Rindoon, Co. Roscommon: A Management Plan

Introduction

The world can be divided into the natural and the cultural environment. Natural resources are elements of the natural environment that people value, use, modify, enjoy and because of this seek to manage and conserve, or exploit. Cultural resources are the result of humanity's interaction with the natural world. Cultural resources include all manifestations of humanity: buildings, landscapes, artefacts, literature, language, art, music, folkways and cultural institutions. In Ireland the whole landscape is a cultural place, it is an artefact of humanity; people have been modifying or giving human meaning to the landscape for at least 9,000 years. When we conserve a site of natural heritage we are preserving an ecosystem profoundly affected by environmental manipulation. Within this cultural landscape there are areas where human activity is more readily identifiable and such a place can be defined as a site, area or region that represents a particular focus of past human activity. Examples might include the megalithic tombs at Carrowkeel, the castle of an Anglo-Norman lord, a windmill, a stone wall, or holy well, a battlefield, a country house or vernacular building. The obvious indicators of potential significance, age for example, give the heritage manager one way of distinguishing which cultural places might be worth investigating more thoroughly. There are also places where elements of the natural world are equally or more manifest. The natural diversity of a place is one distinguishing feature which might prompt further investigation.

There may be reasons, not immediately discernible, why an area is important. An upland blanket bog may support rare flora. The site of a mass rock may only be known to a small group of local people. An archaeological deposit may contain information whose importance is initially only discernible to specialists, but which can in time reveal, for instance, something as significant as the solar alignment at Newgrange. The heritage manager must be aware of all the ways in which cultural and natural places may prove to of importance and be able to identify places worthy of conservation. One must also make a distinction between cultural and natural places and those places with some degree of heritage value or significance for people and the environment both today or in the future. We can call this distinction heritage value, and those places that have it may be called heritage places. An essential first step in the process of heritage management is elucidating that value or significance.

There is no published Irish methodology for preparing management plans for heritage places. The approach adopted here has been adapted from Michael Pearson and Sharon SullivanÕs 1995 Looking After Heritage Places: the Basics of Heritage Planning for Managers, landowners and Administrators, which details the methodology employed in Australia and is based on the International Council on Monuments and Sites (ICOMOS) framework for conservation planning (The Burra Charter). This Rindoon report represents a first attempt to produce an integrated heritage management plan in Ireland and therefore the methodology and appropriate charters are presented in detail below.

Management

The way in which those responsible for land choose to use, exploit or conserve it constitutes management. If conservation of a heritage place is appropriate, a series of established principles can guide planning and works to ensure that the place involved is looked after so as to retain its cultural and natural significance. Effective management of heritage places involves four steps:

1. Location, identification and documentation of the place to the community or sections of the community.
2. Assessment of the value or significance of the place to the community or sections of the community.
3. Planning and decision making, weighing the values of the heritage place with a range of other opportunities and constraints that the manager must consider to produce a management policy aimed at conserving cultural and natural significance.
4. Implementation of decisions covering the future use and management of the place.

Conservation is defined (Burra Charter 1.4) as all those processes involved in looking after a place so as to retain its cultural (and natural) significance.

Documenting the Resource

Location, identification and documentation of heritage places are essential first steps in their management. Documentation is the process of describing, in a written permanent form, all or some of the places' attributes. It includes the gathering and integration of all relevant written and graphic records. The documentation may take the form of a survey report, heritage study, or research report. The manager needs this data before assessing the place or making decisions about its future. The aim of the work is to place the heritage place

within its context. Preliminary research is carried out and site and documentary information is gathered. Local people are consulted. The site is placed within its historical context. Often survey is carried out and this may be partial, whole, a sample, etc., depending on what is required to make an assessment of value.

Assessment of value

Ultimately heritage places depend for their value on the recognition afforded them by society. The manager must understand in detail the nature of the significance of the place to society, so that appropriate management can occur to conserve those values. There are eight steps in assessing value.
1. Gathering documentary evidence, published and unpublished documents, maps, plans, plates, drawings and oral history.
2. Gathering physical evidence which may include survey of places and fabric, identification of objects and materials.
3. Establishing the sequence of changes to the place.
4. Establishing context: historical, natural, technological, design, etc., background of the place and its significance to local communities.
5. Comparative significance with other places of similar age and composition.
6. Determining the elements of points 1 to 5 that may prove to be of significance (including a statement of any evidence not available at the present time).
7. Determining the way in which the various elements of the place are significant, and what degree of value they have to society.
8. Formalising a statement of significance for the place.
Elements of significance can and do include the aesthetic, aspects of sensory perception for which criteria can and should be stated. Criteria may include consideration of form, scale, colour, texture and materials of fabric, and the smells and sounds associated with the place. Natural value includes the rarity, fragility, naturalness, diversity and representivity of the place. Architectural value is often dependant on a building's artistic, architectural or historical significance as well as its plan, form and volume. A place may have historic value, because it has influenced, or has been influenced by an historic figure, event, phase or activity. It may also be the site of an historic event. In reference to history there may be spurious significance, the tendency for spurious stories to grow concerning the origin and importance of a place. At one level this can manifest as the irrational belief, still held, that the Ark of the Covenant is buried at Tara, and at another level that the local monument is the oldest, biggest, or best example in Ireland. The manager also has a role in guiding public awareness of its past and may actually mould the way in which society views heritage places. Some areas of history are neglected, mis-represented or romanticised. In some situations truly significant places of symbolic value to minorities, or places of potential value to the wider community can only be conserved by research to locate them and strong efforts by manager so ensure that they are given due consideration. Managers must also be aware that historical interpretation changes. The scientific or research value of a place will depend on the importance of the data, its rarity, quality or representativeness, or the degree to which the place may contribute additional information. A site or resource is scientifically significant when its further study can be expected to help answer current research questions. Therefore, scientific significance is defined as research potential. Social value encompass the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group.

Planning for heritage place management

Planning for management involves documenting the history and nature of the place through survey, inventory, examining the historical and archaeological record and the graphic archive. The significance of the site is assessed to establish its value and to develop a formal statement of significance. A management assessment is also made which documents and assesses the physical condition of the place and establishes constraints and opportunities. Then the management policy is defined. This is a statement of purpose, based on the assessments, stating why the place is be managed. The next step is to choose management strategies, specific practices and operational procedures, in other words to determine how the management objectives will be put into practice. This will involve maintenance strategies, conservation strategies, visitor management strategies and other strategies. The final result is the implementation, monitoring and assessment of this work.

The Management Plan - Introduction

The management plan should include the following elements:

1. A statement of legal responsibility, philosophy and general policy forming the base of the plan.
2. A description of the heritage place, its assessment and a statement of significance.
3. A statement of other values in the management area, and of how the heritage value ranks with them.
4. The identification of other requirements, opportunities and constraints placed upon the management of the heritage place.
5. The formulation of a conservation or management plan.
6. A management strategy or implementation plan.

1.1 Statement of legal responsibility and general policy forming the base for the plan

The Heritage Council was established under the Heritage Act 1995. It is an independent state-sponsored body whose function is to propose policies and priorities for the identification, protection, preservation and enhancement of the national heritage. National heritage in the Act is defined as including:
Monuments, archaeological objects, heritage objects, architectural heritage, flora, fauna, wildlife habitats, landscapes, seascapes, wrecks, geology, heritage gardens and parks, inland waterways.
The Act states that the "The Council shall in particular- promote interest, education, knowledge and pride in, and facilitate the appreciation and enjoyment of the national heritage,co-operate with public authorities, educational bodies and other organisations and persons in the promotion of the functions of the Council, promote the co-ordination of all activities relating to the functions of the Council."
At a meeting of the Council on 7 May 1997 it was agreed that the Council should play a pro-active role in drawing the various agencies responsible for Rindoon together into a plan which can serve as a model for future action.
Rindoon is included in the Record of Monuments and Places in Co. Roscommon protected under Section 12 of the National Monuments (Amendment) Act, 1994. This section of the Act states that when the owner or occupier of a monument or place which has been recorded, or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monuments or place, he shall give notice in writing of his proposal to carry out the work to the Minister of Arts, Heritage, the Gaeltacht and the Islands and shall not, except with the consent of the Minister, commence the work for a period of two months after having given notice.
The European Union's Habitats Directive (92/43/EEC) requires Member States to protect wildlife areas of European interest. The Minister for Arts, Heritage, Gaeltacht and the Islands has signed regulations to implement the Directive in Ireland. This will enable the Minister to designate the most important areas as Special Areas of Conservation (SAC) and to protect them. Rindoon has been identified as part of the proposed Lough Ree (0440) candidate special area of conservation by Duchas, The Heritage Services. Land included in the site must be farmed in accordance with an approved farm plan:-this may be a Rural Environment Protection Scheme (REPS) farm plan or an alternative prepared by the National Parks and Wildlife Service. Until the plan is prepared and agreed the landowner should continue with original farming practices. If significant changes are to be made, the farmer should obtain written permission of the Minister. Once a plan is agreed departmental agreement will only be required for changes not covered in the plan. A landowner may object on scientific grounds to the inclusion of all, or part, of their land being included in the proposed SAC. Farmers with land in an SAC are entitled to additional payments under REPS.
The Waterways Service has responsibility for the Lough Ree waterway, which is governed by the bye-laws of the Shannon Navigation. The local Authority, Roscommon Co. Council, has responsibility for planning control at Rindoon under the Planning Acts (1963-94). Any developer must submit a planning application to the Co. Council which should refer this to the Statutory Consultees: Bord Failte Eireann, the Central Fisheries Board, The Commissioners of Public Works in Ireland, the Electricity Supply Board, Forfas, the appropriate health Board, the Minister for Agriculture, Food and Forestry, the Minister for Arts, Culture, the Gaeltacht and the Islands, the Minister Defence. the Minister of Education, the Minister for the Marine, the Minister for Transport, Energy and Communications, the National Authority for occupational Safety and Health, the Heritage Council, the appropriate Regional Fisheries Board, An Taisce, the Minister, the Board, the National Roads Authority, etc. Farm buildings under 300m in size are exempted from the planning regulations.
There are a number of overlapping responsibilities in action at Rindoon. The Heritage Council has responsibility for proposing policies and priorities for the protection, preservation and enhancement of Rindoon. The National Monuments Service has responsibility for seeing that the archaeological heritage is conserved. The National Parks and Wildlife Service has responsibility for conserving the SAC and the Farm Service or National Parks and Wildlife Service have responsibility for drawing up a farm management plan. The Waterways Service has responsibility for the Lough Ree waterway. It is the opinion of the Heritage Council that Rindoon should be managed in such a way as to retain its cultural and natural significance.

1.2 Philosophy

The Heritage Council views heritage not as a commodity to be developed, marketed and sold, but as an integral aspect of the cultural and natural world, to be studied, appreciated and conserved. Instead of viewing aspects in isolation and ignoring the linkages, the interrelationships of monuments, landscapes, culture and the natural world are emphasised as a whole. Along with this communities are seen as the inheritors, protectors and bequeathers of heritage. This integrated view of heritage management informs the policies of the Council. This management plan is an example of the application of this philosophy.

1.3 Appropriate Charters and Conventions (See appendices for text)

European Convention on the protection of the Archaeological Heritage (Revised)
The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter)
Charter on the Protection and Management of Underwater Cultural Heritage (1996) (ratified by the 11th ICOMOS General Assembly, held in Sofia, Bulgaria, from 5-9 October 1996)
European Charter of the Architectural Heritage Adopted by the Council of Europe, October 1975

Archaeological Heritage Management ICOMOS Charter for the Protection and Management of the Archaeological Heritage (1990)

The Management Plan

2. Description of Rindoon as a heritage place, its assessment and a statement of its significance

2.1 Introduction

The promontory of Rindoon, Co. Roscommon extends into Lough Ree, midway between Athlone and Roscommon town. The strategic importance of the peninsula was recognised by the Anglo-Normans and a Royal castle and garrison was established here in 1227. The castle was served by community which was protected by a substantial town wall which defended the neck of the peninsula. Since the decline of the site after fourteenth century the site has returned to pasture and today the ruins of the castle, harbour, town wall, two ecclesiastical sites and windmill ly in farmland. Since the 1960's the site has come to the attention of the National Monuments Service and is now in the Record of Monuments for Co. Roscommon No. 046:004. Recently the importance of the woodland on St. John's Point has been recognised and has been designated a proposed special area of conservation (SAC). Most of Rindoon is now used as working livestock farm, which combines wet and dry pasture with a number of miles of shore which are home to wading birds. The siting of Rindoon in Lough Ree has also invited the attention of pleasure cruisers who are enticed into the convenient harbour by the imposing edifice of Rindoon castle.
The overlapping archaeological and natural designations combined with the deteriorating condition of the standing remains and the challenges that tourism represent to the management of the site prompted the Heritage Council to take an interest. The problems at Rindoon are not new. The official Office of Public Works file dates back to 1966. Since that date the landowners have been unable to avail of grants for the improvement or modernisation of the farm. Until recently the only alternative open to the landowners has been to reduce the area of woodland thereby increasing the pasture. To date the policy of the State has been one of benign neglect. This has been the case because of the lack of resources and staff available to deal with areas like Rindoon. The resulting status quo has been beneficial to no interest, relations between the landowner and the State authorities have become strained and the natural habitat and archaeological remains have continued to deteriorate.
This problem was compounded by a comparative lack of research at the site. Apart from a seminal survey carried out by the Urban Archaeological Survey in the earli 1980's, no detailed programme of research had ever been carried out. The plans produced by that survey have been reproduced in several subsequent publications but no further work carried out. As Rindoon presents challenges in the areas of Archaeology, Architecture, Wildlife and Waterways it is natural that any management plan would have to encompass all these fields, and the basis of this must be accurate assessments.
It was decided that the project would involve an archaeological assessment of the standing remains (carried out by Dr. Kieran O'Conor of the Discovery Programme) and a geophysical examination of the sub-surface archaeology (carried out by Martina McCarthy of GeoArch). The harbour was examined by underwater archaeologists (Mr. Colin Breen of the National Monuments Service). The standing remains were assessed by a conservation architect (Mr. Alistair Lindsey of David Slattery Associates) and the woodland was assessed by ecologists (Dr. Andrew Bleasdale, and Mr. John Conaghan of Eco-Logic Environmental Consultancy). The historical background and archaeological description is reprinted (and partly updated) from the unpublished Urban Archaeology Survey of Co. Roscommon, produced by the Office of Public Works. It is intended that each of these surveys will contribute to the formation of a workable management plan which will allow most of the important aspects of the site to be reconciled. This document is intended as an assessment of the site with recommendations for policy and further actions. As Rindoon is privately owned and there is no formal structure for reconciling the various interests, the Heritage Council is offering its good offices to facilitate future agreement.

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2.2 Historical Background and Archaeological Description of Rindoon

John Bradley

Introduction

The deserted town of Rindoon is situated on the peninsula of St. John's Point, on the western shore of Lough Ree, some nine miles north of Athlone. The surviving remains constitute one of the most important complexes of Medieval monuments in the country. There is little physical evidence to indicate settlement before the coming of the Normans but the place-name Rinn Duin, "the fort of the promontory", is itself an indication of pre-Norman settlement. In 1156 Ruaidhrí Ó Conchobhair drew his ships over the ice from Bhean Gaille to Rinn-duin, during a particularly hard winter. The pre-Norman fort was most likely a promontory fort, consisting of that part of the peninsula south of the castle, where it is cut off by a bank and ditch. The discovery of an Early Christian cross-slab in the graveyard adjoining the Medieval hospital of the Fratres Cruciferi indicates that this was an early church site, and it was almost certainly here that two hand bells and a bronze crucifixian plaque, now in the National Museum of Ireland, were found.

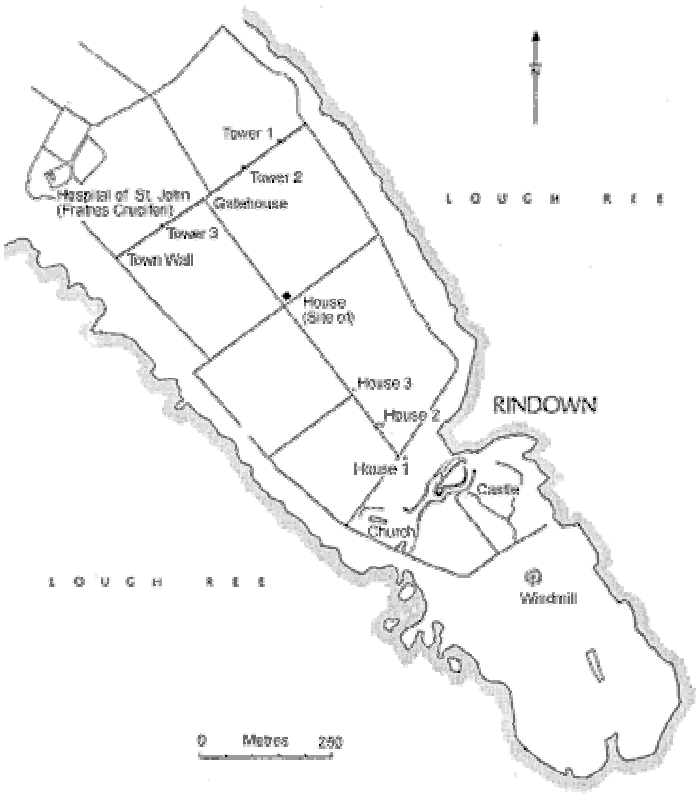

Fig. 1.Rindoon: outline plan showing principal archaeological monuments and field boundaries.

Rindoon's possibilities as a bridgehead into Connacht first came to the attention of the Anglo-Normans in 1200-1 when John de Courcy spent a week ferrying his men across Lough Ree from Rindoon, following his defeat in Connacht (ALC). Rindoon was not occupied by the Normans until 1227 when Toirdelbach Ó Conchobhair and Geoffrey Marisco erected a castle at Rindoon. The town was evidently founded about this time because its market cross, bawn and ditch are mentioned in 1236 when Phelim Ó Conchobhair attacked the town (A Conn). No charter of incorporation survives but references to a portreeve indicate that it was administered by a corporation. The towns first account to the exchequer was in 1241. In 1259 the town was assessed for £8-5-8 per annum. By 1285 this had risen to £320 per annum and the town was supplied with corn, cloth and wine from Bordeaux (Harbison 1995, 141-2)

Rindoon underwent a series of attacks from 1229 until 1321/3, and it is last mentioned in 1342-3 when it was described as being in Irish hands (Berry 1907, 335). In 1544 the earl of Clanrickarde petitioned for the land of St. John's of Rindoon. The castle may have been in ruins by this time because the grant eventually made to Christopher Davers and Charles Egingham mentioned only the hospital of the Crutched Friars and cottages in the town (11 RDKPRI, no. 1483). By 1574 Rindoon was back in Irish hands but in 1578 it was granted to Thomas Chester and George Goodman on condition that they maintained one English archer there (13 RDKPRI, no. 3241). In 1605-6 it was granted to Edward Crofton as "the monastery of St. John the Baptist, alias the Crotched Friars of St John the Baptist ... a slated church, belfry, cloister and all other buildings, gardens ... 6 waste cottages in the town of St. John's . . . " (Erck 1846-52, i, 186). This and subsequent grants in 1608 indicate that the town had ceased to function and was now simply an estate (Erck 1846-52, i, 442-3; Russell and Prendergast 1874, 458).

Archaeological inventory

1. Streets and street pattern

- The site of the Medieval town of Rindoon lies in the fields which are now used for grazing between the castle and the town wall (Fig. 1). The street pattern was almost certainly linear, running from the gatehouse on the town wall to the entrance to the castle. The surviving house foundations lie along this line.

2. Market place

- There is now no trace of the whereabouts of the market place. The market cross is specifically referred to in 1236 (A Conn), and in 1292-9 the burgesses of Rindoon accounted to the exchequer for the profits of the market (38 RDKPRI, 48).

3. Domestic houses (Figs. 2-4)

- The foundations of four houses survive, and these are probably to be identified with the cottages mentioned in the sixteenth century sources, mentioned above. House 2 pre-dates the field boundaries, which are of eighteenth century date and its ground plan does not conform with that of rural vernacular architecture of the eighteenth or nineteenth centuries.

House 1 (Fig. 2)

- The poor remains survive of an approximately square stone structure with present overall dimensions of 11.4 (NE-SW) by 10.9m (NW-SE). The only original wall facing is evident on the NE side while the line of the SW and SE sides is shown by grassed-over wall footings.

House 2 (Fig. 3)

- The site consists of two conjoined rectangular stone structures with their long axes orientated NE-SW. The fainter outline of two, or possibly three, further structures of similar shape are joined to their NW sides. Portion of a rotary quern disc was located in the course of the survey on the internal ground surface.

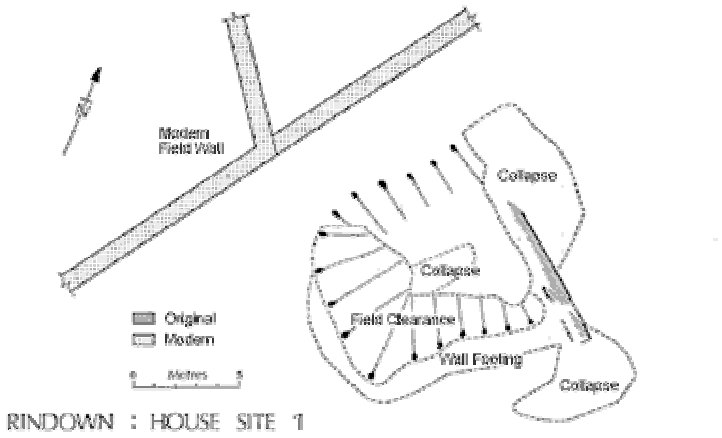

Fig. 2. ground plan of house 1.

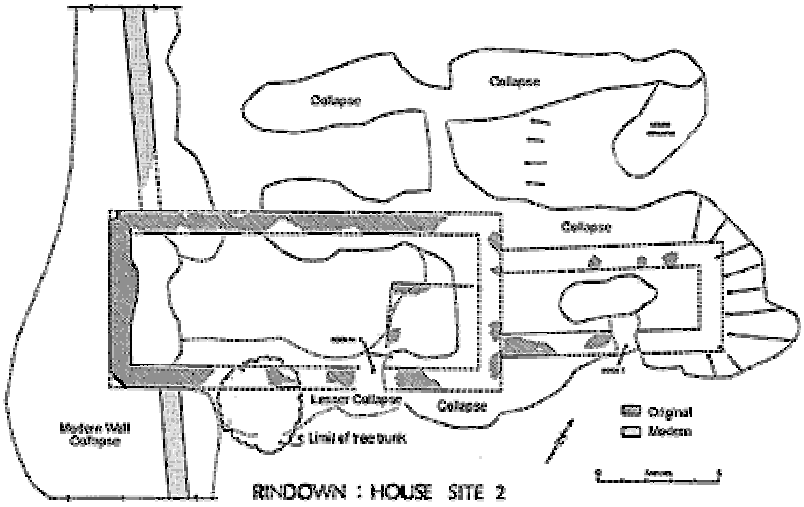

Fig. 3. Ground plan of house 2.

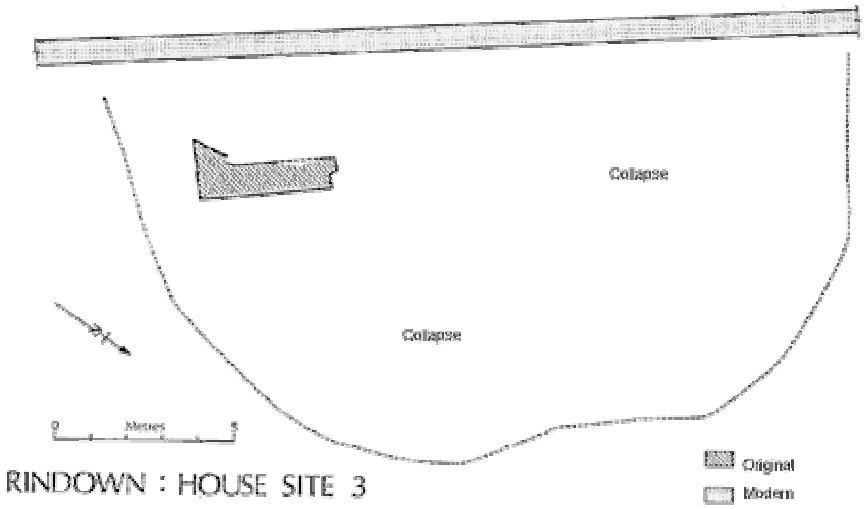

Fig. 4. ground plan of house 3.

House 3 (Fig. 4)

- A low D-shaped cairn which represents collapse from a rectangular house. Only the east corner and a small stretch of the NE wall survive. dimensions of cairn 20.6 (NW-SE) by 11.5m (NE-SW). Forty-two metres NW is the remains of a collapsed stone wall, now grassed over, which may represent the remains of an earlier field system associated with this house.

House 4

- About 1978 the landowner removed the remains of a house which he described as consisting of 5 to 6 rectangular rooms. The stone was incorporated into clearance cairns in the NE end ofthe present field.

4. Quays

- There are a number of documentary references to ships at Rindoon which indicate the former presence of a harbour. A ferry, linking Roscommon and Westmeath, is mentioned as operating out of Rindoon in 1302-3 and 1315-16 (38 RDKPRI, 69; 39 RDKFRI, 55. See section 3).

5. Mill (Fig. 5)

- A mill is recorded at Rindoon in 1273 when 45s were paid to Richard le Charpentier for steel to construct the mill (Claffey 1980), and this can be identified with the 'mill, lately constructed at Randown, referred to in 1276 (Sweetman 1875-86 ii, no. 1022). Two maps accompanying the 1636 Books of Survey and Distribution show a windmill on the promontory, which can be identified from its position with the surviving remains. These consist of a cylindrical stone tower set on top of a round mound, surrounded by a ditch with an external bank. The cylindrical tower is of three floors and survives to its original height. The tower is of seventeenth century type but the mound on which it is built may have formed part of the Medieval mill.

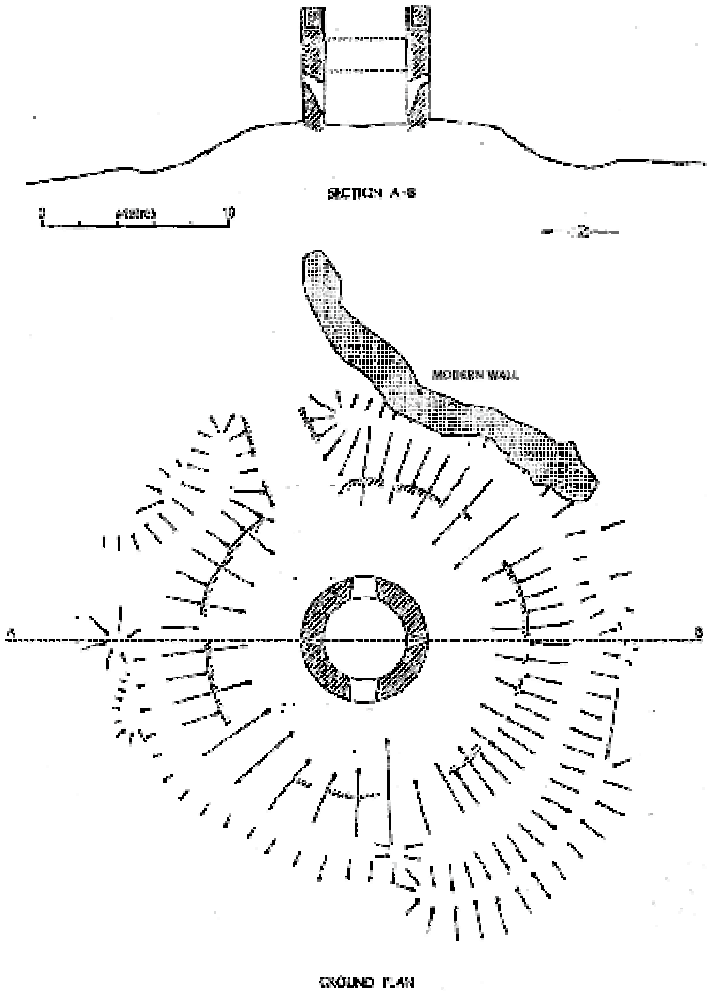

Fig. 5. Ground plan and section of the windmill.

6. Bridge

- References to a bridge in l280-1 and 1305-6 relate to a structure which spanned the ditch separating the castle from the town (36 RDKFRI, 48). The masonry piers which supported the castle drawbridge still survive together with the foundations of the outer gate which protected the bridge on the town side.

7. Town defences

- In 1236 Felimidh Ó Conchobhair attacked Rindoon and captured the area within the bawn and ditch (dar in mbadun agus dar clasaig) but failed to seize the castle (A. Conn). This would suggest that the town was protected by earthen defences. In 1251 Henry III granted aid for the enclosure of Rindoon and the surviving wall almost certainly dates to this period (Sweetman 1875-86, i, no. 3159).
  The remains consist of a stone wall, incorporating a gate and three mural towers, that extends NE-SW across the peninsula and which now forms the townland boundary between Rinnegan and

Warren. At the NE tip a modern field wall represents rebuilding along the original line but a stretch of original wall survives between 20.7 and 25.2m from the shore where it connects with a modern field wall running parallel to the shore. Between this modern field wall and tower 1 the wall survives to an external height of 3.15m and has a base batter. The masonry consists of medium to large limestone boulders which are coupled with spalls to achieve a rough coursing. A continuous building course line is evident at a height of 1.65 to 2.1 m.

Tower 1 (Fig. 6)

- Rectangular at ground level, but open-backed above. At first floor level each wall contains an internally splayed loop, the arches of which do not survive. The wall between towers 1 and 2 undulates in external height between 2.9 and 0.9m. The external batter is present and the building course line is evident at 1.1 to 1.3m above ground level.

Tower 2 (Fig. 6)

- Rectangular at ground level, but open-backed above. At first floor level each wall has a splayed loop. Each of the loop's rear-arches originally possessed a wooden lintel, whose slots still survive. The external batter is evident on all sides. The stretch of wall between tower 2 and the gatehouse is the best surviving section of wall but there is one gap of 13m where it has been levelled and a modern gate inserted. Outside this gap is a ditch with slight external bank but these appear to be the result of modern machine quarrying. Portions of a wall-walk survive immediately adjacent to tower 2.

Gatehouse (Fig. 6)

- Originally a rectangular structure with a round arch on the exterior, represented now by a couple of springing stones. Part of the portcullis groove survives at a height of 2.2m above ground level. The wall between the gate and tower 3 has a gap of 25m midway where it has been levelled and lies collapsed. Elsewhere on this stretch the wall stands to an external height ranging between 3.75 to 4.05 m. The building course line noted elsewhere is evident in places.

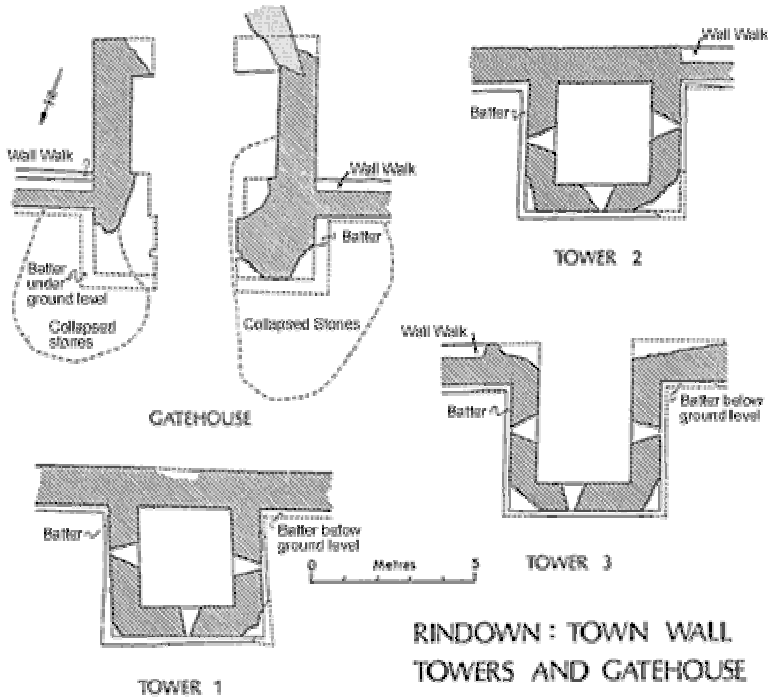

Fig. 6. Ground plan of the town wall mural towers and the gatehouse.

Tower 3 (Fig. 6)

- Open backed rectangular tower. The ground floor is filled with loose stone almost to the height of the putlogs which held the joists for the first floor. At first floor level there is a loop, with internal splay, in each wall. The rear-arches had timber lintels similar to tower 2. Between tower 3 and the modern field boundary running parallel to the shore the wall decreases in height from 2.6 to 1.15m and there are gaps and areas of total collapse, with the original wall surviving only in short blocks. The wall no longer survives between this boundary and the shore, and it was presumably removed to build the nearby St. John's House.

8. The castle (Fig. 7)

- Situated on a knoll at the north-east point of the peninsula's waist where it overlooks a natural harbour of Lough Ree to the north and is separated from the town by an earthen bank and ditch.

Historical background

The castle was one of the most important Anglo-Norman fortifications in Connacht and remained in royal hands throughout the thirteenth and fourteenth centuries. A constable was appointed by the crown and he was responsible for its upkeep and defence. It was the scene of much building activity throughout the thirteenth century and particularly from 1275 until 1302 when there are repeated references to expenditure on the castle. The history of the castle in the fourteenth century is one of decline and after 1344, when it was in Irish hands, it passes out of history until the middle of the sixteenth century.
Some form of fortification was probably present in 1201 when John de Courcy spent one week shipping his men and horses across Lough Ree from Rindoon (ALC; A Clon. sub 1200) but the earliest direct reference to a castle is in 1227 when Geoffrey de Marisco and Toirdealbach Ó Conchobhair, son of Ruaidrí Ó Conchobhair, commenced building a stone castle on the peninsula (ALC; AFM; A Clon. sub 1226). In that same year Phillip de Angelo was granted a robe and fur cape as custodian (Harbison 1995, 140). Two years later, in 1229, Rindoon was burned by Feilimid Ó Conchobhair, leader of a rival Ó Conchobhair faction (ALC). It is not clear if the castle was burnt on this occasion or not but it is evident that the building was still unfinished four years later. In 1232 Rindoon was granted to Peter de Rivaux, son of the Bishop of Winchester (Otway-Ruthven 1968, 96). On 15 July 1233 lack of funds compelled the suspension of masonry work on the castle ward in favour of the completion of Athlone bridge (Sweetman 1875-86, i, 2043). This reference indicates that the curtain wall with battered plinth was probably constructed in the 1230's (cf. Stalley 1987, 42). Work on the castle was picked up again in 1234-5 (35 RDKPRI 37). The castle was not captured in the 1236 raid on Rindoon by Feilimid Ó Conchobhair which resulted in the sack of the town (ALC; AFM; A Clon.).
Feilimid became king of Connacht in 1237 and there was peace with the Anglo-Normans until his death in 1265. In 1256 Aed Ó Conchobhair met the justiciar, Alan de la Zouche, at Rindoon to make peace. In 1251 Henry III ordered the justiciar, John Fitzgeoffrey, "to emply 80 marks of the King's money in aid of the enclosure of the vills of Athlone and Rindoon and the reapis of their castles" (Harbison 1995, 141). Feilimid's successor, Aed (d. 1274) was a ruthless warrior who captured Rindoon twice in 1270 (ALC; AFM; A Clon. sub 1271) and 1272 (AU). That year he also "put a large fleet on Lough Ree, where he burned much and did other damage" (A Conn.). The raid of 1272 appears to have been particularly severe because Rindoon was described as levelled "leagadh" (AL; of CDI, V, no. 437). James de Bermingham was fined 400 marks for failing to keep the castle safe for the crown and "through his default it was thrown down by the Irish" (36 RDKPRI, 50). The government endeavoured to counter Aed by strengthening its castles at Athlone and Rindoon and building a new one at Roscommon. In 1271 Henry III issued orders "to pay debts owed for the purchase of meat, fish, salt, wine and iron and other stores at Athlone, Rindoon and Roscommon and carriage of same, together with pay and drink for the constables and ballisters and drnk and pay for the mercenaries". the justiciar, John d'Audley, relieved the garrison of Rindoon with £1601-18-8 which hetransported with an army of Welsh mercenaries (Harbison 1995, 142).

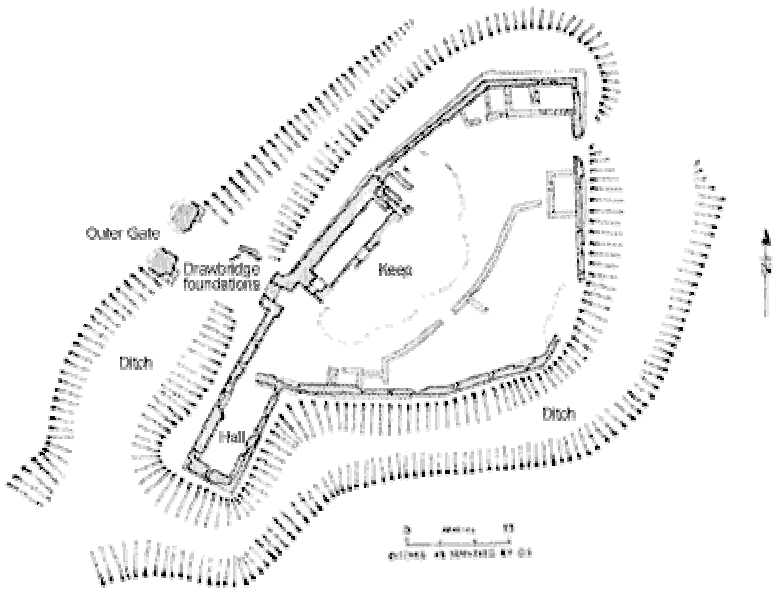

Fig. 7. Ground plan of Rindoon castle.

Repair work was carried out at Rindoon in 1273-5 by the justiciar, Geoffrey de Geneville (36 RDKPRI, 40-1), and continued in 1276-8 by his successor Robert d'Ufford (36 RDKPRI, 35, 36). This included the construction of timber towers and the improvement of the fosse (Sweetman 1875-86, ii, no. 1412). In 1278-9 d'Ufford spent a further £3200-2s-5d on the castles of Rindoon, Roscommon and Athlone which included repair of the castle, houses and bridge of Rindoon (36 RDKPRI, 48). In 1285 Robert de Wollaston accounted for £67-3s-Od spent on the castles of Athlone and Rindoon (37 RDKPRI, 30). In the same year 100 Welshmen were transported to Rindoon, either to serve as a mercenary garrison or as labour to rebuild the castle (harbison 1995, 144). In 1299-1302 Richard of Oxford, sheriff of Roscommon, was allowed £113-ls-2d to build a new hall, and a further 20s for superintending its construction (38 RDKPRI, 54). This hall is to be identified with the building extending south from the curtain wall, as Orpen (1907, 275) pointed out. In 1306 carpenters were employed to build 2 new boats in the Rindoon boatyard and to repair two older boats (Harbison 1995, 144).

In 1310 Richard de Burgh asked for the guard of the castle as part of his plans to expand his holdings in Connacht (Sayles 1979, no. 86) but it is not known whether he received its custody or not. In 1321 the walls of Rindoon were destroyed by the O Reillys and the O Naghlans (Harbison 1995, 145). In 1332 Alexander Bicknor, archbishop of Dublin petitioned for expenses incurred in the guard of Rindoon while he was lord treasurer (1307-?; 1313-?) (Sayles 1979, no, 173). That same year the Sheriff of Meath was ordered to pay the Bishop of Elphin £50 for making a parapet for the Rindoon ferry (Harbison 1995, 145). The burning of Rindoon in 1315 by Ruaidrí Ó Conchobhair, during the invasion of Edward Bruce, probably resulted in the capture of the castle as well because references to the castle subsequently decline (ALC; A Clon.). The last reference to a constable occurs in 1327 (Carew Cal. Misc., 442) and by 1342-3 the castle was out of royal control. In that year the Irish Parliament complained that the castles of Rindoon, Roscommon, Athlone and Bunratty were in the hands of Irish enemies because of the delays made by the Irish Treasurers in paying the constables their fees (Berry 1907, 335).

In 1578 the land was granted to Thomas Chester and George Goodman on condition that they maintained one English archer (13 RDKPRI, no. 241). It is unclear whether any of these individuals lived in the castle or not but it is evident from the architecture that parts of the castle were refortified in the sixteenth or early seventeenth century and it is likely that the colonists were responsible. It is referred to in 1574 as the "bare castle" and belonged to the queen in 1603 (Cal. Carew Mss. 1601-3, 450, 476). There are no subsequent references to the castle and it is likely that it ceased to function in the early seventeenth century.

Description

The castle consists of an ovoid curtain wall with a rectangular extension on the south-west. It is entered through a gatehouse on the north which is overlooked by the keep to the east. Much of the curtain wall and the interior is heavily overgrown with ivy. The foundations of three cottages with the footings of associated buildings and a dividing wall of nineteenth/ early twentieth century date are also present.

The earliest part of the castle is the keep (Figs. 32-4), perhaps to be identified with the "stone castle" constructed by Geoffrey de Marisco in 1227. The curtain wall was being constructed in 1233 and it is clearly

an addition to the keep on the east side. The hall, on the west, is an addition to the curtain and is probably to be identified with the new hall mentioned in 1299-1302. The castle seems to have been abandoned in the fourteenth century when it is evident that parts of the curtain wall were demolished. The broken down parts of the curtain were rebuilt in the sixteenth century but the wall was thinner and not as high as in the thirteenth century; it is also characterised by the presence of plain rectangular gun loops. In addition the sixteenth century wall does not always follow the line of its thirteenth century predecessor.
The masonry is of coursed limestone with limestone quoins. With the exception of the keep the standing remains are densely overgrown with ivy. The interior is further obscured by the presence of large areas of collapse, particularly the fallen southern side of the keep. The curtain wall survives best on the south side where it stands to its original height. Elsewhere parts have collapsed and rest upon the inner slope of the enclosing fosse. There is clear evidence of a deliberate attempt to destroy the fortifications with explosives on the external south face of the hall.

Parish Church (Fig. 8)

The dedication of this church is not known and there are few documentary references to it. It was taxed at 15s. in the taxation of 1302-5 (Sweetman 1875-88, v, p. 224). On the O.S. first edition it is titled "R.C. chapel". North and west of the church are the remains of an L-shaped boundary wall which may have encircled the building originally.

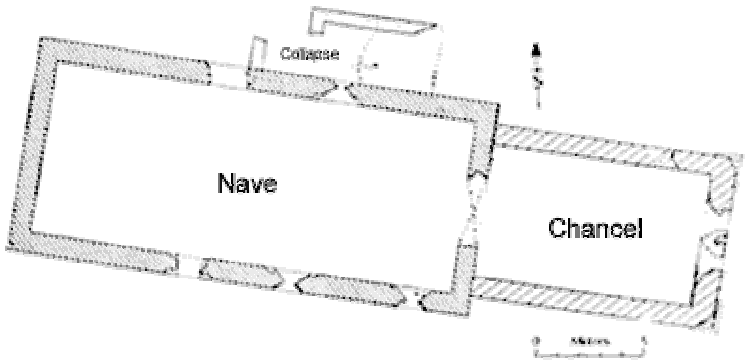

Fig. 8. Ground plan of the parish church.

The building consists of a relatively plain nave and chancel, linked by a pointed arch. There is clear evidence that the chancel was an addition but both the nave and chancel are probably of thirteenth century date. The masonry of the chancel consists of split limestone rubble and angled spalls with little or no coursing; the nave consists of roughly coursed limestone. The building is much overgrown while some parts, notably the west end of the nave, stand their full height, the building is in poor condition.
The east wall and the east ends of the chancel's north and south walls have an external base batter. The base of the east window, which consisted of two lancets, is present but the jambs are missing. The nave had a door in both the north and south walls but they are badly damaged lacking jambs and arches. There are two windows in the south wall but only one survives in the north wall. North of the nave are the ruins of a small rectangular structure, which may have functioned as a penal chapel.

Hospital of St. John the Baptist (Fratres Cruciferi) (Fig. 9)

The founders of this hospital were King John and Philip d'Angulo, according to Ware. If this is correct it means that it was founded before 1216. There are few references before the fifteenth century except for the occasional notice of a burial. By 1487 its revenues were insufficient for its maintenance. After the dissolution it was granted successively to a number of English colonists. In 1596 it was described as being roofed with shingles, and as having a cloister and three decayed buildings (Morrin 1861-2, ii, 158, 364). A belfry is mentioned in 1605-6 (Erck 1846-52, i, 186).

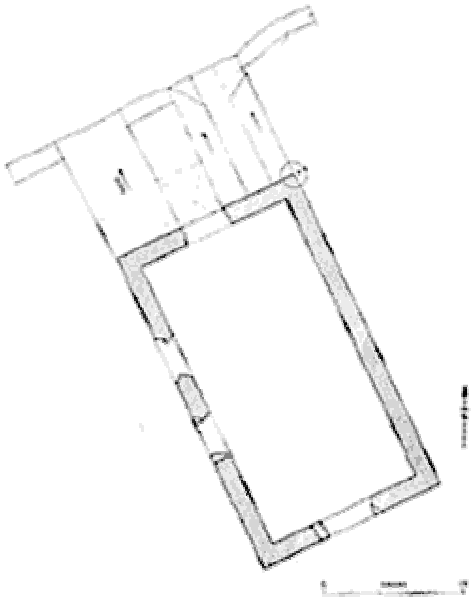

Fig. 9. Ground plan of St. John the BaptistÕs Church.

The remains of this building are situated immediately NW of the town wall (Figs. 41-2). Only the church, which is oriented almost due south, survives. It is a rectangular structure with an unusual buttressed addition at the north end. A number of alterations were made in the eighteenth century, particularly to the windows, but some of the original jambs, dressed in thirteenth century style survive. Externally the building has chamfered quoins at the NE and NW angles. The masonry consists of limestone rubble, poorly coursed.

The building was entered from the north through a centrally placed, lightly splayed doorway which is considerably obscured by the buttressed structure. The principal window was in the south wall but it has been altered utilizing red brick and reused jambs. Two windows survive in the west wall. These mark original openings because part of their jambs survive.

There are surface undulations in the graveyard immediately east of the church which indicate the outlines of former structures but no recognisable pattern can be determined. Within this graveyard are eight architectural fragments including parts of door/window jambs and arches. The finest of these is a multi-moulded base for a cloister column. In the adjoining Catholic graveyard there are seventeen further fragments, including a cloister column, tracery fragments, the head of a single-light ogee-headed window and the head of a two light window. All are of limestone. A fragment of an Early Christian cross-slab came to light here during a clean-up scheme. It bears the letters AR from a broken inscription.

11. Other archaeological features

Church of the Premonstratensian canons

Gwynn and Hadcock (1970, 207) note that this was founded by Clarus MacMailin, the founder of Lough key Abbey, who died in 1251. They suggest that it should be identified with the parish church. The foundation seems to have been short lived.

Promontory fort

A NE-SW orientated bank-and-ditch system extends across the peninsula's waist just west of the castle, cutting off the tip. It consists of two inner banks, a broad ditch, and an outer bank. Interpretation would suggest that it was originally a promontory fort, recut at the north-east end to form a surround for the curtain wall of the castle. The date of the fort is unclear, but the place-name indicates that it has a pre-Norman origin. It may have been built in the twelfth century by Toirdelbach Ó Conchobhair or, indeed, it may even be the site of the fortress constructed by the Vikings of Lough Ree in the mid-ninth century.

The NE end of the system surrounds the curtain wall of the castle with quite steep, deep, V-profiled ditches and convex external banks. The form of the SW part of the system is different. Here the ditch widens as it extends southwards and it is really a modified natural inlet of the lake. Outside the northern end of this stretch is a broad, flat-topped bank, with a further slight rise along its inner edge, possibly wall footings grassed over. This bank could be a modification of an earlier feature or it could have been constructed during the occupation of the castle. South of this bank is a stretch lacking this external feature. Towards the southern end of the ditch, SSE of the parish church, a broad convex bank is present outside the ditch, but it is unclear whether this is related to the ditch or to the church.

Immediately inside the northern end of this ditch stretch is a lightly round-crested, substantial bank with a gentler inner slope. This bank decreases in size southwards before fading into the remains of a substantial, collapsed wall extending along the inner edge of the ditch. Three short single-course lengths of outer facing are evident along with a similar length of inner facing. Along the inner edge of this wall is a ditch of narrow V to

U profile. Towards the SW shore the inner boundary fades back to an earthen bank once again without the inner ditch.
Inside this total boundary feature is a broad band with a gradual slope towers the exterior (NW). Bordering the inner edge of this band is a second boundary feature. In plan it is straight while in section it is broad and convex with a shorter inner slope. The middle band and this latter bank display slight ridging, indicating that they were subjected to ridged cultivation in the past.
Ringwork
It has been suggested that the earthwork surrounding the castle was a ringwork in origin (Barry 1987, 52-3)
Miscellaneous
Clearance Cairns
Eleven large clearance cairns are present in the fields between the town wall and the castle. While these must include stone from normal agricultural clearance they must also contain stone from former archaeological structures.
Possible Medieval field boundaries
A number of collapsed drystone wall boundaries are evident in the wooded area at the SSE end of the peninsula. These predate the wood which was already established when the first O.S. map was published in 1837.
12 List of archaeological finds
1. Bronze crucifixion plaque. From St. John's, near Athlone. NMI R554.
2-3. Two iron ecclesiastical bells. From St. John's, near Athlone. NMI Wk.205 R5553, Wk. 210.
A number of rotary quern fragments were noted within the walled area during the course of the survey. Some of these had been used as building stone in the field walls.

Archaeological problems and potential.

Rindoon is without doubt one of the finest examples of a deserted Medieval town in Ireland and, as an urban archaeological site, it is of national importance. It is significant on a number of counts. Firstly and most obviously because it was the site of a prosperous settlement, established in the thirteenth century when the town wall, one of the best examples in the country, parish church and castle were constructed. Secondly it is important for what preceded the Anglo-Norman borough. It is clear that Rindoon was the findspot of the bronze crucifixion plaque commonly known as the "Athlone plaque", one of the best known pieces of Early Christian Irish metalwork. Together with the bells and the graveslab it indicates that the pre-Norman monastery was an important one. An examination of the earthen defences associated with the castle has indicated that the promontory was fortified in pre-Norman times and that Rindoon is quite likely to be the much sought after site of the ninth century Viking longphort on Lough Ree. The particular archaeological importance of Rindoon, however, rests in the fact that the site has not been built on to any significant degree since the fourteenth century. Accordingly the disturbance to archaeological deposits within the wall has been minimal by comparison with that in many of Ireland's modern built-up towns. It is to be anticipated that traces of the original house foundations, refuse pits, property boundaries, etc. survive below modern ground level.
Within recent decades, however, a great deal of disturbance has been caused by the systematic plundering of the site by metal detector users. Their activities were particularly noticeable in the field immediately outside (or NW) of the promontory fort ditch, but it was also noted in the other field within the wall. It is unlikely that the castle ditch or the castle interior has escaped metal detecting. Archaeological destruction has not been confined, however, to metal detecting. The interior of the Catholic graveyard, beside the Fratres Cruciferi church, has been partly levelled and cleaned up without any archaeological supervision even though this work exposed several architectural fragments together with the Early Christian graveslab. Despite this damage, however, it is likely that a great deal of archaeological information remains to be discovered.
Parts of the town wall were removed in the past, probably to provide stone for building St John's House. The standing remains of the wall are in a desperate and dangerous state of repair with the heavier stones of both the inner and outer facing separating from the rubble core of the wall and collapsing. Although the gateway and towers appear to be in a more stable condition, most of their corners are undermined and this could lead to further cracking and collapse of these structures. The standing remains of the castle are quite solid but much work needs to be undertaken to stabilize the structure and render it less dangerous. The nearby church also requires stabilizing. By contrast the windmill is in a good state of repair.
The domestic houses (nos. 1-3 in section 3 above) whose surface features survive need to be safeguarded if they are not to go the way of house 4 which was removed in the course of agricultural improvement some years ago.
The harbour is a likely location for a future cabin cruiser jetty. Such a development, should it occur, must take into account the fact that this is also the situation of the Medieval harbour and that the remains of it are likely to survive in the lakemud.

Area of archaeological potential

The area of archaeological potential within Rindoon consists simply of the area of the peninsula cut off by the town wall together with an area around the churchyards at St. John's House, the site of the Early Christian monastery and Anglo-Norman hospital. A small area outside the wall is also included to allow for possible extra-mural features, such as a ditch. In the absence of controlled archaeological excavations nothing can be said about the depth of archaeological deposits on the site

2.3 Rindoon Harbour Survey

Colin Breen

Introduction

The archaeological and historical importance of the deserted Medieval town of Rindoon has long been recognised and has been summarised above. Founded by the Normans, probably on a pre-existing promontory fort, the town played a major strategic role in the politics and conflicts of the midlands into the sixteenth century. The town owed its strategic importance to its position on the shore of Lough Ree, the large expanse of inland waterway which has been a major focus of settlement and communications throughout the historic period. While it is recognised that Rindoon was associated with much water based activity and that there must have been waterfront facilities to deal with it, no such structures had been recognised until recently.

The existence of the promontory defence at the site would appear to indicate that the site was fortified and occupied prior to the Medieval period. Undoubtedly there would have been boating activity associated with this early settlement but there need not have been extensive waterfront structures to facilitate it. Few such early structures have been noted in a maritime context in Ireland, while evidence for landing stages on the inland waterways comes primarily from crannogs. Small timber jetties have been recorded at a number of sites, normally consisting of a run of parallel uprights forming a linear or curvilinear landing feature. These would not have been able to accommodate large vessels but rather would have facilitated logboats, rafts and small planked boats A number of logboats have been found in association with lacustrine sites but no planked boats have been identified to date. Larger craft that would have been in use at this time could be beached or simply drawn up above the high water mark and do not necessarily require berthing accommodation.

The Annals of the Four Masters record the first reference to water based activity at Rindoon when in 1156 Ruaidhri O'Conor drew his boats and men across Lough Ree from Gailey Bay to Rindoon across the ice. While there may not necessarily have been a settlement here at this time Rindoon was obviously well known as a crossing point to be specifically referred to. Later, in 1200, John de Courcy spent a week ferrying men and horses across Lough Ree in boats after they became trapped at Rindoon. Again formal landing facilities need not have been present to enable this operation to take place. It was obviously undertaken with haste and was ill conceived as a great many men were drowned/killed and the pursuing Irish forces caught up with them at Rindoon, resulting in further casualties. One only has to look at the Bayeaux tapestry, produced over a century earlier, to examine the logistics of the movement of a large military force by water. The vessels on the tapestry lie in shallow water while goods and equipment are carried out to them and soldiers wade out to board the craft. Similarly, when it comes to disembarkation, the vessels are brought very close to shore and men and goods leave by the means of planks or wading.

De Courcy would not have had such a fleet available to him and probably used craft that he appropriated in the vicinity and other small craft that would have been carried with the force. There are continuous references in the annals to vessels being carried with military forces on the move. These were most likely lightweight wickerwork craft covered with hides and other coverings. The material for the construction of rafts would have been readily available as well and it is unlikely that such a rapid and easily constructed craft would not have been used. In 1235 the Annals of Connaught record that the English, while attacking a stronghold on Lough Key, built rafts from the wood taken from the houses of the district. Barrels were attached to the rafts to give them buoyancy, while a large boat was used to tow them to their destination. Given the haste with which the operation was undertaken and the likelihood that even if there was a small settlement or garrison at Rindoon it would have been limited in size, extensive water based facilities were unlikely to have been in existence at this time.

As the military settlement began to develop in the middle of the 13th century it is likely that the water front was developed in tandem. The safest and quickest way to travel must have been by water, especially on such a large expanse of water as Lough Ree and the Shannon. In 1302-3 and 1315-16 a ferry is mentioned operating out of Rindoon linking Roscommon and Westmeath. This surely highlights the importance of Rindoon as a crossing and focal point on the Lough matched only by the bridgehead at Athlone. However the local Irish, particularly the Offergyles and their followers, were a constant threat. "They make from day to day a great multitude of boats" with which they plundered the lands surrounding Rindoon. To counter this local threat the "Justiciar and whole Council of the King in this land that a galley be made of at least 32 oars which shall constantly remain at Randon, for the defence of the castles of Athlone and Randon if it shall be necessary" (Cal. Just. Rolls Id., Edward I). This galley would have been a double ended clinker built wooden vessel. The galleys of this time would have had a shallow draught, probably not more than 50cm. The text refers to the galley having 32 oars indicating an internal layout of 16 oars on either side each manned by a soldier. Few of these inland galleys would have carried sails but it would not have been unusual for the vessel to have carried one. This type of craft was not highly manoeuvrable and would have been used for linear patrol duties on the Lough and River. Galleys of this type were probably the most common large wooden military craft used in Ireland at this time. In 1205 King John had a fleet of 5 galleys based in Ireland while in 1234 6 galleys were ordered to be built in Irish ports, two with sixty oars and four with forty oars. Seven years later the men of Drogheda were ordered to build a second galley to accompany their existing one while Waterford was to build two and Cork and Limerick one each. It appears that a galley was considered essential protection for any port town and Rindoon would have been no different.

Archaeology

Archaeologists Charles Mount and Kieran O'Conor visited the sit on behalf of the Heritage Council. During the course of this visit the archaeologists noticed a number of linear stone features on the foreshore area of the sheltered inlet below the castle wall marked 'Safe Harbour' on the 0.5 inch map, which they considered to be of archaeological importance and associated with the Medieval landing place. The Heritage Council requested that the diving unit within National Monuments Service visit the site to examine the foreshore features and look at the lake bed within the inlet to assess its archaeological potential. The diving unit subsequendy visited the site on 12 August 1997and carried out a rapid visual and underwater survey of the harbour area. The survey team from the Discovery Programme were employed to produce a drawn survey of the harbour area (Fig. 10).

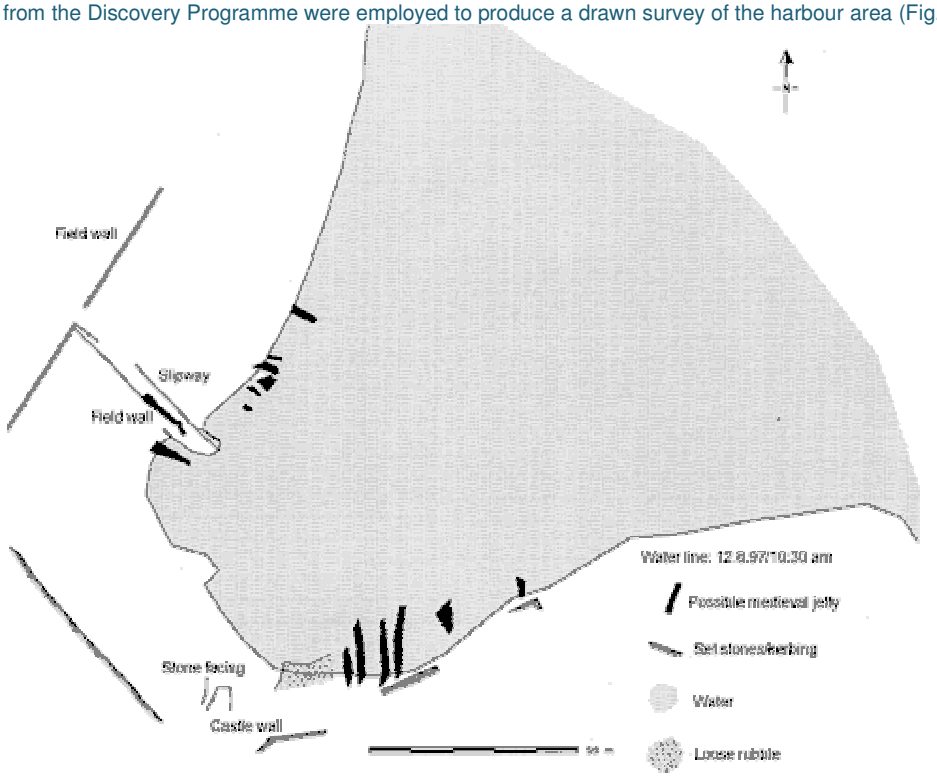

Fig. 10. Plan of the harbour at Rindoon.

Safe Harbour is located on the northern shore of the promontory of Rindoon (Fig. 1). It is a good sheltered inlet open only to the north east. This protects the inside of the harbour from the predominant south westerlies which can affect boat traffic adversely. The inlet is ideally suited as the landing place and anchorage for the promontory and seems to have been used as such during the site's occupation. Two distinct channels can be seen entering the inlet, one on the northern side and the second on the southern side. Much of the central part of the inlet is heavily silted up and has a dense weed cover while the channels have been kept open and are free of stones. It is suggested that these have been dredged in the past or at least partially excavated to keep the channels open. These two channels border this central area and lead to two foreshore areas of activity.

A large number of foreshore features are immediately obvious. There appears to be an internal division within the harbour area with the northern shore accommodating larger craft and the southern shore facilitating smaller narrower craft. The most striking feature on the northern shore is a large stone slipway which runs from the slight eminence overlooking this shore down beyond the low-water. This slipway has the appearance of a slightly raised earthen rampart bordered on either side in places by stone kerbing. This kerbing has been added to in more recent times to heighten it and make a field boundary or wall out of it. This is particularly obvious on the lower south western side. The general slope and width, averaging over 4m, are in keeping with the general nature of a slipway. Rollers or winches would have made the launching and recovery of vessels easier. This slipway is by far the largest waterfront feature on the site. It is interesting to speculate that it was used with the 32 oar galley introduced sometime after the 1305 reference. Wooden boats cannot be let lie in the water continually. A boat left at anchor for a long period in the water will become heavily fouled degardes the timber hull and makes the movement of the vessel through the water more difficult. Most wooden vessels will be taken out of the water every few months to undergo cleaning and general repair work. A second consideration that should be introduced here is the sheer size of galley which was probably between 20-30m in length and would take up a considerable portion of the inlet. It may have been more convenient for the inhabitants to take the vessel out of the water frequently and launch it when needed for patrol duties. The presence of the slipway of this size would certainly argue for regular usage. The slipway leads to a relatively flat area on top of the eminence. This must have some significance, possibly indicating a boat repair area or indeed a boat building area. The 1305 reference implies that boats were probably made locally given that it was the local council which took the decision. Certainly when the men of Drogheda were ordered to build galleys in the 13th century they built them themselves.

The remains of a small wet docking area and associated hard can be seen directly west, running roughly parallel to the end of the slipway. A hard in nautical terms is any hard stratum which is laid down on wet or

marshy ground to accommodate boat related activity at the land water interface. Craft could be brought in between the slipway and the spread of stones to the west and could be safety docked and off loaded. The channel between the two features appears to have been deliberately cleared and may have been excavated or deepened for this purpose and could have accommodated vessels with a beam of c.2-3m. The hard appears to have a deliberate splay outwards at the rear of the structure in order to cover more wet ground and to provide more space for loading and offloading activity. Further east, some 12m from the slipway, the foundations for a small rectangular shaped stone quay can be seen lying under the water. This small quay, less than 10m in length, fronts onto the inlet and has two small boat docking areas on either side of it. Most of the features on this side of the inlet are associated with waterfront activity. It seems that most of the loading, launching and other types of manual and commercial activity took place here. The other side of the inlet appears to be more specialised and it might that the military activity took place here
There has always been clear divisions in harbour sites to differentiate between commercial and military activity. Naval vessels will have their own berths and their own support facilities. The southern shore at Rindoon has a series of waterfront features which appear to be somewhat different than those on the northern shore. While they display similarities in constructional technique and are most probably contemporary they appear to have differing functions. A series of linear narrow stone walls run from the shore northwards for about 15m below the slope upon which the castle wall stands. These features run parallel to each other from an area of low kerbing which possibly delimits a stony hard area. These can be interpreted as a series of stone jetties running out from the shore with a wet docking channel between each jetty. The channels could have accommodated boats with a beam of c.3m and seems to have been a well organised feature. Could this arrangement have been the berthing of the castles' small military flotilla? Certainly similar type features have been noted in association with tower houses along the west coast of Scotland, particularly in Argyle.

Threats

It has been recognised for a number of years that the monuments and land at Rindoon are under serious threat from a number of differing sources. The foreshore and lakebed at Safe Harbour is similarly threatened. While foreshore features have now been recognised, the nature and extent of any submerged archaeology on the bed of the inlet is unknown. There is a large build up of silt on the lake bed in this area which has buried any noticeable artefacts or features. Rapid underwater visual survey failed to locate anything of significance on the inlet bed. However, because of the nature of the site it has to be assumed that there is material of historical interest on the harbour bed and its survival is threatened. The primary threat is probably related to the huge upsurge in boating activity on the Lough and the subsequent pressures that this causes on the nearshore area. In the late 1980s it was proposed by Roscommon County Council that a mooring facility be established at Safe Harbour. The current stage of this plan is not known to the author but two permanent moorings were noted during the course of the survey work. These have been placed without seeking archaeological advice. These should be removed at the earliest opportunity and future moorings should be strongly resisted at the site. The effect of vessels casually anchoring at the site is also highly visible on the lake bed. These anchors are dragging through the anchorage area and are causing deep cuts in the bottom silt. The fact that this is such a low energy site means that these cuts remain open for a considerable period without silting. The wash from the boats propellors as they are being brought to anchor, will also have an effect on submerged archaeology.
That the small stone jetties functioned well in the past is demonstrated by the fact that the cruisers are still using them to come ashore. On the day of the survey a number of tenders were tied up on these features and a number were hauled up on them, resulting in the displacement of stones and hastening the erosion of the structures. Boaters who were using the jetty stones to surround barbecue fires A large number of similar modern hearths could be see lying about with all the stone having been taken form the historic waterfront. Would a similar practice be allowed with stone from the castle?

Recommendations

1. Mariners should be prevented from landing at this inlet. A 'No Stop' notice should be issued by the Shannon Commissioners and this should be posted to the relevant marina and hire companies.
2. No landing signs should also be posted on both sides of the entrance. It may also prove beneficial to install a No Stop buoy at the site.
3. The contemporary moorings should be removed and any plans for future moorings should be abandoned.
4. A more detailed survey and research programme of the harbour site and indeed the whole foreshore of the promontory is required. This should include plans of the individual features within the harbour, a foreshore survey of the promontory, shallow water geophysics in the area of the promontory and targeted diver survey.

.4 Initial Report and Evaluation of the Current Condition of the fabric of Rindoon Castle

Alistair Lindsey

Introduction

At the request of the Heritage Council an initial inspection to determine the state of the fabric, based on concerns for the safety of both human and animal life of Rindoon castle was completed on Friday 25 July 1997. The weather conditions were fine and sunny and some rain had fallen in the previous 48 hours. The inspection was undertaken at ground level and no opening up or other investigation works were undertaken. For the purposes of this report the inspection was confined to the castle, but the church was inspected as a further reference.
While the access to the peninsula from the west or landward side is difficult, involving a distance from the public roadway through fields, access from the Lough is relatively easy and it has been reported that many people, from the cruisers that ply the River Shannon System, visit the castle each year, particularly as it forms an attractive feature in the landscape when viewed from the Lough. Indeed, during the inspection, there were a number of such people in the immediate environs of the castle.

Evaluation of the fabric

The evaluation of the fabric was very difficult due to the heavy growths of vegetation and plant life and the lack of access to the higher areas of the fabric. Therefore this assessment cannot be construed in any way as being complete. However, a number of matters can be reported, which must be reviewed when access is available. Wherever possible, these matters have been illustrated photographically.

Vegetation and plant growths

While the vegetation and plant growth obscured much of the fabric, their presence on the fabric is a matter for concern. Many areas supported dense Ivy growths and small trees were observed to be rooted in the walls, particularly above the barbican gate. The concern at such growths has three aspects. In the first place, the development of the rooting systems can and does dislodge stone. Secondly, the rooting systems feed on the fertile nutrients provided by the breakdown of the lime mortar in the construction, a process aided by the development of the plants themselves which keep the fabric damp. Thirdly, certain plants secrete weak acids which contribute to the decay of the masonry. These mechanisms are of particular concern at the most vulnerable parts of the fabric and the exposed heads of the walls would be particular element in this concern. The proper course of action is to kill the plant life and allow it to dry out before attempting to remove it to inspect the underlying fabric. However, this can be a very difficult operation if, as may be the case in Rindoon, the growths, having damaged the fabric, now support the structure. In addition, it is often deemed desirable that such growths continue to exist on such buildings and special receptacles have been constructed at the heads of walls to allow plant growth to be supported without damaging the fabric.
The general growth of trees, bushes, ivy, brambles etc. at lower level tends to obscure the condition of the bases of the walls and any foundation problems that may exist. Again, a degree of clearance will be required to fully assess these elements. However, it must be recognised that the rooting systems of these growths may be contributing to the stability of the ground and their removal may have a deleterious effect.
In conclusion, the heads of the walls must be inspected and repaired if necessary, as will the structure and bases of the walls. This will necessitate the removal of the plant growths. At that time, the desirability, or otherwise, of making provision for the controlled re-colonisation of the plant life could be decided. Clearance at the lower levels may not need to be as all encompassing as that of the higher levels with less attendant hazard. In the final analysis, the degree of clearance necessary can only be determined as work progresses.

The structure

The structure was built of limestone, probably local, laid in lime mortar. The walls were the normal Medieval construction consisting of random rubble outer and inner leafs with smaller stone hearting or core. Given the age and exposed nature of the buildings as roofless ruins, they seem in reasonable condition for their age, but this cannot be assumed to be definitive until the complete structure is accessible. Within this overall generalisation, there are a number of matters which are a cause for concern.
In addition to the affect of the plant growths, a number of precariously balanced individual stones and sections of stonework were noted, structural cracking was evident in a number of places, particularly in the blind arcaded section of the curtain wall and the west window of the hall, voussoir stones were missing from a number of arches and isolated 'holes' in the outer or inner random rubble leaves were noted. The general condition of the walling was variable, some areas where the joints appeared to be well filled, even to the extent that it might be assumed that some of the render had survived, while in other areas, the joints between the stones appeared to be quite open. A number of areas where it was possible that the stone could detach or fall were noted. Equally, the presence of individual stones and larger 'lumps' of masonry at ground level, which must have fallen from the buildings, were a matter for concern.
From a positive point of view, the surviving lime mortar seemed to be in remarkable good condition, given the age and history of the structures and isolated panels of wall plaster seem to have survived. Also, where missing inner or outer leaves of stone had exposed the hearting of the walls, this seemed to retain a degree of consolidation. It would appear that one corner of the keep split into two enormous sections of masonry when it fell, attesting to the quality of the lime mortar. It must, however, be stressed that these matters can only be termed as impressions until such time as access permits a thorough examination.

Findings

The extant fabric seemed to be in reasonable condition given its age and history. However, there are a number of areas where concerns as to the safety of life and the stability of the structure exist. As a preliminary inspection, these findings cannot be conclusive and it is recommended that extant fabric should be the subject of careful examination when access is made available. There does exist a number of situations where it must be assumed that a danger exists.

5 Geophysical investigation of Rindown, Co. Roscommon

Martina McCarthy

Introduction

This report details the results of a geophysical survey which was carried out at various locations around the deserted town of Rindoon on the peninsula of St. John's Point, on the western shores of Lough Ree, Co. Roscommon. The survey was commissioned by Dr. Charles Mount on behalf of the Heritage Council. The site contains a complex of Medieval monuments including a castle, town walls, a church, a hospital, several house sites and various other archaeological features. The objective of this survey was to identify the limit of archaeological activity within a limited area of the site.

Location of survey area

The peninsula of St. John's Point is located approximately 9 miles north of Athlone on the western shores of Lough Ree and may be reached by turning right off the N61 from Athlone to Roscommon (Fig. 16) at the village of Lecarrow. The geophysical survey concentrated in three main areas and these may be seen in Fig 11: Area A is located between the castle and the church; Area B is located between the castle and the town walls, approximately along line from the gatehouse of the town walls. Area C is located to the south-east of the castle.

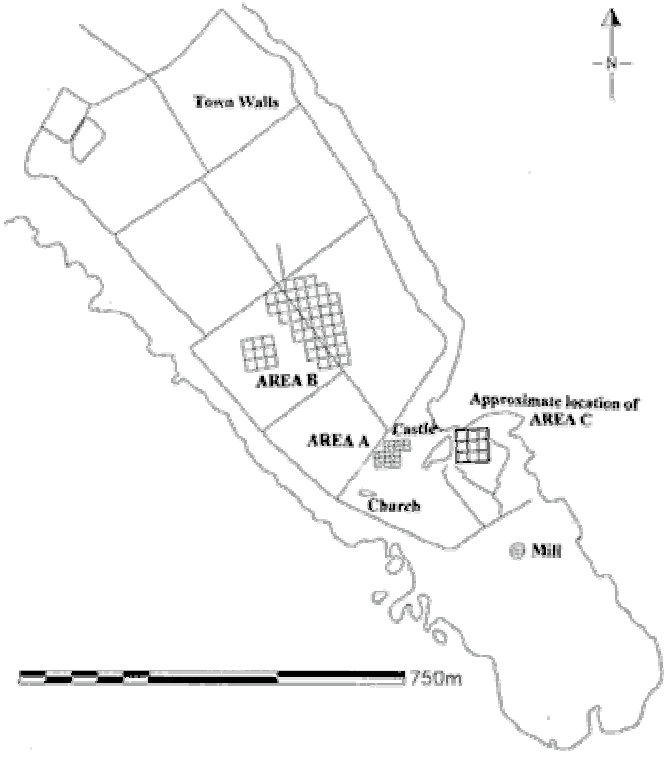

Fig. 11. Location map of the three main survey areas.

The survey

The initial survey requirement was to identify the limit of archaeological activity within a limited area of the peninsula. An unspecified area of 5 hectares was the area size decided upon by the Council and a reconnaissance magnetic gradiometry survey at a resolution of 1m x 0.5m was chosen as the desired

technique to generally assess the limit of archaeological activity within the chosen area and in particular, areas exhibiting evidence of settlement.
At a later stage the Council decided to locate the survey in three separate areas (as seen in Fig 11) and the combined area size of the three areas was approximately 2.5 hectares. A magnetic gradiometry survey was carried out over these three areas and following a preliminary analysis of the field results by the Council and GeoArc, it was then decided to carry out a more detailed survey utilising an alternative technique for the remaining time allocated to the initial survey. Thus, a resistivity survey at a resolution of 0.5m x 0.5m was carried over selected anomalous zones identified from the gradiometry survey. This resistivity survey could not be carried out directly after the gradiometry survey as the equipment was committed to another project at the time.

Geological site descriptions and conditions

The geology in the Rindoon area is comprised of limestones of the Carboniferous Period. No outcrop was evident in any of the survey areas. However, in some areas stones were observed just on the ground surface but it is not known if these are in situ outcrop or archaeological features. The land around the Rindoon complex is mainly relatively flat pasture land. The ground conditions in the three areas of investigation were quite good in that no major vegetation was encountered. However, parts of Area B, particularly along by the main field boundary, were under a heavy cover of thistles and bushes, thus restricting access in some cases.These areas are blanked out in the following maps illustrating the results.

Methodology

The geophysical survey was carried out over a number of weeks from the 23rd June to the 25th July 1997. The weather for the most part was dry but several days of heavy rainfall preceded the resistivity survey.
A survey grid was established on site by The Discovery Programme staff using a total station and bamboo pegs were placed at the corners of each 20m x 20m grid. However, during the course of the survey these pegs were dislodged by sheep and in some areas, particularly to the north of Area B, parts of the grid had to be re-established using a compass. Consequently parts of the grid are slightly off-line but this error is negligible and bamboo pegs were hammered flush with the ground for relocation purposes.
Irish National Grid (IGN) co-ordinates were provided for Areas A and B but not for Area C, consequently only some of the following maps are annotated with ING co-ordinates. Some of the grid squares in Area B were not precisely regular, thus an arbitrary co-ordinate system was applied to the maps for ease of anomaly location.

Magnetic gradiometry survey

The Geoscan FM36 Fluxgate Gradiometer was used for this survey. This instrument has a depth of investigation of approximately 2m under optimum conditions. A zero reference point was first established in a region where there were no localised changes observable in the magnetic gradient and this was used to zero the instrument at regular intervals. This procedure ensures that all panels of data match up with, and are referenced to, each other. The resolution used in this survey was 1 nT/0.5m. A more detailed description of the magnetic gradiometry technique may be found in Appendix 1.
The majority of the data were collected over grids measuring 20m x 20m but in some areas, were the survey area was of an irregular shape, data was collected over grids measuring 10m x 20m, or 10m x 10m (e.g. Area A). Stations were recorded at 0.5m intervals along lines 1m apart. Data acquisition commenced in the south-west corner of each survey grid and the first station was located on the origin of the specific grid. Lines were traversed unidirectionally or 'in parallel' with the operator facing north at all times. The data was recorded with the instrument datalogger and data was downloaded to a laptop at the end of each day usingInSite software.

Resistivity survey

The resistivity survey was carried out using a square array (Campus Instruments) which has four electrodes set in an equidistant square arrangement 0.5m apart and this instrument has an effective depth of penetration of approximately 0.25m. The instrument is used in combination with a Campus Geopulse resistivity meter and the survey parameters, etc., are controlled via software on a laptop computer which also functions as a datalogger. The resistivity survey was carried out in three areas (Fig 11): Area B 1 - northern part of Area B; Area B2 - mid-western part of Area B; Area B3 - the centre portion of the isolated area west of the main part of Area B.
The resistivity survey in Area B1 was carried out at a resolution of 0.5m x 0.5m in an attempt to resolve subtle features identified in the magnetic gradiometry results. Some surface rock was also observed in this part of the survey area which also supported the idea that there may be some potential archaeological features present beneath the sub-surface. An area of 45m x 30m was surveyed.
The resistivity survey in Area B2 was carried out at a resolution of 0.5m x 1m and an area of 40m x 40m was surveyed. The magnetic gradiometry results also produced anomalies in this area. An area of 60m x 20m was surveyed at a resolution of 0.5m x 1m over Area B3 and again, subtle anomalous features were identified in the magnetic gradiometry results over this area.

Data was collected in a zig-zag fashion and the first point recorded was on the origin of each survey panel. A more detailed description of the resistivity technique may be found in Appendix 1. The data were laterinput into the InSite programme and the processing functions applied to the data set are described in Appendix 2.

Data Processing

The magnetic gradiometry and resistivity data were processed using Insite (Version 1.11). Once a data set is downloaded to InSite a gridmap of the individual survey panels may be created. The gridmap is a field plan showing the relative positions and orientations of the geophysical survey grids. Once a gridmap has been created the raw data may be viewed. The Council specified that all maps were required in an A4 format, consequently the majority of geophysical maps in this report are at a scale of 1/500, with those from Area B at a scale of 1/1250 and 1/750.
InSite provides a number of processing functions and the functions applied to this data set are listed and explained in Appendix 2. These functions may be applied automatically to all the data or manually to a particular grid/panel of data. Only basic processing functions were applied to the magnetic gradiometry data sets, i.e. the data were corrected for instrument drift, blank areas were filled as explained in Appendix 2 and the data were merged.
The data may also be filtered and InSite also provides a number of filter types. (Filtering is a mathematical procedure whereby image attributes are selectively enhanced or suppressed). Various filtering options were applied to the data but these did not enhance the data to any great extent, therefore the resultant maps are not presented in this report. All the maps are printed in grey-scale.

Results and discussion

The geophysical results are described in terms of anomalies. Anomalies are disturbances in the background field caused by the presence of features/materials at or near the Earth's surface. In the case of magnetic gradiometry results, anomalies are caused by the presence of magnetically enhanced materials which add to or subtract from the Earth's magnetic field producing positive or negative anomalies. Certain soils, stones and rocks possess variable amounts of magnetism and it is the presence of these materials in a relatively quiet magnetic background that produce anomalies (see Appendix 1 for further explanation of anomaly sources). As the underlying geology of this site comprises limestone bedrock, which is non-magnetic, anomalies observed in the magnetic gradiometry results are not expected to arise from a direct geological source.
Positive anomalies are displayed in black in the following maps and in the case of magnetic gradiometry, these anomalies are generally assumed to derive from features containing magnetically enhanced material, e.g. ditches, pits, trenches, etc. Due to the induction effect of anomalous features on the measured magnetic field, every positive magnetic gradiometry anomaly is always accompanied by a much weaker negative anomaly alongside it. It should be noted that in mid northern latitudes magnetic anomalies are asyrnmetric with the main peak displaced to the south of any archaeological feature. For example, a ditch filled with soil of contrasting magnetic response to the background, generates a positive anomaly to the south, mirrored by a weak negative anomaly north of the feature. This phenomenon gives rise to a pseudo-relief effect
Negative anomalies are displayed in white in the following maps and, in the case of magnetic gradiometry, these anomalies may arise from materials with low magnetic enhancement relative to background, for example, stone features composed of a non-magnetic limestone.
Dipolar anomalies are usually caused by magnetised sources such as metallic objects or rocks/stones with high iron content. As the gradiometer is passed over the object the value changes from positive to negative. Dipolar anomalies may also be caused by archaeological sources such as hearths or kilns which possess a permanent magnetism due to repeated heating and cooling in the geomagnetic field. Typically the source of the dipole is found at the centre of the positive and negative anomaly.
Positive resistivity anomalies are usually caused by the presence of stone features such as wall foundations and other masonry features. Negative resistivity anomalies are usually attributed to soil filled ditches or other features which retain ground moisture. In practice there are a broad range of variables that affect the nature of the geophysical response from a particular feature, such as the climatic variations, geometry of features, electrode configurations, etc.

Area AA-magnetic gradiometry results

Only very basic processing facilities were applied to the data set (Fig. 12). The data is relatively quiet, but the centre of the survey area exhibited rather noisy values. The data ranges from -27.5nT/0.5m to +51 nT/0.5m, but the majority of values lie in the range -2.5nT/0.5m to +2.5nT/0.5m.

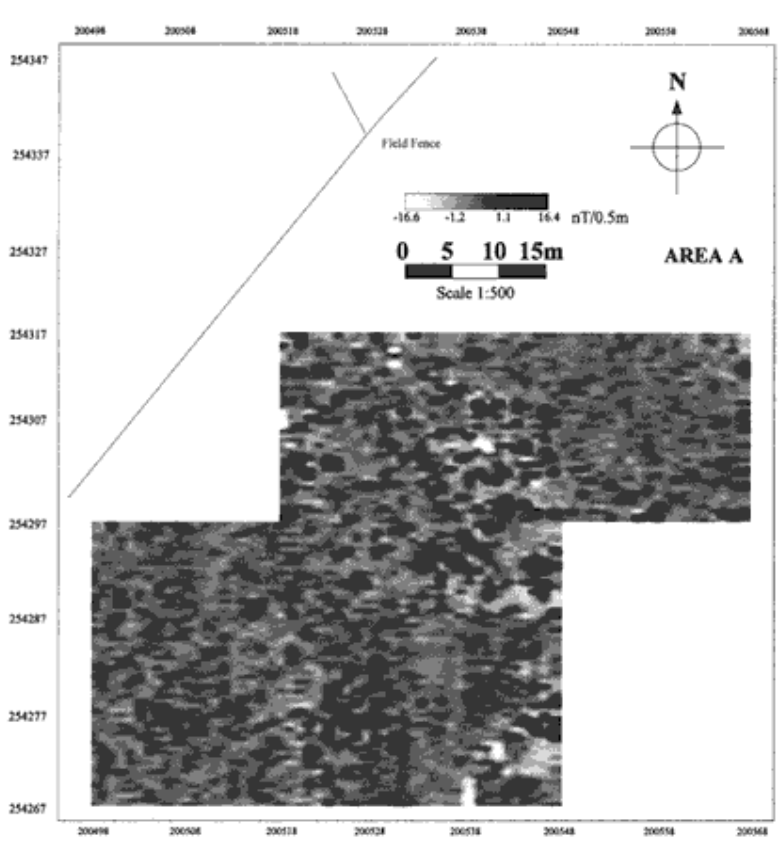

Fig. 12. Map of magnetic gradiometry results from Area A-processed data.

It is difficult to identify any distinct anomalous features in the magnetic gradiometry results from Area A. However, a number of subtle positive and negative linear and curvilinear anomalies may be seen in the results, particularly in the south-west quadrant of the survey area. The linear anomalies generally have a north-east to south-west trend and may represent cultivation ridges, however the more distinct linear anomalies are at least 3m apart which may not support the cultivation ridge interpretation. Furthermore, this area had a lot of stone at or just beneath the surface which would also point to lack of cultivation. A number of subtle curvilinear/sub-circular anomalies are also apparent in this area, from 200498E, 254277N to 200518E, 254297N.

The centre part of the survey area is extremely magnetically noisy, particularly north of centre, and this coincides with the greatest concentration of stone observed at or beneath the surface of the site. It is difficult to identify any distinct features, other than a distinct north-west to south-east trending anomaly from 200528E, 254305N to 200544E, 254293N, which measures approximately 15m and a curvilinear anomaly to the east of this at 200546E, 25430IN to 200558E, 254309N which has a north-south diameter of approximately 13m. A number of other minor linear and curvilinear anomalies may also be seen in this area.

Area A produced a number of noteworthy anomalies but it is difficult to interpret these as possible archaeological features. Most are extremely subtle and it can only be concluded that they may derive from an archaeological source.

Area B-magnetic gradiometry results

The larger part of Area B (E-K, 1-10) was selected by the Council for the geophysical survey as two house sites are present at I,5.2 and H,7.5 (Fig. 13). These house sites are almost directly in line with the gatehouse of the town walls further north and the castle to the south, so it was assumed that if the remnants of further house sites were present in the sub-surface then there was a high probability they existed in this area. The isolated area to the west of the main area (A-D, 2-5) was selected as a 'control' area as it was thought highly unlikely that any archaeological remains would be present this far away from the presumed area of main activity.

The results from Area B display a large range in data values (-228.5nT/0.5m to+860.5nT/0. 5m) but the majority of values lie in the range > -5 <+5 nT/0.5m range. After initial examination of the raw data the extremely high/low random values (>-50 <+50 nT/0.5m) were edited out as these have the effect of masking more subtle anomalies. The effect of this procedure did not alter the integrity of the data as the extremely high values had lesser high values associated with them. The field boundary runs diagonally through the centre of

Area B and due to dense overgrowth, fallen trees and the presence of a large metal cattle feeder at IJ2, the survey could not be carried out within several metres of the field boundary at some points.
The most obvious anomalies in Area B are the strong concentrations of dipolar anomalies in certain parts of the survey area, namely H3, I4-J5, E4-F5, G5.5, E7-F9 and numerous other isolated examples. It is noteworthy that the majority of these anomalies are to the east and almost parallel to the field boundary and thus along a line from the gatehouse in the town wall further to the north. Two of these dipolar anomalies, E-F,4.7 and H3 west of the field boundary, are significantly large (approximately 5m) across. When these anomalies were recorded in the field, the surrounding ground was checked for any surface material which may have produced them, such as metal wire, etc., but no sources were found. Anomalies of this nature and size are generally caused by a metallic source or from pits/hearths containing highly magnetically enhanced material such as burnt remains. The strong concentration of these dipolar anomalies and their primary location - parallel to the field boundary - suggests the presence of features of potential archaeological interest.
A series of positive magnetic linear anomalies are observed east of the field boundary and these have a general north-east, south-west trend. Some of these anomalies are up to 20m in length and in some cases spaced less than 5m apart. These anomalies may be associated with cultivation ridges as certain linear trends were noted in the topography of this part of the survey area, but it is not known if these are recent or ancient. The fact that these linear anomalies are extremely subtle, rather inconsistent and widely spaced, does not support a cultivation ridge interpretation, but the nature of the anomalies may be a factor of poor preservation. Some of these anomalies may represent old field/plot boundaries. A number of subtle positive curvilinear anomalies are also observed east of the field boundary but none of these are distinct enough to be identified as distinguishable archaeological remains.

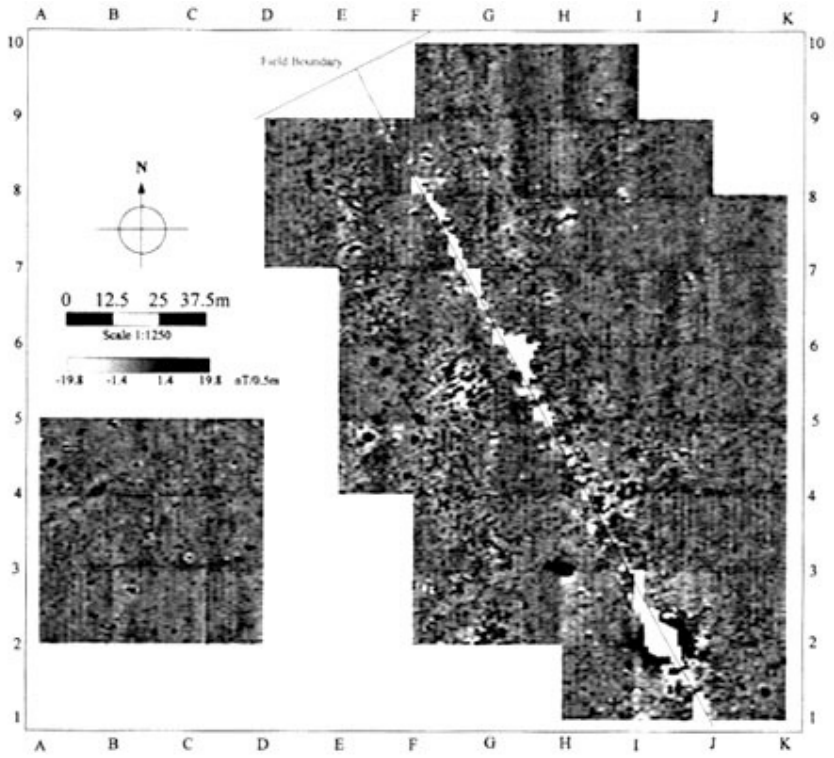

Fig. 13. Map of magnetic gradiometry results from Area B-processed data.

The area immediately west of the field boundary displays a high concentration of dipolar, positive and negative linear and curvilinear anomalies. Of particular note is the zone of anomalies from F5 to G6. There is no surface expression of any features which may have produced these anomalies and, although is not possible to interpret these anomalies as tangible archaeological features, it may be concluded that their source is possibly archaeological and they do indicate the presence of archaeological activity.
The isolated area to the west of the main part of Area B also produced a number of noteworthy anomalies. The subtle positive sub-circular anomalies centred on C,3.5 are of particular interest when combined with the fact that they are associated with a number of dipolar anomalies. The main curvilinear anomaly (centred on C,3.5) has an approximate north-south diameter of 20m and, if its source is archaeological, it may signify the presence of a large feature, for example, an enclosure. A series of linear positive anomalies are also observed in this part of the survey area with a north-east, south-west orientation similar to those observed in the main part of Area B. The linear positive anomaly at A,3.6 to BC,4.4 appears to be a continuation of those anomalies observed at E,6.5 and HI,8.4. An anomaly of this size may be interpreted as an old field boundary and a slight linear depression was observed on the surface around HI,8.4, which would support this interpretation. A number of significant dipolar anomalies were also observed in the westernmost part of Area B and some of

these measure approximately 2m across. However, the concentration of significant dipolar anomalies is much lower and of a more random nature compared to the main part of Area B, which may suggest a lower level of archaeological activity in this part of the survey area.

Area B-resistivity results

The data ranges from 0.82 Ohmm to 401.9 Ohmm with the majority of values lying in the range 20-40 Ohm m. The three areas chosen for the resistivity survey were selected on the basis of the anomalies observed in the magnetic gradiometry results.

Area B1

A number of positive and negative linear resistivity anomalies are observed in this area (Fig. 14). A strong north-west to south-east trending positive anomaly, approximately 25m long and 3m wide, is observed from FG,7 to FG,8.5 and this is bisected by a positive north-east to south-west trending anomaly. A second significant north-east to south-west trending anomaly is observed at G,8.5. A tree surrounded by stones was present at GH,8 and the area around this produced a strong positive anomaly as expected from the stones and also the increased moisture content around the tree. A number of other smaller positive and negative linear anomalies are observed in the south-east corner of Area B1.
A large number of stones were observed in Area B1, at or just beneath the ground surface, and this combined with the regular shape of the anomalies suggests the presence of possible sub-surface archaeological features. The nature of these features is unknown but the dimensions of the largest north-west to south-east trending anomaly suggests the presence of a roadway/path or the foundations of a very large structure. The smaller anomalies in the south-east corner of Area B1 may also be interpreted as the foundations of one or several buildings.
None of the anomalies identified in the resistivity results correlate directly with those identified in the magnetic gradiometry results but the southern part of Area B1 did exhibit a significant number of dipolaranomalies in the latter results.

Area B2

The results from this area are quite noisy but a number of subtle anomalies may be identified. A north-east to south-west orientated linear positive anomaly is observed from E,3 to FG,3.75 and this corresponds to a smaller positive anomaly observed in the magnetic gradiometry data. A number of linear and curvilinear anomalies are observed in the north-east corner of Area B2 and, even though no tangible features can be identified, these correlate with an area of high activity in the magnetic gradiometry results.

Area B3

The topography in Area B3 rises gently towards the north-west corner and this may give rise to the main positive and negative pattern seen in this part of the survey area. The hill may be comprised of a rock knoll which would produce the higher resistivity values observed here.

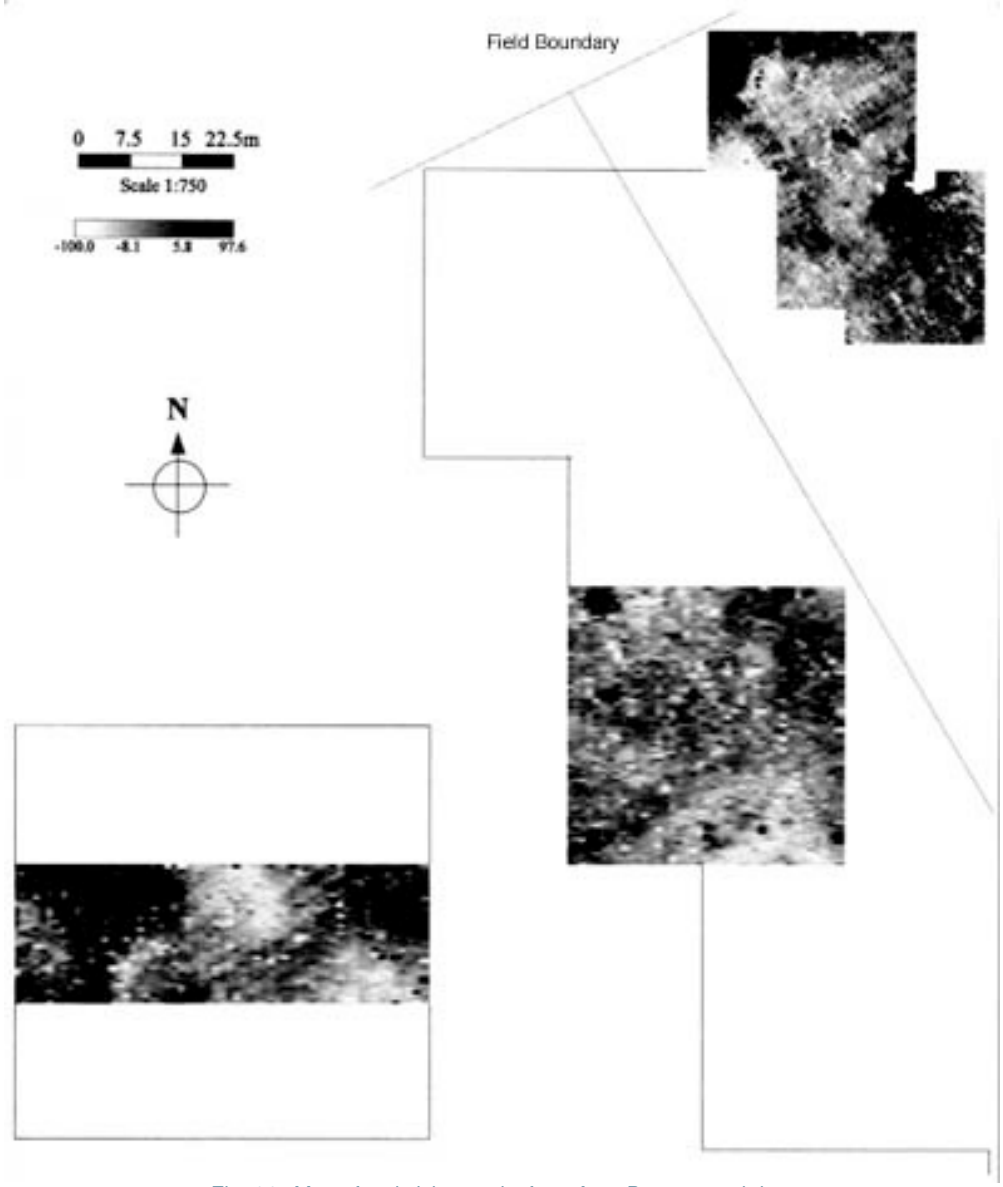

Fig. 14 . Map of resistivity results from Area B-processed data.

Three subtle positive linear anomalies are observed from B2 to C3 and these correlate with positive linear anomalies observed in the magnetic gradiometry results leading to the conclusion that these are possibly cultivation ridge/furrow-like features. A seem-oval shaped positive anomaly measuring approximately 8m north-south is observed in the north-east corner of Area B3 and, again, this correlates with a general area of positive curvilinear anomalies observed in the magnetic gradiometry data. Also of note are a number of small random positive resistivity anomalies in the south-east corner of Area B3 which correlate with dipole anomalies observed in the magnetic gradiometry results. From the magnetic gradiometry results alone these anomalies may be interpreted as metallic point sources or pits containing magnetically enhanced material but the correlation with the positive resistivity anomalies does not support such an interpretation, However, a small stone hearth would produce a dipole anomaly and a positive resistivity anomaly.

Area C-magnetic gradiometry results

The results from Area C are extremely noisy with few identifiable geophysical anomalies. Although the data ranges from -40.5nT/0.5m to +85.5nT/0.5m, the majority of values are in the range -3nT/0.5m to +2nT/0.5m. A high concentration of small random dipolar anomalies are observed and a number of subtle positive anomalies

are also observed, particularly from 0-50E, 0-20N. A subtle positive curvilinear anomaly is observed with its centre at 50E, 35N.
Discussion with the landowner revealed that this area was under a cover of trees and bushes which were cleared about 7 years ago. This explains the greatly disturbed nature of this survey area and may also explain the concentration of dipolar anomalies as the ground surrounding trees often exhibits a higher magnetic enhancement relative to background. The latter factor combined with the disturbance caused by the removal of the trees and roots may produce the disturbed results as observed in Area C

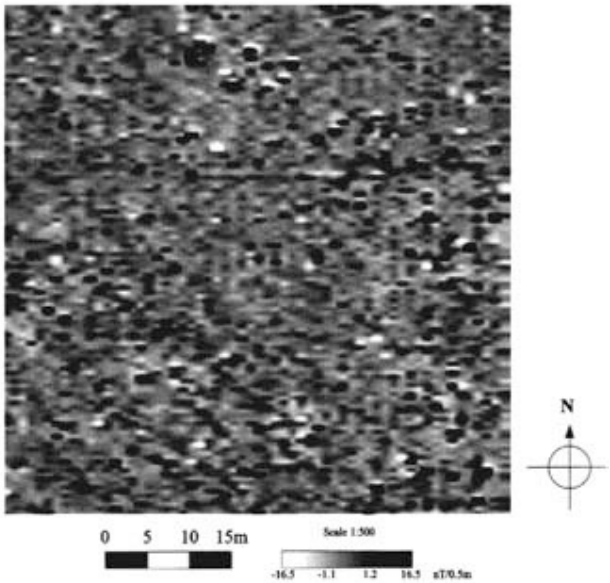

Fig. 15. Map of gradiometry results from Area C-processed data.

Conclusions and recommendations

The objective of the magnetic gradiometry survey was to identify the limit of archaeological activity in the survey area. It was expected that the bulk of this archaeological activity would be associated with the Medieval town which existed at Rindoon and the three main survey areas were selected by the Council on the basis that these were the optimum locations which may yield evidence for such activity. It was not known how this archaeological activity would manifest itself in the subsurface other than as areas displaying settlement evidence possibly in the form of foundations. Due to the large size of the area the magnetic gradiometry technique was chosen as a reconnaissance technique for its rapid coverage rate and its ability to detect areas of human settlement in the from of features or areas of increased magnetic enhancement. A limited resistivity survey was carried out on a number of smaller areas selected on the basis of the magnetic anomalies identified on these. The magnetic gradiometry survey did identify a number of zones of possible archaeological activity. The most noteworthy zones of possible archaeological activity are listed below in order of importance.

Area A	200498E,254277N to 200518E,254297N; 200528E,254297N to 200558E,254315N
Area B	Westernmost area - BC,3 to D5; The entire strip west of the field boundary but particularly: E7 to F9; G,5.5; EF,4.5; H,3; M. Only a limited part of Area B was surveyed with the resistivity technique but some of these results are interesting, particularly those from Area B1 and the north-east corner of B2 which are included in the zones detailed above.
Also	The entire strip east of the field boundary and out to a distance of 40m.
Area C	40E,30N to 60E,50N.

The zones detailed above are quite large but it is recommended that some or all of these are further investigated - ideally by excavation or trial trenching - to determine if they are caused by real archaeological features/structures. If it is not possible to investigate these zones intrusively it may be worthwhile carrying out further geophysical surveys utilising resistivity and/or magnetic susceptibility over parts of the survey area to

further resolve zones of possible archaeological activity. If further geophysical work is to take place, the area to the north of Area B may be worth considering as a potential location of archaeological activity. On a more longterm basis if further work is to take place, of a geophysical or an archaeological nature, it may be worthwhile undertaking a detailed topographical survey over the site. This could be then be correlated with the geophysical results of the current survey and the results of any future surveys.
Finally it must be noted that on large sites where the nature of the archaeology is unknown or apparently indistinct, it is difficult to form conclusions about geophysical results employing one technique alone. The best strategy is to narrow down the search and use several techniques - each based on different physical parameters - to ensure all types of features on a site have been adequately located.

2.6 An assessment of the scientific interest of the woodland and associated habitats at Rindoon, Co. Roscommon

Andrew Bleasdale and John Conaghan

Introduction

In September 1997, the Heritage Council commissioned an ecological study of an area of woodland at Rindoon, Co. Roscommon. The woodland adjoins Lough Ree and has been included within the proposed Lough Ree SAC (Special Area of Conservation). The primary aim of this study is to determine the extent and quality of the woodland present and to devise a suitable management strategy to ensure the maintenance of the woodland habitat.

Scope of the study

This report will assess the following issues in relation to the woodland at Rindoon:- (a) historical and recent evidence for woodland at Rindoon; (b) the vegetation of the site; (c) the representivity of this woodland type both regionally and nationally; (d) the current farming practices and (e) suitable management strategies.

Location and environment

Rindoon Wood, Co. Roscommon is located on the western shores of Lough Ree (N 01 54), approximately 13 kilometres north of Athlone (Fig 16). The woodland occupies an area of approximately 12 hectares and lies at the tip of the Rindoon peninsula. This peninsula extends into Lough Ree, running in a north-west to south-east direction (Fig 1). Map details are as follows: O.S. sheet 1/2 inch: 12; O.S. 1;50,000 No: 33/34 (not available yet); 0.S.1:10,560, Co. Roscommon No: 46.

Climate, geomorphology and soil

The mean annual rainfall in the area varies between 800 and 1000 mm (Rohan, 1986). At Birr, some 55 kilometres south of Rindoon, the mean annual rainfall is 875 mm. The annual mean daily air temperature is c. 9.5 C (ibid. 1986). The geology of the site and surrounding areas is comprised of Lower Carboniferous limestone, which is overlain by till. The soil at the site can be described as a sandy clay, with pockets of acid soil in places.

Legal status

The woodland is part of the proposed Lough Ree Natural Heritage Area (Code number 440). Recently the site has been selected as a proposed candidate Special Area of Conservation (SAC) (Code number 800000440). Fig. 17 shows the location of the site in relation to other candidate pNHAs and pSACs in southern, Co. Roscommon. The site is owned by a local resident, Mr P.J. O'Grady.

Organizations involved in site conservation

Within the confines of the study area there are a number of prominent archaeological features. The protection of these features is the responsibility of the National Monuments Service. The ecological condition of the site is the responsibility of the National Parks and Wildlife Service (NPWS) monitored by the local Wildlife Ranger, Mr David Silke, Ballinacurry, Glinsk (093-21151). The other member of NPWS staff with a local input is Mr Michael Sweeney, District Wildlife Officer, Ralaoi, Kilmaine Road, Ballinrobe, Co. Mayo (092-41269).

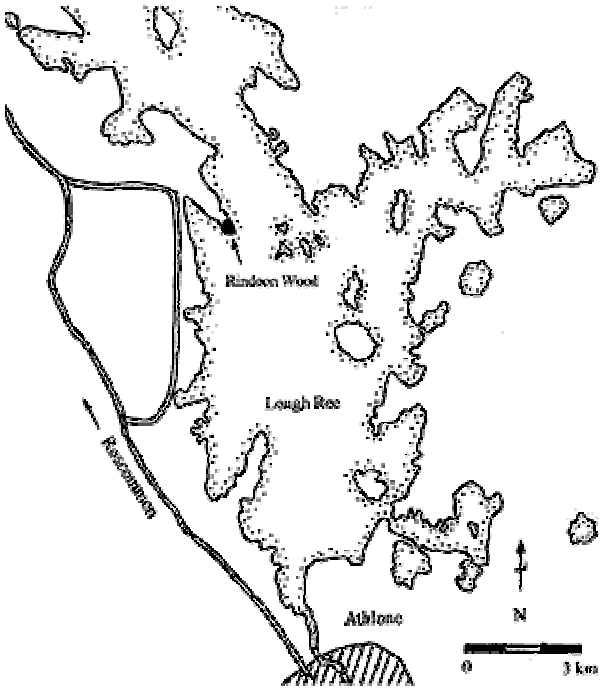

Fig. 16. Location of Rindoon wood.

Historical and recent evidence for woodland

McCracken (1971) states that there was a good deal of woodland in the past extending from Athlone to the Shannon's source, particularly in the land adjoining Loughs Ree and Allen. She states that "on the westward side of Lough Ree lay the Fews, which stretched westwards to the 500ft contour. Above this altitude the oak gave place to hazel scrub". County Roscommon had 6% cover of woodland during the Civil Survey of Ireland in 1654-6, second only to Co. Clare (7%) (ibid.). It would appear that the area around Lough Ree was historically a good locus for semi-natural native woodland. At present, however, only a few isolated remnants remain, most notably St John's Wood, Rindoon Wood and Hare Island, which lies in the southern part of Lough Ree (S. Heery, pers. comm.). It has been suggested by Rackham (1995), a noted British woodland expert, that the woodland at Rindoon and the closely associated St John's Wood, together constitute a particularly fine example of ancient woodland. He states that these are 'the best preserved ancient woods" that he has seen in Ireland. He noted the inclusion of these woods in the Civil Survey of 1656, suggesting a continuity of woodland cover at the site since that time. The proximity of the woodland to the Medieval town of Rindoon suggests that the woodland was actively managed in the Middle Ages and perhaps before this. The extent of the wood at Rindoon is shown on both the 1836 and 1898 Ordnance Survey maps (Fig 18) and from these it is seen that the extent of woodland cover did not change markedly during that time period. Furthermore, when the 1898 map is compared with the 1975 aerial photograph, little, if any change in woodland cover can be discerned. This suggests that from 1836 to 1975 the extent of woodland cover at Rindoon remained relatively unchanged. When the 1975 and 1995 aerial photographs are compared, however, it is seen that approximately 1.5 hectares of woodland/scrub along the north-western edge of the woodland have been reclaimed. Many of these trees have been incorporated into a large bank which runs in an east-west direction across the peninsula.
Thus, in conclusion, it can be stated conclusively that the woodland at Rindoon was already well established in 1836, which suggests that the woodland has been in existence for at least the last 200 years. For most of the intervening time woodland cover has remained constant and it is only within the last 20 years that substantial clearance of woodland has occurred.

Land use

Good quality agricultural grassland, which is presently grazed by both cattle and sheep, lies to the north-west of the wood while the remainder of the woodland is surrounded by open water (Fig 18). The woodland is currently being grazed by Mr. O'Grady's livestock and there is no stockproof boundary between the adjacent farmland and the woodland proper. Stephen Heery (pers. comm.) related that the main locus of woodland in the Lough Ree SAC is on the lake islands and that the only two good examples of intact woodland on the lake shore are St John's Wood and Rindoon Wood. At present the entire woodland area at Rindoon is in poor condition due to heavy grazing and trampling by cattle. The cattle appear to have unrestricted access to the woodland area and, as a result, tree regeneration is poor throughout with few seedlings or saplings noted

during the survey. The cattle disturbance may also account for the large numbers of ruderal species, e.g. Urtica dioica and Lapsana communis, present in the ground flora of Rindoon (see following section).

Vegetation of the woodland and associated habitats

Survey method

A field survey of the woodland at Rindoon was conducted in September 1997. The primary aim of the survey was to assess the ecological status of the site in terms of flora and habitat quality/diversity. A list of higher plants and cryptogams for the woodland proper is presented in Appendix 3. This list is by no means exhaustive and further survey at the site will invariably add to this list. Target notes were recorded in a variety of locations (see Appendix 4) in order to give an outline of the woodland and main associated habitats. Detailed descriptions (relevé's) of the woodland vegetation were made at three locations within Rindoon woodland and at one location in St John's Wood (Table 1). Vegetation was recorded using the Braun-Blanquet system of vegetation description and cover abundance estimated using the

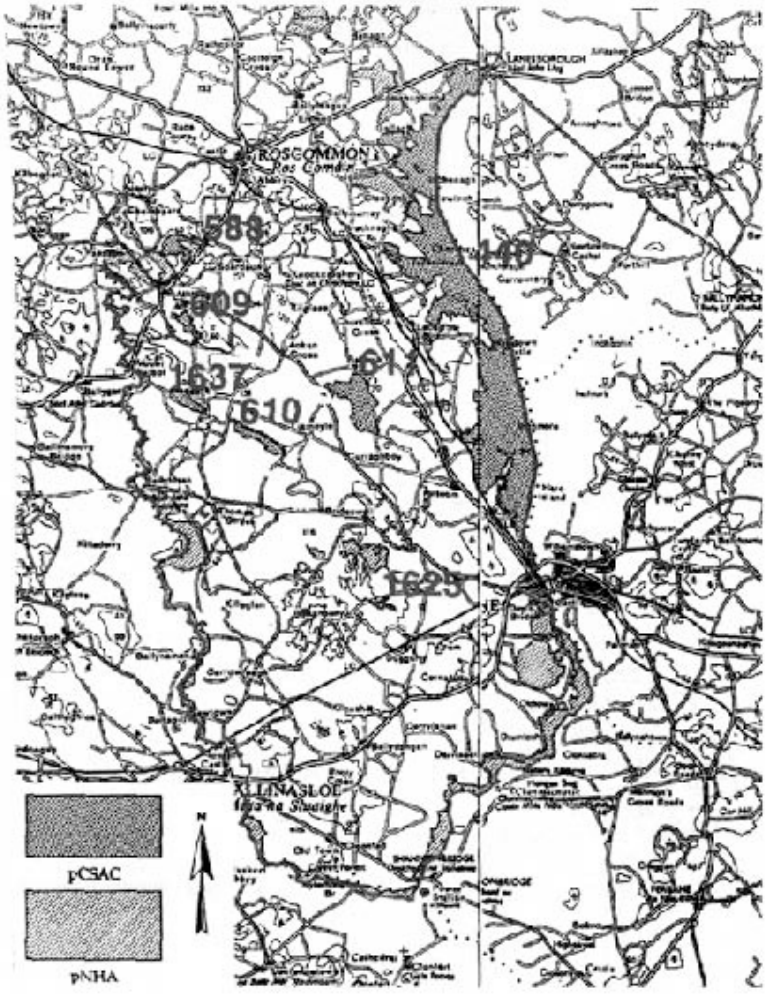

Fig. 17. Map of Lough Ree PSAC.

Domin scale (Mueller-Dombois and Ellenberg, 1974). The three Rindoon relevé's are very similar in structure and composition and it is felt that these samples gave a good representation of the woodland proper. In addition, nine relevé's (Cover/abundance values in these relevés is expressed using the Braun-Blanquet scale) from St. John's Wood, recorded in 1986 were kindly given to us by Dr Micheline Sheehy-Skeffington, University College Galway (Table 2).

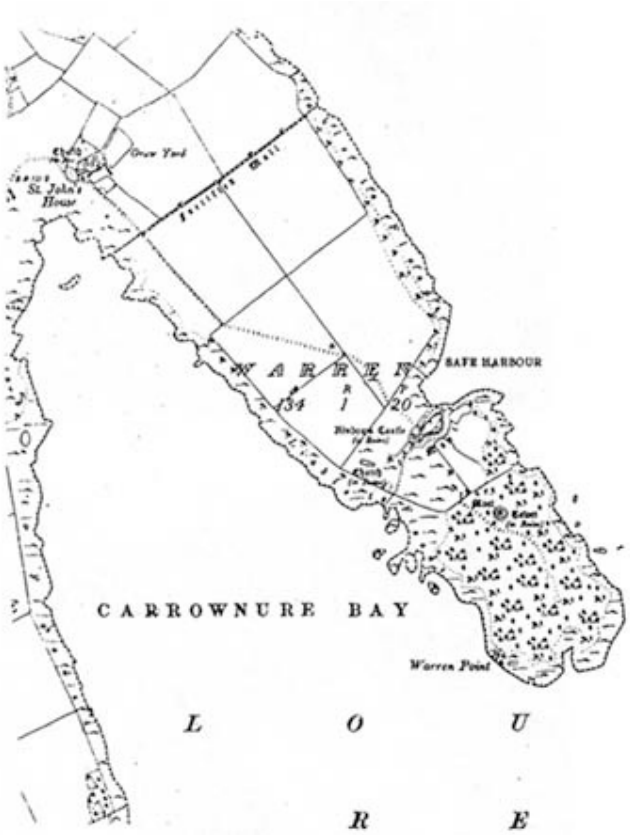

Fig. 18. The 1898 Ordnance Survey map of Rindoon Peninsula and wood.

A habitat map of the woodland and surrounding area was compiled with the aid of a recent aerial photograph acquired from the Ordnance Survey of Ireland (1995, 1:40,000) and the relevant 1898 Ordnance Survey. Ground photographs were taken at the time of survey.

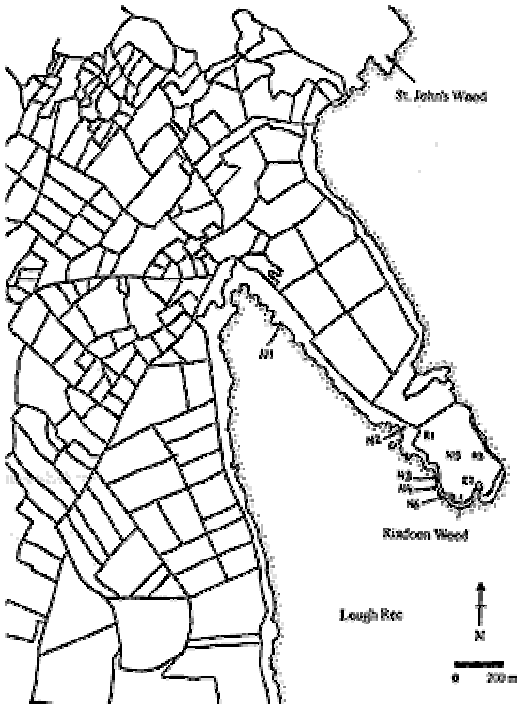

Fig. 19. Target note and relevé location map.

Vegetation description

The habitats present at the study area can be divided into three broad types. These are as follows. 1. Hazel woodland/scrub (in terms of surface area, by far the main habitat present). 2. Rocky lake shore (variants noted as one moves inland). 3. Aquatic communities (mostly emergent swamp vegetation).
Along the lake edge there is a rather abrupt and well defined zonation from open water with sparse aquatic vegetation dominated by Eleocharis palustris, to rocky shore, which supports a species-rich vegetation type dominated by Potentilla anserina, Agrostis stolonifera and Hydrocotyle vulgaris (See Target Note 1). There is then a gradual transition to dry grassland, low scrub woodland and finally to tall woodland. The wetland vegetation along the lake shore is of particular ecological interest due to its species-richness and the presence of Teucrium scordium, a nationally rare plant which in Ireland, which is virtually confined to the shores of Lough Ree and Lough Derg.
In general terms, the woodland can be described as a low-growing Corylus avellana (Hazel) wood which has no shrub layer and an open ground layer. Other tree species present include Fraxinus excelsior (Ash), Sorbus aucuparia; Quercus robur (English oak), Crataegus mongyna and Populus tremula, however with the exception of Fraxinus, these species are generally minor components of the canopy. The average height of the canopy varies between 8 and 15m, however, when present, individual trees of Fraxinus or Quercus may exceed 15m.
In terms of species composition, the associated ground flora is rather uniform throughout the woodland with herb cover ranging between 50 and 75%. The most frequent vascular species in the ground layer include: Hedera helix, Viola riviana; Sanicula europaea, Geum urbanum, Geranium robertianum, Rubus fruiticosus, Veronica chamaedrys; Lapsana communis, Oxalis acetosella, Circaea lutetiana and

Quadrat code	Rindoon I	Rindoon 2	Rindoon 3	Johns Wood I
Quadrat size (m)	10 x 10	10 x 10	10 x 10	10 x 10
Tree cover (%)	85	95	85	95
Tree height (m)	6 to 8	l2 to 15	10 to 18 (Av. 13)	8 to 10
Herb cover (%)	75	65	50	Jan-00
Herb height (cm)	c. 20	c. 25	c. 15	30
Bryophyte cover (%)	25	17	20	100
Bryophyte height (cm)	<5	<5	<5	10
Bare ground/litter	15	30	25	0
No. of species	25	23	24	14
Corylus avellana	9	8	8	9
Hedera helix	4	5	1	7
Thamnobryum alopecurum	5	5	4	
Geranium robertianum	5	5	4	
Oxalis acetosella	5	3	5	
Viola riviniana	4	5	4	
Veronica chamaedrys	4	3	5	
Geum urbanum	4	4	3	
Urtica dioica	4	4	1	
Lapsana communis	3	3	3	
Rubus fruticosus	3	1		6
Fragaria vesca	2		1	1
Fraxinus excelsior		6	7	4

Carex sylvatica		1	1	1
Sanicula europea	5	5		
Primula vulgaris	3	3		
Crataegus monogyna	1	3		
Taraxacum officinale	1	+		
Circaea lutetiana	3		4	
Plagiomnium affine			6	
Agrostis cap/I/ads		5	6	
Rumex sanguineus		5	2	
Hyacinthoides non-scripta		1	+	
Euonymous europaeus		1	3	6
Crataegus monogyna (seedlings)			1	4
Prunus spinosa	5			
Agrostis can/na	5			
Dactylis glomerata	3			
Tortula spp	3			
Orobanche hederae	2			
Fraxinus excelsior (seedlings)	1			
Torilis japonica	1			
Arum maculatum	1			
Populus tremula		3		
Stellaria media		1		
Eurhynchium striatum			3	
Brachythecium rutabulum			3	
Lysmachia nemorum			1	
Plagiochila asplenoides			1	
Rhytidiadelphus triquetrus				8
Dryopteris dilatata				4
Quercus robur				4
Thuidium				4

tamariscinum				
Dryopteris filix-mas				3
Lonicera periclymenum				1

Table1

Urtica dioica. Moss cover is low, covering on average c. 20% of the ground and species diversity is also low. The most commonly occurring species is Thamobryum alopecurum with Brachythecium rutabulum, Plagiomnium undulatum and Eurhynchium striatum occurring less frequently.

In terms of phytosociological affinities this vegetation is clearly ascribable to the Corylo-Fraxinetum, which is placed in the alliance Circaco. The association has been described fully from Ireland by Kelly and Kirby (1982) and they divided the association into 3 floristically distinct sub-associations, the typicum, the neckereto sum and the veronicetosum. On the basis of structure and floristic composition it is clear that the woodland at Rindoon is most similar to the typicum sub-association which is the most species-poor of the three sub-associations. When comparison are made with the recently described National Vegetation Classification system in Britain (Rodwell, 1991) it is seen that the woodland has a relatively close affinity with the typical sub-community of the Fraxinus excelsior-Sorbus aucuparia Mercurualis perennis community (W9).

Comparisons with St. John's Wood

For comparative purposes, St. John's wood (which is also part of the Lough Ree SAC and is located some 3 km to the north of Rindoon) was also visited. A 10 x 10m relevé was described just off the main woodland path in the northern part of the

Quadrat code	1	2	3	4	5	6	1	8	9
Quadrat size (m)	l0x10	l0x10	l0x10	l0x10	l0x10	l0x10	l0x10	l0x10	l0x10
No of species	23	15	21	30	18	18	18	13	9
Canopy species									
Quercus robur	2	3	1	1	2	3	2	2	*
Fraxinus excelsior	*	*		2	2	1	2		*
Betula pubescens		*			*	2			*
Ulmus glabra							1		
Frangula alnus									4
Shrub species									
Viburnum opulus			*	*	1	1			*
Coryllus avellana	2	2	4	3	*	1	1	2	
Ilex aquifolium	2	2	*	3	1		3	3	
Sorbus aucuparia	*	1	*	*	*	1		2	
Crataegus monogyna		1	2	1		1		1	
Prunus spinosa	*		*			*			
Prunus padus				*	2	3			1
Euonymus europaeus		*	*	1					*
Salix atrocinerea					2				
Rhamnus						1			

cathartica									
Ground species									
Hedera helix	1	3	2	2	2	*	3	2	
Lonicera pericylmenum	1		1	*	1	*	1		
Rubus fruticosus agg.	3		2	1	2	*	1		
Rosa spp.				*					
Rubus saxatile	1					1			
Fern species									
Dryopteris filix-mas	1			*					
Dryopteris diltata	1		1	1	1		*		
Dryopteris carthusiana	*			*	*		*	3	
Athyrium filix-femina	*			1					
Dryopteris aemula	*			*	*				
Polystichum setiferum			1						
Dryopteris pseudomas		*	*				1		
Other herbs									
Ajuga reptans	1								
Carex sylvatica	*		*	1			1		
Fragaria vesca	*	*		1	1	1			
Arum maculatum		*	*	1			*		
Orchis mascula	*			*			1		
Viola spp.				*		2			
Allium ursinum				1					
Luzula sylvatica				*			*	4	
Succisa pratensis									1
Oxalis acetosella		*						*	
Brachypodium sylvatica						*			
Moss species									
Rhytidiadelphus triquetrus	2		2	3	1	4	2		3
Thamnobryum alopecurum	1	1	2	1			2	1	
Thuidium tamariscinum	3		2	2			2	1	

Eurhynchium praelongum	*	2	1						
Mnium hornum					*				
Plagochila asplenoides	1			1				1	
Polytrichum spp.								1	
Lophocolea cuspidatum				*					
* = <1% cover/a									

Table 2

woodland (see column 4 of Table 1). This relevé is augmented by data recorded in 1986 by Dr Micheline Sheehy-Skeffington (Table 2). St John's Wood has long been recognised as being of considerable scientific importance and Rindoon should be viewed as an extension of this larger woodland area. Prior to the designation of Natural Heritage Areas (NHAs) and Special Areas of Conservation (SACs), St John's Wood was deemed to be an Area of Scientific Interest (ASI) of International Importance (the only one in Co. Roscommon). The largest trees in the woodland are Quercus robur (English Oak), recently felled examples of which, have been dated to 1895-1930 (Daniel Kelly, pers. comm.). The canopy of the woodland consists mostly of Corylus avellana (Hazel), interspersed with Fraxinus excelsior (Ash), Salix spp. (Willows) and numerous other indigenous species including Taxus baccata (Yew). The ground flora includes two rare saprophytes, Lathraea squamaria (Toothwort) and Neottia nidus-avis (Bird's-nest Orchid), which are thought to be indicators of ancient woodland (Rackham, 1980). Close to the shores of Lough Ree there is an interesting area of fen woodland which contains the trees/shrubs Frangula alnus (Alder Buckthorn), Rhamnus cathartica (Buckthorn) and Prunus padus (Bird Cherry) (see columns 7-9, Table 2). Both Frangula alnus and Prunus padus are protected under the 1987 Flora Protection Order (Curtis and McGough, 1988)
At St. John's Wood the average number of species in a 10 x 10 relevé was only 14 compared to an average of 24 at Rindoon (in the 1997 quadrats). Although only one relevé was recorded in St. John's Wood during the present survey, it is considered to be reasonably representative of the woodland vegetation present. The observed reduction in species number at St. John's Wood is probably due to the current low levels of grazing within the woodland. This low grazing pressure has allowed a thick moss carpet to develop and, as a result, vascular species find it difficult to germinate and grow. In the dry St. John's Wood quadrats (relevé's 1-6) recorded in 1986, however, the average number of species per relevé is 20.
From these findings it appears that both Rindoon and St John's Wood are being improperly managed. Rindoon is being overgrazed at present, resulting in a poor understorey development and poor tree regeneration. On the other hand, St John's Wood is largely ungrazed and, as a result, the diversity and abundance of certain plant species appears to have diminished between 1986 and 1997, although further research is needed in this area.

Assessment of SAC suitability

Background

As Rindoon wood has been designated part of a larger SAC, Article 6.1 of the Habitats Directive requires that "member states shall establish the necessary conservation measures involving, if needs be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative and contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites". In part fulfilment of this directive, a management plan for all of the Lough Ree SAC has been compiled by the National Parks and Wildlife Service (NPWS). In this plan mention was made of the retention of woodland habitats within the site, but it was felt that a separate management plant is required for the appropriate management of each individual woodland area. To this end, the Heritage Council commissioned a report on the SAC status of Rindoon woodland, incorporating possible management options.

Site Quality

The intrinsic qualities of the site and its ecological value in terms of botanical diversity and other criteria have been assessed under the following criteria:

Naturalness, size and diversity of habitat

In common with most semi-natural woodland sites in Ireland, Rindoon Wood has been modified by grazing in the past and would not be considered as a wholly natural site. It must be noted, however, that lack of large-

scale disturbance at some stage in the past is very rare in woodlands in western Europe (Fuller and Peterken, 1995). At present the woodland does not appear to have a particularly high species diversity in terms of its woodland flora but the site has the potential to recover upon the implementation of a sensitive woodland management plan. In a regional and national sense, Rindoon woodland is one of the few woodlands for which there is long-term documentary evidence and for this reason alone the woodland must be deemed to be of considerable importance. The site (c. 12 ha) is small in size, however areas of semi-natural woodland in excess of 12 hectares are relatively rare in the Irish midlands. Overall, there is a moderate habitat diversity at the site, vis-à-vis the size of the site. Three broad habitat types are identified, as discussed in the previous section. The transitions/zonations from wetland to woodland vegetation are of particular interest.

Presence of rare species

The only nationally rare plant species encountered during survey was Teucrium scordium. However, the survey was conducted in September and there is a possibility that some of the plant species had died back at that stage. A survey of the woodland during the months of June or July is recommended. It must also be pointed out that the heavy grazing at the site mitigates against the development of a varied and species-rich woodland ground flora. It is possible that future reduction of grazing pressure at the site may lead to the eventual recruitment of rare/protected species, e.g. Lathraea squamaria, Neottia nidus-avis, Frangula alnus and Prunus padus, from the nearby St John's Wood.

Habitat rarity

Due mainly to agricultural reclamation, this woodland habitat is becoming increasingly less common in an area that would have had a good woodland cover in the past. Outside of the Burren region of Co. Clare and parts of the west midlands, intact examples of this habitat are relatively rare in Ireland (Kelly and Kirby, 1982).

Proximity to other sites of interest

Rindoon Wood is situated on the shores of Lough Ree which contains a number of important habitats listed as worthy of conservation by the European Union, namely Natural Eutrophic Lakes, Alkaline Fens, Old Oak Woodlands, Orchid-Rich Calcareous Grasslands and Residual Alluvial Forests. As previously discussed, St John's Wood is situated close to Rindoon and it is possible that these isolated woodland fragments were part of a larger woodland complex in the past.

Sensitivity to disturbance and vulnerability

All woodlands are sensitive to disturbance, particularly when activities severely alter the structure and composition of the ground flora and shrub layer. At Rindoon, the structure of the woodland proper has been severely damaged recently by heavy grazing throughout the site. However, the woodland has the potential to recover, as the canopy is still relatively intact and it is likely that the seed bank of woodland species is still present.

Educational, amenity and scenic value

This site and it environs are relatively easy to access and thus the complex is of high educational value, especially in terms of ecological and archaeological interest. At present the archaeological remains on the peninsula are visited by people, although visitors of this nature are trespassing. The setting of the site, at the end of a peninsula which juts into Lough Ree, is exceptional.

Management Recommendations

Background

In the previous section, it was established that the site should be retained as part of the Lough Ree SAC because of its status as an ancient woodland. The woodland is currently being quite heavily grazed, however, and the understorey is in poor condition. If the woodland is to recover, strict management guidelines will have to be adhered to.

Objectives of management

The following objectives are deemed to be achievable: to protect the site from further damage; to allow regeneration of the woodland flora through appropriate management strategies; to liaise and co-operate with the landowner in gaining an appreciation of the importance of the woodland; to monitor the recovery of the woodland in the short, medium and long term, and to provide for the acceptable use of the site (education,

research, demonstration etc.). There are some constraints to the achievement of these aspirations. The major obstacle is that the site is not state owned/managed and therefore it is less easy to implement the desired management strategies. A mitigating factor, however, is the designation of the site as an SAC and therefore the landowner is obliged to manage the site in an environmentally friendly manner. Compensation for any potential loss of income will be provided, either through the Rural Environmental Protection Scheme (REPS) or as a separate SAC payment (see 5.4)

Management strategies

The management of the site is now outlined in relation to the objectives mentioned above:
(1) Protection of the site from further damage.

- Exclude all domesticated grazing animals from the woodland for a period of five years.
- Do not allow the removal of scrub or woodland for agricultural purposes.
- No felling of trees.

(2) Regeneration of the woodland flora.

- Grazing may be permissible at low stocking intensities after an initial five year recovery period, provided there is a significant improvement in cover and diversity of the woodland flora.
- Only limited activity and access should be permitted in the woodland proper to prevent disturbance.

(3) To liaise and co-operate with the landowner and the community in gaining an appreciation of the importance of the woodland.

- Information should be given to the landowner explaining the ecological importance of the site and his role in managing it. The landowner should be included in the management planning process.
- Participation by the farmer in the Rural Environmental Protection Scheme (REPS) should be encouraged.
- Talks should be held with relevant interested parties and groups, giving them more detailed information on management and obtaining their support.

(4) To monitor the recovery of the woodland in the short, medium and long term.

- Regular field checks should be carried out to monitor woodland recovery, change in botanical composition and the impacts of the management programme. The management regime will need to be revised at some stage based on observations of initial woodland recovery.

(5) To provide for acceptable use of the site (education, research, demonstration etc.).

- If the woodland recovers sufficiently, then the site would be a valuable resource in terms of education and research. The site provides a locus for a variety of interests; ecological, historical and archaeological, and would be a useful study site for third level students. The implementation of a management regime would provide a useful focal point for discussion on the restoration of a site of conservation interest.

Discussion

The major management issue here is the use of the woodland for grazing and shelter by the landowner. Heavy grazing is, without doubt, having a detrimental effect on the habitat structure and botanical diversity of the woodland. Below the canopy, the characteristic woodland stratification of shrub and ground layers are no longer evident. Visible signs of heavy grazing and poaching are visible throughout the woodland at present. In view of this damage it is imperative that some management priorities should be established and a woodland management plan adhered to.
The main priorities for the management of this woodland are as follows.

1. The removal of grazing pressure for at least five years or until the vegetation recovers.
2. Full liaison with the owner.
3. A review of the progress of the management regime after two years to reassess the progress.

The primary and initial concern is to address the serious grazing problem that exists in the woodland. To this end, the woodland should be fenced off to exclude grazing animals for a period of at least five years. The woodland will undoubtedly recover in time and management techniques can be applied to control the

encroachment of exotic species such as beech and sycamore. A programme of coppicing would not be advisable at this stage as it would be quite labour intensive. There is already a high cover of hazel at the site and coppicing may lead to an increase in hazel cover at the expense of other species. The farmer presumably values the woodland not only as a source of grazing for his stock but also as shelter for his cattle. It may be possible to allow cattle into a narrow band of woodland close to the agricultural ground along the northern margin of the wood for shelter over the initial five years. After an initial two year period, the condition of the woodland should be re-assessed and vegetation recovery evaluated and reviewed. It may be desirable at some stage in the future to allow light stocking to take place in the woodland, under a controlled and monitored system of management. The farmer, however, will be obliged to control the timing and extent of any future stocking of the woodland because of the woodlands SAC status. In addition, any further clearance of woodland or scrub would not be permitted.

Initial impressions would suggest that the farmer should consider entering the Rural Environmental Protection Scheme (REPS) and benefit from the NHA and SAC payments that are available to manage these high priority conservation sites. The basic REPS payment is £50/acre, with an additional top up of £12/acre for NHA land, up to a ceiling of 100 acres. An additional £15/acre is paid on SAC land. The farmer, therefore, would qualify for £77/acre on and up to 100 acres if he entered REPS. He would also be obliged to adopt a grassland management plan, a watercourse protection plan, a farm and field boundary maintenance plan, a plan to retain archaeological and historical features on the farm and, importantly for this site, a plan for the retention of wildlife habitats. The major area of concern for many farmers entering REPS is Measure 1, i.e. the waste management, liming and fertilisation section of the plan. The control of farmyard pollution may require a significant capital outlay on items such as slatted houses, effluent tanks and adequate housing. Assuming that pollution in the farmyard is already under control and that the farmer is not overstocking the rest of his land, he should have no problem entering the REP scheme. Under Measure 4, however, the farmer would be obliged to manage any habitats on his farm in accordance with NPWS specifications (see list of notifiable operations for woodlands and scrub in Appendix 5). The current management of the woodland is not in compliance with REPS specifications and the farmer would have to adopt a management plan similar to that suggested above in order to participate.

If the farmer does not wish to enter REPS, he can still get an SAC payment but he would be obliged to have a management plan drawn up for his SAC lands by NPWS staff. This would include all of the woodland and the lake shore around the peninsula. Again, the priority here would be to improve the condition of the woodland. It is suggested that, irrespective of which option the farmer takes, he will be obliged to manage the woodland in a sensitive and environmentally friendly way in the future

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2.7. Analysis and synthesis

Aesthetic significance

Rindoon and its setting in Lough Ree are of high aesthetic significance.

Natural significance

Rindoon wood is a relatively rare example of semi-natural woodland.

Architectural significance

The castle and town wall are of high architectural significance.

Archaeological value

Rindoon was the site of an important frontier garrison and town from early in the thirteenth-century. Its decline and desertion after the fourteenth-century mark it out as a highly significant site, as it has not suffered later urban disturbance.

Integrity of the place

Rindoon has not been developed in the way that other Medieval settlements have and therefore its integrity is still very high.

Scientific value

The lack of later settlement means that the potential of the site to reveal important information on town life in the Medieval period in Ireland is very high. The potential data regarding historical forest management is also very high.

Social value

The site has the potential to be of high social value to the local community.

Missing evidence

Some elements of the heritage of Rindoon remain unquantified. These include a full inventory of the site fauna with emphasis on the invertebrates, analysis of pollen samples to establish the age and development of the woodland and local settlement, and a study of the Viking heritage of Rindoon. However, at this stage, there is enough evidence to assess the significance of the site.

2.8 Assessment of the level of significance

In comparison to other Irish Medieval town sites Rindoon is of high significance because it has not been disturbed by later development, is relatively well preserved and preserves its landscape integrity. In natural terms it is important as it is one of the few identified semi-natural woodlands surviving in Ireland.

2.9 Statement of significance

Rindoon is of high cultural and natural significance as it is a largely undisturbed Medieval settlement which preserve its landscape integrity, and is of high aesthetic, architectural, historic, scientific and social value. Its architecture is highly significant. It is significant in the hidtory of Medieval Ireland. It is of high scientific value, archaeologically, historically and naturally. It also possesses one of the few surviving semi-natural woodlands in Ireland.

3. Statement of other values in the management area, and of how the heritage value ranks with them

Rindoon is currently in use as a farm, but its heritage value rates equally or more highly with this use

4. Statement of other requirements, opportunities and constraints placed upon the management of the heritage place.

Rindoon has the potential to be a well managed cultural and natural heritage place as well as a working farm, if it is managed effectively.

5. Formulation of a management plan

The assessments carried out at Rindoon have revealed extensive use of the site and its harbour over a period of more than 700 years. All the areas examined through geophysics have produced extensive and often overlapping magnetic and resistance anomalies. Some of these, especially those to the east of the main street through the town, appear to indicate a system of fields, running at right angles off the road. To the east of the road the anomalies indicate a confusion of partly preserved structures. This mass of somewhat incoherent deposits and the large number of dipolar anomalies, areas of intense burning, may be explained by the history of the town, which was attacked and burned on several occasions with subsequent rebuilding. The geophysics has most likely found evidence of numerous wooden structures which, rather than being allowed to decay and been rebuilt, have been periodically burnt, pulled down, dumped and then rebuilt. What remains are the signatures of intense burning, possible foundation trenches, hearths and kilns as well as roadways and field boundaries. Some limited archaeological testing might be carried out to allow more precise identification of the archaeological features present. It will require careful excavation to disentangle the many sequences of building. However, there is enough information to confirm that the interior of the site was extensively occupied

and any ground disturbance in the future must be archaeologically examined in advance. The construction of sheds for livestock, for example, would cause unacceptable damage to this evidence.
The harbour at Rindown, together with the foreshore at Clonmacnoise, have the capability of providing extremely valuable information regarding the Early Christian and Medieval exploitation of the Shannon waterway. Rindoon preserves not only quays but may have ships timbers, portions of wooden quaysides, equipment, artifacts and portions of lost cargoes preserved in the base of the harbour under a layer of silt. A small scale investigation of the material below this layer should be made to ascertain the nature and extent of the underwater archaeological deposits. The surviving structures in the harbour are very rare in Ireland. Until they have been thoroughly recorded and conserved, access to the harbour should be restricted.
The architectural report indicates that the standing remains are in a variable condition with some poor and worsening sections that require remedial measures with some urgency for the heads and bases of the walls. This will require the removal of plant growths. However, as the mortar has survived very well in some places only parts of the structure require attention. As a next step a careful architectural examination of the standing remains, involving plant removal and scaffolding construction, should be made with a view to surveying the quantities of materials and attendant costs of the conservation of the fabric of the structures.
The woodland has been damaged by heavy grazing and trampling by livestock, which has resulted in very low numbers of seedlings and saplings leading to poor tree regeneration. Presumably the substantial north-east to south-west bank which separates the wood from the grassland was originally intended to keep livestock out of the woodland. This could be reinstated as a method of stock control. While the Rindoon woodland is relatively species poor with only 24 species in comparison to the typicum sub-association of Corylo-Fraxinetum, it is species-rich in comparison to St. John's Wood with only 14 species, which has resulted from very low levels of stock grazing. Therefore an optimum grazing system will have to developed with the landowner for Rindoon wood.
Rindoon is a rural site, with no current residents, owned by a single individual and presents a different set of problems to a multi-owner landscape or a community townscape. The management of the site through agreement with the landowner and the statutory bodies would appear to be the most appropriate method.

6. Management strategy and implementation

Any future management plans, agreements or activities at Rindoon should comply with the following recommendations.
1. The site at Rindoon is an almost unique undeveloped Medieval town and associated environments, it should remain this way.
2. The peninsula is now a private farm and any attempt to change the landuse or develop the site commercially should be discouraged.
3. Any farming developments which would threaten archaeology, such as the construction of livestock sheds, should be discouraged.
4. Any attempts to introduce large scale ground penetrating fencing in the area of the town should be avoided as this will affect archaeological deposits. However, the existing system of land boundaries could be easily reinstated for livestock control.
5. The harbour is a uniquely preserved monument and any use which damages it should be discouraged. As an aid in its management the visible remains should be carefully recorded and some limited excavation of the harbour should be made to ascertain the nature and extent of deposits.
6. Currently unsupervised boats are mooring in the harbour and landing on private property without permission. They are building fires on the shore and climbing the walls of the castle which are dangerous. In the interest of public safety, the landowner and the archaeology boaters should be discouraged by the Shannon authorities from using anchors in the vicinity of the harbour and landing in the harbour. In the future an alternative landing site should be located.
7. The standing architectural remains including the castle, parish church and town walls require considerable conservation works to a) prevent members of the public from being injured; b) to prevent further deterioration and c) to present them in the best light. The important issue is the ownership of the structures. The National Monuments Service are barred from carrying out works on monuments which are not in their care. The ownership of the monuments by a single individual opens the possibility that, if funds were to be invested in the conservation works, the monuments could be sold to a third party by the current owner or his heirs. There is currently no identified local community group or charitable group who possess the requisite organisation and expertise to manage these moments, therefore the National Monuments Service, acting for the state and holding the property in trust for the whole community, would appear to be the best agency to see to the safety of these structures. It is recommended that the National Monuments Service would come to an agreement with the landowner that would leave him able to farm as before but would remove the responsibility for the upstanding monuments from him.
8. To allow an enhanced analysis of the results of the geophysical survey, a complete topographical survey and some limited archaeological testing of the anomalies should be initiated.
9. Assessments of the woodlands at Rindoon should be carried out in other seasons besides autumn to ascertain what other species are present, if any.
10. A careful architectural examination of the standing remains, involving plant removal and scaffolding construction, should be made with a view to surveying the quantities of materials and attendant costs of the conservation of the fabric of the structures.

The management strategy for Rindoon has six objectives

1. To allow the landowner to farm in as an effective manner as he can.

- The interests of the landowner must always considered and no proposal should be made that would in any way deprive him of his right to make a living from his farm. A farm plan should be developed which will establish the optimum stocking rate which will allow the landowner to comply with environmental directives while maintaining his standard of living.

2. To protect Rindoon wood from damage and allow regeneration.

- All domesticated grazing animals should be excluded from the woodland for five years. This could be accomplished by reinstating the substantial northeast to south-west running bank which separates the wood from the rest of the farm.
- No removal of scrub or woodland should be carried out
- No tress should be felled. During this time a woodland management strategy involving grazing and other management techniques should be developed with the landowner.

3. To protect the archaeology of Rindoon from deterioration and allow its conservation.

- The standing archaeological remains and the harbour and a suitable access should be, through agreement with the landowner, taken into care by the State and a programme of conservation commenced. The earthworks which have been damaged or are eroding should be stabilized and mainteained.

4. To liaise and co-operate with the landowner in gaining an appreciation of the environmental, historical and archaeological importance of Rindown.

- The landowner should be fully briefed with information of the site and his role in managing it should be emphasised.
- The landowner should be include in the management planning process.

5. To monitor the recovery of the woodland and the conservation of the archaeology in the short, medium and long term.

- A management team should be organised consisting of the landowner, a botanist, archaeologist, architect, area wildlife ranger and Teagasc Officer and a representataive of the Heritage Council and the National Monuments and Historic Properties Service. This group should meet at regular intervals to monitor and assess progress and decide on any revisions required to the management plan.

6. To provide for the future acceptable and safe use of Rindoon by the general public.

- Once the management team decides it is appropriate controlled access to Rindoon may be allowed to educational and leisure groups, etc.

ABBREVIATIONS

A. Conn - Annals of Connacht. Ed. A. martin Freeman. Dublin 1944.
AFM - Annals of the Four Masters. (Ed) J. O'Donovan, 7 Vols. Dublin 1851.
ALC - Annals of Loch Ce. Ed. W.M. Hennessy. 2 Vols. London 1871.
AU - Annals of Ulster. (ed) W.M. Hennessy and B. McCarthy. 4 Vols. Dublin 1887-1901.
Cal Carew Mss - Calendar of the Carew Manuscripts. 6 Vols.. London, 1867- 73.
RDKPRI - Report of the Deputy Keeper of Public Records, Ireland.

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Appendices

Appendix 1

The magnetometer technique

Geomagnetic survey methods respond to subsurface materials and features, both natural and artificial, that possess magnetic characteristics which contrast significantly from the surrounding background. Differing soils and rocks possess varying amounts of magnetism or acquire magnetic characteristics in the presence of the Earth's magnetic field. Igneous rocks such as basalt, for example, are particularly magnetic due to the amount of magnetic minerals composing them. On the other hand limestone is almost non-magnetic as it rarely has magnetic minerals in its composition. Archaeological features may also possess magnetic characteristics either by being composed of naturally magnetic materials or by acquiring an artificial magnetic signature through the processes of heating and intensive cooling (e.g. kiln, furnace or hearth). This is known as remnant magnetism. Such features close to the surface can produce localised anomalies in the Earth's magnetic field, by either adding to or subtracting from it. These localised anomalies can be detected by a magnetometer. In Ireland the natural background magnetic field is in the order of 48,000 nanoTesla (nT), which varies over time and space. Archaeological anomalies typically range from a few nanoTesla to tens of nanoTesla and thus require very high resolution equipment for their detection.
Two types of magnetometer are commonly used in an archaeological context. The proton magnetometer is a high precision instrument but relatively slow to operate. For this reason it has been largely superseded for large-scale intensive surveys by the a fluxgate gradiometer which registers a continuous reading and when combined with a datalogger is a very rapid technique. The fluxgate gradiometer, however, requires careful 'balancing' to maintain the mutual alignment of the two sensors thus cancelling the effects of directional sensitivity. This balancing process requires a lot of patience and skill and is a vital part of all surveys as incorrect balancing can result in poor quality data.
The Geoscan FM36 Fluxgate gradiometer is used by OeoArc Ltd. and this is the most commonly used gradiometer for archaeological surveys. This gradiometer has a built in datalogger and is light and easily portable. Its' sensors are mounted 0.Sm apart and these measure the vertical gradient of the Earth's magnetic field.
Magnetic gradiometry surveys are most effective at detecting the following archaeological features:
(1)Furnaces, Hearths Kilns
(2)Middens
(3)Pits
(4)Ridge and furrow
(5)Barrows
(6)Fulachta Fia
(7)Earthen Enclosure
(8)Palisade

The resistivity technique

Resistivity relies on the fact that many subsurface features, including buried archaeological remains, have differing electrical properties which contrast sufficiently from their background surroundings in order for them

to be detected and mapped. Features such as pits, drains, foundation trenches, and masonry walls may be detected by virtue of the fact that the archaeological deposits composing them contain differing amounts of slightly conductive ground water.
Resistivity is defined as the resistance between the faces of a unit cube of the material (based on Ohm's Law R -- V/i where R is resistance, V is potential difference and I is current). Four ground contacting electrodes are required to measure resistivity of the immediate area, two to pass a current through the ground (usually in the order of I milliamps) and two to sample the potential induced by this current. The ground contacting electrodes can be configured spatially in a variety of ways called an array. Each array layout will sample resistivity in differing ways i.e. some arrays optimise the detection of lateral shallow features whilst some arrays are designed to detect features at depth. However, there is no one array which combines all the ideal requirements of speed, sensitivity, depth penetration and resolution. A compromise in terms of choice of array, spacing between electrodes and spacing of stations (sample interval) is required based on a knowledge of a particular monument, the estimated depth and the scale and dimensions of the buried features.
The most commonly used array in an archaeological context is the twin pole array and to a lesser extent the Winner array. More recently the square 4 array has been applied to archaeological investigation and this is the instrument employed by GeoArc Ltd in resistivity surveys for archaeological applications. Resistivity surveys are most effective in detecting the following archaeological features: Masonry Foundations; brick Foundations; paving/floors; buried megaliths; cavities e.g. stone lined drains and middens. Resistivity surveys are also effective at detecting the following archaeological sites: barrows; ring ditches; mounds; fulacht Fia; cashels and earthen enclosures.

Appendix 2

Data processing functions

The descriptions below are courtesy of InSite User's Guide, Version 1.1.

Show

Definition: displays an image of the data in each grid in accordance with the active palette, contrast and zoom value.
Method: Subtracts the mean value of the grid from each measurement to convert the grid to an array of positive and negative anomalies. Applied to both data sets.

Deblank

Definition: Fills isolated blank data cells with a suitable approximation.
Method: Finds blank data cells that are bounded by 5 or more points containing valid data. Such cells are filled with the mean of these bounding data. Applied to both data sets.

Despike

Definition: Replaces isolated, anomalously high or low values with a suitable approximation.
method: Finds each data cell where [the cell is bounded on 5 or more sided with valid data and [the data cell differs from the mean of adjoining cells by > THRESHOLD*] All such cells are overwritten with the mean of these adjoining cells.
THRESHOLD*: The difference above which the value is identified as a spike. Applied to both data sets.

Dedrift

Definition: Corrects for a linear drift in meter calibration with time.
Method: Uses least-squares regression on the mean of data along each traverse to estimate the change in calibration level C across the grid. The gradient is then removed from the grid data. Applied to the gradiometry data set.

Merge

Definition: Combines grids to form an array of regularly-spaced data on a square mesh.
Method: Uses bilinear interpolation to: first interpolate the data within each grid to a square mesh with cells of size S; then interpolate the regions between the grids. Applied to both data sets.

Appendix 3

List of plant species recorded within Rindoon Woodland

Canopy species
Fraxinus excelsior; Populus tremula; Quercus robur
Low Canopy/Shrub species
Acer pseudoplatanus; Alnus glutinosa; Betula pubescens; Corylus avellana; Crataegus monogyna; Euonymus europaeus; Prunus spinosa; Rhamnus catharticus; Salix cinerea; Viburnum opulus
Grass species
Agrostis capillaris; Agrostis canina; Dactylis glomerata
Sedge species
Carex sylvatica
Ground species
Hedera helix; Lonicera periclymenum; Rubusftuticosus agg.
Pteridophyta (Ferns)
Divopteris dilitata; Dryoptensfilix-mas
Understorey herbs
Arum maculatum; Cfrcaea lutetiana; Fragaria vesca; Geranium robertianum; t-(Geum urbanum; Hyacinthoides non-scripta; Lapsana communis; Lysimachia nemorum; Orobanche hederae; Oxalis acetosella; Primula vulgaris; Rumex sanguineus; Sanicula europea; Stellaria media; Taraxacum qificinale; Torilisjaponica; Urtica dioica; Viola riviniana; Veronica chamaedrys; Vicia sepium; Giechoma hederacea
Mosses and Liverworts
Brachythecium rutabulum; Eurhynchium praelongum; Eurynchium striatum; Plagiochila asplenoides; Plagiomnium undulatum; Rhytidiadeiphus fri quetrus; Thamnobryum alopecurum; Ihuidium tamariscinum; Tortula spp.

Appendix 4

Ecological target notes. For locations see Figure 6.

N1

The rocky lake shore at this point along the lake edge contains a well developed flora which is dominated by Mentha aquatica, Littorella uniflora and Potentilla anserina (see P7). Other common species include Hyarocotyle vulgaris, Agrostis stolonifera, Ranunculus flammula, Juncus articulatus, Achillea ptarmica, Senecio aquaticus, Carex demissa, Leucanthemum vulgare, Teucrium scorodonia, Carex nigra, Leontodon autumnalis, Lythium salicaria, Rumex crispus, Equisetum palustre, Polygonum maculosa, Filipendula ulmaria and Linum catharticum. The prominent black moss Cinclidotus fontinaloides covers boulders in the flood zone of the lake edge (see P6). The shallow water along the edge of the lake is dominated by patches of low-growing Eleocharis palustris swamp. There are few associated species apart from Mentha aquatica, Scfrpus lacustris and Juncus articulatus.

N2

The dry, semi-natural grassland in from the lake edge is dominated by the grasses Cynosurus cristatus and Agrostis capillaris with Thifolium repens also abundant. Other common grassland species include Luzula campesiris, Achillea millefohum, Plantago lanceolata, Briza media, Cardamine pratensis; Ranunculus acris, Cynosurus cristatus, Cerastiumfontanum, Galium yerum, Hieracium pilosella, Lotus corniculatus, Holcus lanatus, Bellis perennis, Lolium perenne, Centaurea nigra, Prunella vulgaris, Trifolium pratense and Rumex acetosa.

N3

Between the lake shore and the closed woodland, there is a narrow (3 to 5m) zone of species-rich scrub woodland (Plate 19). The most frequent tree species include Corylus avellana, Crataegus mongyna, Populus tremula, Viburnum opulus and Sorbus aucuparia. Other common vascular species include Ilex aquifolium, Rosa pimpinelhfolia, Lonicera periclymenum, Galium verum, Fragaria vesca, Carex flacca, Geranium robertianum, Dactylis glomerata, Brachypodium sylvaticum, Sanicula europea, Achillea millefolium, Solidago virgaurea, Hedera helix, Primula vulgaris, Hypochoeris radicata, Arum maculatum, Campanula rotundifolia, Plantago lam_lanceoalata, Holcus lanatus, Thvmus praecox and Festuca rubra. Common bryophytes include Thuidiumtamariscinum, Ri~yUdiadelphus triquetrus, R. squarrosus and Dicranum scoparium

N4

The vegetation along this stretch of the lake edge is very similar to that outlined in Ni Additional species noted include Gahum boreale, Vicia cracca, Eupatorium cannabinum and Phalaris arundinacea.

N5

The woodland on the peninsula is dominated by Corylus avellana, the canopy of which varies between 5 and 10 metres in height (Plates 10 to 13). Other tree species are rare, however there is some occasional Crataegus monogyna, Fraxinus excelsior, Populus tremula and Quercus robur. The understorey is somewhat open as a result of disturbance by cattle trampling and grazing. Weedy species are prominent in the understorey. Common species include Hedera helix, Primula vulgaris, Samcula europea, Geum urbanum, Dacylis glomerata, Taraxacum officinale, Rubus~fruticosus, Veronica chamaedrys, Urtica dioica, Lapsana communis, Oxalis acetosella, Arum maculatum, Circaea lutetiana, Torilis japonica and Orobanche heoerae. The cover and diversity of moss species is low for woodland. The most common species is Thamnobiyum alopecurum with Brachythecium rutabulum and Eurhynchium striatum occasional. See Table 1 for a more detailed account of woodland cover.

N6

This is a small pool cut off from the rest of the lake by a low grassy ridge (Plate9). The vegetation is dominated by Eleocharis palustris, Apium nodiflorum and Agrostis stolonijera. Other frequent species include Alisma plantago-'iquatica, Hydrocotyle vulgaris, Ranunculus flammula, Apium inunaatum, Lythrum salicaria, Equisetum fluviatile, Scirpus lacustris, Oeiianthe fistulosa, Mei~yanthes trijoliata, Mentha aquatica, Chara spp., Senecio aquaticus and Littorella uniflora.

Appendix 5

Notice of notifiable actions
Under STATUTORY INSTRUMENT 94 of 197, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent of the Minister of Arts, Heritage, Gaeltacht and the Islands before performing any of the operations listed below on, or affecting, the habitat of *woodlands,* where it occurs on these lands/water areas except where such operations are subject to consent under other enactments.
Where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent he/she need only notify the Minister of activities not covered in the pan.
The activities which should not be undertaken before consent are;

- Grazing of livestock
- Grazing by livestock treated within the previous week with a pesticide which leaves permanent residues in the dung
- Supplementary feeding of stock
- Adding lime
- Adding fertiliser of any sort
- Reclamation, infilling, ploughing or land drainage
- Reseeding, planting of trees, removal of timber
- Removal of foliage, moss or other materials
- Alteration of the banks, bed or flow of watercourses
- Operation of commercial recreation facilities (e.g. bird watching tours) Introduction (or re-introduction) into the wild of plants or animals of species not Please note that the activities listed below may require a licence or consent from another statutory authority (e.g. the local planning authority, the Minister of the Environment, or the Minister of Agriculture, Food and Forestry). The activities below must be notified to the Minister of Arts, Heritage, Gaeltacht and the Islands when they are not regulated by another statutory authority
- Developing leisure facilities including golf courses, sports pitches, caravan or camping facilities
- Pollution of the site
- Removal of soil, mud, gravel, sand or minerals
- Developing roads or car parks
- Construction of fences, buildings or embankments
- Felling trees for reafforestation

EUROPEAN CONVENTION ON THE PROTECTION OF THE ARCHAEOLOGICAL HERITAGE (Revised)

Convention européenne pour la protection du patrimoine archéologique (révisée)

Valletta - La Valette, 16.1.1992
Entry into force:

Preamble The member States of the Council of Europe and the other States party to the European Cultural Convention signatory hereto, Considering that the aim of the Council of Europe is to achieve a greater unity between its members for the purpose, in particular, of safeguarding and realising the ideals and principles which are their common heritage; Having regard to the European Cultural Convention signed in Paris on 19 December 1954, in particular Articles 1 and 5 thereof; Having regard to the Convention for the Protection of the Architectural Heritage of Europe signed in Granada on 3 October 1985; Having regard to the European Convention on Offfences relating to Cultural Property signed in Delphi on 23 June 1985; Having regard to the recommendations of the Parliamentary Assembly relating to archaeology and in particular Recommendations 848 (1978), 921 (1981) and 1072 (1988); Having regard to Recommendation No. R (89) 5 concerning the protection and enhancement of the archaeological heritage in the context of town and country planning operations; Recalling that the archaeological heritage is essential to a knowledge of the history of mankind; Acknowledging that the European archaeological heritage, which provides evidence of ancient history, is seriously threatened with deterioration because of the increasing number of major planning schemes, natural risks, clandestine or unscientific excavations and insufficient public awareness; Affirming that it is important to institute, where they do not yet exist, appropriate administrative and scientific supervision procedures, and that the need to protect the archaeological heritage should be reflected in town and country planning and cultural development policies; Stressing that responsibility for the protection of the archaeological heritage should rest not only with the State directly concerned but with all European countries, the aim being to reduce the risk of deterioration and promote conservation by encouraging exchanges of experts and the comparison of experiences; Noting the necessity to complete the principles set forth in the European Convention for the Protection of the Archaeological Heritage signed in London on 6 May 1969, as a result of evolution of planning policies in European countries, Have agreed as follows: **Definition of the archaeological heritage** *Article 1* The aim of this (revised) Convention is to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study. To this end shall be considered to be elements of the archaeological heritage all remains and objects and any other traces of mankind from past epochs: the preservation and study of which help to retrace the history of mankind and its relation with the natural environment; for which excavations or discoveries and other methods of research into mankind and the related environment are the main sources of information; and which are located in any area within the jurisdiction of the Parties. The archaeological heritage shall include structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kinds as well as their context, whether situated on land or under water. **Identification of the heritage and measures for protection** *Article 2* Each Party undertakes to institute, by means appropriate to the State in question, a legal system for the protection of the archaeological heritage, making provision for: the maintenance of an inventory of its archaeological heritage and the designation of protected monuments and areas; the creation of archaeological reserves, even where there are no visible remains on the ground or under water, for the preservation of material evidence to be studied by later generations; the mandatory reporting to the competent authorities by a finder of the chance discovery of elements of the archaeological heritage and making them available for examination. *Article 3* To preserve the archaeological heritage and guarantee the scientific significance of archaeological research work, each Party undertakes: to apply procedures for the authorisation and supervision of excavation and other archaeological activities in such a way as: to prevent any illicit excavation or removal of elements of the archaeological heritage; to ensure that archaeological excavations and prospecting are undertaken in a scientific manner and provided that:

- non-destructive methods of investigation are applied wherever possible;
- the elements of the archaeological heritage are not uncovered or left exposed during or after excavation without provision being made for their proper preservation, conservation and management;

to ensure that excavations and other potentially destructive techniques are carried out only by qualified, specially authorised persons; to subject to specific prior authorisation, whenever foreseen by the domestic law of the State, the use of metal detectors and any other detection equipment or process for archaeological investigation. *Article 4* Each Party undertakes to implement measures for the physical protection of the archaeological heritage, making provision, as circumstances demand: for the acquisition or protection by other appropriate means by the public authorities of areas intended to constitute archaeological reserves; for the conservation and maintenance of the archaeological heritage, preferably in situ; for appropriate storage places for archaeological remains which have been removed from their original location. **Integrated conservation of the archaeological heritage** *Article 5* Each Party undertakes: to seek to reconcile and combine the respective requirements of archaeology and development plans by ensuring that archaeologists participate: in planning policies designed to ensure well-balanced strategies for the protection, conservation and enhancement of sites of archaeological interest; in the various stages of development schemes; to ensure that archaeologists, town and regional planners systematically consult one another in order to permit: the modification of development plans likely to have adverse effects on the archaeological heritage; the allocation of sufficient time and resources for an appropriate scientific study to be made of the site and for its findings to be published; to ensure that environmental impact assessments and the resulting decisions involve full consideration of archaeological sites and their settings; to make provision, when elements of the archaeological heritage have been found during development work, for their conservation in situ when feasible; to ensure that the opening of archaeological sites to the public, especially any structural arrangements necessary for the reception of large numbers of visitors, does not adversely affect the archaeological and scientific character of such sites and their surroundings. **The financing of archaeological research and conservation** *Article 6* Each Party undertakes: to arrange for public financial

support for archaeological research from national, regional and local authorities in accordance with their respective competence; to increase the material resources for rescue archaeology: by taking suitable measures to ensure that provision is made in major public or private development schemes for covering, from public sector or private sector resources, as appropriate, the total costs of any necessary related archaeological operations; by making provision in the budget relating to these schemes in the same way as for the impact studies necessitated by environmental and regional planning precautions, for preliminary archaeological study and prospection, for a scientific summary record as well as for the full publication and recording of the findings. **Collection and dissemination of scientific information** *Article 7* For the purpose of facilitating the study of, and dissemination of knowledge about, archaeological discoveries, each Party undertakes: to make or bring up to date surveys, inventories and maps of archaeological sites in the areas within its jurisdiction; to take all practical measures to ensure the drafting, following archaeological operations, of a publishable scientific summary record before the necessary comprehensive publication of specialised studies. *Article 8* Each Party undertakes: to facilitate the national and international exchange of elements of the archaeological heritage for professional scientific purposes, while taking appropriate steps to ensure that such circulation in no way prejudices the cultural and scientific value of those elements; to promote the pooling of information on archaeological research and excavations in progress and to contribute to the organisation of international research programmes. **Promotion of public awareness** *Article 9* Each Party undertakes: to conduct educational actions with a view to rousing and developing an awareness in public opinion of the value of the archaeological heritage for understanding the past and of the threats to this heritage; to promote public access to important elements of its archaeological heritage, especially sites, and encourage the display to the public of suitable selections of archaeological objects. **Prevention of the illicit circulation of elements of the archaeological heritage** *Article 10* Each Party undertakes: to arrange for the relevant public authorities and for scientific institutions to pool information on any illicit excavations identified; to inform the competent authorities in the State of origin which is a Party to this Convention of any offer suspected of coming either from illicit excavations or unlawfully from official excavations, and to provide the necessary details thereof; to take such steps as are necessary to ensure that museums and similar institutions whose acquisition policy is under State control do not acquire elements of the archaeological heritage suspected of coming from uncontrolled finds or illicit excavations or unlawfully from official excavations; as regards museums and similar institutions located in the territory of a Party but the acquisition policy of which is not under State control: to convey to them the text of this (revised) Convention; to spare no effort to ensure respect by the said museums and institutions for the principles set out in paragraph 3 above; to restrict, as far as possible, by education, information, vigilance and co-operation, the transfer of elements of the archaeological heritage obtained from uncontrolled finds or illicit excavations or unlawfully from official excavations. *Article 11* Nothing in this (revised) Convention shall affect existing or future bilateral or multilateral treaties between Parties concerning the illicit circulation of elements of the archaeological heritage or their restitution to the righfful owner. **Mutual technical and scientific assistance** *Article 12* The Parties undertake: to afford mutual technical and scientific assistance through the pooling of experience and exchanges of experts in matters concerning the archaeological heritage; to encourage, under the relevant national legislation or international agreements binding them, exchanges of specialists in the preseNation of the archaeological heritage, including those responsible for further training. **Control of the application of the (revised) Convention** *Article 13* For the purposes of this (revised) Convention, a committee of experts, set up by the Committee of Ministers of the Council of Europe pursuant to Article 17 of the Statute of the Council of Europe, shall monitor the application of the (revised) Convention and in particular: report periodically to the Committee of Ministers of the Council of Europe on the situation of archaeological heritage protection policies in the States Parties to the (revised) Convention and on the implementation of the principles embodied in the (revised) Convention; propose measures to the Committee of Ministers of the Council of Europe for the implementation of the (revised) Convention's provisions, including multilateral activities, revision or amendment of the (revised) Convention and informing public opinion about the purpose of the (revised) Convention; make recommendations to the Committee of Ministers of the Council of Europe regarding invitations to States which are not members of the Council of Europe to accede to the (revised) Convention. **Final clauses** *Article 14* This (revised) Convention shall be open for signature by the member States of the Council of Europe and the other States party to the European Cultural Convention. It is subject to ratification, acceptance or approval. Instruments of ratification, acceptance or approval shall be deposited with the Secretary General of the Council of Europe. No State party to the, signed in London on 6 May 1969, may deposit its instrument of ratification, acceptance or approval unless it has already denounced the said convention or denounces it simultaneously. This (revised) Convention shall enter into force six months after the date on which four States, including at least three member States of the Council of Europe, have expressed their consent to be bound by the (revised) Convention in accordance with the provisions of the preceding paragraphs. Whenever, in application of the preceding two paragraphs, the denunciation of the convention of 6 May 1969 would not become effective simultaneously with the entry into force of this (revised) Convention, a Contracting State may, when depositing its instrument of ratification, acceptance or approval, declare that it will continue to apply the Convention of 6 May 1969 until the entry into force of this (revised) Convention. In respect of any signatory State which subsequently expresses its consent to be bound by it, the (revised) Convention shall enter into force six months after the date of the deposit of the instrument of ratification, acceptance or approval. *Article 15* After the entry into force of this (revised) Convention, the Committee of Ministers of the Council of Europe may invite any other State not a member of the Council and the European Economic Community, to accede to this (revised) Convention by a decision taken by the majority provided for in Article 20.d of the Statute of the Council of Europe and by the unanimous vote of the representatives of the Contracting States entitled to sit on the Committee. In respect of any acceding State or, should it accede, the European Economic Community, the (revised) Convention shall enter into force six months after the date of deposit of the instrument of accession with the Secretary General of the Council of Europe. *Article 16* Any State may, at the time of signature or

when depositing its instrument of ratification, acceptance, approval or accession, specify the territory or territories to which this (revised) Convention shall apply. Any State may at any later date, by a declaration addressed to the Secretary General of the Council of Europe, extend the application of this (revised) Convention to any other territory specified in the declaration. In respect of such territory the (revised) Convention shall enter into force six months after the date of receipt of such declaration by the Secretary General. Any declaration made under the two preceding paragraphs may, in respect of any territory specified in such declaration, be withdrawn by a notification addressed to the Secretary General. The withdrawal shall become effective six months after the date of receipt of such notification by the Secretary General. *Article 17* Any Party may at any time denounce this (revised) Convention by means of a notification addressed to the Secretary General of the Council of Europe. Such denunciation shall become effective six months following the date of receipt of such notification by the Secretary General. *Article 18* The Secretary General of the Council of Europe shall notify the member States of the Council of Europe, the other States party to the European Cultural Convention and any State or the European Economic Community which has acceded or has been invited to accede to this (revised) Convention of: any signature; the deposit of any instrument of ratification, acceptance, approval or accession; any date of entry into force of this (revised) Convention in accordance with Articles 14, 15 and 16; any other act, notification or communication relating to this (revised) Convention. In witness whereof the undersigned, being duly authorised thereto, have signed this (revised) Convention.
Done at Valletta, this 16th day of January 1992, in English and French, both texts being equally authentic, in a single copy which shall be deposited in the archives of the Council of Europe. The Secretary General of the Council of Europe shall transmit certified copies to each member State of the Council of Europe, to the other States party to the European Cultural Convention, and to any non-member State or the European Economic Community invited to accede to this (revised) Convention.

The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter)

Preamble

Having regard to the International Charter for the Conservation and Restoration of Monuments and Sites (Venice 1966), and the Resolutions of the 5th General Assembly of ICOMOS (Moscow 1976), the following Charter has been adopted by Australia ICOMOS.

Definitions

Article 1

For the purpose of this Charter:

1.1 *Place* means site, area, building or other work, group of buildings or other works together with pertinent contents and surroundings.

1.2 *Cultural significance* means aesthetic, historic, scientific or social value for past, present or future generations.

1.3 *Fabric* means all the physical material of the place.

1.4 *Conservation* means all the processes of looking after a place so as to retain its cultural significance. It includes maintenance and may according to circumstances include preservation, restoration, reconstruction and adaption and will be commonly a combination of more than one of these.

1.5 *Maintenance* means the continuous protective care of the fabric, contents and setting of a place, and is to be distinguished from repair. Repair involves restoration or reconstruction and it should be treated accordingly.

1.6 *Preservation* means maintaining the fabric of a place in its existing state and retarding deterioration.

1.7 *Restoration* means returning the EXISTING fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

1.8 *Reconstruction* means returning a place as nearly as possible to a known state and is distinguished by the introduction of materials (new or old) into the fabric. This is not to be confused with either recreation or conjectural reconstruction which are outside the scope of this Charter.

1.9 *Adaption* means modifying a place to suit proposed compatible uses.

1.10 *Compatible* use means a use which involves no change to the culturally significant fabric, changes which are substantially reversible, or changes which require a minimal impact.

Conservation principles

Article 2 The aim of conservation is to retain or recover the cultural significance of a place and must include provision for its security, its maintenance and its future. **Article 3** Conservation is based on a respect for the existing fabric and should involve the least possible physical intervention. It should not distort the evidence provided by the fabric. **Article 4** Conservation should make use of all the disciplines which can contribute to the study and safeguarding of a place. Techniques employed should be traditional but in some circumstances they may be modern ones for which a firm scientific basis exists and which have been supported by a body of experience. **Article 5** Conservation of a place should take into consideration all aspects of its cultural significance without unwarranted emphasis on any one at the expense of others. **Article 6** The conservation policy appropriate to a place must first be determined by an understanding of its cultural significance and its physical condition. **Article 7** The conservation policy will determine which uses are compatible. **Article 8** Conservation requires the maintenance of an appropriate visual setting, e.g. form, scale, colour, texture and materials. No new construction, demolition or modification which would adversely affect the settings which adversely affect appreciation or enjoyment of the place should be excluded. **Article 9** A building or work should remain in its historical location. The moving of all or part of a building or work is unacceptable unless this is the sole means of ensuring its survival. **Article 10** The removal of contents which form part of the cultural significance of the place is unacceptable unless it is the sole means of ensuring their security and preservation. Such contents must be returned should changed circumstances make this practicable.

Conservation processes

PRESERVATION

Article 11 Preservation is appropriate where the existing state of the fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out. **Article 12** Preservation is limited to the protection, maintenance and where necessary, the stabilisation of the existing fabric but without the distortion of its cultural significance.

RESTORATION

Article 13 Restoration is appropriate only if there is sufficient evidence of an earlier state of the fabric and only if returning the fabric to that state recovers the cultural significance of the place. **Article 14** Restoration should reveal anew culturally significant aspects of the place. It is based on respect for all the physical, documentary and other evidence and stops at the point where conjecture begins. **Article 15** Restoration is limited to the reassembling of displaced components or removal of accretions in accordance with Article 16. **Article 16** The contributions of all periods to the place must be respected. If a place includes the fabric of different periods, revealing the fabric of one period at the expense of another can only be justified when what is removed is of slight cultural significance and the fabric which is to be revealed is of much greater cultural significance.

RECONSTRUCTION

Article 17 Reconstruction is appropriate where a place is incomplete through damage or alteration and where it is necessary for its survival, or where it recovers the cultural significance of the place as a whole. **Article 18** Reconstruction is limited to the completion of a depleted entity and should not constitute the majority of the fabric of a place. **Article 19** Reconstruction is limited to the reproduction of fabric, the form of which is known from physical and/or documentary evidence. It should be identifiable on close inspection as being new work.

ADAPTION

Article 20 Adaption is acceptable where the conservation of the place cannot otherwise be achieved, and where the adaption does not substantially detract from its cultural significance. **Article 21** Adaption must be limited to that which is essential to a use for the place, determined in accordance with Articles 6 and 7. **Article 22** Fabric of cultural significance unavoidably removed in the process of adaption must be kept safely to enable its future reinstatement.

Conservation practice

Article 23 Work on a place must be preceded by professionally prepared studies of the physical, documentary and other evidence, and the existing fabric recorded before any disturbance of the place. **Article 24** Study of a place by any disturbance of the fabric or by archaeological excavation should be undertaken where necessary to provide data essential for decisions on the conservation of the place and/or to secure evidence about to be lost or made inaccessible through necessary conservation or other unavoidable action. Investigation of a place for any other reason which requires physical disturbance and which adds substantially to a scientific body of knowledge may be permitted, provided that it is consistent with the conservation policy for the place. **Article 25** A written statement of conservation policy must be professionally prepared setting out the cultural significance, physical condition and proposed conservation process together with justification and supporting evidence, including photographs, drawings and all appropriate samples. **Article 26** The organisation and individuals responsible for policy decisions must be named and specific responsibility taken for each such decision. **Article 27** Appropriate professional direction and supervision must be maintained at all stages of the work and a log kept of new evidence and additional decisions recorded as in Article 25 above. **Article 28** The records required by Articles 23, 25, 26 and 27 should be placed in a permanent archive and made publicly available. **Article 29** The items referred to in Article 10 and Article 22 should be professionally catalogued and protected.

Charter on the Protection and Management of Underwater Cultural Heritage (1996)

(ratified by the 11th ICOMOS General Assembly, held in Sofia, Bulgaria, from 5-9 October 1996)

INTRODUCTION

This Charter is intended to encourage the protection and management of underwater cultural heritage in inland and inshore waters, in shallow seas and in the deep oceans. It focuses on the specific attributes and circumstances of cultural heritage under water and should be understood as a supplement to the ICOMOS Charter for the Protection and Management of Archaeological Heritage, 1990. The 1990 Charter defines the "archaeological heritage" as that part of the material heritage in respect of which archaeological methods provide primary information, comprising all vestiges of human existence and consisting of places relating to all manifestations of human activity, abandoned structures, and remains of all kinds, together with all the portable cultural material associated with them. For the purposes of this Charter underwater cultural heritage is understood to mean the archaeological heritage which is in, or has been removed from, an underwater environment. It includes submerged sites and structures, wreck-sites and wreckage and their archaeological and natural context.

By its very character the underwater cultural heritage is an international resource. A large part of the underwater cultural heritage is located in an international setting and derives from international trade and communication in which ships and their contents are lost at a distance from their origin or destination.

Archaeology is concerned with environmental conservation; in the language of resource management, underwater cultural heritage is both finite and non-renewable. If underwater cultural heritage is to contribute to our appreciation of the environment in the future, then we have to take individual and collective responsibility in the present for ensuring its continued survival.

Archaeology is a public activity; everybody is entitled to draw upon the past in informing their own lives, and every effort to curtail knowledge of the past is an infringement of personal autonomy. Underwater cultural heritage contributes to the formation of identity and can be important to people's sense of community. If managed sensitively, underwater cultural heritage can play a positive role in the promotion of recreation and tourism.

Archaeology is driven by research, it adds to knowledge of the diversity of human culture through the ages and it provides new and challenging ideas about life in the past. Such knowledge and ideas contribute to understanding life today and, thereby, to anticipating future challenges.

Many marine activities, which are themselves beneficial and desirable, can have unfortunate consequences for underwater cultural heritage if their effects are not foreseen.

Underwater cultural heritage may be threatened by construction work that alters the shore and seabed or alters the flow of current, sediment and pollutants. Underwater cultural heritage may also be threatened by insensitive exploitation of living and non-living resources. Furthermore, inappropriate forms of access and the incremental impact of removing "souvenirs" can have a deleterious effect.

Many of these threats can be removed or substantially reduced by early consultation with archaeologists and by implementing mitigatory projects. This Charter is intended to assist in bringing a high standard of archaeological expertise to bear on such threats to underwater cultural heritage in a prompt and efficient manner.

Underwater cultural heritage is also threatened by activities that are wholly undesirable because they are intended to profit few at the expense of many. Commercial exploitation of underwater cultural heritage for trade or speculation is fundamentally incompatible with the protection and management of the heritage. This Charter is intended to ensure that all investigations are explicit in their aims, methodology and anticipated results so that the intention of each project is transparent to all.

Article 1 - Fundamental Principles

The preservation of underwater cultural heritage in situ should be considered as a first option.
Public access should be encouraged.
Non-destructive techniques, non-intrusive survey and sampling should be encouraged in preference to excavation.
Investigation must not adversely impact the underwater cultural heritage more than is necessary for the mitigatory or research objectives of the project.
Investigation must avoid unnecessary disturbance of human remains or venerated sites.
Investigation must be accompanied by adequate documentation.

Article 2 - Project Design

Prior to investigation a project must be prepared, taking into account :

- the mitigatory or research objectives of the project;
- the methodology to be used and the techniques to be employed;
- anticipated funding;
- the time-table for completing the project;
- the composition, qualifications, responsibility and experience of the investigating team;
- material conservation;
- site management and maintenance;
- arrangements for collaboration with museums and other institutions;
- documentation;
- health and safety;
- report preparation;
- deposition of archives, including underwater cultural heritage removed during investigation;
- dissemination, including public participation.

The project design should be revised and amended as necessary.
Investigation must be carried out in accordance with the project design. The project design should be made available to the archaeological community.

Article 3 - Funding

Adequate funds must be assured in advance of investigation to complete all stages of the project design including conservation, report preparation and dissemination. The project design should include contingency plans that will ensure conservation of underwater cultural heritage and supporting documentation in the event of any interruption in anticipated funding.
Project funding must not require the sale of underwater cultural heritage or the use of any strategy that will cause underwater cultural heritage and supporting documentation to be irretrievably dispersed.

Article 4 - Time-table

Adequate time must be assured in advance of investigation to complete all stages of the project design including conservation, report preparation and dissemination. The project design should include contingency plans that will ensure conservation of underwater cultural heritage and supporting documentation in the event of any interruption in anticipated timings.

Article 5- Research objectives, methodology and techniques

Research objectives and the details of the methodology and techniques to be employed must be set down in the project design. The methodology should accord with the research objectives of the investigation and the techniques employed must be as unintrusive as possible.
Post-fieldwork analysis of artefacts and documentation is integral to all investigation; adequate provision for this analysis must be made in the project design.

Article 6 - Qualifications, responsibility and experience

All persons on the investigating team must be suitably qualified and experienced for their project roles. They must be fully briefed and understand the work required.
All intrusive investigations of underwater cultural heritage will only be undertaken under the direction and control of a named underwater archaeologist with recognised qualifications and experience appropriate to the investigation.

Article 7 - Preliminary investigation

All intrusive investigations of underwater cultural heritage must be preceded and informed by a site assessment that evaluates the vulnerability, significance and potential of the site.
The site assessment must encompass background studies of available historical and archaeological evidence, the archaeological and environmental characteristics of the site and the consequences of the intrusion for the long term stability of the area affected by investigations.

Article 8 - Documentation

All investigation must be thoroughly documented in accordance with current professional standards of archaeological documentation.
Documentation must provide a comprehensive record of the site, which includes the provenance of underwater cultural heritage moved or removed in the course of investigation, field notes, plans and drawings, photographs and records in other media.

Article 9 - Material conservation

The material conservation programme must provide for treatment of archaeological remains during investigation, in transit and in the long term.
Material conservation must be carried out in accordance with current professional standards.

Article 10 - Site management and maintenance

A programme of site management must be prepared, detailing measures for protecting and managing in situ underwater cultural heritage in the course of an upon termination of fieldwork. The programme should include public information, reasonable provision for site stabilisation, monitoring and protection against interference.
Public access to in situ underwater cultural heritage should be promoted, except where access is incompatible with protection and management.

Article 11 - Health and safety

The health and safety of the investigating team and third parties is paramount. All persons on the investigating team must work according to a safety policy that satisfies relevant statutory and professional requirements and is set out in the project design.

Article 12 - Reporting

Interim reports should be made available according to a time-table set out in the project design, and deposited in relevant public records.
Reports should include :

- an account of the objectives;
- an account of the methodology and techniques employed;
- an account of the results achieved;
- recommendations concerning future research, site management and curation of underwater cultural heritage removed during the investigation.

Article 13 - Curation

The project archive, which includes underwater cultural heritage removed during investigation and a copy of all supporting documentation, must be deposited in an institution that can provide for public access and permanent curation of the archive. Arrangements for deposition of the archive should be agreed before investigation commences, and should be set out in the project design. The archive should be prepared in accordance with current professional standards.

The scientific integrity of the project archive must be assured; deposition in a number of institutions must not preclude reassembly to allow further research. Underwater cultural heritage is not to be traded as items of commercial value.

Article 14 - Dissemination

Public awareness of the results of investigations and the significance of underwater cultural heritage should be promoted through popular presentation in a range of media. Access to such presentations by a wide audience should not be prejudiced by high charges.
Co-operation with local communities and groups is to be encouraged, as is co-operation with communities and groups that are particularly associated with the underwater cultural heritage concerned. It is desirable that investigations proceed with the consent and endorsement of such communities and groups.
The investigation team will seek to involve communities and interest groups in investigations to the extent that such involvement is compatible with protection and management. Where practical, the investigation team should provide opportunities for the public to develop archaeological skills through training and education.
Collaboration with museums and other institutions is to be encouraged. Provision for visits, research and reports by collaborating institutions should be made in advance of investigation.
A final synthesis of the investigation must be made available as soon as possible, having regard to the complexity of the research, and deposited in relevant public records.

Article 15 - International co-operation

International co-operation is essential for protection and management of underwater cultural heritage and should be promoted in the interests of high standards of investigation and research. International co-operation should be encouraged in order to make effective use of archaeologists and other professionals who are specialised in investigations of underwater cultural heritage. Programmes for exchange of professionals should be considered as a means of disseminating best practice.

European Charter of the Architectural Heritage

Adopted by the Council of Europe, October 1975

INTRODUCTION

Thanks to the Council of Europe's initiative in declaring 1975 European Architectural Year, considerable efforts were made in every European country to make the public more aware of the irreplaceable cultural, social and economic values represented by historic monuments, groups of old buildings and interesting sites in both town and country. It was important to co-ordinate all these efforts at the European level, to work out a joint approach to the subject and, above all, to forge a common language to state the general principles on which concerted action by the authorities responsible and the general public must be based. It was with this intention that the Council of Europe drafted the Charter which appears below. It is, of course, not sufficient simply to formulate principles; they must also be applied. In future, the Council of Europe will devote its efforts to a thorough study of ways and means of applying the principles in each different country, the steady improvement of existing laws and regulations and the development of vocational training in this field. The European Charter of the Architectural Heritage has been adopted by the Committee of Ministers of the Council of Europe and was solemnly proclaimed at the Congress on the European Architectural Heritage held in Amsterdam from 21 to 25 October 1975

The Committee of Ministers, Considering that the aim of the Council of Europe is to achieve a greater unity between its members for the purpose of safeguarding and realizing the ideals and principles which are their common heritage; Considering that the member states of the Council of Europe which have adhered to the of 19 December 1954 committed themselves, under Article 1 of that convention, to take appropriate measures to safeguard and to encourage the development of their national contributions to the common cultural heritage of Europe; Recognizing that the architectural heritage, an irreplaceable expression of the wealth and diversity of European culture, is shared by all people and that all the European States must show real solidarity in preserving that heritage; Considering that the future of the architectural heritage depends largely upon its integration into the context of people's lives and upon the weight given to it in regional and town planning and development schemes; Having regard to the Recommendation of the European Conference of Ministers responsible for the preservation and rehabilitation of the cultural heritage of monuments and sites held in Brussels in 1969, and to Recommendation 589 (1970) of the Consultative Assembly of the Council of Europe calling for a charter relating to the architectural heritage; Asserts its determination to promote a common European policy and concerted action to protect the architectural heritage based on the principles of integrated conservation; Recommends that the governments of member states should take the necessary legislative, administrative, financial and educational steps to implement a policy of integrated conservation for the architectural heritage, and to arouse public interest in such a policy, taking into account the results of the European Architectural Heritage Year campaign organized in 1975 under the auspices of the Council of

Europe; Adopts and proclaims the principles of the following charter, drawn up by the Council of Europe Committee on Monuments and Sites: 1. *The European architectural heritage consists not only of our most important monuments: it also includes the groups of lesser buildings in our old towns and characteristic villages in their natural or manmade settings.* For many years, only major monuments were protected and restored and then without reference to their surroundings. More recently it was realized that, if the surroundings are impaired, even those monuments can lose much of their character. Today it is recognized that entire groups of buildings, even if they do not include any example of outstanding merit, may have an atmosphere that gives them the quality of works of art, welding different periods and styles into a harmonious whole. Such groups should also be preserved. The architectural heritage is an expression of history and helps us to understand the relevance of the past to contemporary life. 2. *The past as embodied in the architectural heritage provides the sort of environment indispensable to a balanced and complete life.* In the face of a rapidly changing civilization, in which brilliant successes are accompanied by grave perils, people today have an instinctive feeling for the value of this heritage. This heritage should be passed on to future generations in its authentic state and in all its variety as an essential part of the memory of the human race. Otherwise, part of man's awareness of his own continuity will be destroyed. 3. *The architectural heritage is a capital of irreplaceable spiritual, cultural, social and economic value.* Each generation places a different interpretation on the past and derives new inspiration from it. This capital has been built up over the centuries; the destruction of any part of it leaves us poorer since nothing new that we create, however fine, will make good the loss. Our society now has to husband its resources. Far from being a luxury this heritage is an economic asset which can be used to save community resources. 4. *The structure of historic centres and sites is conducive to a harmonious social balance.* By offering the right conditions for the development of a wide range of activities our old towns and villages favoured social integration. They can once again lend themselves to a beneficial spread of activities and to a more satisfactory social mix. 5. *The architectural heritage has an important part to play in education.* The architectural heritage provides a wealth of material for explaining and comparing forms and styles and their applications. Today when visual appreciation and first-hand experience play a decisive role in education, it is essential to keep alive the evidence of different periods and their achievements. The survival of this evidence will be assured only if the need to protect it is understood by the greatest number, particularly by the younger generation who will be its future guardians. 6. *This heritage is in danger.* It is threatened by ignorance, obsolescence, deterioration of every kind and neglect. Urban planning can be destructive when authorities yield too readily to economic pressures and to the demands of motor traffic. Misapplied contemporary technology and ill-considered restoration may be disastrous to old structures. Above all, land and property speculation feeds upon all errors and omissions and brings to nought the most carefully laid plans. 7. *Integrated conservation averts these dangers.* Integrated conservation is achieved by the application of sensitive restoration techniques and the correct choice of appropriate functions. In the course of history the hearts of towns and sometimes villages have been left to deteriorate and have turned into areas of substandard housing. Their deterioration must be undertaken in a spirit of social justice and should not cause the departure of the poorer inhabitants. Because of this, conservation must be one of the first considerations in all urban and regional planning. It should be noted that integrated conservation does not rule out the introduction of modern architecture into areas containing old buildings provided that the existing context, proportions, forms, sizes and scale are fully respected and traditional materials are used. 8. *Integrated conservation depends on legal, administrative, financial and technical support.* **Legal** Integrated conservation should make full use of all existing laws and regulations that can contribute to the protection and preservation of the architectural heritage. Where such laws and regulations are insufficient for the purpose they should be supplemented by appropriate legal instruments at national, regional and local levels. **Administrative** In order to carry out a policy of integrated conservation, properly staffed administrative services should be established. **Financial** Where necessary the maintenance and restoration of the architectural heritage and individual parts thereof should be encouraged by suitable forms of financial aid and incentives, including tax measures. It is essential that the financial resources made available by public authorities for the restoration of historic centres should be at least equal to those allocated for new construction. **Technical** There are today too few architects, technicians of all kinds, specialized firms and skilled craftsmen to respond to all the needs of restoration. It is necessary to develop training facilities and increase prospects of employment for the relevant managerial, technical and manual skills. The building industry should be urged to adapt itself to these needs. Traditional crafts should be fostered rather than allowed to die out. 9. *Integrated conservation cannot succeed without the cooperation of all.* Although the architectural heritage belongs to everyone, each of its parts is nevertheless at the mercy of any individual. The public should be properly informed because citizens are entitled to participate in decisions affecting their environment. Each generation has only a life interest in this heritage and is responsible for passing it on to future generations. 10. *The european architectural heritage is the common property of our continent.*
Conservation problems are not peculiar to any one country. They are common to the whole of Europe and should be dealt with in a co

Archaeological Heritage Management ICOMOS Charter for the Protection and Management of the Archaeological Heritage (1990)

INTRODUCTION

It is widely recognised that a knowledge and understanding of the origins and development of human societies is of fundamental importance to humanity in identifying its cultural and social roots. The archaeological heritage constitutes the basic record of past human activities. Its protection and proper management is

therefore essential to enable archaeologists and other scholars to study and interpret it on behalf of and for the benefit of present and future generations. The protection of this heritage cannot be based upon the application of archaeological techniques alone. It requires a wider basis of professional and scientific knowledge and skills. Some elements of the archaeological heritage are components of architectural structures and in such cases must be protected in accordance with the criteria for the protection of such structures laid down in the 1966 Venice Charter on the Conservation and Restoration of Monuments and Sites. Other elements of the archaeological heritage constitute part of the living traditions of indigenous peoples, and for such sites and monuments the participation of local cultural groups is essential for their protection and preservation. For these and other reasons the protection of the archaeological heritage must be based upon effective collaboration between professionals from many disciplines. It also requires the co-operation of government authorities, academic researchers, private or public enterprise, and the general public. This charter therefore lays down principles relating to the different aspects of archaeological heritage management. These include the responsibilities of public authorities and legislators, principles relating to the professional performance of the processes of inventorization, survey, excavation, documentation, research, maintenance, conservation, preservation, reconstruction, information, presentation, public access and use of the heritage, and the qualification of professionals involved in the protection of the archaeological heritage. The charter has been inspired by the success of the Venice Charter as guidelines and source of ideas for policies and practice of governments as well as scholars and professionals. The charter has to reflect very basic principles and guidelines with global validity. For this reason it cannot take into account the specific problems and possibilities of regions or countries. The charter should therefore be supplemented at regional and national levels by further principles and guidelines for these needs.

ARTICLE 1. DEFINITION AND INTRODUCTION

The "archaeological heritage" is that part of the material heritage in respect of which archaeological methods provide primary information. It comprises all vestiges of human existence and consists of places relating to all manifestations of human activity, abandoned structures, and remains of all kinds (including subterranean and underwater sites), together with all the portable cultural material associated with them.

ARTICLE 2. INTEGRATED PROTECTION POLICIES

The archaeological heritage is a fragile and non-renewable cultural resource. Land use must therefore be controlled and developed in order to minimise the destruction of the archaeological heritage. Policies for the protection of the archaeological heritage should constitute an integral component of policies relating to land use, development, and planning as well as of cultural, environmental and educational policies. The policies for the protection of the archaeological heritage should be kept under continual review, so that they stay up to date. The creation of archaeological reserves should form part of such policies. The protection of the archaeological heritage should be integrated into planning policies at international, national, regional and local levels. Active participation by the general public must form part of policies for the protection of the archaeological heritage. This is essential where the heritage of indigenous peoples is involved. Participation must be based upon access to the knowledge necessary for decision-making. The provision of information to the general public is therefore an important element in integrated protection.

ARTICLE 3. LEGISLATION AND ECONOMY

The protection of the archaeological heritage should be considered as a moral obligation upon all human beings; it is also a collective public responsibility. This obligation must be acknowledged through relevant legislation and the provision of adequate funds for the supporting programmes necessary for effective heritage management. The archaeological heritage is common to all human society and it should therefore be the duty of every country to ensure that adequate funds are available for its protection. Legislation should afford protection to the archaeological heritage that is appropriate to the needs, history, and traditions of each country and region, providing for in situ protection and research needs. Legislation should be based on the concept of the archaeological heritage as the heritage of all humanity and of groups of peoples, and not restricted to any individual person or nation. Legislation should forbid the destruction, degradation or alteration through changes of any archaeological site or monument or to their surroundings without the consent of the relevant archaeological authority. Legislation should in principle require full archaeological investigation and documentation in cases where the destruction of the archaeological heritage is authorised. Legislation should require, and make provision for, the proper maintenance, management and conservation of the archaeological heritage. Adequate legal sanctions should be prescribed in respect of violations of archaeological heritage legislation. If legislation affords protection only to those elements of the archaeological heritage which are registered in a selective statutory inventory, provision should be made for the temporary protection of unprotected or newly discovered sites and monuments until an archaeological evaluation can be carried out. Development projects constitute one of the greatest physical threats to the archaeological heritage. A duty for developers to ensure that archaeological heritage impact studies are carried out before development schemes are implemented, should therefore be embodied in appropriate legislation, with a stipulation that the costs of such studies are to be included in project costs. The principle should also be established in legislation that development schemes should be designed in such a way as to minimise their impact upon the archaeological heritage.

ARTICLE 4. SURVEY

The protection of the archaeological heritage must be based upon the fullest possible knowledge of its extent and nature. General survey of archaeological resources is therefore an essential working tool in developing strategies for the protection of the archaeological heritage. Consequently archaeological survey should be a basic obligation in the protection and management of the archaeological heritage. At the same time, inventories constitute primary resource databases for scientific study and research. The compilation of inventories should therefore be regarded as a continuous, dynamic process. It follows that inventories should comprise information at various levels of significance and reliability, since even superficial knowledge can form the starting point for protectional measures.

ARTICLE 5. INVESTIGATION

Archaeological knowledge is based principally on the scientific investigation of the archaeological heritage. Such investigation embraces the whole range of methods from non-destructive techniques through sampling to total excavation. It must be an overriding principle that the gathering of information about the archaeological heritage should not destroy any more archaeological evidence than is necessary for the protectional or scientific objectives of the investigation. Non-destructive techniques, aerial and ground survey, and sampling should therefore be encouraged wherever possible, in preference to total excavation. As excavation always implies the necessity of making a selection of evidence to be documented and preserved at the cost of losing other information and possibly even the total destruction of the monument, a decision to excavate should only be taken after thorough consideration. Excavation should be carried out on sites and monuments threatened by development, land-use change, looting, or natural deterioration. In exceptional cases, unthreatened sites may be excavated to elucidate research problems or to interpret them more effectively for the purpose of presenting them to the public. In such cases excavation must be preceded by thorough scientific evaluation of the significance of the site. Excavation should be partial, leaving a portion undisturbed for future research. A report conforming to an agreed standard should be made available to the scientific community and should be incorporated in the relevant inventory within a reasonable period after the conclusion of the excavation. Excavations should be conducted in accordance with the principles embodied in the 1956 UNESCO Recommendations on International Principles Applicable to Archaeological Excavations and with agreed international and national professional standards.

ARTICLE 6. MAINTENANCE AND CONSERVATION

The overall objective of archaeological heritage management should be the preservation of monuments and sites in situ, including proper long-term conservation and curation of all related records and collections etc. Any transfer of elements of the heritage to new locations represents a violation of the principle of preserving the heritage in its original context. This principle stresses the need for proper maintenance, conservation and management. It also asserts the principle that the archaeological heritage should not be exposed by excavation or left exposed after excavation if provision for its proper maintenance and management after excavation cannot be guaranteed. Local commitment and participation should be actively sought and encouraged as a means of promoting the maintenance of the archaeological heritage. This principle is especially important when dealing with the heritage of indigenous peoples or local cultural groups. In some cases it may be appropriate to entrust responsibility for the protection and management of sites and monuments to indigenous peoples. Owing to the inevitable limitations of available resources, active maintenance will have to be carried out on a selective basis. It should therefore be applied to a sample of the diversity of sites and monuments, based upon a scientific assessment of their significance and representative character, and not confined to the more notable and visually attractive monuments. The relevant principles of the 1956 UNESCO Recommendations should be applied in respect of the maintenance and conservation of the archaeological heritage.

ARTICLE 7. PRESENTATION, INFORMATION, RECONSTRUCTION

The presentation of the archaeological heritage to the general public is an essential method of promoting an understanding of the origins and development of modern societies. At the same time it is the most important means of promoting an understanding of the need for its protection. Presentation and information should be conceived as a popular interpretation of the current state of knowledge, and it must therefore be revised frequently. It should take account of the multifaceted approaches to an understanding of the past. Reconstructions serve two important functions: experimental research and interpretation. They should, however, be carried out with great caution, so as to avoid disturbing any surviving archaeological evidence, and they should take account of evidence from all sources in order to achieve authenticity. Where possible and appropriate, reconstructions should not be built immediately on the archaeological remains, and should be identifiable as such.

ARTICLE 8. PROFESSIONAL QUALIFICATIONS

High academic standards in many different disciplines are essential in the management of the archaeological heritage. The training of an adequate number of qualified professionals in the relevant fields of expertise should therefore be an important objective for the educational policies in every country. The need to develop expertise in certain highly specialized fields calls for international cooperation. Standards of professional training and professional conduct should be established and maintained. The objective of academic archaeological training should take account of the shift in conservation policies from excavation to in situ preservation. It should also take into account the fact that the study of the history of indigenous peoples is as important in preserving and understanding the archaeological heritage as the study of outstanding monuments and sites. The protection of the archaeological heritage is a process of continuous dynamic development. Time should therefore be made available to professionals working in this field to enable them to update their knowledge. Postgraduate training programmes should be developed with special emphasis on the protection and management of the archaeological heritage.

ARTICLE 9. INTERNATIONAL COOPERATION

The archaeological heritage is the common heritage of all humanity. International co-operation is therefore essential in developing and maintaining standards in its management. There is an urgent need to create international mechanisms for the exchange of information and experience among professionals dealing with archaeological heritage management. This requires the organisation of conferences, seminars, workshops, etc. at global as well as regional levels, and the establishment of regional centres for postgraduate studies. ICOMOS, through its specialised groups, should promote this aspect in its medium- and long-term planning. International exchanges of professional staff should also be developed as a means of raising standards of archaeological heritage management. Technical assistance programmes in the field of archaeological heritage management should be developed under the auspices of ICOMOS.
This Charter, written by the International Committee on Archaeological Heritage Management (ICAHM), a specialised committee of ICOMOS, was approved by the ICOMOS General Assembly, meeting in Lausanne, Switzerland, in October 1990.