extraordinarily elusive" (Bradley 1978: 123). We do not know how "early"

the Iron Age come to the Malin Head site. New data and interpretive insights at Malin Head are the contributions of this paper. At least three later Mesolithic sites have been documented within 25 km to 50 km of Malin Head (Woodman 1979: 354). Future archaeological research in the area should test Clack's British findings. More hut sites should be within 3 km of the Malin Head site.

Another instensive search of the stone chair area should be undertaken in search of a tomb. The iron should be dated. Since different types of furnaces and/or forges appear to have been used, it may well be that iron was made at vastly different times at Malin Head. The Co. Donegal Archaeological Survey should take special note of the Malin Head settlement with respect to its findings in Inishowen. Each discovery contributes to the data bank and understanding of man.

The signs of man are manifest at Malin Head. The eerie presence of the past is easily experienced at Malin Head on any night illuminated by a full moon. While the formal thesis task is now completed, the quest for more knowledge about the ways of man continues.

> My task is done--my theme
> Has died into an echo; it is fit
> The spell should break of this protracted dream;
> The torch shall be extinguished which hath lit
> My midnight lamp--and what is writ is writ,
> Would it were worthier!
>
> Byron

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

30 June 1981
Date

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