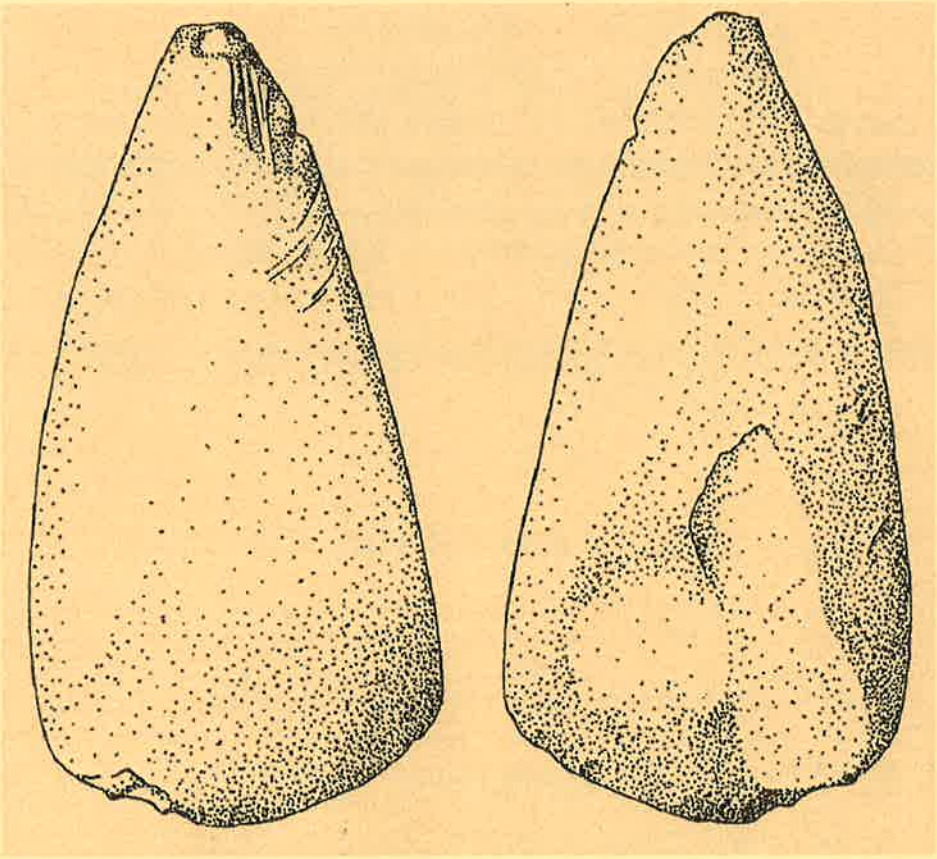

ANN TAYLOR

A B

AXE HEAD FROM CASTLE SWEEN

THE KIST 72

THE KIST

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The magazine of the Natural History and Antiquarian Society of Mid Argyll

Issue no. Seventy Two
Autumn 2006

Editor: Edward Tyler
President: David Batty

CONTENTS

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Editorial

It is gratifying to see local community excavation work being done, and we start this issue with a report on Barnluasgan Dun. Following that, we have an article on hand-spinning, which sheds light on an ancient technology with a long history going back to the Neolithic period. Then we have another in F. Campbell Byatt's series on early travellers to our shores and the maps that were subsequently produced. We also have further information on basking sharks by Dr. M. Gore of the University (of London) Marine Biological Station in Millport, Isle of Cumbrae, followed by a report of the Society's Shetland expedition. Our front cover features a Neolithic ground stone axe from Castle Sween - more of this and other axes in the next edition.

Thanks to all our contributors. We are pleased that this edition includes no less than two new writers. Thanks also to all who helped with this edition, including Rebecca Pine.

Bird List for Shetland, June 2006, by V. Barker

Red-throated Diver, Fulmar, Manx Shearwater, Storm Petrel, Gannet, Cormorant, Shag, Grey Heron, Mute Swan, Whooper Swan, Greylag Goose, Common Shelduck, Mallard, Teal, Tufted Duck, Common Eider, Common Golden Eye, Red-breasted Merganser, Merlin, Oystercatcher, Ringed Plover, Golden Plover, Lapwing, Redshank, Common Sandpiper, Dunlin, Wimbrel, Snipe, Curlew, Bar-tailed Godwit, Red-necked Phalarope, Arctic Skua, Great Skua, Turnstone, Common Gull, Lesser Black-backed gull, Herring Gull, Great black-backed Gull, Kittiwake, Common Tern, Arctic Tern, Common Guillemot, Razor Bill, Black Guillemot, Puffin, Rock Pigeon, Wood Pigeon, Swift, Skylark, Swallow, House Martin, Meadow Pippet, Grey Wagtail, Pied Wagtail, Wren, Blackbird, Wheatear, Hooded Crow, Raven, Starling, House Sparrow, Twite, Reed Bunting.

Corrections to Kist 71

Anne Kehane's surname was misspelt (Anne wrote the article on pine martens).

Page 28, last paragraph: "charcoal platforms". I quote from a letter to me from E. B. Rennie: "please will you refer to them as "recessed platforms". All the evidence points to the fact that their use as charcoal hearths was a secondary use. Their primary use was as hut foundations probably dating to the Early Historic Period." I will ensure that they are so-named in future.

Note: Kist binders have arrived. Please write or telephone me with numbers you require plus an address to post them to (please inform me afresh even if you contacted me before).

Barnluasgan Dun, Enclosure and Cairn: A Community Excavation

R. Regan & S. Webb
Kilmartin House Museum

Introduction

More than 100 duns are to be found in the Mid Argyll landscape, yet so few have been investigated by archaeological excavation that it is difficult to even answer basic questions such as age and function of these structures. In 2005 Kilmartin House Museum launched a project to attempt to fill in some of the gaps in our knowledge and chose Barnluasgan Dun as a site worthy of detailed investigation. The project was conceived of as a community effort and involved more than 30 volunteers (mostly local) as well as 7 professional archaeologists over the months work. The Museum is grateful to all our hard working volunteers, and to the Forestry Commission Scotland for giving permission for the work to take place, as well as funding a significant proportion of the work. In this context we are also grateful to the Society of Antiquaries of Scotland who awarded a generous grant. Historic Scotland gave scheduled ancient monument consent and will fund part of the post excavation phase. We would also like to extend our thanks to Alex and Polly Hamilton of Leac Na Ban Farm for allowing survey work to take place on their land.

The project has been conducted in three phases – a detailed site survey, followed by the excavation and a walkover survey on surrounding land. The site survey took place in November last year; this identified the full extent of the site and created a three dimensional plan from which we were able to choose suitable areas for excavation. Immediately prior to the excavation, the landscape survey was conducted on various parcels of land around the Dun. Many new archaeological and historical landscape features were noted during this work which will be reported in a future edition of the Kist.

Site location and description

Barnluasgan dun, enclosure and cairn are situated in North Knapdale Forest, Mid Argyll. The site lies in an area of mature sitka plantation (centred NGR NM 78720 91130) approximately 250m west of Barnluasgan Caledonian Forest Reserve, close to the B8025 road which runs between Bellanoch and Tayvallich.

The underlying geology consists of banded epidote-chlorite schist covered by peat and clay based soils. The Forestry Commission had previously over-planted the dun but most of the trees evident in the 1960's (Campbell & Sandeman 1964) have now been removed. Aside from a few mature sitka trees at the south of the site, vegetation cover now consists of low vegetation with a few rotten stumps remaining.

Aims and objectives

The project had a number of aims, first of which was to determine the extent, character, function and date of the archaeological deposits and features present as well as establishing a stratagraphic sequence. The possibility of archaeological deposits being present outside the designated scheduled area was also of interest, as was the relationships of the monuments to each other. The project will also in time, define and characterise possible late Iron Age and later activity at these sites as well as come some way towards understanding how the natural prehistoric landscape has influenced human settlement and activity. The project also aimed to evaluate the potential damage to the monuments by previous and present tree cover.

Excavation Results

The earliest evidence on the site came in a rather unexpected form with a group of cup-marks incised on natural bedrock which had been utilised as panels at the north end of the dun site. Four definite cup marks were identified with the possibility of four more, the latter very faint and badly eroded and noted by rock art expert Stan Beckensall on his visit to the site.

The excavation revealed that the dun wall is poorly preserved at the north and for the most part existing as either very disturbed walling or as just a few basal foundation stones. However, enough of the monument survives to suggest the wall fully enclosed the northern part of the summit. The existence of an entranceway at this northern end, while not disproved, now seems unlikely, given that a possible internal structure seen in one of the trenches would have partially blocked any entranceway. The dun wall is better preserved to the south but again only the basal or foundation courses built directly onto bedrock survive. The foundations indicate that the wall may have been deliberately accentuated on the steep east side in order to provide the footings for a batter or buttress, but without the evidence of any superstructure this remains speculative. The dun wall widens at the west where it ran beyond the edge of excavation and was partially masked by a mature tree. Walls are often found to be thicker around the entranceways within dun construction, as can be seen at nearby Druim an Duin and it is a possibility that the wider wall indicates the entrance to the dun lay along this southern side.

The enclosure walls have now been traced on all but its southernmost side, which would appear to mostly lie under a Post-Medieval estate wall. The construction of the enclosure walls are of some interest as they seem to vary, with the eastern and western sides built entirely in drystone, while the northern arc of the enclosure wall was constructed with an earthen core. The reason for this is not yet been fully known, but it may be the earth core supported a palisade on this side.

Trenches were placed at the presumed junction of the dun and enclosure walls, in order to test the relationship between the two structures. On both counts the results have proved disappointing, with neither stratagraphic nor physical relationship firmly established between the two structures, although there was the possibility the enclosure wall abutted the dun wall in one trench. With this relationship unclear only the better preservation of the enclosure wall at the north compared to the dun wall suggest the former may be later in date.

It was also hoped that excavation in other areas would reveal differences between the internal and external areas either side of the enclosure wall, no related surfaces were revealed, however, deeper, and as yet unexca-

vated deposits remain. On the basis of the earthwork survey, one of the major assumptions was that the monument had been heavily robbed on the east while the western side of the ridge would provide us with a relatively undisturbed sequence of potential occupation. It was quickly realised that this was not the case and the 'robbed face' was a natural ridge running across the site. However, the hoped for sequence of archaeology was present at the north end of the ridge within a series of dumped/midden deposits being found. These deposits pre-date the enclosure structure and appear to have been dumped from the south west suggesting the possibility of occupation evidence surviving in this area. Associated with these dumped deposits was a nearby surface suggesting occupation deposits might also survive within the eastern part of the site. This possibility was also suggested by the existence of an internal face within the enclosure wall on the east with the probability that contemporary surfaces also survive. Further evidence of internal activity was also revealed in another trench where a possible internal wall foundation and an associated surface were present. C14 dates may be obtained from some of the 'occupation' deposits, particularly from the midden/dumped material. However, these samples will only give a date prior to the construction of the enclosure wall, and while these deposits are probably associated with occupation of the dun this is as yet unproven.

Interpretation of the 'cairn' as yet proves elusive with possibilities oscillating between a Post Medieval bothy structure and it indeed being a cairn, although if the latter it is an unusual and interesting form for this region. Needless to say, further work is required to fully unravel its date and function.

Rather more successful was the exploratory excavation to the west of the dun/enclosure where an area off the main site was investigated. While not fully understood at this early stage, it appears that extra mural activity is present and possibly exists in the form of a curvilinear structure. However a date and interpretation of this possible building will have to await future excavation.

Artefacts

Fragments of charcoal were recovered from six contexts in two trenches. Some appeared to be from a possible hearth, whereas other samples were from area disturbed by roots, which will yield less secure C14 results. Small fragments of burnt bone were found, as were charred seeds. A preliminary identification suggests these are barley.

Stone artefacts included three possible rubbing stones or polishers and a possible quern fragment from the 'midden' deposit. A large grindstone or sharpening stone was also recovered.

Small fragments of slate were also found within a number of contexts and as no natural slate occurs within the underlying bedrock they must have been imported but their origin and indeed function remains unclear.

A number of angular fragments of quartz were also found which are probably natural. A sample will be sent to a specialist to ensure this assumption is correct since quartz artefacts are notoriously difficult to recognise.

Conclusions

There is much more work to be done at the Barnluasgan site before any firm conclusions can be made with respect to the aims outlined above. The Kilmartin House Museum team hope to return next year for a further season of excavation. Preliminary results demonstrate that previous over planting by trees before the site was recognised have caused much disturbance to the site, which in some areas, made recognition of stratigraphy difficult. The team were able to establish the presence of human activity off the scheduled area and form some ideas about the relationship of the dun to enclosure. The charred seeds and stone artefacts give a tantalising glimpse into the use of the site, but postulation as to the length and character of occupation await further work. The project has been a very positive first excavation for Kilmartin House Museum, not least because of the enthusiastic help of our volunteers and the support of the local community – many of whom visited the site on our open days.

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Figure 1 -Site under excavation (authors)

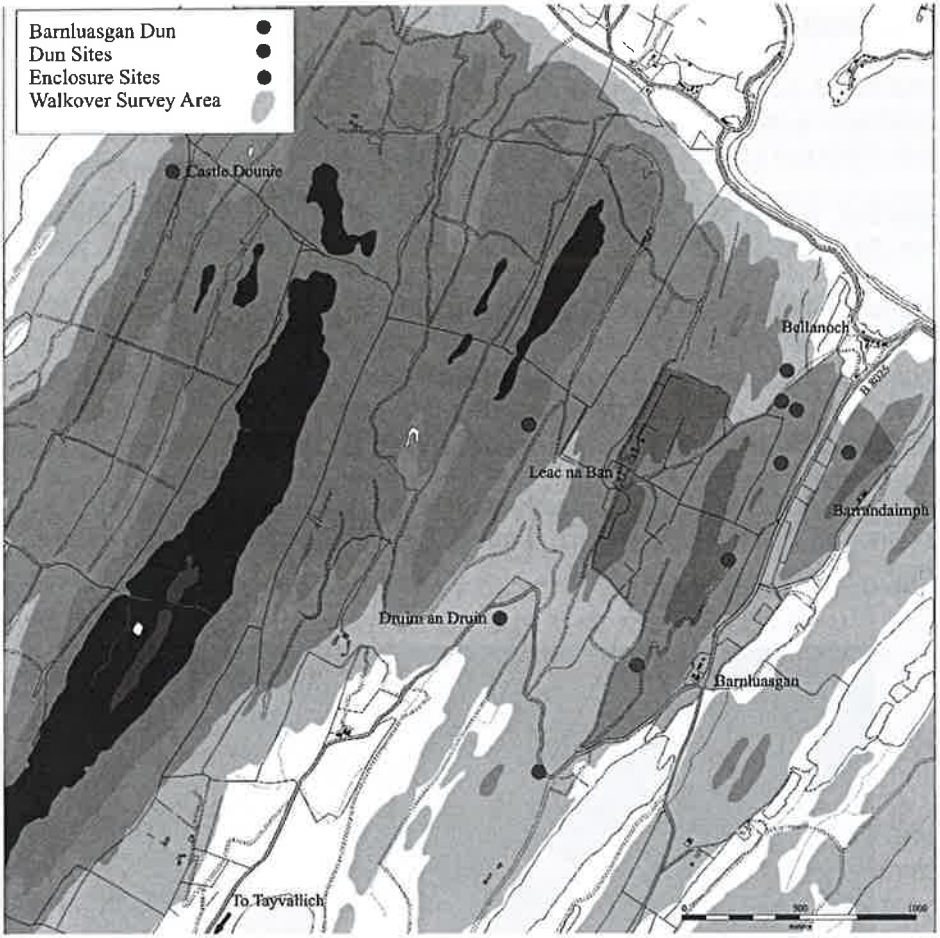

Figure 2 - Map of survey area. Note that Barnluasgan Dun is to the left of Barnluasgan settlement. The other marked duns are Castle Downie and Druim an Druin; the remaining marked sites are enclosures.

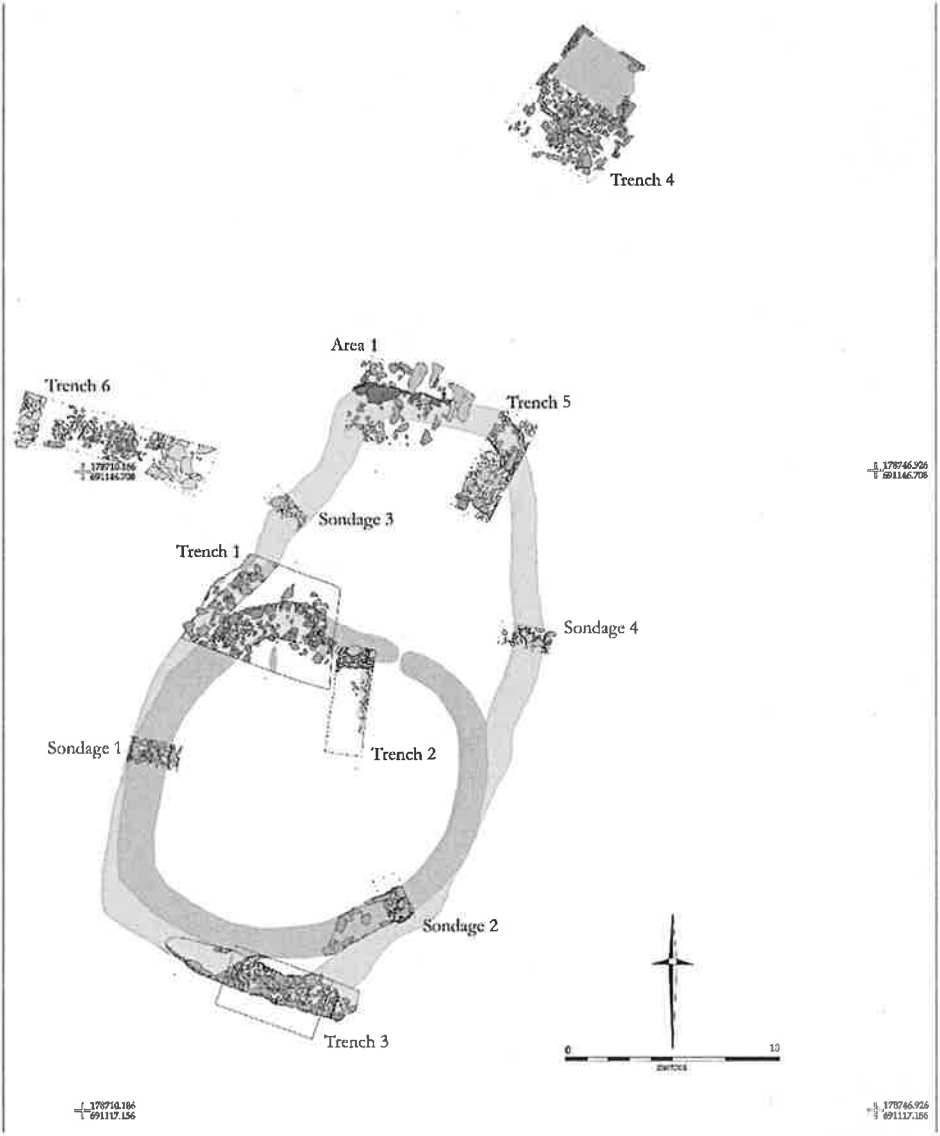

Figure 3 - Site plan showing trench locations.

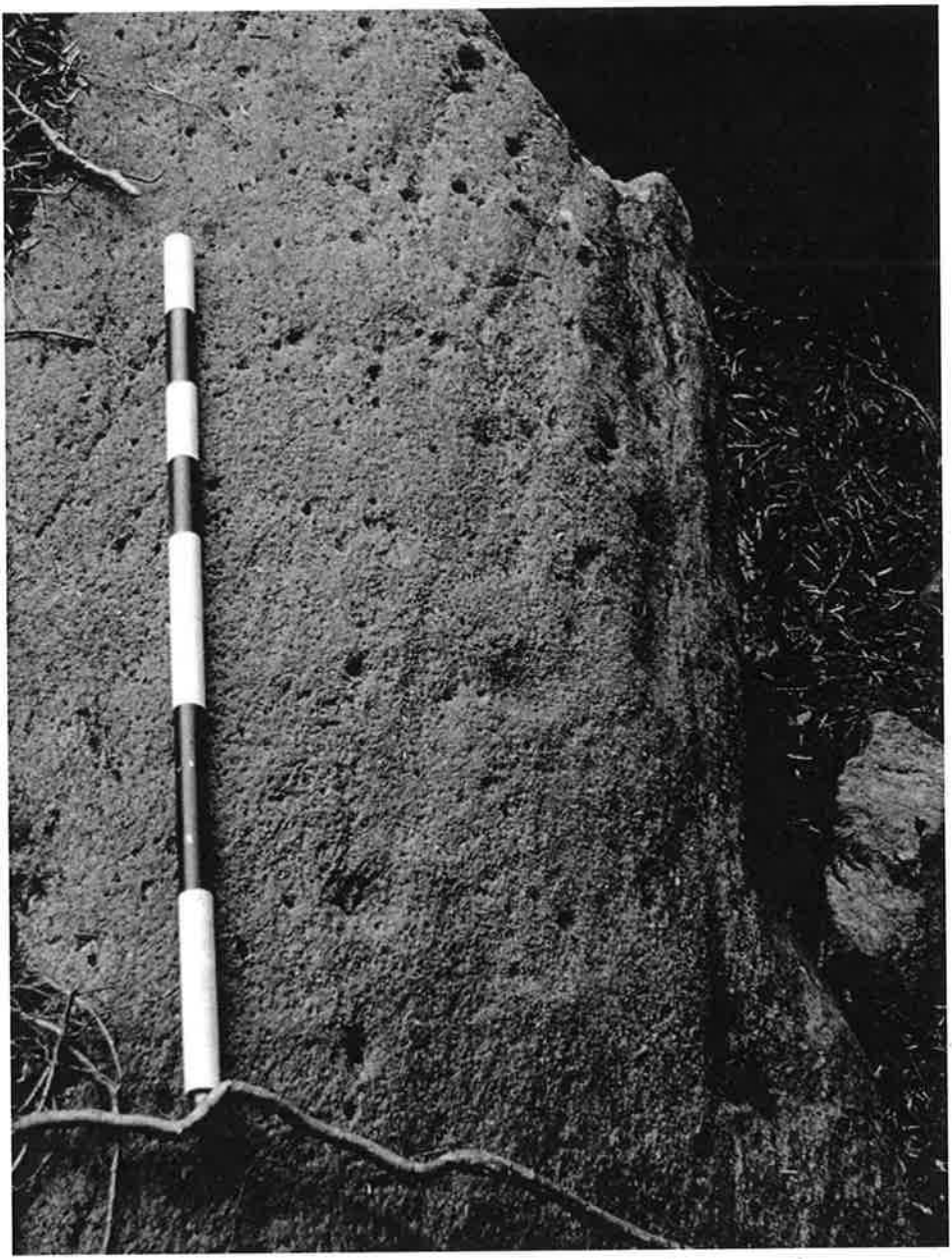

Figure 4 - cup-marked rock.

HIGHLAND SPINDLE WHORLS:

The history of an artefact from Tarbert Castle

C. Bowd

The Find

Back in 1993, whilst on a day-trip exploring Tarbert I made a chance find when ascending the rough stone steps up to the castle from Harbour Street. Eroding out from beneath the tenth stone step beyond the initial concrete section was what appeared at first glance to be a doughnut shaped stone pendant or spindle whorl. Closer scrutiny revealed just under half the artefact survived, it being broken across its diameter. Made of schist, the artefact exhibits abrasion around its edge whereas the upper and lower surfaces have laminated revealing fresh mica. The original diameter of 35mm's is clear to make out, whilst the present thickness averages 7mm's. The central hole is 10mm's in diameter and perfectly cylindrical with parallel sides. The existing fragment weighs 7grams, but when complete I would estimate 18 to 20 grams. There is no decoration of any kind to be seen on the piece. A vein of quartz is present which might well have contributed to the breakage.

It could be argued that the artefact is indeed a broken pendant, but the perforation shows no signs of wear as would be expected from a ring or thong used for suspension, whereas a tight fitting wooden spindle used along with a whorl produces next to no wear. Before arriving at any conclusions as to the age of this whorl, a brief look at the history of hand spinning as it relates to Scotland would be beneficial.

Hand Spinning in Scotland

Whorls made of stone, reused sherds of pottery, clay, bone, wood, lead and various other metals when mounted on wooden spindles have been used at different times since the Neolithic in the manufacture of yarn for weaving and other purposes. This simple tool allowed the user freedom to move around, required no special workspace and was (for the most part) easy to produce from materials to hand. In Britain it was due to the introduction of the great wheel sometime in the 14th century, known as the muckle wheel here in Scotland, that the common spindle

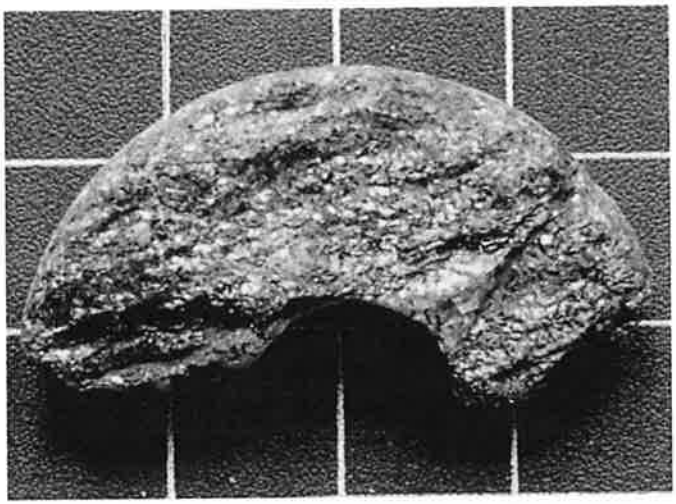

Figure 1: Spindle whorl found below Tarbert Castle (author) (note - each background tile is a square centimetre

whorl began to fall from favour. Such early mechanisation enabled the faster spinning of yarn to meet the ever greater demand made by professional weavers. The muckle wheel basically consisted of a large flywheel some four to five feet in diameter turned by hand. This was connected by a drive band or cord to the spindle that was now effectively turned 90° and located in an adjustable upright, eliminating the need for a whorl. This all-timber mechanism in turn was supported on a timber-frame, all of which could be made by a proficient woodsman. Further advances in design, requiring the skills of the carpenter and blacksmith, culminated in the foot treadle operated spinning wheel of the 18th century with combined capabilities for spinning and collection of the yarn in one action. This is the spinning wheel that most people are familiar with. But the days of spinning with a simple spindle and whorl, indeed even a spinning wheel, were all but finished. The end came with industrialisation and the introduction from the 1760's onwards of spinning-jennies, initially water-powered spinning frames associated with such famous names as Hargreaves and Arkwright. However the hand spinning of wool, and indeed other fibres, was continued for both domestic and commercial use in many of the more rural areas ofScotland, particularly in the highlands due for the most part to economic needs, and not out of nostalgia.

In these areas, where the summer grazing of animals was conducted on the higher ground, the continuing use of the portable spindle and whorl offered further productive use of time spent whilst herding.

The Scottish Home Industries Association

In the latter part of the 19th century attempts were made to reintroduce hand spinning as part of a range of traditional crafts that would provide work for crofters (Ross, 1895). The prime mover in this was The Scottish Home Industries Association, which continued to trade until 1957. Such endeavours were born out of the Arts and Crafts Movement but never really did more than stave off the inevitable, the end of a way of life, for good or bad.

That said, we owe a lot to The Scottish Home Industries Association, in particular Alexander Ross, Provost of Inverness who wrote the introduction to **Scottish Home Industries** published in 1895. In this introduction, Ross recounts many fascinating details of mid 19th century life in the highlands, and corroborates the continuing use of the spindle and whorl.... "The distaff was a more ancient form of spinning, and had the advantage that it could be done on the hillside while tending the flocks; and we have met girls herding on the hills, and busily spinning with the distaff. The distaff was very simple and picturesque. The wool was held in a bundle under the arm, and also the distaff, a pole of three to four feet long, which projected in front, and over the projecting end passed the thread of worsted. The end hung down a foot or two, and on a spindle was the whorl, or ring, of stone, which was practically a fly-wheel, and which was spun round from time to time and twisted the wool; gradually the thread was fed out from the store under the arm, and as spun it was rolled in a ball above the whorl". Ross goes on to say, "In almost all cairns and pre-historic dwellings those whorls are to be found often made of steatite, shale, or other soft stone".

(Editor's note: interested readers may like to consult the exhibition at Kilmartin House Museum where a spindle whorl from Ardifuar Galleried Dun is on display).

Labour Intensive Work

It should be born in mind that the hand spinning of yarn for all textiles produced prior to the 14th century was undertaken using the simple spindle and whorl, and in our area for very much longer in many cases. Such production was labour intensive and time consuming. To give some idea of the effort required to clothe oneself using this method, a ball or spindle full of single ply spun wool of medium thickness, say the equivalent to a standard double knit these days, can be spun in around an hour depending on the quality of the raw material. Add to this the time taken to prepare the fleece prior to spinning and for plying say two or three balls together, perhaps another hour. What will a ball of wool make? I hear some of you ask. Well depending on design, an adult sized hat. Now think in terms of very fine short stapled fleece spun into the equivalent of single ply, and you could be looking at more than two days work! Obviously such fine yarn would go a great deal further and be used for extra special garments such as a wedding or christening shawl. Ross was truly painting a romantic picture in his description of the girl spinning whilst tending her flock.

The Tarbert whorl

At first sight, dating of this particular artefact might seem fairly straightforward as it was found eroding from a partially sealed context beneath the steps leading up to the castle. Know the period at which the steps were constructed and you have a cut off date by which the whorl must have been made. There are at least two problems with this line of reasoning.

The first is that documentation of just when the steps were constructed may, or may not be available; the second is that later repairs or alterations might have resulted in new packing material being brought onto the site, the whorl having been incorporated within this. Stylistically this whorl from Tarbert is little different from others found spanning the past five thousand years or so; indeed, if we compare it with the fine complete example displayed in Kilmartin House Museum, on loan from The National Museum Scotland, there appears to be little difference. Both are plain discs of schist with no decoration. The latter is a tad larger in size all round inevitably making it slightly heavier, although the central perforation is smaller in diameter and hourglass in profile. The whorl

from Ardifuar Dun is one of only a few to have come from an actual archaeological excavation. This was carried out by the Society of Antiquaries of Scotland in 1904 (Christison, 1905). Unfortunately as was often the case at the time, little attention was paid to stratification, the interior deposits being removed in order to expose the architectural detail of the dun (RCAHMS, 1999). Whilst the finds assemblage along with comparative studies of other sites suggests a construction date in say the 1st century AD, habitation and reuse continued well into the 8th century (Butter, 1999). That said, it should be pointed out that a polished stone axe was amongst the finds, suggesting earlier occupation around the site that extends the possible date range for the whorl.

It is not uncommon to find earlier artefacts on sites, collected and treasured in much the same way as we do, but often as not reused for their original function. It is with the above in mind that the dating of plain stone spindle whorls becomes problematical. As a general rule the cruder the perforation, produced by a combination of pecking and boring with harder stone implements, the earlier the piece. Where a hole has been made utilising the likes of a bow drill producing neat parallel sides, as in the case of the Tarbert find, then an early mediaeval date onwards is more likely. This, though, can only be a generalisation when considering artefacts such as these that were in all likelihood made within the domestic setting. What we really need in helping to solve dating problems such as this is more data. Hopefully, by the time this is published, the preliminary results from the excavations planned for the site at Barnluasgan along with the long awaited report expected from the excavations at Dunadd will go some way to answering such questions.

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PYTHEAS, GREEK TRAVELLER TO WESTERN SCOTLAND

F. Campbell Byatt

Pytheas was a Greek who lived in the Greek colony of Marseilles in the fourth century BC. We can think of him as highly educated; the works of Greek scholars such as Herodotus (484–c.425 BC) and others would have been known to him. The knowledge of the stars and natural phenomena, as well as mathematics were being avidly studied and discussed. He lived at the receiving end of the northern trade routes which brought tin, hides, slaves and amber to the lucrative Mediterranean market.

Some years ago we all knew the name "Finisterre" from the daily shipping forecast. *Finis terra* as seen from the south: a far distant point to the north, steeped in legend and hearsay among the sailors in the market and meeting places of Marseilles.

One of the early maps from the sixth century BC shows the "Outer Ocean" encircling the known world and a *periplus*, an account of coastal landmarks, known at about the same time gives directions for travel in the Mediterranean and through the "Pillars of Hercules" (Gibraltar) into the Atlantic. On the west coast of Spain was the trading port of Gadir, modern day Cadiz, founded by the Phoenicians and a lucrative centre for tin and goods from the north.

Pytheas' claim to fame rests on his written account of the journey he made. He reached Brittany then Cornwall and the Isle of Man, travelling on up the coast of Argyll to Stornaway and the Shetland Isles. There he found the strange northern lands he called Thule. He then journeyed towards Scandinavia, looking for the source of the magic lumps of amber, and finally he is thought to have returned to Brittany and on home.

Ancient mathematical and astronomical knowledge from Babylon and Egypt was known in the Greek world and travellers' tales of the lands of unimaginable cold to the north and the possibility of wealth for those who ventured there might have spurred him on.

We do not know why Pytheas set off on his journey. Little remains of the book he wrote on his return, *On the ocean – Peritou Okeanou*, but it was being read by 325 BC, and certainly by Timaeus in Athens by 300 BC.

Strabo quotes from it and Ptolemy and other geographers use passages, credited to Pytheas. The papyrus or subsequently parchment rolls were lodged in the famous libraries of Alexandria and Pergamum, both of which were destroyed in later centuries. An enchanting extract from the work of Socrates (75 BC) is quoted by Professor Cunliffe: "Together with my friends, I unroll and peruse the treasures which wise men have bequeathed to us in their books."

From sources in other later works we can build up our picture of Pytheas' travels. Professor Barry Cunliffe writes that Pytheas would have understood the principles of the summer solstice, namely that the sun's shadow would lengthen as one travels north. People could measure the shadow using an upright stick or "gnomon" and a piece of string or notched wood to record its length. Pytheas would have learnt the exact art of taking these measurements in his home town of Marseilles and then kept a careful record to use at the summer solstice wherever he found himself. With this navigational instrument capable of measuring latitude, Pytheas would have felt confident about sailing out of sight of land. It has been substantiated in recent scholarship that sun sights were taken at several points along his route: Brittany, the Isle of Man, Stornoway on Lewis, the Shetland Isles and the Orkneys. Assuming that he took all these around the time of the summer solstice we can gain some idea of the period he was away from home. There are some indications that he explored the hinterlands where he found himself, possibly travelling by sea in the summer and by land in the winter.

Why did he do it? Was he a young man looking for adventure? Had he had some family tragedy? Had the loss of his wife perhaps catapulted him into leaving his familiar surroundings? Could it be that he made friends with a slave who came from the north, perhaps from Argyll, who persuaded him to explore under his guidance? We shall never know but imagination can beguile us into all sorts of fantasies.

For whatever reason Pytheas did leave home and he set off for the north, attempting to retrace the trade routes to their sources. It was a time of change and upheaval. The Celts were on the move. Rome had been sacked in 396 BC and the Carthaginians were taking control of the Western Mediterranean.

Pytheas would have heard rumours of these upheavals as he prepared for his departure and instead of travelling down the south-east coast of

Spain and on through the "Pillars of Hercules", it is quite likely he would have travelled north by the rivers that cross France towards Bordeaux. Here he would have found a local ship to take him and his companions north to Brittany where there were trading posts and harbours. This is where he took his first sun sight before crossing to Cornwall where he found the tin mines. By stages he would have travelled north, stopping on the Isle of Man where there were safe anchorages and fresh water. From there the Mull of Kintyre would have beckoned and stories of the neolithic henges and standing stones would have enticed him to go further north. Dun Skeig was already built at this time and there were duns on either side of West Loch Tarbert. The monuments of Kilmartin were already a thousand years old when Pytheas arrived and we can imagine him being entertained by the people living round about. The druids and bards were highly respected members of the community and Pytheas would have listened to their stories and songs with interest.

Travel in those days was mainly done during the daylight hours and he must have relied on local boats with crews well used to their own waters. The long-lasting traditions of Celtic boat building, as described by Caesar in Roman times, were possibly very like the wooden vessels found by Pytheas in Brittany. Further north, light wickerwork boats covered by hides were remarkable strong and seaworthy and could carry ten or more men. At night they would have sheltered in coves and harbours. Sitting round the fire, he would have listened to local gossip and planned his next days' movements. Did he have a trusted friend? An ex-slave perhaps who spoke Celtic or one of its dialects? Celtic was spoken throughout the region as a lingua franca. The Halstatt culture had been well known in Marseilles and the luxury goods made by the La Tene Celtic tribes were greatly valued. Bronze cauldrons, daggers, amber beads and horse harness were known in the Greek world. Gifts were exchanged between the Celts and the Greeks and gift offerings changed hands and were carried over vast distances.

How did Pytheas pay his way? He could have taken part in local trading enterprises, but it seems more likely that he would have had a supply of small, prestigious goods to barter and use as currency. Drinking cups were greatly admired and gold coins were highly prized. Glass beads and bracelets, small objects of silver, all these are possible.

We can trace some of these items in the Iron Age records in Argyll. A Greek coin, an Athenian *tetradrachma*, dating from c.450 BC was

found in 1885 when digging the foundations of a house in Tarbert. Gold *staters* made in 330–320 BC have been found in Celtic digs, while glass beads and bracelets have also been excavated and bronze axe heads unearthed.

Pytheas would have known of the Greek gods worshipped in Marseilles and the Celtic veneration of the spirits of water and woodland would not have seemed strange to him. Rock art, the cup and ring carvings of mid Argyll, with its strange symbolism perhaps allows the gods of the Underworld to visit the fresh green glens and mountains. He would have found these gods held in great respect and would have watched with interest the depositing of axes, cauldrons and spears in river and loch. These deposits were made to ensure the goodwill of the gods in the hope of good harvest and prosperity.

From Argyll, having passed the duns and brochs, he finally reached Lewis where another sun sight was taken. He wrote about the rise and fall of the tides in this area and conjectured about the effect the moon might have had on them. Tides were unknown in the Mediterranean and so the effect of the rising and falling sea level in coves and harbours when travelling by boat would have struck him as extraordinary.

In Shetland he would have looked out across the sea and heard stories of far distant and frozen lands. *Ultima Thule*, as Virgil called it, was the name used by Pytheas for the magical region bathed by the midnight sun in summer and enveloped by darkness in winter, a region of frozen seas and snowy wastes. But his descriptions were derided by Strabo who called him a liar and a romancer.

The last sun sight in Shetland is an indication of how far north Pytheas travelled. Perhaps he saw the spring migration of geese flying north, and talked to people who had taken their hide boats on towards Iceland. Professor Cunliffe is convinced he would have paid sailors to attempt the journey with him and find the furthest point known at that time.

Finally Pytheas set off on his last quest. This took him to Scandinavia to look for the source of amber. Herodotus, writing in the fifth century BC, says, "Both tin and amber come to us from the remotest parts". Electrum, after the Greek word for the sun, "The Shining One", the name given to amber, was highly prized for its vibrant colour. Myths in the Greek world seem to suggest that amber was known to come from tree resin and was found in the northern rivers and on the seashore.

Pytheas might have taken a piece of amber to enquire of people where it could be found. Amber beads, rings and carved objects have been excavated in Celtic graves. It seems Pytheas travelled to the Scandinavian regions before turning for home, possibly travelling down the east coast of England and onto Bordeaux and then Marseilles.

His was a remarkable achievement and although no copy of his written account survives, thanks to extracts in works by later authors we can gauge something of the extent of his travels. The possibility remains that more of his work will come to light. Lucius Calpurnius Piso, the father-in-law of Julius Caesar, had a famous library in Herculaneum, now known as Villa of the Papyri, which was engulfed by the eruption of Vesuvius in AD 79. The charred scrolls were first discovered in the mid eighteenth century, but recent advances in computer technology have enabled scholars to read the "black on black" script of the carbonised papyri. It would be exciting if a copy of Pytheas' *On the Ocean* were found. Who knows what interesting details and stories of his time in Argyll might come to light?

References

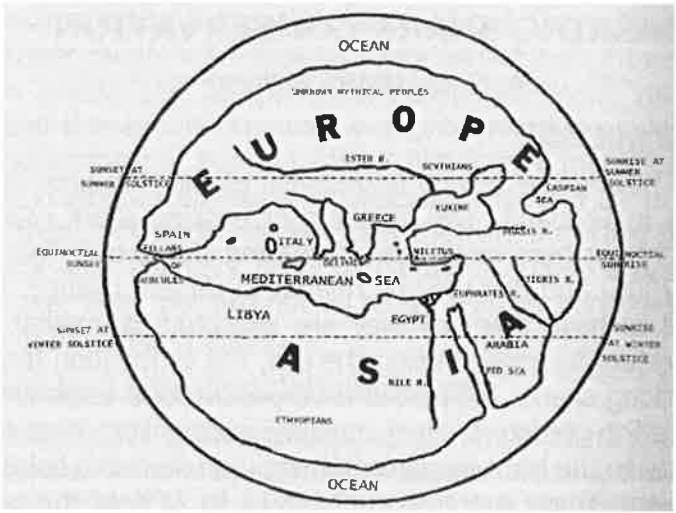
I would like to thank all those whose dedication, scholarship and knowledge have enabled me to write about Pytheas and the fourth century BC. I single out the following: Professor Barry Cunliffe, whose book *Facing the Ocean: the Atlantic and its Peoples 8000 BC – AD 1500* (Oxford University Press, 2001) first introduced me to this fascinating traveller; Joanna Kavenna and her book, *The Ice Museum* (Viking, 2005), which describes the magical land of Thule; and Elizabeth Sutherland whose work *In search of the Picts: A Celtic Dark Age People* (Constable & Robinson, 1995) gives an interesting account of Iron Age Scotland, as does *The Archaeology of Argyll* (Edinburgh University Press, 1997) by the late Graham Ritchie.

For a summary of recent news at Herculaneum and Villa dei Papiri, see http://www.herculaneum.ox.ac.uk/news.html

Figures on following page:

Figure 1 - Anaximander's map of the world, early 6th Century BC.

Figure 2 - Map of Western Europe with route Pytheas supposedly took.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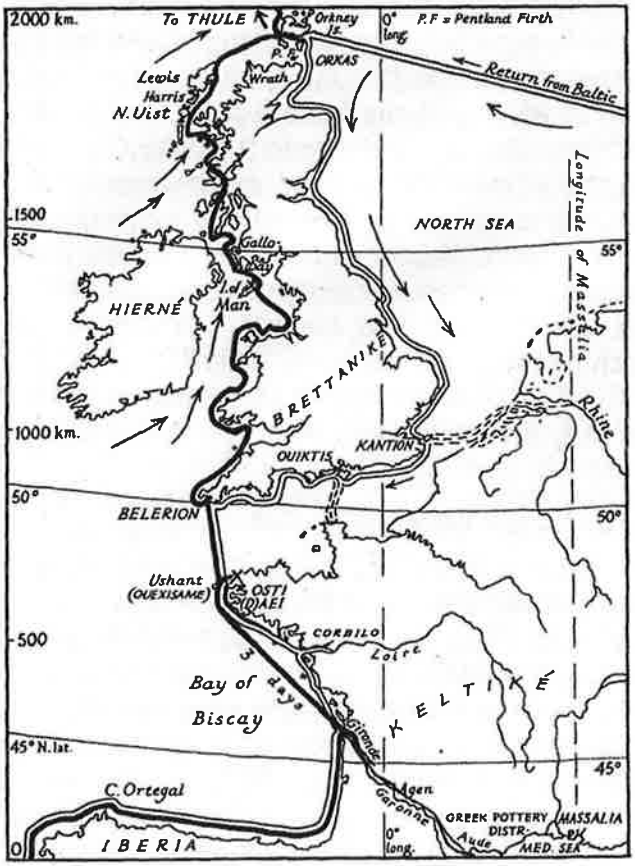
2000 km.
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BASKING SHARK CONSERVATION

M. Gore, UMBS Millport

A Basking Shark MOT

Imagine having the second largest fish globally on your doorstep. Well, we do, in Scotland. The numbers of basking shark (*Cetorhinus maximus*) sightings here have been increasing slowly over the last few years (MCS 2006) and this may be related to climate change. It is our good fortune to have them as they are indicators of habitat quality, which is important to anyone using the sea, not to mention the marine life itself. Basking sharks are part of a very short food chain and at the same time are top predators. They consume zooplankton in vast quantities, giving rise to the term megaplanktivore, and store the lipids in their very large livers. These livers account for 17 to 25% of the body, are larger in females than in males and giving near-neutral buoyancy to the shark. Unlike the larger whale shark, basking sharks are obligate ram feeders, they feed by moving through the water rather than actively sucking water in as whale and megamouth sharks are capable of doing. Basking sharks resemble baleen whales in that they filter water over gill rakers to collect zooplankton to swallow, much as baleen does for the whales. Basking sharks are able to utilise a wider range of habitat as they are able to dive to 2000m, deeper than whales are able to dive. Basking sharks are relatively defenceless against potential predation or harm by orcas or white shark, much less humans. They have no defensive mechanism such as teeth and their only defensive strategy appears to be to swim away or to roll on the bottom. The latter action leads to their downfall when they are caught by a line or a net as they then tangle themselves and asphyxiate.

Insults and injuries to Basking Sharks

Basking sharks were fished for the high quality lipid squalene in their livers, but they are now fished for their fins for the Asian restaurant "shark fin soup" trade. The fins can fetch high prices, while the rest of the shark is usually dumped unused. Basking sharks can be found along the coast of 48 countries and may migrate long distances. That is, they are not safe from fisheries when they cross an international border. They have been protected in UK waters since 1998, but they are still vulnerable to accidental catches, beachings, entanglements in fishing gear and collisions with boats. They are also still hunted in many countries, and

both harassment and human ignorance plague them. This summer, a Gairloch fisher caught a 6m basking shark and let it go. However, he was quoted as saying that he then heard that they were "worth a bit of money" and that had he known, he might have done more to try and keep it. Harassment of basking sharks, like marine mammals, may take place also in ignorance. People in boats see one and try to come close or follow them, not understanding that they are impeding their feeding or courtship and are very likely to hit them. These sharks are large reaching over 10m, but are not as tough as they might seem and will succumb to this type of injury.

Why it will be a slow population recovery

The problem for basking sharks, as with most shark species, is that they are termed "K" strategists for reproduction. That is, they take a long time to mature and to reproduce relatively few offspring at a time for their size. Females are thought to mature at about 18 years when they reach 8 to 9 m in length, and males at between 12 and 16 years when they reach 5 to 7m. Gestation is suggested to last between 18 months and 3 years, when the ovoviparous shark gives birth to live young. Only one birth has been witnessed, with a litter of 6 pups of 1.5 to 1.7m long. Their life history renders them vulnerable to exploitation. Using data from other large and slow-growing sharks, it is estimated that an unexploited population increase might be only 2-10% per year. That is, population recovery could be decades.

Behaviour in Basking Sharks

Around Scotland, we observe basking sharks from just under 3m to 10m, with reliable reports of a few larger than this. They are observed when they come to the surface, but being fish, they do not need to do so to breathe as marine mammals must. They appear in cool to warm temperate coastal waters of about 8 to 14°C in both hemispheres. Basking sharks are usually seen singly, but they are observed in pairs or large groups on occasion with possible courtship behaviour that is typical for sharks. White patches can be seen on their backs and anal fins at times and may be a result of mating, although damage from propellers and boat strikes may also be seen. Their most spectacular behaviour at the surface is breaching, when a basking shark leaps out of the water. Why this is done we still do not know, but in whales it is thought to be a display of fitness.

Their travel agenda

Basking sharks are thought to be migratory, moving inshore to feed in productive areas of zooplankton, probably using thermal fronts. How they detect these minute animals is not known, but it may be through chemical or electrical signals given off by the zooplankton themselves. The sharks can move extensive distances horizontally, up to 3400 km by one tagged (Sims *et al.* 2003). These longer distances are thought to be climate-driven thermal resources rather than prey used more locally (Cotton *et al.* 2005). Basking shark appear to show vertical migration and habitat selection that reflects that of their prey, zooplankton. They may be achieving this by tracking sound scattering layers characterised by larger prey such as copepod and euphausiid zooplankton (Sims *et al.* 2005, Sims & Quayle 1998). They may be able to detect the quantity of zooplankton available and decide whether to forage on the patch ahead or not, depending on a minimum quantity (Sims 1999).

Basking Sharks in the Clyde Sea Area

From our work, there appear to be hotspots in SW Scotland where basking shark feed at the surface. Of course, the ocean appears two dimensional from the surface and there are many more basking sharks below, which we know from tagging and retrieving dead ones. In the Clyde Sea Area, they can be seen almost everywhere, but there are areas where they are seen more frequently than others. It must be borne in mind that people tend to congregate in specific areas, such as on ferries or beauty spots on land. Between Ardrossan and Brodick (Isle of Arran), people often see them when making the crossing. Nonetheless, there are areas where they are seen that are less frequented too. Last year, we had several basking sharks on the south-east side of Great Cumbrae. But a favoured spot is the Lamont Shelf.

While they can be seen at any time of year, they tend to be seen during the summer months most frequently. This is not just because of the lighter nights and more people outdoors, but conditions seem to favour this time of year, usually from June to August.

The last of the hunters

Project Basking Shark is based in SW Scotland and we have been studying these sharks for three years now, involving the expertise of the last basking shark fisher in the UK, Howard McCrindle. His knowledge of their behaviour and anatomy is very valuable to further our understand-

ing of basking sharks. What is a great shame is that there was not an interest in studying them at the same time as he fished them, when much valuable information could have been acquired. The aims of the project are to determine information that is key to their conservation. This includes where are they feeding year round and at what depths, and their use of specific locations. It also involves investigating population numbers and trends and increasing public awareness of basking sharks.

Project Basking Shark

To achieve this, we use a number of methods. We sample food resources, the zooplankton for numbers and species over the seasons and areas of SW Scotland, and bycatch for genetic analysis, potential toxicity levels and to learn about their anatomy. We monitor sightings through our observer network, which provides valuable information that would otherwise be lost. We also undertake surveys of the area for indices of productivity, partly through the zooplankton samples, but also indicator species such as seabirds, fish and marine mammals. To understand where the basking sharks go both horizontally and vertically, we use two types of tags. One is acoustic to follow the basking sharks in real-time and understand their use of the depths, and the other is by satellite for longer term data on migration routes. We collaborate with colleagues from the Wildlife Trust on photo-identification using photographs of the dorsal fin. The fin may seem a standard shape and size, but it can vary as the nose on your face. It is not just the nicks and cuts on the trailing edge of the fin, but the characteristic shapes help us to identify individuals. Raising awareness of basking sharks and the conservation issues is also a key part of our work. We send out leaflets, stickers and logging sheets with identification guides for our large marine vertebrates, give talks and write articles.

A lot still needs to be done

We have come a long way from "Basking Shark – the Sea Monster" of as late as 1808 in that we know what food resource they target, that they can migrate long distances and utilise the depths. But issues for the conservation of basking sharks still include basic questions including where do they go after summer when they are no longer spotted at the surface along the UK west coast, how many are there and is it a viable number for the population, and alleviating anthropomorphic threats. They are a magnificent animal and how many endangered animals can

boast a poem dedicated to them as the basking shark can by Norman McCraig?

How to tell if it is a basking shark

How do you know a basking shark when you see one? This may seem a strange question for those familiar with these magnificent animals, but not when you are uncertain what you will see the first time you see one. Although they are very large fish, you will only see a very small part of them on the surface, unless you are lucky enough to see one breach. Unlike whales, dolphins and porpoises where the dorsal fin is seen only briefly when surfacing to breathe, the large dorsal fin of the basking shark tends to stay out of the water for a while. It is large and triangular, very dark almost black in colour. The tailfin may also be seen and it appears to be another shark following as it does not move in line with the dorsal fin. The tailfin has a notch in the top and this is normal, not a cut in the fin. Lastly, the rounded end of the nose might appear ahead of the basking shark. This may have a pink or white patch on it from rubbing it on perhaps another shark. Once you have seen one, you will be certain of what you are looking for!

How to help

Project Basking Shark is funded by the Save Our Seas Foundation, Scottish Natural Heritage and Argyll & Bute Council. We are organising a group interested in basking sharks and their conservation and we welcome people who would like to join. Contact us through Dr. Mauvis Gore, 07974 688 935 or 01475 530 581, email address mauvis.gore@cumbrae.freeserve.co.uk.

SUNSHINE AND MOONSCAPE: SHETLAND 2006

Rebecca Pine

On Sunday at the Shetlands Tourist Office we found guidance to our first broch, Clickimin. Set on the verge of a lochan on the outskirts of Lerwick this well-preserved Bronze Age remain was to be the precursor of many brochs and sites of antiquity. While it was indeed interesting its proximity to the local residential area gave it a surreal feeling, and the Vintage Car rally at the nearby Leisure Centre proved too much of an alternative attraction to some of us. In the early afternoon we settled into our comfortable chalets overlooking Scalloway harbour with time enough for some individual exploring in the locality before dining at the Scalloway Hotel.

Sunday saw us away at 9.30am for the run down to Jarlshof, which must be one of the most impressive sets of remains in the UK and is thoroughly

deserving of its world heritage status. Five layers of occupation from the Bronze Age to Medieval times are to view, and the whole complex is so full of wonder that we happily spent a couple of hours wandering through several millennia. In the present moment, Shetland Starlings (a true sub-breed) nested happily in the dry stane walls. Nearby on Sumburgh Head - as watchers of BBCs "Springwatch" will be aware - the cliffs were alive with the sound of seabirds. Also nearby were the recently discovered brochs of Scatness, a current and ongoing excavation at the end of the airport runway.

Another early start on Monday took us to the island of Mousa which is largely a bird and nature reserve, and which is the setting for Mousa Broch, the largest and best preserved broch in the world. Rising to over 13 metres, with its cavity wall staircase leading to the circular topwalk, it is a formidable structure containing beehive cells and small chambers at lower levels, and is home at night time to Storm Petrels coming in from the sea. The island itself provided us with some good walking, and for at least one of us a brush with the Bonxies. This and subsequent evenings we dined delightfully at the North Atlantic Fisheries College in Scalloway.

Morning departures then began to get seriously early as we headed next day for the island of Unst, via the island of Yell, to the National Nature Reserve at the Keen of Hamar. This remarkable moonscape is home to some of the most distinctive (and diminutive!) plant life on the islands, eagerly pointed out to us by the local Ranger, Nicky. He was to be our guide on a further walk to the head of Hermaness with its' distant view of Muckle Flugga and its cliffs alive with Puffins burrowing unconcernedly at our very feet.

Later in the week we took in another island, Fetlar, which also involved the Yell and Unst ferries and an early rising. This is a small island barely six miles across and on which we had anticipated seeing the site of a Viking ship burial, but which we traversed from end to end without seeing! It turned out to be no more obvious than a large mound of earth which had been re-covered by the 'Time Team' for its own preservation. However the island did have a very interesting folk museum - a facility which we found at several other places in the Shetlands - and Nick the Ranger guided us to a bird which was to make the whole trip worthwhile. This was the Red-necked Phalarope, a small wader of almost dove-like appearance enhanced by multicoloured wings and of course a red neck. At a lochan in the middle of the island several of these birds gathered and performed their courtship rituals at our feet, again oblivious of our presence.

On other days we travelled independently to some of the many wonders of the islands and among us covered all points of the mainland compass from North Roe (an aeroplane in a garden) to Hamnavoe.(a herring festival on the beach); from Sandness (a jostle of sand birds and a view of Papa Stour emerging from a sea mist) to Houss Ness (and a first view of Foula along the way); from Braewick Bay (looking south to the Drangs) to Whalsay Island

(looking at the amazing cave life through an underwater camera); from Scalloway Castle to a Lerwick hostelry.

The Shetlands proved to be the most interesting setting yet for our annual Island extravaganza and the Shetlanders the most friendly and hospitable people. As an area of Scotland very good use has been made of the income generated from oil revenues, most villages having their own community centres and swimming baths, and there is a general air of prosperity and contentment on the islands. Certainly we were made most welcome, not least at the North Atlantic Fisheries College where we held our final dinner and where I reminded the party of our adventures in a parody of "The Green Eye of Little Yellow God" entitled:-

The Green Eye of the Mainland, Yell and Unst

There's a little group of Islands to the North of Aberdeen.
There's a little line of chalets by the town.
There's a lion-hearted woman and her husband. Mad De Been,
with his eyebrows pointing up and never down.

He is known as Mad De Been for the excellent cuisine
that he rustles from the most unlikely source:
From the Scalloway Hotel and the Colleges as well -
and the liquid, red and white, he serves of course.

When he asked them all on Orkney where they ought to go next year
to a lad and lass they answered Mad De Bee -
"Off the furthest coast of Scotland there's no better course to steer
than the Islands to the North of Aberdeen."

So when load and Fred were both on the outskirts of Arbroath
deciding where De Been was coming from,
yet another Declaration caused a lack of concentration
and was reason for a little contre-temps.

Then when all had finished trekking and were gathered on the decking
as the 'Hjaltland' left the port of Aberdeen,
not a dolphin showed - instead, all they saw was Peterhead
through the smoky cloud surrounding Mad De Been.

They were roused at crack of dawn on the distant Lerwick mom
to "Move your cars!" and kindly disembark.
So they headed for Clickimmin, some five men and thirteen wimmin,
to the ancient Broch - and modem Leisure Park.

Here the vintage cars had rallied (one of Mad De Been's delights)
till at last the party felt they had to go;
and when they reassembled there were other bragging rights,
like the Herring Barbie Fest at Hamnavoe.

On the next they convoyed off to the ancient site Jarlshof
where the Shetland Ponies waited by the moat:
where the Bronze and Iron Ages and the Norse and Viking stages
clearly overlapped - and Creena lost her coat!

Then they sailed to Mousa Island on a perfect sunny day
where the Mousa Broch must surely be the best.
But the Bonxies can go bonkers if you leave the beaten way,
as Mary will be certain to attest.

On the moonscape Keen of Hamar there were Worts-and-all galore,
and the lark ascending sang his plaintive song.
There were cameras - and bottoms - ever closer to the floor
and the wind grew keener as they crawled along.

For a sight of Muckle Flugga (which I'm not allowed to rhyme)
a party set off climbing once again.
There were Puffins billing gaily at the apex of the climb.
Who went up I'm not quite sure, but down came ten.

In the hours appointed Free there was so much more to see,
and what was there, you bet your socks was seen -
Castles, boats and birds and flowers wiled away the happy hours
on the Islands to the North of Aberdeen.

They achieved their wildest hopes with the Red-necked Phalaropes
on Fetlar at the Funzie lochan site.
But despite our many passes Viking stayed beneath the grasses -
Still we got them home in time to drink tonight!

So the the N.H./S.M.A should have only this to say
to the organisers, led by Mad De Been,
"It's been every bit as good as we always knew it would,
on the Islands to the North of Aberdeen."

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