Biggar Archaeology group

Bringing the past to the present

The world of Arran pitchstone as perceived at Biggar Museums in 2000.

An account of a seminar held there
by local archaeologists.

Tam Ward 2017©.

Account of a seminar on Pitchstone held at Biggar Museum in 2000.
Tam Ward. 2017

Introduction

The following paper is an account of a seminar held at Biggar Museum in the year 2000, about archaeological pitchstone, it has never been published and indeed it was not meant to be, only the participants received a copy of the proceedings. The proposed 'follow ups' to the seminar never took place, due at least in BAG's case, to the pressure of their project work, and the fact that eventually contact was made with Torben Bjarke Ballin who did what we wanted to have done, a professional study on the subject matter of our collections of pitchstone, and to which we are extremely grateful. Firstly, Torben produced a paper which *is* published on BAG website (Ballin & Ward 2008) and dealt with the collections made by BAG to that date. Torben then went on to publish two other papers on pitchstone; one in association with John Faithfull (Ballin T B 2009 & Ballin T B &, Faithfull J, 2009). Therefore, the work of BAG relative to pitchstone was brought up to date in 2008 and the subject matter was further published academically by 2009.

The aims and objectives of the seminar at Biggar in 2000 are set out throughout the following paper on the day, and the principal aim of *this* introduction and the now published account of the seminar are merely to put on record that BAG was the first to publicly promote a fuller study of Arran pitchstone since the pioneering work of Thorpe and Thorpe in 1984 (ref below). The problem for the present writer and BAG was that there was little to hang the work of BAG on, regarding pitchstone, as indeed was, and still is the case in other BAG projects which have 'trail blazed' in a considerable number of archaeological project subjects. Hence the organisation of the pitchstone seminar in 2000 at Biggar.

The event was attended by a few professional archaeologists; six of the thirteen participants, the remainder being all members of BAG or Peeblesshire Archaeological Society (PAS), both groups being organised then by the present writer. The contribution by those professionals was essential to a better understanding of the subject matter for the volunteer archaeologists present, and we were exceedingly grateful to them for attending.

As is stated above, little follow up was achieved by BAG, principally because of the later work by Torben Ballin, one of the leading specialists on prehistoric lithic study in Scotland. This was a major boost for us at Biggar. However, things have moved on, as they do, and since 2008 further pitchstone has been found on BAG projects, perhaps most interestingly at Daer valley where, at the time of the seminar, only a single piece had been found. Later, at Daer, it was being found by BAG in proximity if not necessarily in association with Mesolithic site assemblages, and in the more convincing company of Early Neolithic pottery and C^{14} dated features. All the later work involving the recovery of pitchstone is given on the BAG website, in various reports.

However, it is a sad and an incomprehensible fact (in the view of the writer) that little if any of the work of BAG is referenced by the profession in academia. The often-stated reason given to him is that projects given on BAG website "are not published", especially since they are not peer reviewed and seldom (apart from consistent environmental work and C^{14} dating) have much professional input! What this means in practical terms is that a number of extremely important and moreover 'pioneering' discoveries in Scottish archaeology go almost completely ignored. Regardless of how poor the reporting may be perceived, the *facts* presented, especially in the form of actual objects, features, environmental studies and C^{14} dates, are all irrefutable. It is for that reason that the writer tries to include as much colour illustrations as possible in BAG reports, especially of objects, to be perhaps more convincing that the written material also given. What all of this means is that apart

from a few associates in the 'profession' whom the writer is in contact with, much of the work of BAG remains unknown, available only from their own web site. This fact is undeniable, as professional papers will demonstrate. What it also means is that students of archaeology are often given a very biased view of the subjects considered in those reports, by omitting basic reference to the pertinent work of BAG in various prehistoric and other periods, it seems to this writer to be a rather distorted approach to presenting knowledge of the past, made overly worse by the fact that academics and/or professionals are doing it.

Regardless of that, the seminar did cover a comprehensive range of issues regarding pitchstone, and the intention at least was to continue the research issues stated on the day. It will be evident that many aspects of the world of archaeological pitchstone and indeed of its natural world, were discussed and a considerable range of questions were posed by the organisers. Fortunately, much of that has now been answered or re-questioned in the later papers which are cited below, comparison between the seminar proceedings and these papers is invited, hopefully to qualify the value of the seminar.

The seminar proceedings are given below in full, altered only with only minor typing corrections. The writer believes that some statements made by BAG during the event have since been vindicated while others have been modified or even rejected (see Ballin below) and while the entire document is now incomplete and out of date, it nevertheless may be of some value as a reference to others taking an interest in the subject of Arran pitchstone and its historical study in Scotland.

It may be perceived that the principal organisers [Ness and Ward] both amateurs in the fields of archaeology and geology, may have got some things slightly askew in their statements, but it was an attempt to interest and stimulate others, both professional and amateur in the subject, and they trust it will be appreciated in that context.

Note: *with reference to the NMS stores (below); the Cruiser Store at Leith no longer exists, all reserve archaeological material is now being stored at their custom-built facility at Granton, therefore the storage reference numbers may no longer be valid. Similarly, users of the seminar paper should be aware of its limitations regarding what data was available to the organisers at the time.*

References

Ballin T B & Ward T 2008. *General characterisation of the Biggar pitchstone artefacts, and discussion of Biggar's role in the distribution of pitchstone across Neolithic northern Britain.* www.biggararchaeology.org.uk

Ballin T B 2009. *Archaeological Pitchstone in Northern Britain*. BAR British Series 476. 2009.

Ballin T B &, Faithfull J, 2009. *Gazetteer of Arran Pitchstone Sources Presentation of exposed pitchstone dykes and sills across the Isle of Arran, and discussion of the archaeological relevance of these outcrops*. Scottish Archaeological Internet Report 38, 2009 www.sair.org.uk

Williams Thorpe, O., & Thorpe, R.S. 1984: *The Distribution and Sources of Archaeological Pitchstone in Britain.* Journal of Archaeological Science 11, 1-34.

THE ORIGINAL DOCUMENT

Biggar Museum Trust
Pitchstone seminar held Saturday 30 September 2000
Report Jim Ness & Tam Ward
Compiled and distributed by T Ward, 8th January 2001

Introduction

An informal seminar on the subject of pitchstone was held at Biggar Museum in order to initiate a debate and form a possible discussion group on the subject. This report compiles the presentations and summarises the comments and discussion which ensued (illustrations used at the seminar are not given here).

Attendance

Margaret Brown, Brenda Dreghorn, Denise Dudds, Ken Fawell, Joy McBain, Jim Ness, Tam Ward, John Whitworth, Alison White from Biggar Museums. Bob Knox, Joyce Durham, Jack Boughy, Renof Wiggins from Peeblesshire Archaeological Society. Alan Saville from the National Museum of Scotland, Patrick Ashmore from Historic Scotland, Grahame Warren from University of Edinburgh, Roy Smart, Geological Society of Glasgow, Beverly B Smith from University of Glasgow, Ian G Meighan from Queens University of Belfast.

The programme

1. Welcome and introduction by Tam Ward, Biggar Museums
2. Jim Ness, Biggar Museums. The geology of pitchstone
3. Jim Ness, Distribution of archaeological pitchstone
4. Tam Ward, Resources for pitchstone information and collections
5. Tam Ward, The Clydesdale sites producing pitchstone
6. Other contributions
7. A look at the Clydesdale pitchstone with Graeme Warren, University of Edinburgh
8. General discussion
9. Close

1. In his introductory remarks Tam Ward stated that the proceedings for the day were really just to test if there was a general interest in the subject of pitchstone and to explore the possibilities to pursue the matter beyond the meeting. Because of the work at Biggar where numerous sites have now produced pitchstone, it is important for the Biggar group to collate all information on the subject in order to set their own work into a better context, this process had already begun and the available data was presented and is given here.

Pitchstone was first mentioned in archaeology over eighty years ago (Mann, 1917) and a significant collection of both geological and archaeological specimens has since found its way into museums. However, a problem has been identified whereby some museums are unaware of their holdings and in some cases, the collections are wrongly described, for example in the National collection, dark coloured flint, chert and even glass slag are described as pitchstone while some pitchstone is described as dark flint! It was suggested that many archaeologists would not recognise pitchstone since it may be beyond their experience. These remarks are not intended to be in judgement but are made to highlight the need to take a greater interest in the subject matter.

Most of the pitchstone accessions in museum collections have poor provenance and contextual information, however, it appears to be mentioned more frequently in reports but very little seems to be read into its presence on a site or location, it often just gets mentioned as being there.

There is now a need to have more interest taken in pitchstone with a comprehensive re-evaluation of its significance in archaeology. Caroline Wickham Jones reckons there is a wonderful PhD waiting for someone on the subject, perhaps this report may stimulate that.

Ref: Mann, L M. 'The prehistory and early use of pitchstone and obsidian' PSAS, 52 (1917 -18), 141

2 & 3 Jim Ness gave the following papers: The Geology of Pitchstone
The Distribution of Pitchstone Finds

The Geology of Pitchstone

Pitchstone is an igneous rock found in abundance in the Tertiary Igneous Province of the British Isles in the form of dykes, sills and lava flows. It is an acidic rock meaning that it contains a large proportion of quartz (on Arran >72%) and this mineral gives it its glassy potential. The other reason for its glassy nature is the fact that it has cooled from its molten state very quickly. This means that its crystals have not had time to grow and thus the fine grain size. It has a conchoidal fracture just like man-made glass, easily seen on the specimens on display. It is distinguished from obsidian, the true natural glass, by having a higher water content, up to 5%. Pitchstone is usually green; obsidian generally black. Another acidic igneous rock, felsite from Shetland also has an archaeological context. Bloodstone from Rhum and agate, found locally, are technically minerals but exhibit similar chemical and physical characteristics to pitchstone as do chert and flint although these are sedimentary in origin.

The British Tertiary Igneous province consists of a number of igneous centres notably on Skye, Mull and Arran and a series of dyke swarms radiating from these. Some of these dyke swarms produced lava flows on their extrusive termini. The province was active 60 million years B.P. when the Pangaea super-continent was splitting into separate continents and the Atlantic Ocean was in its proto- stage. The dyke swarms intruded acidic and other lavas into the overlying older sediments and on Mull, Arran, Eigg and Raasay they were composed of pitchstone.

Arran is dominated geologically by the Goat fell and a'Cruach granite massifs and their associated dykes and sills. A dyke is an igneous intrusion which has penetrated the existing crustal rocks in a vertical manner. Sills are similar but are intruded at a lower angle approaching horizontal. These igneous rocks are intruded into older sedimentary and igneous rocks which now appear to surround the granites. The sediments around the intrusions have been metamorphosed.

Four types of pitchstone have been identified on Arran - Corrygills, Tormore, Glenshurig and Glen Cloy. All are distinguished from the northern varieties by having higher silica (quartz) and lower iron oxide, titanium oxide and calcium oxide content although this is usually distinguishable only through chemical analysis.

Of the Arran varieties Corrygills is the only aphyric source i.e. it does not contain phenocrysts. Phenocrysts are larger mineral grains within a finer grained groundmass having solidified deeper down beneath the earth's crust before the bulk of the rock's minerals cooled on contact with the earth's surface. Although Corrygills pitchstone has no visible phenocrysts it is easily distinguishable in thin section from other Arran porphyritic types (those which contain phenocrysts) and northern aphyric types.

Acid igneous rocks do not flow easily; it can be likened to stiff toothpaste. It moves slowly and during flowage folds emerge due to the drag of the viscous magma. This is one of a number of thin intrusions which cooled extremely rapidly.

Corrygills contains needles of the mineral ferrohedenbergite with fronds of biotite. Raasay pitchstone is aphyric and contains ferrohedenbergite but the mineral is not elongated. The Arran Glenshurig type contains quartz, augite and feldspar phenocrysts and the Arran Tormore type contains feldspar phenocrysts.

It is worth considering one problem with the geological analysis of archaeological pitchstone - the small size of many samples. These samples may appear aphyric but in fact have been knapped from a porphyritic source as much magma mixing has occurred. One small dyke or sill may contain both aphyric and porphyritic pitchstone in close proximity.

Pitchstone artefacts have been made mainly but not exclusively from non-porphyritic sources. This crystal free was valued, searched out on Arran and transported to mainland Scotland, Northern Ireland and northern England. The Corrygills pitchstone was the one which was most prized by Mesolithic and Neolithic man.

The Distribution of Pitchstone Finds

Before we look at the geographical distribution of archaeological pitchstone finds let us consider the possibility of glacial transportation of pitchstone. Glacial till on Arran contains pitchstone but there was no need to use that source there in the light of the abundance of in situ pitchstone. The main track of the Pleistocene ice sheets was north to south and there are no records of till containing pitchstone on the British or Irish mainland's.

Post-glacial sea level changes have to be considered when looking for the source of archaeological pitchstone. Although during the last glaciation sea levels were below those at present, in the immediate post-glacial period, around 9000 years BP, ice melt caused sea levels to rise considerably. Arran displays a number of raised beaches - coastal platforms indicating a higher level of coastal erosion.

The Tormore pitchstone outcrops at Judd's dykes is below the level of the raised beaches and would have been submerged during the Mesolithic and early Neolithic. Corrygills at 150m above sea level was high and dry; another reason why this outcrop was used to source the pitchstone.

So valued was pitchstone in the Neolithic that it was transported over 400 miles to Brodgar on Orkney. This find was made by Richards in 1986. Other notable sites include eight in Northern Ireland including a 510 piece find at Ballygally by Derek Simpson and Ian Meighan. The Bannockburn site includes pitchstone discovery in a pit along with chert. Also notable are the finds at the caves on the Isle of Ulva off Argyll and the use of pitchstone in building blocks on Eigg. This use was included in the construction of shieling huts or possible beehive structures using a local natural source. Pitchstone knapping is in evidence at Dumyatt Hill near Stirling. Numerous single finds from the 1940s are distributed around Earlston and Kelso. The largest concentrations visible on the map are in Clydesdale - Biggar Common and Melbourne which Tam will shortly describe in detail, at Luce sands where a series of discoveries have resulted in a total of over 400 lithics scattered around the dune locations and of course on Arran including the discovery of 77 lithics at Machrie Moor, just north of the Tormore outcrop, amongst a larger total lithics assemblage.

It is interesting that the majority of reports of pitchstone finds record the discovery of only one or two pieces, the majority of larger assemblages being on Arran itself. In 1984, Thorpe and Thorpe produced this distribution graph showing the decrease in the number of pieces of archaeological pitchstone discovered as the distance from Arran increases from Arran itself to Orkney. To this we can now add the 510-piece assemblage from Simpson and Meighan's discovery at Ballygally, 90 km from Arran and Biggar Museums' finds of c.100 pieces at each of Biggar Common, Melbourne and Brownsbank 110 km away.
Do these recent discoveries mean that Thorpe and Thorpe's correlation needs to be re-examined?

So why was pitchstone transported 400 miles by sea in the British Isles? Was it traded? Was it exchanged for Antrim flint in the south-west? Obsidian was transported over 1000 miles in North America. It seems to have been used as a form of currency in Jordan. Was it an early form of Danegeld or dowry? Was it simply something sharp and shiny and intrinsically desirable? You may be invited to answer these questions later in the proceedings.

4. Resources for pitchstone information and collections

Tam Ward explained the need for BMT to gain a comprehensive understanding of archaeological pitchstone in order to set their own discoveries into a better context. Pitchstone is now turning up annually in many areas in Clydesdale during arable fieldwalking and excavations. Consequently, the BMT are now gathering information and the following is the current status of that enquiry:

a) References to pitchstone in Discovery & Excavation in Scotland
At the time of the Biggar seminar D&ES had been checked back to 1991, since then it has been checked to 1969.

Compiled by Biggar Museum Trust

Year	Page	Site	NGR	Who	What
1970	10	Achategan, Glendaruel	NS 002843	Cowal Arch Soc	single flake
1978	24	Ardnadam Chapel	NS 163791	E Rennie	not spec
1979	35	Inchmarnock, N Bute	NS 022595	K Middleton, D Marshall	fragment

1985	41	Auchareoc, Arran	NR 995247	A Clarke, I Hughes	
1985	42	Machrie Moor, Arran	NR 912324	A Haggarty	
1986	21	Barnhouse, Orkney	HY 306124	C Richards	
1986	34	Machrie Moor, Arran	NR 912324	A Haggarty	
1986	44	Balgavies area, Tayside	NO 5351	J R Sherriff	
1987	44	Lang Whang, S Lanark's	NS 018501	E Archer, P Taylor	not spec
1988	22	Monybachach, Argyll & Bute	NR 907589	J G Scott	
1988	25	Castledykes, S Lanark's	NS 928442	E Archer	not spec
1988	25	Annieston, S Lanark's	NS 992375	M Brown	not spec
1989	60	Cloburn, S Lanark's	NS 947414	E Archer	flakes
1990	18	Little Gight (Grampian)	NJ 838398	D Baird	not spec
1990	37	Biggar Common	NT 005385	T Ward	not spec
1991	41	Upper Cullernie, Inverness	NH 7287 4774	J. Wordsworth	not spec.
1991	65	Wellbrae, Covington	NS 9711 4010	C.F.A	not spec.
1991	67	Biggar Common	NT 002 388	T. Ward	not spec.
1991	67	Biggar Common, Cairn 7	NT 002 388	T. Ward	not spec.
1992	65	Biggar Common	NT 002 388	T. Ward	not spec.
1993	79	South Glen Rosa, Arran	NS 002 369	F. Gorman & E. Lambie	water rolled
1993	87	Biggar Common	NT 028 396	T. Ward	flakes
1994	5	Dryden, Ettrick & Lauderdale	NT 475 235	N.M.S.	core/glass
1994	19	Tarvit Farm, Cupar	NO 388 135	P. Yoeman	core
1994	72	Coulter	NT 023 349	T. Ward	leaf arrow?
1994	75	Cloburn Quarry	NS 948 415	T. Ward	2 of not spec.
1995	14	Chapelfield, Cowie	NS 8363 8957	J. Atkinson	not spec.
1995	72	Kildonan, Arran	NR 031 208	F. Gorman & B. Murray	not spec.
1995	88	Melbourne Crossroads	NT 087 443	T. Ward	knapping sites
1996	8	Deers Den, Aberdeenshire.	NJ 784 160	D. Alexander	not spec
1996	99	Cornhill	NT 021 347	T. Ward	not spec
1996	100	Melbourne, Crossroads	NT 086 438	T. Ward	knapping site
1997	13	Fordhouse Barrow	NO 665 605	E. Proudfoot & R. Peterson	blades
1997	21	Monadh An Tairbh	NR 8301 9644	D. Abernethy	not spec.
1997	22	Blackpark East Plantation	NS 093 553	C. Barrowman	scatter
1997	76	Cornhill	NT 022 347	T. Ward	not spec.
1997	76	Melbourne	NT 087 443	T. Ward	not spec
1998	22	Ambris Beg, Isle of Bute	NS 068 596	E. Proudfoot & A. Spiers	unworked flake
1998	83	Sheriff Muir	NT 200 400	G. Warren	not spec.
1998	86	Gallowhill, Girvan	NX 195 897	M. Donnelly	not spec.
1995	87	Calla, Carnwath	NS 99854790	T. Ward	PNB002/1 (2 of)
1999	85	East Gladstone	NT 02954423	T. Ward	PNB012/1
1999	24	Kilhern Bog site	NX 19916425	A.C. Buckoke	small tools
1999	64	Arran Pipeline, phase 1	NR 93,03,02	G.U.A.R.D.	not spec.
1999	65	Bridge Farm, Machrie Moore Arran	NR 926321	F. Baker	waste flakes
1999	82	Carwood Farm	NT 02954040	T. Ward	not spec.
1999	83	Green's Farm	NT 020470	E. Archer & I. Borthwick	not spec.
1999	83	Weston Farm	NT 034460	T. Ward	not spec.
1999	85	East Gladstone Farm	NT 02954228	T. Ward	flake
1999	85	Bagmoors Farm	NS 904442	E. Archer, A. Clark& D. Hill	not spec.

b) Pitchstone in the collections of Scottish museums (for NMS see below)

BMT have contacted most Scottish museums to enquire if they have pitchstone in their collections and if they have any other relevant information. The following list details what is known so far:

Museum	Pitchstone	Details
Aberdeen	yes	
Angus	no	
Arran	yes	best collection of artefacts including leaf and barb and tanged arrow-heads, scrapers and other tool types. Museum currently working on catalogue.
Biggar	yes	see this report
Bute	yes	two scrapers, one from Arran and one from Bute, another unworked piece from BA cairn. Also, assemblage recently found by C Barrowman (D&ES 1997, 22).
Campbeltown	no	but a blade was found in a cist near Skipness Castle by J Scott, c 1990.
Dumfries	yes	c 30 specimens of both geology and archaeology, some from Luce Sands and Dunragit areas. Documentation incomplete.
Dunfermline	no	
Elgin	no	
Hunterian	yes	Cores and flakes from Arran, Islay, Greenock, Roxburgh sites, Glenluce, Dunragit, Largs, Monkton, Strathblane, Berwickshire sites, Carnwath, Culbin, West Linton, Selkirk, Yarrow.
Huntly House	yes	5 pieces includes a core and flakes from Crammond, judged to be part of a mesolithic flint scatter.
Hawick		no response
Inverclyde		yes but geology only
Inverness		yes but geology only
Kelvingrove	yes	significant collection all catalogued, all numbers given here should be quoted with pre-fix ARCHNN.

. 44 natural, Arran
. 161 two fragments, Arran
. 348 four pieces, Arran
. 350 Arran
. 353 15 fragments, Dun Fion, Arran
. 355 fragment, Cave Kilpatrick, Arran
. 361 two fragments, Arran
. 362 flake, Arran
. 363 two fragments, from cist, Blackwaterfoot, Arran
. 367.2 flake with retouch, Whitefriarland, Arran
.1333 possible pounder
.1488 pebble, Drumore, Wigton
.1506 notched flake, 2 large struck fragments 'of grey flint or pitchstone' from Star
.1511 55 pieces worked from Star site 'box 1'
.1537 flake from Knockree, Wigton
.1570.1 flake from Kilmun Arboretum NS 164824
.1570.3 flake from Glen Durel, Argyll
.3011 flake
.3054 worked pitchstone, in 'box 6 from 76' from W. Freugh
.3309 6 flakes possible pitchstone
.3339 possible pitchstone or jet from Culmore
.3362 blade
.3426.1 2 flakes from Luce
.3468. [26] chunk with retouch, from BA burial with urn, from Luce Bay

.3477. [2] 45 blades from Broadfoot, Luce Bay
.3477. [3] 61 flakes, 7 are worked, from Broadfoot, Luce Bay
.3533. [1] 30 blades, very small, probably mesolithic, Luce Sands
.3542. [1] 5 blades
.3544. [1] 5 blades from Luce Bay
.3546. [13] 9 blades, mesolithic from Luce Sands
.3546. [14] core from Luce Sands
.3546. [15] lump from Luce Sands
.3555. [6] lump from Low and Mid Torrs, Scotland
.3567. [5] 2 lumps from Torrs, Luce

Kirkcudbright	no response	
McLean Art Gallery	yes	c 30 flakes
Paisley	yes	core from Houston (BA burial)
Peebles	yes but geology only	
Perth	yes but geology only	
Stranraer	yes	Examples from Luce Sands and Dunragit

c) The collections of the Archaeology and Geology Departments of the National Museums of Scotland.
T Ward had listed the information from the NMS data base. It was stated that this list deals only with the material which has been entered into their data base, recent acquisitions and material currently being researched (including a very large assemblage of excavated pitchstone from Machrie Moor, Arran) are not included. There are some discrepancies regarding descriptions.

The following list is the basic information on the holdings of pitchstone in the collections of the National Museums of Scotland. The material listed here is held in the Archaeology Department and is mostly housed in the Cruiser Store at Customs House, Leith. Some pitchstone has recently been placed on display in the Museum of Scotland.

National Museums of Scotland collections.
This list is given as the following order of entry:
Registration number, find type and description if given, find location, donor and date, current location; CS = Cruiser Store, MOS = Museum of Scotland. Remarks in italics are the writer's. * = Object is referred to as pitchstone in the database. Information is taken from Quixis Database.

AA 211*	Knife of pitchstone, Newstead fort, Melrose, unknown 1927.	CS 001/002
AB 776	Scraper, Slipperfield, West Linton, purchased 1899.	CS 001/009
AB 785	Scraper, Slipperfield, West Linton, purchased 1899.	CS 001/009
AB 1349	Scraper/saw/implement, West Linton. purchased 1910.	CS 001/011
AB 1356	Scraper, Cavers Ruberslaw, Roxburgh, purchased 1913.	CS 001/011
AB 1405	Flake or chip, (*1only of 62 flint*) of Ruberslaw, purchased 1913.	CS 001/011
AB 1569	Flake, The Rink, Galashiels, J B Mason, gift 1931.	CS 001/012
AB 2103	Fragment, Mrs McLean, gift 1931.	CS 001/014

AB 2104 Fragment, Mrs McLean, gift 1931. CS 001/014

AB 2105 Fragment, Mrs McLean, gift 1931. CS 001/014

AB 2750* Core of Arran pitchstone, Machrie, Arran, Malcolm McKenzie, gift 1962 CS 002/001

AB 2751* Core of Arran pitchstone, Machrie, Arran, Malcolm McKenzie, gift 1962 CS 002/001

AB 2820* Flake of pitchstone (*leaf arrow?*) Ardownie Farm, Monifieth, Angus, gift 1965 CS 002/001

AB 2923 Flake or chip, Kilmory Water, Carn Ban, Arran, Forestry Commission, gift 1969 (*4 of 48 un-marked, 1 of distinctive grey coloured pitchstone*) CS 002/003

ABA 201* Flake of pitchstone, Craigsford mains, Melrose, Acquisition unknown CS 002/005

AB 3006* 13 of natural spalls and flakes of Arran pitchstone, dark grey green, Corriegills, Arran, Miss Bell, gift 1977 CS 109

AB 3007* 3 flakes pitchstone, 2 struck certainly, 1 possibly, dark grey green, Corriegills, Arran, Miss Bell, gift 1977 CS 109

AD 2344* Pitchstone leaf shaped arrow-head, Auchareoch, Arran, Forestry Commission, gift, 1969 CS 003/009

BH 8009 to BH 8136* Chip or flake of pitchstone, Stonykirk, Glenluce, Rev George Wilson, gift CS 060/002

BH 8960 (1926.179) 5 of, Stonykirk, Luce Sands, James Richardson, gift 1926. CS 002/012

BH 9072 (1930.525) Stonykirk, Luce Sands, James Richardson, gift 1926. CS 002/012

X.1997.1013 - 1015 Flake, Stonykirk, Glenluce (*probably included in other Glenluce material given here*). MOS

BJ 193c* Pitchstone piece, Sutherland, Golspie Links/Little Ferry, Acquisition unknown. CS 012/003

BM 505 - BM 506* Flake of pitchstone, Hedderwick, E Lothian, James S Richardson, gift 1947 CS 012/007

BM 510* Pitchstone blade, Hedderwick, Dunbar, J S Richardson, gift 1947 12of in CS 012/005 and 3of in MOS

BM 513* Flake of pitchstone, Hedderwick, E Lothian, James S Richardson, gift 1947 CS 012/007

BM 410 Scraper (*pitchstone?*) Hedderwick, Dunbar, J S Richardson, gift 1947 CS 012/007

BM 417 Scraper, Hedderwick, Dunbar, J S Richardson, gift 1947 CS 012/008

BM 418 Scraper (*un-marked!*) Hedderwick, Dunbar, J S Richardson, gift 1947 CS 012/008

BMA 390 Blade, Earlston, Berwick's, John Readman, gift 1929 CS 010/002

BMA 705 Flake, Channelkirk, Oxton, Airhouse (*Berwick's*), John R Fortune, gift 1935 CS 010/003

BMA 775* Blade of pitchstone, Channelkirk, Oxton, Airhouse Farm, J R Fortune, gift 1947 CS 010/003 - MOS

BMA 897 - BMA 989* Fleck dark grey pitchstone, Channelkirk, Oxton, Airhouse Farm, H Readman, gift 1947 CS 010/004 - MOS

BMA 949* Flake of pitchstone, Earlston, Berwick's, H Readman, gift 1947 CS 010/004 - MOS

BMA 1094 Arrow-head or thumb nail scraper, Smedheugh, Selkirk, H Readman, gift 1947 CS 010/004

BMA 1561 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1562 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1563 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1564 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1565 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1566 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1567 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1568 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 1569 Flake or core, H Readman, Kelso area? gift 1947 CS 010/006

BMA 2723* Flake of pitchstone, Earlston, Craigsford, Roxburgh, W A Munro, gift 1961 CS 010/012 - MOS

BMA 2799* Pitchstone core, Sprouston, Lurdenlaw, Roxburgh, W A Munro, gift 1961 CS 010/012 - MOS

BMA 3007 Flake, (*13 of*) W A Munro, gift 1961 CS 010/014

BMA 3049* Lump of pitchstone, Newstead fort, Melrose, W Elliot, gift 1974
(*see also BMA 3050, suspect this is glass, should be checked*) CS 010/014

BMA 3050 Lump (*3of*) Howden Motte, Selkirk, Walter Elliot, gift 1974 CS 010/014
(These look like lumps of molten glass or slag, should be checked out, see BMA 3049)

BMB 172b (*1 only of 698 flint*) no information CS 011/014

BMB 416 Flake, Dryburgh Mains, Berwick, Dr Adrian Lamb, gift 1951 CS 011/002

BMB 399 Blade, Dryburgh Mains, Berwick, W A Munro, gift 1950 (*pitchstone?*)
CS 011/002

BMB 550 Core of silicified stone, Dryburgh Mains, Berwick, W A Munro, gift 1962
CS 011/003

BMB 551 Mudstone, Dryburgh Mains, Berwick, W A Munro, gift 1962 CS 011/003

BMB 714* Pitchstone blade, Dryburgh, Berwicks, St Mary's School, donor, gift 1974
MOS

BMJ 1205* 5of dark grey pitchstone, Lussa River, Jura, John Mercer, purchase 1972
CS Unit 013 shelf 2

BN 426 Chip, (*2 of*) Brackmont Farm, Leuchars, D Henderson, gift 1966 CS 012/008

BN 450 Chip, St Michael's, Leuchars, D Henderson, gift 1968 CS 012/008

EO 252 Fragment, Kilmory, Tormore, Arran, Dr T H Bryce, gift 1902 CS 012/013

EO 254 Fragment, Kilmory, Tormore, Arran, Dr T H Bryce, gift 1902 CS 012/013

EO 269 Sample, (*4of un-marked*!) Whiting Bay, Arran, Dr T H Bryce, gift 1903
CS 012/013

EO 270 Charcoal/bone (*2of 5 items, un-marked*) Kilmory Water, Carn Ban, Arran, Dr T H Bryce, gift 1902 CS 012/013

EO 272* Pottery and Corriegills pitchstone, Bute, Arran, Monagmore, T H Bryce, gift 1902
Location?

EO 288 Sample, Glecknabae Cairn, Bute, Dr T H Bryce, gift 1904 CS 012/013

EO 301 Pottery! Michael's Cave, Bute, Dr T H Bryce, gift 1904 CS 012/013

EO 303* Pitchstone fragment, Michael's grave (?), Bute, T H Bryce, gift 1904
Location?

EO 311* Chips, pitchstone, Corriegills, (*6 of*) Blairmore, Arran, Dr T H Bryce, gift 1909
CS 012/013

EO 321	Chip, (2 of) Blairmore, Arran, Dr T H Bryce, gift 1909	CS 012/013
EO 325	Arrow-head (*leaf type*) Blairmore, Arran, Dr T H Bryce, gift 1909	CS 012/013
EO 326*	Leaf arrow-head of pitchstone, Kilbride, Corriegills, Arran, Archibald Cook per J A Balfour, gift 1909	MOS?
EO 329*	Scraper? pitchstone, Kilmory, Tormore, Corriegills, Arran, J A Balfour, gift 1909	CS 012/013
EO 828*	Blue/grey pitchstone, Cairnholy No 1, Kirkcudbright, Walter McCulloch per Proff S Piggot, gift 1950	CS 012/013
EO 997	Blade, Pitnacree, Perthshire, C B Sherriff per D A Simpson and J M Coles, gift 1965	CS 012/013
EO 1044	Chip, Benderloch, Achnacreebeag, A Campbell, gift 1969 (3 of) in CS 012/013 and 1 of in CS 012/014 (the latter sample has been irradiated)	
EO 1111	Flake, Loch Calder, Caithness, Tulach-an-T / Sionnaich, Dept' of Environment, gift 1976	CS 012/014
GQ 41*	Pitchstone Corriegills pointed fragment, Bute, St Blanes, Marquess of Bute, gift 1900	Location?
HD 1784	Flake, West Plean, Stirling's, Dr Steer, gift 1957	CS 002/004
HD 1890*	Pitchstone fragment, Dalnaglar, Perthshire, Forestry commission, gift 1960	CS 002/004
IL 360*	Pitchstone portion, Kingscross Point, Kilbride, Arran, 1900	Location?
ON 41	Not on Quixis database, Ord North (T11) (*irradiated*)	CS 012/014
Unidentified sample		CS 012/014
Un registered	4of, Earlston, Peebles	CS 012/014
Un registered	8of, Peebles	CS 012/014
Un registered	4 of, Culbin Sands	CS 059/011
Un registered	140 of Glenluce Sands (*1of suspect = coal*)	CS 060/001
Un registered	60 of Glenluce Sands 3of in MOS &	CS 060/002
Un registered	3 of Glenluce Sands	CS 060/005
Un registered	1 of Glenluce Sands	CS 060/014

Un registered Glenluce Sands leaf arrow-head with broken tip CS 002/010

Un registered Glenluce Sands, Large 'duck bill' arrow-head, mottled with large phenocrysts CS 002/010

Statistical information on NMS collection of pitchstone.

There are 140 Registrations plus several un-registered examples and groups.

The NMS holds at least 400 examples of pitchstone from their 'earlier' collections, these are listed here.

Some examples may not be pitchstone, e.g. BMA 3050.

Nearly all the samples are from south of Clyde / Forth and Argyll. Only 10 were found on the east side and north of the Forth. Sutherland is the furthest north with one, Culbin Sands has four, there is one from Angus, one from Perthshire, one from Stirlingshire and three from Leuchars.

Glenluce Sands accounts for the clear majority, at least 203 pieces were found there which is hardly surprising, being the nearest location to the source, on Arran.

There are 35 examples from the Borders district, covering a wide area. 16 from Berwick and Lothians and only one from the SW of Scotland; Cairnholy No 1 cairn. (*Dumfries and Glasgow museums probably have most of the pitchstone found in the SW*).

Pitchstone varies in texture and colour. Usually it is found as a shiny black or matt glassy rock, with or without visible phenocrysts. Some examples are grey in colour but with a similar texture to the black variety. One small example, a flake in Cruiser Store, from Glenluce Sands, has both black and grey in the same piece, indicating the natural occurrence of both colours together. (*Both coloured types are currently being found in Clydesdale but the grey variety is scarce compared to the black*).

Pitchstone held with the Geology Department of the National Museums of Scotland, housed in Chambers Street. Information is taken from Quixis database. This information is of use in understanding that there are several geological sources of pitchstone outside Arran.

There are 26 sources of naturally occurring pitchstone given on the NMS Geology Department database. The majority are from Arran, with other locations on Mull, Eigg and Skye (*see list below*).

G 4935Hypersthene andesite in pitchstone porphyrite. Ochil Hills, Blairlogie, Dumyat

G 4128Giant amygdale of pitchstone lava. Ben Hiant vent, Bourlaige, Argyll

G 1993 - 1994 Spherulitic pitchstone. Corriegills shore, Arran

G 1999 - 2000 Devitrified pitchstone dyke with minute spherules. Kilmichael House, Glen Cly, Arran

G 2001 - 2003 Composite pitchstone dyke. Kilmichael House, Glen Cloy, Arran

G 2004 - 2005 Pitchstone dyke (*column from dyke*). The Saddle, Glen Sannox, Arran

G 2006Pitchstone. From sill, cliff west of Clachlands Point, Brodick, Arran

G 2007Pitchstone. Beside road near the highest house in Glen Shurig, Brodick, Arran

G 2008Pitchstone. From dyke at Tormore Shore, Drumadoon

G 2009 - 2010 Pitchstone. From dyke cutting basic sill at footpath at Lamlash near Clashlands.

G 5330Pitchstone columnar. Caisteal Abhail, Goat Fell, Arran

G 4588Inninmorite pitchstone sill. SW of trig station on Bienn an Lochain, Mull

G 4589Glassy inninmorite. Sill at the head of stream at Tom a/ Choilich, Pennyghead, Mull

G 4252Pitchstone sill. From cliffs, south of Carsaig Bay, Argyll

G 5019Devitrified pitchstone. Between Loch Buie, Carsaig, Mull

G 4994Pitchstone. From Loch Seridain, Mull

G 5016Pitchstone. From Mhie Slamhaich, Carsaig, Mull

G 4122Porphyritic pitchstone lava. From Benn Hiant vent, Bourblaige, Argyll

G 638 Pitchstone. From SW of Loch na Mna Moire on the N side of An Sgurr, Inverness

G 641 Pitchstone. SW face of Sgurr, Eigg, Inverness

G 642 - 643 Pitchstone. From NW of Wreck Bay, west coast Rhum, Argyll

G 644 Pitchstone. From the harbour at Eigg

G 4961Spherulitic portion. From dyke near Corie-chat-Achan, Broadford, Skye

G 745 - 746 Ditto above

G 743 Pitchstone. From sill, north of Talisker, Skye

313.22 Orthoclase variety sanidine in pitchstone. Glen Iorsa, Arran

.1994.101.1 Black obsidian like pitchstone with feldspar phenocrysts and minor quartz. Summit of Caisteal Abhail

G.1997.36.74 Greenish black pitchstone. From Arran

G.1997.37.75.1 Greenish black pitchstone. From Eigg

G.1997.36.75.2 Greenish black pitchstone. From Eigg

G.1998.43.182.1 Black to grey pitchstone with black veining. From Tormore, Arran

G.1998.43.182.2 Thin section from Tormore, Arran

G.1998.43.205.1 Thin section from Tormore, Arran

G.1998.43.205.2.2 Thin section from Tormore, Arran

G 1997.36.76 Pitchstone. Saxony, Germany

Plus, other foreign locations not listed here.

d) The National Monuments Records of Scotland.
This is one of the most useful resources because it gives National Grid References, contextual information and a bibliography. The sites in the record are given here in simplified form.

This list is the information extrapolated from that given on the National Monuments Records of Scotland and was retrieved by selecting the word 'pitchstone'. The record was checked in Autumn of 2000 and will be supplemented annually with new records.

NMRS No	Site	Information
HY 31 SW 61	Barnhouse, Stenness, Orkney	first worked pitchstone from
HY 31 SW 62	" " "	Orkney, 4 of. LN
NJ 71 NE 127	Kintore, Deer's Den, Aberdeen's	Arran pitchstone. LN
NJ 83 NW 29	Little Gight, Aberdeen's	"presumed" pitchstone bladelet
NM 43 NW 22	A'Chrannag, Ulva, Argyll	two pieces bifacial retouch. EN
NM 65 SE 6	Acharn farm, Highland	pitchstone, now in NMS, pos' ME
NM 76 NE 7	Dahl House, Polloch, Highland	pitchstone flakes
NM 83 SW 6	Kerrera, Argyll	knife of pitchstone, now at
Cambridge Univ', N / BA		
NO 10 NE 73	Devil's Burden, West Lomond, Fife	two bladelets, now in NMS
NO 66 SE 4	Fordhouse, Angus	blades of pitchstone. EN
NR 25 NW 39	Craigfad, Islay	flake
NR 69 NW 4	Glen Garrisdale, Jura	pitchstone, ME
NR 77 NW 12	Ellary Farm, Argyll	pitchstone, ME / N
NR 83 SE 4	Tormore, Arran	pieces of pitchstone, now lost
NR 83 SE 14	Tormore, Arran	Two pieces of pitchstone
NR 83 SE 35	Torr Righ Beag, Arran	Eight flakes, now in NMS
NR 83 SE 38	Tormore, Arran	pitchstone waste
NR 89 NW 114	Kilmichael Glassary, Argyll	pitchstone
NR 92 NE 1	Carn Ban, Arran	flake + others now in NMS
NR 92 NW 4	Kilmory, Arran	2of now in Glasgow Museum. BA
NR 92 SE 4	East Bennan, Arran	flake (now lost!) EN
NR 92 SE 18	Auchareoch, Arran	leaf shaped arrow-head
NR 92 SE 21	Auchareoch, Arran	pitchstone ME
NR 92 SW 21	Sliddery, Arran	over 250, cores + other types N / EBA
NR 92 SW 28	Sliddery, Arran	pitchstone

NR 93 SW	105	Machrie Moor, Arran	flakes, knives, scrapers
NR 93 SW	9	Tormore, Arran	flakes LN
NR 93 SW	37	Tormore Moss, Arran	leaf arrow-head
NR 93 SW	82	Machrie Moor, Arran	77+ 4of leaf arrow-heads, scrapers, cores
NR 95 NW	14	Monybachach, Argyll	five flakes, BA
NR 95 NW	1	MacEwans Castle, Argyll	part of armlet?
NR 97 SE	6	Kilmichael, Argyll	lump now in NMS, N
NS 02 NW	10	Monamore, Arran	pitchstone fragments, N, now in HM
NS 02 SW	24	Porta Leacach, Arran	pitchstone
NS 03 NW	26	Glenshurig, Arran	water rolled, extraction site
NS 03 SW	7	Dunan Mor, Arran	flakes now in NMS, N
NS 03 SW	8	Dunan Beag, Arran	pitchstone, N
NS 03 SW	10	Corriegills, Arran	spearhead (?) now in NMS
NS 03 SW	32	Corriegills, Arran	leaf arrow-head
NS 03 SW	36	Lamlash, Arran	'spearhead' now in NMS
NS 05 NE	41	Ambrisbeg, Bute	unworked flake from cist
NS 05 NE	55	Blackpark, Plantation, Bute	over 100 flakes and chunks
NS 05 NW	10	Inchmarnock, Bute	pitchstone
NS 08 SW	5	Auchategan, Argyll	pitchstone, N
NS 20 NE	13	Crossraguel Abbey, Ayrshire	2 nodules
NS 47 SW	20.00	Whitemoss, Renfrewshire	pitchstone, Roman fort
NS 47 SW	20.01	Whitemoss, Renfrewshire	2 chips, Roman fort
NS 63 SE	8	Brown Hill, S Lanark's	pitchstone
NS 63 SE	11	Powbrone Burn, S Lanark's	pitchstone
NS 88 NW	43	Cowie, Stirling	pitchstone, EN and LN
NS 89 NW	48	Dumyat Hill, Stirling	100m from pitchstone knapping site
NS 93 NE	46	Symington, S Lanark's	pitchstone, now at BMT
NS 94 SE	52	Wellbrae, S Lanark's	pitchstone, LN, now at BMT
NS 94 SE	59	Covington, S Lanark's	pitchstone
NS 94 SW	37	Cloburn, S Lanark's	several pieces, LN / BA
NT 03 NE	65	Broughton, Borders	Mistake! not pitchstone
NT 03 NW	66	Biggar Common, S Lanark's	
NT 03 NW	77	Biggar Common, S Lanark's	
NT 03 NW	78	Cornhill, Biggar, S Lanark's	
NT 03 NW	79	Biggar Common, S Lanark's	
NT 03 NW	85	Carwood Hill, S Lanark's	
NT 03 NW	88	Carwood Hill, S Lanark's	
NT 03 SW	82	Cornhill, Biggar, S Lanark's	
NT 03 SW	85	Cornhill, Biggar, S Lanark's	
NT 04 NW	59	Weston, S Lanark's	
NT 04 SE	55	Melbourne, S Lanark's	
NT 05 SW	25	Corse Law, Carnwath	
NT 24 SW	103	Sherrif Muir, Peebles	pitchstone
NT 42 SE	39	Dryden, Borders	pitchstone core
NT 43 SE	1	The Rink, Galashiels	two chips of pitchstone
NT 53 SE	20.00	Newstead, Melrose	pitchstone blade
NT 53 SE	20.14	Newstead, Melrose	pitchstone bladelet
NX 19 NE	60	Girvan Mains, S Ayrshire	some pitchstone ME - N
NY 18 SW	34	Shillahill Bridge, Dumfries	pitchstone blade
NY 19 SW	59	Kirkhill Farm, Dumfries	pitchstone ME

The following records deal with pitchstone as a building stone and / or natural occurrence

NM 48 SE 6	Eigg	fort built on pitchstone
NM 48 NE 15	Eigg	building stone
NM 48 NE 26	Eigg	building stone

e) Published reports and web sites mentioning pitchstone.

At the time of the seminar little had been achieved by BMT in this respect and the two sources of information were mentioned as a matter of course.

This is an area in which the BMT has much work to do. Only the most obvious reports have now been identified, mostly those in PSAS. The published reference is given here with only the principal authors and with brief comments by T Ward:

Published.

Simpson, D and Meighan, I. 1999. Pitchstone - a new trading material in Neolithic Ireland. Archaeology Ireland No 48 (Vol 13 No 2) 1999. This article refers to the largest assemblage of pitchstone from a single archaeological site, Ballygalley, County Antrim, N Ireland. The Early Neolithic site produced 510 pieces of pitchstone, many of which were unworked natural specimens. It is suggested that the pitchstone may have been acquired and used as a trading or exchange commodity. A statement at the end of the article is interesting in that pitchstone has a sharper cutting edge than flint and may have been used for body mutilation, tattooing or surgery applications, apparently obsidian was used for these purposes elsewhere.

Speak, S and Burgess, C 1999. Meldon Bridge: a centre of the third millennium BC in Peeblesshire. Proc Soc Ant Scot, 129 (1999) 1 - 118. Deals with a LN / BA pit alignment with Mesolithic and Roman activity on the area. A single 'microblade' of pitchstone was found.

Pollard, T 1997. Excavation of a Neolithic settlement and ritual complex at Beckton Farm, Lockerbie, Dumfries and Galloway. Proc Soc Ant Scot, 127 (1997), 69 - 121. W F Cormack found three pieces of pitchstone as part of an earlier surface collection and a further five were found in the excavation. Grooved Ware was the main pottery.

Johnston, D 1997. Biggar Common, 1987 - 93: an early prehistoric funerary and domestic landscape in Clydesdale, South Lanarkshire. Proc Soc Ant Scot, 129 (1999), 185 - 253. Deals with EBA burials and fieldwalking and excavation assemblages of pitchstone, some of it in association with EN pottery, post holes with C14 dates.

Crawford, J 1997. Archaeological collections from sandhill sites in the Isle of Coll, Argyll & Bute. Proc Soc Ant Scot, 127 (1997), 467 - 511. Deals with objects of most periods but includes 'some pitchstone'.

Russell-White, C J 1995. The excavation of a Neolithic and Iron Age settlement at Wardend of Durris, Aberdeenshire. Proc Soc Ant Scot, 125 (1995), 9 - 27. A 'flake fragment', found in a tree hole.

Smith, A N 1995. The excavation of Neolithic, Bronze Age and Early Historic features near Ratho, Edinburgh. Proc Soc Ant Scot, 125 (1995), 69 - 138. A 'medial blade fragment' found in a pit with EN pottery.

Barclay, G J & Russell-White, C J, 1993. Excavations in the ceremonial complex of the fourth to second millennium BC at Balfarg/Balbirnie, Glenrothes, Fife. Proc Soc Ant Scot, 123 (1993), 43 - 210. EN, LN and BA periods represented by pottery, pitchstone in fiche.

Haggarty, A 1991. Machrie Moor, Arran: recent excavations at two stone circles. Proc Soc Ant Scot, 121 (1991), 51 - 94. Hardly surprising, the site produced 1039 pieces of pitchstone which was 61% of the lithic assemblage, porphyritic = 637 @ 37.6% and aphyric = 558 @ 33%. Nothing else stated regarding the pitchstone!

Affleck, T, Edwards, K, and Clarke, A, 1988. Archaeological and palynological studies at the Mesolithic pitchstone and flint site of Auchareoch, Isle of Arran. Proc Soc Ant Scot, 118 (1988), 37 - 59. Tables details of 418 pitchstone objects from a Mesolithic site. (3 scalene triangles and 3 backed fragments, only 2 pieces retouched). Pitchstone was 9.4% of the assemblage which was dominated by flint. Suggests fluvio-glacial source for the pitchstone in the form of pebbles. References to other pitchstone locations.

Thorpe, O W and Thorpe, R S 1984. The Distribution and source of archaeological pitchstone in Britain. Journal of Archaeological Science 1984, II, 1 - 34. It would appear that this report (now outdated) is still the main reference for pitchstone in general terms for chemical, geological and archaeological information. The report tables 101 sites of pitchstone finds and this includes information on context, description, finder and current location of object. Part of the study was to analyse and/or section samples from museums, and these are also given in a table with the descriptions including sizes.

Barclay, G 1983. Sites of third millennium bc to the first millennium ad at North Mains, Strathallan, Perthshire. Proc Soc Ant Scot, 113 (1983), 122 - 281. 74 flints and 10of pitchstone from the henge, inner and secondary flakes. 49 flints and 9of pitchstone from the barrow.

Peltenburg, E J 1982. Excavations at Balloch Hill, Argyll. Proc Soc Ant Scot, 112 (1982), 142 - 214. 58 pitchstone includes a scraper. Reckoned to be part of the Neolithic settlement. Further good references.

Sharples, N M 1981. The excavation of a chambered cairn, the Ord North, at Lairg, Sutherland by J X W P Corcoran. Proc Soc Ant Scot, 111 (1981), 21 - 62. A single secondary flake of pitchstone from the platform surrounding the cairn.

Mercer, J 1978-80. Lussa Wood 1: The Late-Glacial and Early Post-Glacial Occupation of Jura. Proc Soc Ant Scot, 110 (1978 - 80), 1 - 32. Pitchstone 'pieces' recovered = 71.

Marshall, D N 1977-78. Excavations at Auchategan, Glendaruel, Argyll. Proc Soc Ant Scot, 109 (1977 - 78), 36 - 74. "just over 100 flakes and chips of pitchstone were found" in association with EN pottery.

Ritchie, J N 1974-75. Small cairns in Argyll: some recent work. Proc Soc Ant Scot, 106 (1974 - 75), 15 - 38. Pitchstone not quantified, from Mesolithic site.

Mercer, J 1971-72. Microlithic and Bronze Age camps, 75 - 26 ft OD, N Carn, Isle of Jura. Proc Soc Ant Scot, 104 (1971 - 72), 1 - 22. Single flake of pitchstone from Mesolithic site.

Ritchie, J N 1969-70. Excavation of the chambered cairn at Achnacreebeag. Proc Soc Ant Scot, 104 (1971 - 72), 31 - 55. 4 chips of pitchstone (EO 1044) = NMS Cat No.

Mercer, J 1967-68. Stone tools from a Washing-Limit Deposit of the Highest Post-Glacial Transgression, Lealt Bay, Isle of Jura. Proc Soc Ant Scot, 100 (1967 - 68), 43 fragments from Mesolithic site.

Corcoran, J X W P 1964-66. Excavation of three chambered cairns at Loch Calder, Caithness. Proc Soc Ant Scot, XCVIII, 1 - 75. 'worked point' found on the floor of the chambered tomb.

MacKie, E W 1963-64. New excavations on the Monamore Neolithic chambered cairn, Lamlash, Isle of Arran in 1961. Proc Soc Ant Scot, XCVII, 1 - 34. "about 130 fragments of pitchstone were found - none had any traces of secondary working" "the vast majority from the forecourt, phase 2".

Scott, J G 1955-56. The excavation of the chambered cairn at Brackley, Kintyre, Argyll. Proc Soc Ant Scot, LXXXIX, 22 - 54. 6of pitchstone including a scraper, core and four flakes from the chamber of the cairn.

Piggott, S 1948-49. The excavation of three Neolithic chambered tombs in Galloway, 1949. Proc Soc Ant Scot, LXXXIII, 103-161. 3 pitchstone flakes from Cairnholy No I one with EN pottery (EO 828 = NMS cat No).

Bersu, G 1947-48. "Fort" at Scotstarvit Covert, Fife. Proc Soc Ant Scot, LXXXII, 241 -263. "4 pitchstone flakes found stray - and blade like". EN / EBA building.

PSAS has been checked back to 1945.

Web sites.
Only a few Web sites produced information using the word 'pitchstone' as the access key. The following items were noted:
1) Neolithic enclosures at Bannockburn, Stirling where Nick Tavener excavated pits with Early Neolithic pottery and a couple of flakes of pitchstone also from pits.
2) Another Stirling site, at Cowie was excavated by John Atkinson of GUARD produced 'stone blades made of pitchstone' in association with Early Neolithic pottery.
3) Note on a paper by Nyree Finlay (Cork) entitled 'Pitchstone and Place' reviews evidence for pitchstone use on Arran and relates this to Irish-Scottish relations in prehistory.
4) Reference to pitchstone flakes excavated in 1909 at East Bennan, Arran, in a study of European and British Neolithic burial sites containing no human remains.

Summary
T Ward stated that each of these sources is flawed or inadequate to some extent or other, principally regarding descriptions of lithics and their geology. Museum and NMRS data bases will be enhanced and it should be borne in mind that regarding some museums, old collections may not be dealt with as a priority. Each source should be re-examined to prove its validity; however, they are the fundamental starting points for an enquiry.

5. Clydesdale pitchstone

Tam Ward gave a paper outlining recent work on 'Clydesdale sites which have, or have not produced pitchstone'.

Prior to our own work in Clydesdale, only a few pieces (24 of) of pitchstone were recorded by fieldwalking at Weston (see below). This material is held by the National Museum of Scotland along with an unpublished report on the work (McCartan, 1988)
Ref: McCarten, S 1988. A surface collection from Weston, Lanarkshire. Archive Report.

Corse Law, Carnwath.
Our first introduction to pitchstone was at Corse Law to the north of Carnwath on the Lang Whang road to Edinburgh, the A70. This forestry ploughing project was started by Ed Archer of LADAS, and although we did not really have much idea of recording at that time in 1987-88, Ann Clarke, who published the work for LADAS in PSAS 119, with a grant from Historic Scotland, did manage to make some sense of distributions, and she did comment on the value of local voluntary archaeologists looking after their own patch, because if we did not do this work, the information would simply have been lost to us. We realised that we had to get better on the recording side of things, and I like to think we have gone from strength to strength ever since. Corse Law produced 67 pieces of pitchstone which are described by Ann Clarke as:

Inner Flakes	30
Inner chunks	4
Cores and pebbles	4
Inner blades	28
Retouched	1

Ref: Clarke, A 1989 Corse Law, Carnwath: a lithic scatter. Proc Soc Ant Scot, 119 (1989) 43 - 54.

Weston, Dunsyre. 1998 - 2000
This started as an arable fieldwalking exercise because we knew the field which was ploughed had not been disturbed before. We got an absolute bonanza of finds including many flint and chert tools, stone axe and flakes, concentrations of Mesolithic chert scatters, also Early Neolithic pottery lying beside pitchstone and Type VI axe flakes. There was no pitchstone in either of the two Mesolithic sites which we excavated, these sites produced predominantly chert with a little flint, although some pitchstone was found within two large surface scatters of lithic, which were of obvious Mesolithic date, this pitchstone and several flint tools are considered to be co-incidental and of later deposition to the Mesolithic objects.

Every field in the area has produced pitchstone as random finds.

The magnificent earthworks of the Weston Class II henge lies on this farm.

Weston is now incorporated into the Pre-History North of Biggar Project (see below).

Ref: Ward, T 1999 Pre-History North of Biggar Project, Weston Fieldwalking and Excavations 1998 Interim Report, Biggar Museum Trust.
Post script: further retrieval of lithic was accomplished in 2000 which gives a more complete distribution on a major Mesolithic scatter. Ward, T. Report in prep.

Pre-History North of Biggar Project / Melbourne to Dolphinton
This current project is to test a hypothesis that most of the Neolithic evidence in Clydesdale appears to be on the northern side of Biggar, while most of the Bronze Age is to the south, for example nearly all the stone axes which have been found are north of Biggar. The project was meant to be a fieldwalking exercise but we keep on finding pottery sites! Most fields in the survey area have

produced pitchstone as random finds. But at Melbourne we got a concentration of pitchstone with a couple of sherds of Early Neolithic pottery and a chert leaf arrow head.

The other five areas we excavated at Melbourne were Late Neolithic sites with an abundance of Grooved and Impressed Ware pottery, I think the locations are of habitations, what we found were fireplaces and pits which were possibly within the houses and which have left no indicators as to their construction. I personally think they were probably tented types of homes or were buildings not using post hole construction techniques. One or two bits of pitchstone turned up on two of the sites, but at these we also got good sherds of Early Neolithic pottery showing the earlier occupation of the same sites. C14 dates for the Late Neolithic aspects of the areas were around 4500 - 5000BP, and up to 5500BP for the earlier, so I see no problem at Melbourne with the pitchstone appearing on the later sites.

Ref: Ward, T 1996 Pre-History North of Biggar Project, 2nd Interim Report. Biggar Museum Trust.

Gleeson, A C 1998, A Dynamic Approach to Lithic Analysis. Unpublished dissertation, University of Edinburgh 1998.

Brownsbank Farm, near Melbourne.
This site was found in the spring of 2000 by fieldwalking, again as part of the Pre-History North of Biggar Project. We were especially interested in this field because we got quite a lot of pitchstone last year (1999). But this time the farmer ploughed a bit deeper and Early Neolithic pottery was exposed with pitchstone and Type VI axe flakes. We excavated at a concentration of pottery and found pits, full of pottery and for the first time for us, pitchstone within the pits. We are currently dating these features using hazel nut shell and wheat seed. Each of the Brownsbank fields have produced occasional bits of pitchstone.

Ref: Ward, T 2000, Pre-History North of Biggar Project, Brownsbank Farm Excavation, Interim Report. Biggar Museum Trust.
Post script: since the seminar a further series of trial excavations have been undertaken at Brownsbank Farm since the field is scheduled to be ploughed once more in 2001. One trench has produced Early Neolithic sherds and several pieces of pitchstone. Ward, T. Report in prep.

Biggar Common West and East, Carwood Farm and surrounding fields.
Biggar Common (West) started as a forestry fieldwalking project in 1988, we knew the Common had never been ploughed before, and the very first finds were a stone axe and a hammer stone lying together with sherds of Early Neolithic pottery. We also found various Bronze Age burial cairns and mounds which were excavated by Historic Scotland and produced some significant grave goods. Beneath Cairn 1 we found early Neolithic evidence but this was hardly surprising as the stuff of that period was all over the place. Our group excavated the areas where we found the Early Neolithic pottery and we came up with pitchstone on each site, and the largest collection of EN pottery so far found in Scotland, estimates of two hundred pots are published in PSAS. The dates for the sites, which we think were post built habitations came out between 5000 and 5500 BP. Other pitchstone was found randomly over the area.

Ref: Johnston, D 1997. Biggar Common 1987-93: an early prehistoric funerary and domestic landscape in Clydesdale, South Lanarkshire. Proc Soc Ant Scot 127 (1997) 185-253.

A few years later in 1992 the eastern end of Biggar Common was ploughed up for re-seeding grass. We checked it out with our Young Archaeology Club and within minutes were again finding Early

Neolithic pottery everywhere. Now this story is true - as soon as I saw the sherds lying about, I told the kids to look for pitchstone - within minutes we had found several pieces! We excavated again, got an equally large collection of pottery and many more bits of pitchstone. A fireplace with masses of pottery and hazel nut shells C^{14} dated out to c5900 BP, one of the earliest dated Early Neolithic sites I think and certainly one of the earliest dated assemblages of pottery. We found pitchstone again randomly over the hill, but we also got our first taste of grooved ware at one location - and - a couple of bits of pitchstone! so were these flakes residual from the Early Neolithic nearby, or did the Late Neolithic folk have the stuff as well? no prizes for hearing me say it was the former although it is possible that some of the pitchstone found on later pre-historic sites could be the result of people curating objects which they had found, perhaps in their fields?

Ref: Ward, T 1993. Excavations and other fieldwork on the Biggar Common 1993. Interim report. Biggar Museum Trust.

One field lying on the valley floor below this site and several other fields further away are now producing pitchstone as random finds, these will be included in the Pre-History North of Biggar Project.

Heavyside Farm and the Biggar Gap Project
In 2000, we started yet another long-term project to test for Mesolithic in the so called Biggar Gap, the flood valley between Biggar and Broughton to the east. We've only found lithics at Heavyside Farm near Biggar so far, one chert concentration including tools has been located and the rest of the finds are random. But pitchstone is being retrieved.

Ref: Ward, T. Report in prep.

Wellbrae, Pettinain.
This was a pipeline excavation by Derek Alexander of CFA and the site was notable for Late Neolithic Impressed wares, a stone axe and axe fragments. There was a complex of enclosures and pits including cremations and beaker sherds, and also some pitchstone.

Ref: Discovery & Excavation in Scotland 1991, 65, CFA University of Edinburgh.

Cloburn and Blackshouse Burn, Pettinain.
The Bronze Age burial complex excavated by Mary Kemp for Historic Scotland produced food vessel pottery and jet disc beads, two pieces of pitchstone were also recovered here. The nearby huge Blackshouse Burn enclosure was long suspected as being a Neolithic site, and this was proved by Peter Hill, also for Historic Scotland, when oak posts were found in the massive bank and these dated to the later Neolithic, but there were very few finds in the limited excavation areas, and no pitchstone.

Ref: Lelong, O and Pollard, T 1998. The excavation and survey of prehistoric enclosures at Blackshouse Burn, Lanarkshire. Proc Soc Ant Scot 128 (1998) 13-53.
Lelong, O and Pollard, T 1998. Excavation of a Bronze Age ring cairn at Cloburn Quarry, Cairngryffe Hill, Lanarkshire. Proc Soc Ant Scot 128 (1998) 105-142.

Cornhill Farm, by Biggar.
This is where we have done much of our early training in fieldwalking and used the area for teaching the kids from Biggar and Edinburgh Young Archaeologists Clubs. We have come up with lots of good Mesolithic evidence, mostly in the form of the local chert for cores and microliths, but

we have a few leaf arrow heads, a very fine flint B&T and found several pieces of pitchstone including one which has been bi-facially retouched. There is a mix of periods represented at Cornhill Farm.

Ref: Ward, T 2000. Fieldwalking and Excavations at Cornhill Farm, Coulter by Biggar. Interim report. Biggar Museum Trust.

Gleeson, A C 1998, A Dynamic Approach to Lithic Analysis. Unpublished dissertation, University of Edinburgh 1998.

Hillend, Roberton.
The excavation at Hillend near Roberton was part of the same set as Wellbrae, in response to a gas pipe being laid through Clydesdale. Here Ian Ralston of CFA discovered some pits with grooved ware pottery, suggesting the enclosure or enclosures belong to that period, but no pitchstone was found in the relatively tiny excavations.

Ref: Armit, I, Cowie, T, Ralston, I 1994. Excavation of pits containing Grooved Ware at Hillend, Clydesdale District, Strathclyde Region. Proc Soc Ant Scot 124 (1994)113-127.

Stonyburn, Crawford.
Here three small cairns were excavated by Iain banks of GUARD. Two cores and four flakes of pitchstone were recovered. They suggested the cores were 'in the manner' of Mesolithic. These were found below the Bronze Age burial cairns which covered cremations dated to c 3500 BP but one pit was dated to just over 5000 BP and a few sherds of Early Neolithic pottery and two leaf arrow heads were found, so I think the pitchstone is probably contemporary with the Early Neolithic up at Crawford. Incidentally this is the only Early Neolithic excavation evidence south of Biggar. Everything else with the exception of Hillend (above) is Bronze Age and now of course Mesolithic.

Ref: Banks, I 1995. The excavation of three cairns at Stonyburn Farm, Crawford, Lanarkshire, 1991. Proc Soc Antiq Scot, 125 (1995) 289 - 343.

Lintshie Gutter and Bodsberry, Crawford.
Several unenclosed platforms (Bronze Age house sites) were excavated by John Terry in advance of the M74 upgrading at Crawford. C14 dated to between cal 2580 - 1400 bc. The lithic assemblages were very sparse and did not include any pitchstone.

Ref: Terry, J 1995. Excavation at Lintshie Gutter Unenclosed Platform Settlement, Crawford, Lanarkshire, 1991. Proc Soc Antiq Scot, 125 (1995) 369 - 427.

Camps Reservoir
Two enclosed cremation cemeteries produced a series of burials dated by C14 to c 4500 BP, plus a residual scatter of lithics, mostly chert, in the vicinity of the sites. Two pitchstone pieces were recovered from the top soil covering part of the cemetery F24. However, these could not be directly associated with the burials.

Ref: Ward, T 1992 and 1994 Camps Reservoir Excavations, Interim reports. Biggar Museum Trust.

Daer Reservoir, Crawford.
One tiny pitchstone flake was picked up near cairns and a burnt mound deposit, the burnt mound is dated to c 4500 BP and it is about 200m from Mesolithic Sites No's 1 and 3. I'm 'almost' glad to

have it because it gives me the excuse to update the meeting on our news from Daer, and the many more exciting sites we have recently found there.

The landscape around the reservoir abounds with small cairns and several burnt mounds, all of which we have surveyed. Several of these sites are now beneath the normal water level within the reservoir but on three occasions we have been able to access some of them during short periods of dry weather when the water levels were reduced. In summary; we have excavated three Mesolithic sites with significant lithic assemblages, none of which included pitchstone. Two sites have been C^{14} dated to cal BC 8080 and cal BC 7030 and we hope to date the third excavation in 2001. We have found numerous low-density scatters and single finds of lithic in other areas of the reservoir beaches, but with no pitchstone being retrieved other than the single piece already mentioned. It is likely that the other scatters will represent both Mesolithic and later activity in the area.

Ref: Ward, T 1995. Fieldwork and excavations at Daer Reservoir 1995. Interim report. Biggar Museum Trust.

Ward, T 2000. Further fieldwork and excavations at Daer Reservoir 2000. Interim report. Biggar Museum Trust.

Summary of the Clydesdale sites.

We are gathering evidence for the distribution and use of pitchstone every year in Clydesdale, some of it from good contexts and some as random finds in fields. I expect results to start coming in very soon in neighbouring Tweeddale when the Peeblesshire Archaeological Society get going on arable fieldwalking. I think we have a lot of very good evidence for the Early Neolithic being the main period if not the only period for the pitchstone acquisition here. But there will always be the nagging doubt about the pitchstone which turns up on sites of other periods, however, we can show that some of that is most likely to be residual from earlier activity. There are the random pieces from fields, where do they fit in? We do pick up lithic in these fields which clearly spans the Mesolithic, Early and Late Neolithic and the Bronze Age, so there could be a question hanging over the random material - unless it can be described typologically to fit one period or another. That is something we are not competent to do - but we are on a training curve to get better at lithic analysis.

The talk was finished on this note of concern;

We are more than aware that the job is not done until the work is published, but we have two problems, one is trying to get funds to pay specialists to do the analytical work and the other is that we are victims of our own success, success at finding pre-historic sites of all periods which are under direct and immediate threat of destruction.

Everything I've talked about has been sites which have been damaged one way or another, and there are plenty of projects in our locality besides these, these others don't concern us today because they don't involve pitchstone. As a group, we are at our wits end trying to keep up with the salvage operations. We are now completing two to three major projects each year, every one of which comes as a surprise to us, we don't know what is going to happen next year!

Although we live in an incredibly rich area for archaeology, the same threats to sites must be happening in other places, and who is responding to them? We desperately need more archaeologists, professional and amateur, working in harmony, to combat the various and numerous threats to our archaeological heritage.

Post script.
Since the seminar, the Biggar Group has visited Arran principally to see the Corriegills pitchstone outcrop and to visit the museum and archaeological sites. Hardly surprising were two pitchstone flakes, one each found at Auchagallon kerb cairn and at Machrie Moor. The museum has an excellent display of pitchstone artefacts including several very attractive leaf and barb and tang arrow-heads and also some fine scrapers and other tools. This is probably the best collection of pitchstone tool types in existence and of particular interest are the Bronze Age arrow-heads showing that at least in Arran, the material continued in use for utilitarian tools and weapons. The pitchstone outcrop in the sea cliffs at Corriegills shows how attractively obvious this stone was for early pre-historic tool makers. The beach below the main exposure is strewn with pitchstone with massive blocks over 4metres in length. It is not difficult to appreciate that Corriegills is almost certainly the source for all archaeological pitchstone, given its easy access and the shear abundance of material.

The Biggar Group have also initiated further excavations at Brownsbank Farm. The field which has been most prolific in producing pitchstone and Early Neolithic pottery has already revealed another location where the two artefact types are being found together.
Ref: Report in prep

All the reports by Biggar Museum Trust and referenced here are deposited in the National Monuments Records of Scotland and may be accessed there or at Biggar.

6. Other contributions

The audience was invited to add anything at this stage and various comments were made, these are summarised as best we could and are given below with other remarks made at the end of the event. One notable comment by Alan Saville was that he had never seen a true microlith made from pitchstone.

7. A look at the Clydesdale pitchstone with Graeme Warren, University of Edinburgh.

Most of the pitchstone which has been found by the Biggar Group was on display. Graeme talked about the material and made some general comments on the nature of the objects. This was an opportunity (for the lay persons) to understand better descriptive methods such as identifying types of artefact and most importantly describing the colour and texture. Much useful discussion took place. Only one item could confidently be said to be retouched, this was previously thought by the Biggar Group to be a leaf arrow-head, but it was agreed that the object was only bi-facially re-touched. The difference in colour between the 'grey' to the 'black' pitchstone, which sometimes occurs on the same piece, and also the texture with inclusions was more readily appreciated by looking at the material on display.

8. General discussion

In order to facilitate a debate, the following was used as an over head projection and each point was worked through by the audience.

1) When was it acquired in antiquity?
2) What was it used for? was it knapped locally? or were there tool factories in Arran?
3) How did it travel to its find spot?
4) What may be deduced from present distribution patterns?
5) What may be deduced from excavation evidence?
6) What may be deduced from earlier finds?

1) It appears to have been used in the Mesolithic, certainly in the Early Neolithic, possibly in the Late Neolithic and possibly in the Bronze Age.
Sites:

2) There is a range of tool types, microliths (?), scrapers, leaf arrow-heads, blades and re-touched pieces and cores. A N Others? the majority of finds are flakes and small chunks.

Was it sometimes acquired simply as an exotic material, a curiosity, something different? can it be placed in any ritual context? grave goods

3) Was it used as trade, gift exchange, currency?

Did people travel from Arran, or travel to Arran, marine transport certainly required?

Was it passed from person to person, perhaps over a long period of time before finally reaching its find spot?

4) Is the distribution simply representing fieldwork as so often is the case?

Certainly, more in the SW in the past, but now turning up in many places?

Why is so much apparently lying about randomly?

Why the huge collection from Ireland?

5) Is the pitchstone which turns up in Bronze Age contexts 'hung over' from earlier periods? e.g. Melbourne, Biggar Common, Stonyburn. Perhaps even being curated as novelty finds in antiquity.

Certainly, linked to the Early Neolithic, mostly settlement but chambered cairns also.

Mesolithic evidence, there are microliths from Sliddery in Arran any in the South West sites?

6) Nearly all have poor provenance, even Glenluce has poor contexts

Finally, the following is a combination of contributions put to the meeting. The organisers attempted to catch the various comments being made by tape recording, however the quality was very poor, therefore we apologise for any misquotes and errors, and assure named individuals that this document is for restricted distribution.

Following the set lectures by Jim Ness and Tam Ward a number of questions and issues was raised and extra contributions were delivered by Ian Meighan of Queen's University, Belfast who described the pitchstone finds of Ballygally and other Antrim finds (Ian's work can be accessed in Irish Archaeology) and Graeme Warren who spoke about pitchstone lithic finds in the Tweed Valley.

Tam Ward made a remark about museums being unaware of what they had in their collections. In response Alan Saville explained that museum curators had the responsibility to make sure that archaeological material is preserved in order that researchers can access the material, active archive work is progressing. Old collections had often wrongly identified pitchstone. An in-depth reassessment of museum's collections was necessary.

Alan Saville explained that pyramidal bladelet cores suggest later Neolithic to Bronze Age use (as found in Bronze Age graves). There is little diagnostic secondary working although retouching sometimes occurs. BMT's potential arrowhead is more likely just a retouched flake. More excavation is needed to make comparisons and draw conclusions. Doubts are now being cast on Thorpe and Thorpe's east coast Mesolithic distribution.

The Mesolithic finds seem to be restricted to Arran. Of sixty sites excavated by Graeme Warren in Peeblesshire only two or three have yielded pitchstone. The bulk of these sites are Mesolithic. This corresponds with the expansion of other raw materials in the Neolithic. Reports of a pitchstone erratic at Laurieston Castle in Edinburgh have not been confirmed. Pitchstone would tend to disintegrate if glacially transported. No one could comment on reports of pitchstone finds in northern England. There are still questions over the date of the Loch Doon discoveries. The pitchstone itself does not allow dating; contextual information from the site needs to be taken into account. Reports of pitchstone microliths may relate to a misunderstanding of the definition of a microlith. In the BMT collection there is only one potentially retouched piece.

In Tweeddale, the majority of sites yield only 2, 3 or 4 pieces of pitchstone, usually blades or chunks. Finds in Aberdeenshire are from similar contexts.

The suggestion that pitchstone could have been traded for Irish flint is unlikely because flint is so much more useful for tools. Pitchstone is more likely to have been acquired for its aesthetic value. It has been suggested that it may embody qualities of the landscape or have a religious context to equate the Australian Aboriginal 'bones of the ancestors'. In the Mississippi basin obsidian was used for surgical purposes and in the Aegean for shaving and hair cutting but obsidian is stronger and sharper edged than pitchstone.

Graeme Warren explained that pitchstone flakes can be refitted, even without the core! If this could be done it could prove that the reduction sequence had been done on site e.g. at Melbourne, but BMT material is secondary lithic; it has no external surface showing. This would make it difficult to reconstruct.

Some discussion about colour ensued. The bulk of finds are black pitchstone which is actually dark green including those at Ballygally.

It was suggested that different outcrops from Arran might have had different uses and knapping technologies may be different for each outcrop.

The earlier attribution of pitchstone to the Mesolithic was due to the associated archaeology also being wrong. The possible use as makeshift tools can be checked against wear. The definition of a blade is not as a tool! Blades are fragments whose length is more than two times its breadth.

If Ballygally was a trading station why have no high-quality tools been found there?

In comparing pitchstone with chert it was noted that chert does not appear to have travelled out with the Southern Upland fringe, but this may simply reflect fieldwork - or the absence of it.

Questions that need to be answered include the possibility that pitchstone was quarried and roughed out on Arran and then transported. Would the Clydesdale people be familiar with Arran? The present distribution of pitchstone merely mirrors completed fieldwork.

The imminent Ballygally and Barnhouse, Orkney reports should help to add to current understanding. Only a few pieces were found at Orkney but over 500 were found at Ballygalley, regarding the latter it has been said that the entire assemblage could have been transported in a bowler hat!

Tam Ward asked for increased communication to take the subject forward and suggested that the Internet was a suitable way of doing this. A museums update is also vital.

9. Close

Tam Ward thanked all who had come along to take part in the seminar, everyone appeared to have had a worthwhile day and agreed there was much to learn about pitchstone.

Finis.

Appendix I THE INVITATION

Biggar Museum Trust
Seminar of Arran Pitchstone
Saturday 30th September 2000 10.00am - 4.00pm at Moat Park Heritage Centre, Biggar

Rationale
The purpose of this seminar is to disseminate knowledge of the archaeological provenance and context of Arran pitchstone.

Biggar Museum Trust have found assemblages and single finds of pitchstone during the course of various projects, evidence from several sites now points to an association with Early Neolithic settlement and with other artefacts such as pottery and flakes of Langdale Pike tuff. This material will be available for study on the day.

Some of the issues to be discussed will be exchange methods, distribution, artefact types, geological types, the reason for procurement at different pre-historic periods and - any other questions or topics that spring to mind on the day.

BMT hope that bringing together people who are interested in pitchstone will lead to a better understanding of the material and its use in pre-history. This informal event is for specialists and beginners alike.

Several presentations by BMT will be made to get the ball rolling, these will include known distributions nationally and locally (Clydesdale), museum holdings of pitchstone, the geology of pitchstone, BMT material from various sites, published data on pitchstone. We are inviting others to contribute in any way, especially with fieldwork information.

What we want is an open forum on the subject, if you wish to participate please contact Tam Ward at Biggar Museums, stating if you wish to make a presentation. Slide projector and OHP will be available.

We shall provide tea, coffee and biscuits for the day but bring your own lunch.

To offset expenses only, there will be a £2 fee.

RSVP

Biggar Museum Trust Tam Ward 9 March 1999

APPENDIX II. The follow up letter from Tam Ward to participants.

Tam Ward
January 2000

Dear All,

Here for your interest is the report on the Pitchstone Seminar we held at Biggar last September.

I hope it will be of some interest and perhaps use to you. Since we all met, I have done a little more work on the data compilation as you will see. I hope the proceedings are reported accurately but our sound recording was not as good as we thought, so there may be a few errors in what was said.

It seems to me that most of what was said on the day still holds true, although I was surprised to see so many references to pitchstone in recent PSAS. There are a few statements that Thorpe and Thorpe is out of date but they still quote it as there is nothing else. Hardly surprising is the fact that references to pitchstone drop off in earlier reports (e.g. see D&ES).

I now intend to continue with the inventory of references in publications etc but there is no way I can deal with actual material, that requires a lithic expert. I do hope to study the available data, provenance, context etc and come up with something on that eventually.

What I hope now is that I may have some feedback from other people who may know of sites, collections etc not given in this report, or any omissions I may have made. I would be grateful for any further information and / or comments. I shall get to work on other periodicals, but if anyone else would like to do that, let me know and it will be acknowledged.

I think there is a good piece of worthwhile work which could be the outcome of an update on all matters relevant to pitchstone, so is there any one out there who would be a willing partner in such an undertaking? a lithic specialist.

Trusting this finds everyone keeping fine, please keep in touch,

Best wishes,

Tam