

Newsletter No. 290

April 2025

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Committee

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Graham Worton

Vice Chair

Andrew Harrison

Hon Treasurer & Acting Meetings Secretary

Alan Clewlow

Hon Secretary

Mark Jeffs

Field Secretary

Andrew Harrison

Meetings Secretary

Position vacant

Newsletter Editor

Julie Schroder

Social Media &

Web Assistant

Dakota Johnson

Webmaster

John Schroder

Copy date for the next Newsletter is Sunday 1 June

To find out more about this photo - read on!



<p>Mark Jeffs Honorary Secretary,</p> <p>honsec@bcgs.info</p>	<p>Andy Harrison, Field Secretary,</p> <p>☎ 07973 330706</p> <p>fieldsecretary@bcgs.info</p>	<p>Julie Schroder, Newsletter Editor,</p> <p>42 Billesley Lane, Moseley, Birmingham, B13 9QS.</p> <p>☎ 0121 449 2407</p> <p>newsletter@bcgs.info</p>
<p>For enquiries about field and geoconservation meetings please contact the Field Secretary. Please notify Andy Harrison in advance if you will be attending these events. To submit items for the Newsletter please contact the Newsletter Editor. For all other business and enquiries please contact the Honorary Secretary. For more information see our website: bcgs.info, YouTube, and Facebook.</p>		

Future Programme

**Indoor meetings are now held in the Lamp Tavern, 116 High St, Dudley, DY1 1QT
7.30 for 8.00 o'clock start unless stated otherwise.**

Visitors are welcome to attend BCGS events but there will be a charge of £1.00.

Monday 14 April (Indoor Meeting): 'Diamonds'. Speaker: Chris Duffin (Teacher, author, currently Scientific Associate at the NHM London, also part of the Palaeobiology Research Group with Prof. Mike Benton at the University of Bristol. *More biographical details on our [website](#).*) In addition to being a girl's best friend, diamonds possess great cultural significance. This lecture explores the geological occurrence of this celebrated gemstone, its properties, variety and use as a jewel, including an overview of the different cuts produced by jewelers through history. Some celebrated diamond gemstones and classic diamond sites, together with the stories behind their discovery, are considered, together with the position of the diamond in folklore and legend.

Saturday 10 May (Geoconservation Day): Portway Hill, Rowley. With the Friends of Rowley Hills and the B&BC Wildlife Trust. Meet at St Brades Close off Tower Road for 10.00 (Grid ref: SO 974 893, nearest PC: B69 1NH). Directions: from Birmingham New Road (A4123) turn left on to Tower Road if coming from Birmingham, right if coming from Wolverhampton. Turn left into St Brades Close. Wear old work clothes, waterproofs and strong footwear. Please bring gloves. Tools provided but do feel free to bring your own. Also bring a packed lunch, hot drinks provided. Aim to finish around 2.30.

Saturday 7 to Sunday 8 June (Field Weekend) Yorkshire Museum of Natural History & Biddulph Grange Geological Gallery and Gardens. This trip involves an overnight stay. Those who have registered will have received details from Andy. If you are not registered but you are still interested please contact Andy: fieldsecretary@bcgs.info



BCGS 50th Anniversary Celebration Weekend 5th/6th July 2025

As part of the 50th anniversary celebrations this year, we are having a celebration weekend to mark the occasion.

Saturday 5 July 10.30 – 3.15 at Dudley Museum and Archives, Tipton Road, Dudley, DY1 4SQ, in the downstairs foyer and meeting rooms. The day will feature all sorts of fun activities; talks about the society and its contributions to local geology and geological conservation; stories from the limestone mines; displays from a number of geological organisations from the Midlands and beyond.

A special social gathering

Members new and old will be joining us, and many friends we have gathered along the way through the activities we've been part of. This is a chance for the present to meet with the past, hear about how things have changed, reminisce and chat about the direction of the Society's next 50 years!

Exhibition

The day will also launch a joint exhibition about the BCGS, tracking its history through pictures and stories, celebrating our achievements, sharing a few highlights and stories of the society over the last 50 years. The exhibition will be supported with selected material from the archives illustrating what life was like across those five decades during which we've been enjoying, conserving and promoting our geological heritage. The exhibition will run throughout the summer until September.

Get Involved! Can you spare some time to trawl through old Newsletters and send us any items which capture your interest?

Send any photos, quotations or references we can follow up - from Newsletters or any other archives. Send to Mark Jeffs: honsec@bcgs.info

Poster Competition

With prizes and possible inclusion in our exhibition – have a go and encourage the young people in your life to try their hands at creating a geology themed poster! **The closing date is 1st June.** [Here are the details](#) and [here are the rules](#). (Have a look at our website: bcgs.info)



Leaflet Launch

Our new publicity leaflet will be launched. Please take copies and promote our Society far and wide! There will be some branded products to give away and there will be **CAKE!** So put the date in your diaries, invite anyone you think might enjoy being part of this historic moment for the society and join us at what promises to be an amazing landmark day for the society. And there's more...!

Sunday 6 July: Field Trip Day. Led by Graham Worton and Andy Harrison. The second day of our celebration weekend will recreate the first ever field trip from 1975 (as far as we can) by visiting local sites and describing the geology of the Black Country as we knew it 50 years ago, and as we know it now, after 50 years of additional geological knowledge. Full details of the trip will follow in the June newsletter.

Graham Worton, BCGS Chair

Come along with family and friends to celebrate 50 years of the BCGS

Other Societies and Events

Teme Valley Geological Society

Monday 28 April: 'Terrestrial Meteorite Craters – A look at the first identified meteorite crater near Flagstaff, Nevada and a review of the science of craters to day.' Speaker: Phil Bustin.

Talks take place in Martley Memorial Hall at 7.30. Non-members £3. For further information email: enquire@geo-village.org or visit: <https://geo-village.org/>

Mid Wales Geology Club

Wednesday 16 April: 'Some Structural and Mineralogical Problems in the Corris Slate Belt'. Speaker: David Mason.

Tuesday 20 May: 'The Geology of Antarctica: a personal journey'. Speaker: James Cresswell.

Further information: Web: <http://midwalesgeology.org.uk> lectures start at 7.15 and are a hybrid of in person meetings at Plas Dolerw, Newtown, SY16 2EH and via Zoom. Those wishing to join a meeting remotely should contact the secretary, Chris Simpson, at christopher_s@btinternet.com

Shropshire Geological Society

Wednesday 14 May: 'Project EARTH (Electromagnetic Array over a Tectonic Hotspot): Iceland as a Unique Geophysical Laboratory'. Speaker: Dr Fiona Simpson (Imperial College, London).

Meetings commence at 7.15 for 7.30. Lectures are now being held in hybrid form, in person at the Higher Education Centre, Shrewsbury College, as well as by Zoom. If you wish to attend please contact Albert Benghiat: 07710 421 581, email: SGS.chair@hotmail.com
Further information: <https://shropshiregeology.org.uk/>

East Midlands Geological Society

Wednesday 14 May, 10.30 to approx. 4.00: Day visit to Carboniferous rocks around Wirksworth, Derbyshire. Leader: Martin Whiteley.

Non-members are welcome and should register with the secretary. Further info: www.emgs.org.uk or email: secretary@emgs.org.uk For field trip booking instructions see: emgs.org.uk/#fieldtrips

North Staffordshire Group of the Geologists' Association

Saturday 24 May: Charnwood Forest (Bradgate Park), led by J Carney.

For more information: <https://nsgga.org/>

Warwickshire Geological Conservation Group

Sunday 1 June at 10.00 – 5.00: Bradgate Park, Charnwood Field Trip, led by Dr Nick Chidlaw.
There is a charge of £5.00 for this trip.

Friday 12 September – Monday 15 September: WGCG Field Excursion to Northumberland, led by Karl Egeland-Eriksen.

BCGS members are invited to join both these trips. For more information and booking visit: <https://www.wgcg.co.uk/>

Editorial

The AGM report (below) presents a generally optimistic feeling about our Society. But - (there's always a but!) - please note that we still have **vacancies on the committee**. To keep the Society thriving as it has done for the last 50 years we need more of you to be involved with the running of the Society. Please think about it, and get in touch with Mark - honsec@bcgs.info if you think you may be able to help.

We now have more details about our 50th anniversary weekend highlighted on p3. We still need help from you! If you can spare a little time to browse through some of our earlier Newsletters (all on our [website!](#)), please be on the lookout for interesting items, photos or short quotes to add to the display. Again, send the items (or references for us to find them) to Mark.

For your enjoyment in this issue, Andy brings us a fascinating and detailed report about the Wren's Nest field trip held last October, Mike Allen takes us on a trip to the Scottish Island of Kerrera in his enjoyable intermittent series on 'Hebridean Gems'. Then Mike Williams finds a geological connection with the crime author Desmond Bagley, and finally Mike Allen muses on spheroidal objects! Enjoy a good read and our action-packed 50th anniversary summer. ■

Julie Schroder

Annual General Meeting

The 49th AGM of the Black Country Geological Society was held on 17 March 2025 at 7.30 at the Lamp Tavern. The meeting commenced with a greeting by the Chair, Graham Worton who celebrated the 50th year of the society and introduced the agenda.

1. Apologies

Mike Allen, Roy Donnelly, Helene Elder, Fiona Scott and Linda Tonkin. ►

2. Accepting of the Previous Minutes

The minutes of the 48th Annual General Meeting were produced by Mark Jeffs and made available to those in attendance. Graham asked for any objections or corrections. There were none, and the acceptance of the minutes was proposed by Keith Elder and seconded by Andy Harrison.

3. Treasurer's Report

The Treasurer's report was produced by Alan Clewlow. The report was distributed to members in attendance along with the audited accounts. Alan summarised the key points in the report:

The audited accounts show that the society had a surplus of £78.85 from December 2023 to December 2024 when comparing income with expenditure. Income is down due to membership being down slightly. This has been offset by a decrease in room hire costs after having to change venue from the Museum and Archives to The Lamp Tavern (from £75 per meeting down to £50). The savings account set up by the Society earned £90.94 for the society. Total reserves as of 31 December 2024 stand at £5383.21. Alan reported that the reserves are likely to decrease this year due to investment in a projector for the meetings and expenditure on the 50th Anniversary celebrations.

Ray Pratt asked about the decrease in membership and if the committee had any plans for the 50th anniversary. Graham explained that there were plans for a public open day event at the Archives on Saturday 5th July with a corresponding exhibition that would run for a few months afterwards. New promotional leaflets for the society are in preparation. Discussion of encouraging schools and universities was also mentioned. Acceptance of the report was proposed by Julie Schroder and seconded by Bob Fairclough.

4. Chair's Annual Report

The Chair's Annual report was produced by Graham Worton. The report was edited and therefore not distributed at the meeting Mark will distribute this report after the meeting with the minutes. Graham Worton summarised the key points of the report.

Last year the Committee faced the challenge of finding a new venue for indoor meetings at short notice due to a ban on out of hours meetings at the Dudley Museum and Archives. This affected us and other societies. Fortunately we have found a new home at The Lamp Tavern and with the investment in a new projector we look to future-proof the society so that if we ever need to move again we have the equipment to do it.

Graham thanked Alan and Andy for providing the society with such a varied programme of speakers at our indoor meetings and field visits. Graham invited the membership to let the committee know if there are any topics you would like to see covered in the future. Members can either speak to one of the committee or contact Mark via email honsec@bcgs.info. Graham also thanked the society for its continued voluntary contribution to geoconservation. He apologised for the recent cancellation of the Castle Hill geoconservation due to tree falls that have blocked major paths. Thanks was also given to the members evening and everyone's contributions.

Graham thanked the committee for the role they have played in organising the programme of events and the communication with members. Thanks to the newsletter and John for editing and publishing the talks online via youtube. Graham also thanked the membership for continued contributions and engagement. ►

Graham celebrated the history of the society and the 50 years of championing Black Country Geology. The report ended with a call to join the committee as we have vacancies on the committee. The acceptance of the Chair's annual report was proposed by Sue Fairclough and seconded by Davena Dyball.

5. Election of Officers

Graham Worton reported that Pete Purewal our Social Media Officer (in attendance) will be stepping down from the committee as Social Media Officer. This has left a vacancy on the committee and this is in addition to the Meetings Secretary role currently being filled by Alan Clewlow. Graham also mentioned that the committee now meets regularly at Ma Pardoes.

Graham opened all committee posts for nominations. As there were no new nominations, Graham asked all incumbent committee members if they would stand again for another term, and they agreed. All incumbent committee members to serve another year was proposed by Ray Pratt and seconded by Keith Elder.

6. Election of Auditor

Davena Dyball to serve another year as auditor for the society was proposed by John Schroder and seconded by Bernard Duggan.

7. Any other business

The Chair opened the floor to any other business. Discussion of how to increase membership followed. Ray Pratt said that the Warwickshire Geological Conservation Group have been engaging in public events called "Ask a geologist". These have been held at the Warwick Museum and Coventry Museum. This has engaged members and brought in new members. Involvement with schools and colleges was also discussed to help increase membership. Keith Elder mentioned Eco Communities which go into schools to help engage pupils in nature, ecology and geological conservation.

The meeting concluded at 8.10 and was followed by a talk by Alan Clewlow entitled "*The Cascade Volcanoes of NW North America*". ■

Mark Jeffs, Secretary

Field Meeting Report

Sunday 6 October: BCGS Field Visit – Wren's Nest Walk & International Geodiversity Day.

In recent years, early October visits to the Wren's Nest have seen members assisting the wardens with clearing rock faces and opening up the old quarried trenches along the reserve's eastern edge and southern tip. Unfortunately, current Council restrictions prevented any clearance works on this occasion. Therefore, to mark the third International Geodiversity Day, we had a walk around the reserve hearing stories from the more recent past, whilst discussing the geology, biodiversity and industrial heritage that Wren's Nest has to offer. Members from BCGS and the Geological Society's West Midlands Regional Group (WMRG) met at 10.30 at the Warden's base on Fossil View.

Since Wren's Nest became the world's first National Nature Reserve for geology in 1956, several guides and leaflets have been produced to promote its geology, biodiversity and industrial heritage. One of ►

the earliest was the Wren's Nest National Nature Reserve Geological Handbook and Field Guide (1990), produced by BCGS members with a Nature Conservancy Council (NCC) grant. The guide was principally aimed at A-Level students and undergraduates. Since 2005, Dudley Council and the reserve wardens have published several Wren's Nest leaflets to promote the geology, wildlife and industrial heritage to the general public. The guides and leaflets can be downloaded from the BCGS and Council websites. In 2016, a new leaflet was produced, 'The Geology of Wren's Nest National Nature Reserve', as part of the Black Country's bid to become a global Geopark. This came to fruition in 2020.

Each guide and leaflet contains a trail following much the same route. Markers identify each location along the trails, which for the Geopark leaflet are identified as Geopoints 1 to 11. As with all the trails, our walk started at Geopoint 1, also known as the 'Snake Pit', on Wren's Nest Hill Road. No-one is quite sure how this location got its name but this is a good spot for introducing the geology and industrial heritage that have shaped the reserve.



Wren's Nest Geopoint 1, the 'Snake Pit'

Exposed here are steeply dipping (at approximately 50° to the east) middle Silurian limestone and mudstone strata belonging to the basal Ludlow and the Upper Wenlock Series. Representing the Ludlow Series is the Lower Elton Formation, formerly known as the Lower Ludlow Shale. This stratum comprises olive-brown silty mudstone and siltstone deposited under low energy marine conditions. It represents the youngest rocks seen at Wren's Nest and sits conformably over the Wenlock Series. At Geopoint 1, the Upper Wenlock includes very pure blocky limestone strata, called the Much Wenlock Limestone Formation, overlying thinly bedded mudstone and limestone layers of the Nodular Member.

The Upper Quarried Limestone Member was deposited under relatively high energy marine conditions within a tropical / sub-tropical lagoon teeming with life. The shells and skeletal remains left behind formed the limestone seen today. Gentle wave action wafting over the accumulating debris removed the fines, resulting in a very pure and hard limestone. Its properties initially made this stratum ideal as a building stone, as seen in Dudley Castle and the Priory. Later it was crushed and burnt to provide slaked lime, which was used as a 'sweetener' to improve the acidic soils associated with the surrounding Coal Measures strata. However, its most notable use was as an iron smelting flux during the Industrial revolution.



Wren's Nest, The Ripple Beds

The underlying Nodular Member formed under lower energy shallow marine conditions, below the wave base, where finer clay and silt-sized particles were able to settle out. The thin limestone layers represent periodic storm events that washed coarser carbonate-rich material into the lagoonal system. Variscan deformation at the end of the Carboniferous is thought to have later tilted these beds to their current position. Wren's Nest Hill is lenticular in plan and pointed at its southern end. The same bedded sequence occurs in reverse, at a much steeper angle, on the reserve's ►

western side. This is because Wren's Nest Hill, like neighbouring Castle Hill, is an isolated fold or pericline with Carboniferous Coal Measures strata surrounding it. Glacial erosion during the Ice Age removed the top of the hill resulting in a relatively flat top, exposing softer and older mudstone rocks at the pericline core. Later human activity superimposed a terraced appearance onto Wren's Nest Hill summit.

The geological structure and nature of Wren's Nest Hill influenced how the Upper Quarried Limestone Member was originally worked. From surface, the miners excavated this stratum along its bedding plane leaving a deep trench that ran around both the Wren's Nest and the adjacent Mons Hill. When mining stopped in 1924, the trench was backfilled and today forms one of two tree enclosed paths around the reserve.

Leaving the 'Snake Pit' we passed a carved wooden bench in the shape of a Dudley Bug, *Calymene blumenbachii*, the emblem of the reserve and Dudley itself. Adjacent is a sycamore tree, which is one of three places along Wren's Nest Hill Road where, it is said, a hunting lodge once stood that was the birthplace in 1678 of Abraham Darby who played a leading role in the Industrial Revolution. Nearby, a colourful rectangular mosaic, created by local primary school children, commemorates the reserve's 50th anniversary in 2006.

Crossing Wren's Nest Road, we reached Geopoint 2, the eastern end of the NCC cutting, where it intersects the infilled Upper Quarried Limestone Member trench. Approximately 60m long the NCC Cutting was excavated in 1977 for a research project. It provides an excellent exposure through the Nodular Member and contains around 37 greenish layers of volcanic ash that has weathered to bentonite clay. These ash layers are believed to have originated from a volcanic source situated, today, roughly 2 km below Cheltenham. Roughly halfway along, there is also a small dome shaped coral mass.



Wren's Nest, Upper Quarried Limestone Trench

Walking up through the cutting represents walking into the hill and going back in time. In 2011, radiometric dating of zircon crystals from a bentonite layer within the Lower Elton Formation at Geopoint 1, provided a date for this layer at around 427.7 Ma. This date has been corroborated from other sites globally, and provides a stratigraphic golden time marker for this bed. Similar radiometric dating in Scandinavia, from a bentonite layer at the top of the Nodular Member returned a date of around 429.1 Ma. Therefore, walking through the NCC cutting effectively represents walking through one million years of earth history.

Towards the cutting's western end, the rocks change to another thickly-bedded, blocky, pure, hard limestone layer. Older than the Upper Quarried Limestone Member, this stratum is called the Lower Quarried Limestone Member and was worked for the same reasons. This produced a second deep trench around Wren's Nest and Mons Hill that was infilled after mining stopped. Underlying this layer are mudstone strata from the base of the Wenlock Series belonging to the Coalbrookdale Formation that, unfortunately, are hidden from view and form the core to Wren's Nest Hill. ►

Leaving Geopoint 2, we continued south along the heavily tree-covered trench through the Lower Quarried Limestone Member. Coming to some steeply descending steps, the trench has a roughly east-west kink. The offset represents a fault that cuts across the trench and is likely to have resulted from deformation during Variscan folding. The guide book shows another fault, north-south trending and running the length of Wren's Nest and Mons Hill with a vertical displacement. This is known as the 'Wren's Nest Fault' and is also likely to be the result of deformation at the end of the Carboniferous.

Peter Parkes, a founder member of BCGS, has many stories and photos, (available to view on the Society's website) from his visits to Wren's Nest since the 1960s. His photos excellently record how the reserve has changed over time. He was able to provide some background information to the infilling of the Lower and Upper Quarried Limestone Member trenches and also the discovery of the fault we encountered.



Figure 1: Wren's Nest, The Miner Agent's Cottage

We emerged from the Lower Quarried Limestone Member trench, onto the Wren's Nest Geopoint 6 flat, open hill summit. Today, numerous recently planted hedgerows divide this area into several enclosures. These have been made by the wardens to create new habitats for increasing the biodiversity across the area. Several ponds have been excavated to form miniature wetland habitats which also reduce surface water run-off. The summit's terraced appearance results from its use as a firing range to train troops heading to the trenches during the First World War.

Historically, the summit was also farmed. The former farm house and associated out-buildings were located towards the summit's southern end. Though long gone, Pete was able to describe what the buildings looked like and where they were located. Today, all that remains are a few foundations and the farmhouse basement (infilled), hidden away in the trees and undergrowth.



Wren's Nest, Seven Sisters Caverns

Looping back, we headed a short distance north along the western edge of the summit to Geopoint 9 – The Seven Sisters Caverns. The 'Sisters' refer to the rock pillars supporting the cavern roof. Today, dolerite from the Rowley Hills and gabion baskets have been used to infill between the pillars to help support the roof of the Upper Caverns. The pillars provide a lasting example of Dudley Council's acceptance of the importance of preserving this site. The sharp-eyed visitor will spot that there are no longer seven pillars. This is because in the 1960s the Council deemed the caverns unsafe and tried

blowing them up. However, this proved futile and they gave up, leaving the remaining pillars standing. Pete regaled us with stories about the Council's efforts and how they failed. In some cases, it is questionable whether their efforts were entirely necessary or would be construed today as geological vandalism. The early 2000s saw the caverns suffering periodic collapses. Thankfully the Council took the sensible approach and grouted up the lower caverns whilst infilling the upper ones with what can be seen today. ►

The caverns were sunk whilst working the Lower Quarried Limestone layers, and reach a depth of over 100m. They represent a pillar and stall mining method similar to that used in coal mines. This was due to the dip of the strata and ease of excavating the limestone. At the base of the caverns a canal basin was constructed and the worked limestone was carried from there, via canal, to the Castle Hill Basin under Castle Hill.

At the northern end of the caverns sits a granite memorial dedicated to the Seven Sisters' miners. It commemorates the endeavours and lives of those who worked the limestone here. An inscription on the memorial reads: "In no part of England are more geological features brought together in a small compass than in the environs of Dudley or in which their characters have been more successfully developed by the labours of practical men". These words were spoken by Sir Roderick Murchison, in 1849, during his second speech at Dark Cavern on Castle Hill. The words recognise the importance of those doing the manual labour over those who benefited from such endeavours.



Wren's Nest, Seven Sisters Miners Memorial

This led nicely on to our next stop, Geopoint 8, situated south of the Miners' Memorial and the Seven Sisters and known as 'Murchison's View'. An information panel at this stop commemorates the work and life of Sir Roderick Murchison. He understood and worked with the local miners, and collected local rocks and fossils from Wren's Nest and Castle Hill. This led to publication of his work entitled 'The Silurian System' in 1839. He launched the book with a speech to various important dignitaries in Dark Cavern on Castle Hill. For the local people, he repeated this speech 10 years later when 15,000 people turned up to hear him speak. At the end of his speech he was carried out on the shoulders of miners as they christened him the 'King of Siluria'.

Murchison was instrumental in getting a local specimen collection - The Dudley Collection - compiled and put on public display. Although the collection has been moved many times and messed about, it remains housed today in Himley Hall. Murchison was also instrumental in establishing The Dudley and Midland Geological Society in 1842, which would become the Black Country Geological Society, founded in 1975. The current BCGS was started by a group of geology evening class students with the aim of promoting and undertaking geoconservation. One of their first roles was to save the Dudley Collection, then being housed in a basement. Once again, Pete, regaled us with stories of sorting, cataloguing and appropriately storing the collection in the basement, and having to avoid the rats.

Murchison's View overlooks Dudley town, Castle Hill and the Rowley Hills to the south with Birmingham in the distance. Together, the hills sit on a ridge of high ground stretching from Sedgley in the north-west to Northfield in the south. This ridge has had an important influence on the local landscape historically, and geographically it represents the watershed of Central England. Rain falling on the eastern side feeds, via local watercourses, to the River Trent and the North Sea. To the west, rainfall ends up in the River Severn and the Bristol Channel. Wren's Nest and Castle Hill sit slightly east of the watershed itself. ►

From Geopoint 8, we descended the 99 Steps, so called because there are a lot of them (not necessarily 99), back into the trench through the Upper Quarried Limestone Member. In recent years BCGS members have helped the wardens to remove vegetation to expose rock faces and open the trenches up to let in more light. The aim is to provide rides for wildlife to travel around the reserve and improve paths for the public. Heading west, we came to White Rock, which marks the pericline's southern tip at Geopoint 7. Opposite was a 'lime pie'. Baked layers of limestone and coal/wood heaped into a mound represent an early method for making slaked lime. Now very overgrown, this is one location in need of clearance works.

We continued following the Upper Quarried Limestone Member trench along the western reserve periphery. The weather conditions and tall, dense vegetation made a scene reminiscent of Jurassic Park. At Geopoint 6, we observed an old mine entrance where a reverse thrust fault has displaced the Upper Quarried Limestone Member over the Lower Elton Formation shales. Pete explained and provided photos of the exposure when it was originally cleaned up. Continuing north along the trench, we passed the 'Cherry Hole', a crown hole, where lower mine workings had collapsed leaving a gaping void that has been fenced off.



Wren's Nest, Geopoint 6

Next, we came to the former mine manager's cottage, which today is privately owned. Pete described visits after the mine had closed to the previous owner, who used to keep goats. The grounds still contain early examples of lime kilns, which were one step up from the lime pies seen earlier. The kilns are effectively large brick boxes into which the coal and limestone were layered ready for burning. Today, these kilns are heavily overgrown and obscured from view. Unfortunately since they are outside the reserve and on private property it is not possible to clean them up.



Wren's Nest, The Cherry Hole

Continuing northwards through a section called the 'fossil trench', we arrived at Geopoint 5, the 'View Over The Ripple Beds'. These beds are vast slabs of the Nodular Member, each with different sized ripples illustrating the different energy levels taken to produce them. Today they are enclosed with palisade fencing to prevent the public going too close. Unfortunately unscrupulous fossil collecting practices in the past have destabilised the ripple beds, as seen in the large vertical fractures crossing their surface. Immediately adjacent to and north of the Ripple Beds, is Geopoint 4, known as 'Marsh's Quarry'. Like

the fossil trench to the south this spot is very popular for collecting fossils, and also like the Snake Pit, Geopoint 1, it is unknown how this location got its name. At the quarry centre sits a large dome-shaped coral bioherm, or patch reef, common throughout the Nodular Member, with similar examples seen at the NCC cutting, Geopoint 2, and at the Seven Sisters caverns, Geopoint 9. ►

The reserve is famous globally for its abundance and variety of fossils including brachiopods, bivalves, crinoids, trilobites, gastropods, cephalopods and bryozoans. Indicating shallow, warm marine conditions with plentiful sunlight the Wren's Nest has been interpreted as being a Silurian tropical back reef lagoon with dry land to the east where Birmingham sits and deeper water to the west. The trilobite, *Calymene blumenbachii*, is an especially well-known fossil from Wren's Nest and specimens occur in collections globally. Murchison's work on the fossils from the Wren's Nest and Castle Hill rocks revealed 600 species and 30 major taxonomic groups. Today Wren's Nest represents the type locality for 186 fossil species, of which 86 are endemic. Microfossils, such as annelid jaws, within the greenish bentonite bands are increasing this fossil tally even more.



Wren's Nest, View overlooking Marsh's Quarry

Climbing the steps on the eastern edge of Marsh's Quarry, we reached our last stop Geopoint 10 and the information board for the 'Ripples Through Time Project'. Funded through the Heritage Lottery and Natural England, this project ran from 2008 to 2011, and included improving the reserve entrances, paths, steps and fencing. Four new trails: 'The Accessible Route', 'Murchison's Trail', 'Wildlife Trail' and 'Abraham Darby', were created around the reserve and new sculptures and information panels installed. With views looking out over the Wren's Nest Estate, the information panel at Geopoint 10 puts the reserve into context with the rest of the geology in

the Black Country. Starting with warm tropical Silurian lagoons, the geology progresses to the tropical Carboniferous Coal Measures swamps and on to Permo-Carboniferous semi-arid river floodplains and desert landscapes, finally ending with glaciers and melt water that sculpted the land during the Ice Age, before man superimposed his industrial fingerprint upon it.

From Geopoint 10, we headed back to the warden's base and our waiting cars, finishing at around 5.00. I would like to thank those that attended for coming on the walk and especially Peter Parkes, whose stories from years past really helped to bring Wren's Nest to life and added to the day. ■

Andy Harrison

References:

Leaflets and Guides:

Wren's Nest National Nature Reserve Geological Handbook and Field Guide (1990), Dudley MBC and Natural England

'Wren's Nest NNR Leaflet', Dudley MBC, 2005

'The Wildlife of Wren's Nest National Nature Reserve', Dudley MBC, 2006

'Wren's Nest NNR Leaflet', Dudley MBC, 2009

'The Geology of Wren's Nest National Nature Reserve', Dudley MBC 2016

Websites:

Black Country Geological Society: <https://bcgs.info/>

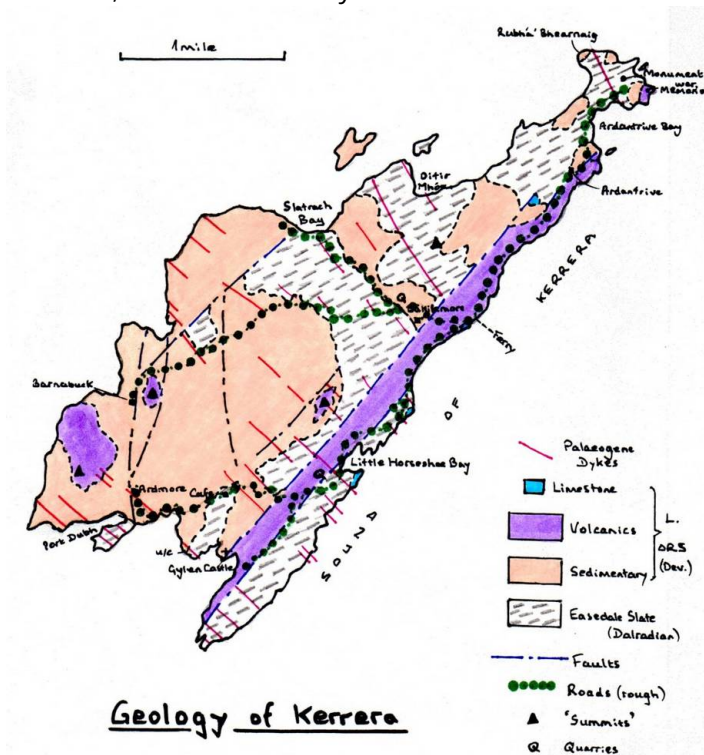
Dudley Metropolitan Borough Council: <https://www.dudley.gov.uk/>

Hebridean Gems: Kerrera

I wonder how familiar this island is to you? Situated in the Firth of Lorn, close to Oban, I first explored Kerrera in 2018. It is a place many might have sailed past on their way to more celebrated destinations: Mull, Islay, Coll, Tiree or the Outer Isles. Shaped roughly like a pork chop, 7 km north to south and less than 3 km at its widest, this is one for the rambler. The three roads, mostly unmetalled, all head off from the passenger ferry landing point at Ballimore. The southern road is the busiest, heading along the east coast to serve the scattered settlements in the south. A central road divides into two and serves the few residents in the middle of the island. The northern road to Ardantrive Bay (Fig. 1), again along the east coast, is remarkable for having only been constructed in late 2021, and was quite a surprise when I returned to the island for a second visit in 2024. On this visit I noticed that a few extra facilities had appeared on the island, with camping pods, airbnb and a farm shop / cafe at Ardantrive. I, however, chose to visit daily from Oban.



Fig. 1: The 'brand new', and metalled, road to the north of the island, decorated with blocks of various local lithologies!



Geology of Kerrera

Fig. 2: Geological sketch map of Kerrera

These roads, and a few other good tracks, are sufficient to provide access to most of the geological points of interest, which consist of Dalradian 'Easdale Slates', Lower Devonian sedimentary and volcanic rocks, and a good scatter of NW-SE trending Palaeogene dykes (Fig. 2). In fact, Kerrera appears to be quite a popular destination for geological training; I came across undergraduates learning their craft on both occasions.

It takes just 5 minutes to cross the Sound of Kerrera on the ferry (last return crossing 6pm) from Gallanach, but a limit of just 12 passengers can mean a significant wait if a crowd has assembled (this is a popular destination for day trippers). I was obliged to watch three crossings on both occasions before I got on board! So where are all the visitors making for? The majority seem to head off towards a tearoom / bunkhouse at

Lower Gylen, en route for the attractive southern coastline, with the ruins of Gylen Castle nearby (Fig. 3, see front cover photo). This ancient 5-storey tower house was a stronghold of the MacDougall clan, who built it in 1582, but it was burnt down by the Covenanters in 1647. Remarkably, some half a million pounds was spent on conservation work about 20 years ago to bring these ruins 'back to life!' ►

A more recent chapter in Kerrera's history is commemorated at Little Horseshoe Bay, about a mile south of Balliemore, where a plaque records the location of the first ever transatlantic telephone cable system. This was established in 1956 (Fig. 4) and used only until 1978, when, presumably, the pace of technology duly rendered it obsolete. Similarly, at the northern end of the island stands a proud monument raised in 1883 to the memory of David Hutcheson, founder of a Hebridean shipping company now better known as Caledonian MacBrayne, the well known ferry operator.

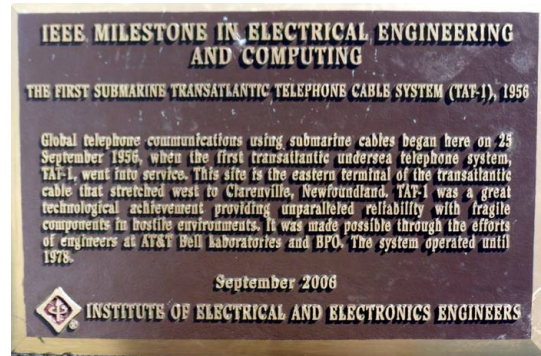


Fig. 4: Information plaque for the 1956 transatlantic submarine cable



Fig. 5: Small quarry in Easdale Slates

Meanwhile, further along this southern road you will come across two small quarries of weathered Easdale Slate (Fig.5). This formation underpins a strip of lower-lying ground along the south-east coast. The road begins to rise as it crosses a narrow fault-controlled strip of Devonian volcanics extending north-east from Gylen Castle to Ardantive Bay. Still further along, between Upper and Lower Gylen, a new excavation along the side of the road reveals the undulating, unconformable contact between Dalradian slates and Devonian breccias. This unconformity can also be traced in several places along the southern

shoreline (Fig. 6), and, no doubt, elsewhere on the island.

The Easdale Slate Formation occupies much of the northern and eastern parts of Kerrera (Fig. 2) and includes not just slate rocks, but also phyllites, schists and massive 'blocky' beds (Fig. 7). Perhaps their most interesting feature can be found on the shore below Gylen Castle, where some splendid small-scale folding is well displayed in contrasting pelitic and psammitic lithologies (Fig. 8). A second crenulation cleavage is present in some outcrops, and in other places small pyrite cubes, sometimes weathered to ferruginous 'spots', are widespread.



Fig. 6: Unconformity on the shore below Gylen Castle



Fig. 7: 'Blocky' beds within the Easdale Slates, small quarry above Slaterich

Devonian sedimentary rocks of the Kerrera Sandstone Formation occupy much of the south-west of Kerrera. Lithologies range from coarse conglomerates (almost boulder beds in places) to finely laminated siltstones. Towering crags of breccia / conglomerate can be quite intimidating (Fig. 9). Various forms of cross-stratification (often on a large-scale), calcareous concretions, desiccation cracks and rain prints (?) are amongst the sedimentary structures present. ▶



Fig. 8: Small scale folding in Easdale Slates

A contrast between the characters of a basal breccio-conglomerate and the many intraformational conglomerate beds has been commented upon. The basal bed is largely clast supported, poorly sorted with predominant (66%) quartzite clasts and evidence of polymodal current directions, interpreted as localised sheet flood and alluvial fan deposits. The intraformational beds are better sorted, matrix supported with igneous clasts (66%) predominant, and with mainly west-north-westerly palaeocurrent directions, interpreted as more widespread fluvial and flash-flood deposits becoming increasingly influenced by a volcanic hinterland. Moreover, the proportion of slate

clasts increases upwards (from 10% to 33%) suggesting that erosion increasingly exposed the underlying Easdale Slates during the early Devonian.

Perhaps the most important horizon, low down in the sedimentary sequence, are the fish-beds discovered in the south-west of the island, near Port Dubh (Fig. 10). These have yielded several primitive fish species (Fig. 11), occasional arthropods, including millipedes, ostracods, and early plants, all pointing to a basal Devonian (Lochkovian) age. They have been interpreted as infilling an ephemeral lake that may have resulted from landslides damming contemporaneous rivers: conglomeratic fans and scree-breccias are a strong feature in this lower part of the sequence.



Fig.10: Lower Devonian 'Port Dubh fish beds': thinly bedded siltstones. The fish remains are in green beds.

By contrast, the Devonian volcanics are more limited in extent, in particular to the linear outcrop occupying a fault-bounded graben (mentioned above), with several smaller outcrops to the north-west of this structure. In a broader context, they form the western fringe of the Lorn Plateau Volcanic Formation, but include both lavas and pyroclastic deposits. These comprise a suite of mantle-derived, calc-alkaline basalts and andesites associated with subduction and dated to the Lower Devonian (c.415Ma), consistent with



Fig.9: Towering crag of Devonian 'boulder bed' near Gylen Castle

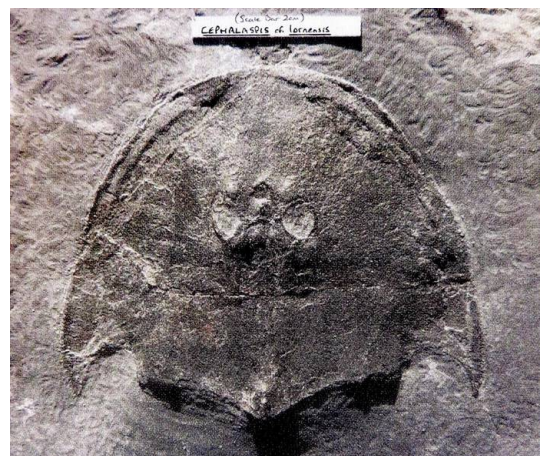


Fig.11: Cephalaspis lornensis, an armoured fish from the 'Port Dubh fish beds'

the faunal evidence. They are more widespread on the mainland where they reveal craggy and locally developed 'trap' topography, seen to advantage across the Sound of Kerrera. ►

The only other rocks of note are the many basaltic dykes, trending NW/SE. These are associated with the Palaeogene opening of the North Atlantic Ocean. They are usually quite obvious, and in at least one place stand out as magnificent upstanding walls of resistant rock (Fig. 12). They form part of a 20km wide dyke swarm originating from a volcanic centre on nearby Mull. One source reports that they average around 70 dykes per kilometre, and represent a 10% dilation of the crust.

Raised beaches are a widespread feature of the Hebrides resulting from isostatic readjustment since the last 'Ice Age' some 10,000 years ago. They are conspicuous along the southern coast of Kerrera as well as around Slatrach Bay, Oitir Mhór and Ardantrive further north. Swathes of glacial till and peat are widespread across the island, but not to the detriment of recognising the solid geology.

Kerrera, all in all, is a gem of a place to explore, whether for the geology or just for its own sake. ■

Mike Allen

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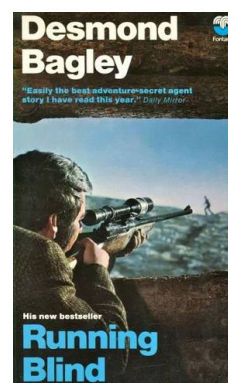
Fig.12: Upstanding Palaeogene dyke

Desmond Bagley 1923-1983

Desmond Bagley was one of Britain's premier thriller writers of the 1960-70s. He incorporated an encyclopedic understanding of the natural world into his novels providing a link with geology.

Born in Kendal but educated at St Joseph's College, Blackpool, Bagley grew up with a pronounced stammer, lacked close friends and suffered from a family life dominated by the business needs of his family. Unsurprisingly he grew up as a somewhat isolated teenager who found solace in Blackpool Central Library, becoming an omnivorous reader especially of the physical sciences, in essence becoming self-educated far in advance of his peers.

Leaving school at the age of 14, Desmond was too young to serve in WW2, instead finding employment at Hawtins of Blackpool, a producer of aircraft components for the war effort. He was too valued to be released from his reserved occupation, but he found the work boring and monotonous. As soon as restrictions lifted a wanderlust to travel resulted in Desmond (now known by the nickname Simon due to his love of 'The Saint' novels of Leslie Chatteris), aged 23 joining an overland expedition to South Africa which would become his home until 1965. Various employments ensued until in 1958 he became a freelance journalist and the publication of his first successful novel 'The Golden Keel' followed in 1963. ►



The 1973 Fontana paperback edition of Running Blind

Now married, Bagley returned to the UK taking up residence for the next ten years in Totnes, Devon before a move to Guernsey. A steady stream of individual novels now followed, each depicting natural disasters, political and economic sabotage, treasure hunts or air and sea adventures. Vivid descriptions of international locations, detailed insights into terrain, local customs and technical details gave a 'travelogue' feel to some passages but never at the expense of the plot. Background information was carefully researched and detailed, thanks to the assimilation of facts from some 20 weekly newspapers and subscription to a similar number of monthly magazines which would form the basis of an extensive in-house library plus, in the author's own words a 'flypaper' memory.

Such was Bagley's prowess as an author that 15 novels have been published, all with different plots, locations and themes many of which would be of interest to students of the natural sciences. A list of his works with particular emphasis on geology/geomorphology or meteorology are detailed below.

1966 Wyatt's Hurricane: A flight through and subsequent development of a category 5 hurricane.

1967 Landslide: Adventure based on the construction of a dam on unsuitable geological strata in British Columbia.

1970 The Vivero Letter: Searching for Mayan treasure in a Cenote sinkhole occurring in limestone strata of the Yucatan Peninsula.

1970 Running Blind: A chase through the volcanic landscapes of Iceland.

1975 The Snow Tiger: Description of a massive avalanche in the Southern Alps of New Zealand, in particular Chapter 24 with detailed description of the characteristics and mechanics appertaining to ongoing development within an avalanche (MW favourite!).

1978 Flyaway: Mystery of a single seater aeroplane missing in the Saharan wastes of Algeria and the Air Mountains of Niger.

1984 Night of Error (*Published posthumously*): A voyage across the Pacific in search of manganese nodules from the deep ocean floor. This is a very prescient subject with recent international interest in the mining of this potential source of crucial metal components required to create electric vehicle (EV) batteries. ■

Mike Williams

Mike's Musings No. 56 – Spheroidal Objects!

On a recent trip north of the border I visited Dumfries, 'gateway to Galloway', an attractive town celebrated for the fine red building stone quarried in the vicinity, and featuring large in the local architecture. But what drew me there was the unusual attraction of a camera obscura, something you don't come across everyday. Indeed, one source states that there are only seventy four cameras obscura world-wide, and just two others in Scotland, one in Edinburgh, the other in Kirriemuir. The latter has a close association with that in Dumfries; both exist due to the benevolence of a certain Sir J. M. Barrie, of Peter Pan fame, born in Kirriemuir and later educated in Dumfries. Two others I have come across are one in Bristol, overlooking Brunel's celebrated Clifton Suspension Bridge, and one in Aberystwyth, which claims to be the largest in the world, having a 14-inch diameter lens, but in poor working order (according to reviews on Tripadvisor). ►



Fig. 1: Dumfries Museum: The old windmill tower / camera obscura

Dumfries Museum claims to house the world's oldest functioning camera obscura. It was installed in 1836 when a former windmill was converted into an astronomical observatory (Fig. 1). To help preserve the camera, group demonstrations are weather dependent, but in the absence of other interested visitors I was generously granted a personal guided tour as conditions were favourable (Fig. 2). After which I felt it would be churlish to disappear without looking around the museum. This proved to be a good move; apart from interesting displays on local geology, a history of curling stones, a collection of early Christian crosses and Pictish carved stones (Fig. 3), and a large (35 cm diameter!) stone cannonball, the cabinet that most caught my eye featured an oddly carved spheroid of vein-quartz recovered in 1848 from the river Cree, at Newton Stewart in Galloway (Fig. 4).

This 7 cm diameter object turned out to be just one of many carved stone balls, or *petrospheres*, that have been found distributed

mostly across Scotland. They are usually spheroidal in shape, and typically 7 cm in diameter (about the size of a tennis ball). The unusual feature that unites them is that they have all been embellished with anything from 3 to 160 uniformly spaced, protruding bosses over their surface. Those with many bosses have a framboidal appearance (Fig. 5). 'Framboise', the French word for a raspberry is a term often applied in the mineral world to a particular form of iron pyrites (Fig. 6). Others with fewer bosses may also be embellished with a variety of engraved patterns adorning the bosses and / or the surfaces between bosses.



Fig. 2: A view of Dumfries through the camera obscura



Fig. 3: Dumfries Museum: Display of Pictish Stones and Christian Crosses

One of the more celebrated examples of the latter is the so-called 'Towie Ball' (Fig. 7) which was found in the 1840s in Aberdeenshire, on the slopes of Glaschul Hill near the hamlet of Towie. As the image reveals, the three visible bosses have all been elaborately incised with spirals, concentric circles, hachuring, zig-zag and sinusoidal lines (which pretty well covers the full range of patterns, when present, on other carved stone balls). The fourth boss has, however, been left smooth. This ornamentation is not unlike that found on many ancient monuments and other artefacts, such as Pictish stones and 'cup and ring' marks, both of which are not unfamiliar in the 'Celtic fringes' of Britain. ►

The core distribution of these objects is Aberdeenshire, which is similar to that of Pictish symbols and the particular type of stone circles described as 'recumbent' (Figs. 8 & 9). This led to the early suggestion that they were of Pictish origin. The wider overall distribution which has emerged with further discoveries might be explained just by their inherent portability, but some have been found fashioned from specific lithologies suggestive of wider origins, for instance: Lewisian hornblendite from Benbecula, appinite from the Western Highlands and 'greenstones' from Argyllshire (Dunadd Fort and the Mull of Kintyre). A single example has been found in Norway, but this was not of any distinctive Norwegian rock type so was most likely delivered by human agency: it is not difficult to imagine a Norseman



Fig. 4: Dumfries Museum: the carved quartz 'stone ball' that got me interested

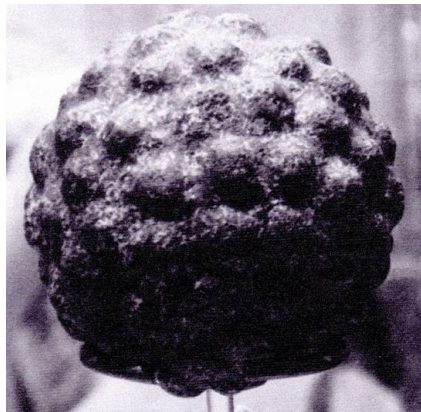


Fig. 5: A multi-bossed carved stone ball (Image from Wikipedia)

on discovering such a curious object regarding it as a venerable souvenir worth taking back home! Such objects have only otherwise been found in other parts of Scotland, as far away as Orkney and the Outer Hebrides, with a few unearthed in Ireland and northern England, although many discovery sites have gone unrecorded.

Around 430 carved stone balls are known, of which only a dozen or so are larger than the stone in Dumfries museum, with diameters ranging from 9 to 12 cm; and only 7 are ovoid rather than spheroidal. Over half of them have precisely 6 bosses, like the rather well worn example that first caught my attention (Fig. 4). Some idea

of the variety of ornamentation can be seen in figures 10 and 11. Further variation arises from the range of lithologies. Most common of all is sandstone (unsurprisingly Old Red Sandstone predominates), a material that is relatively easy to sculpt and carve. A

scatter of other sedimentary lithologies include oolitic ironstone (from Raasay perhaps?), greywacke, limestone and conglomerate. 'Greenstone' is another fairly common description, but this term embraces various rock types: diorite, altered basalt, serpentinite, peridotite, picrite, norite, gabbro, porphyry, 'whinstone', actinolite and hornblende-gneiss. Also fairly common are types of 'granite' including felsite and granite-gneiss, and quartzitic rocks including quartzite and quartz itself. These would be more difficult to work with, as would the occasional metamorphic rocks that complete the list of lithologies: locally sourced andalusite-schist and hornfels. ►



Fig. 6: Pyrite 'framboids' from Folkestone Chalk



Exceptionally elaborately decorated ball from Towie in Aberdeenshire, dated from 3200–2500 BC

Fig. 7: The Towie Ball (Wikipedia)



Fig 9. The Recumbent Stone, part of the Stone Circle at Easter Aquorthies

It would therefore appear that whoever fashioned these objects was happy to make use of whatever material was locally at hand, not necessarily what was easiest to work. It is also quite evident that in most cases they were competent 'artists', requiring both patience and considerable skill. Replicas have been

fashioned using prehistoric 'stone-age' technology to demonstrate that they could, as suspected, have been made long ago.

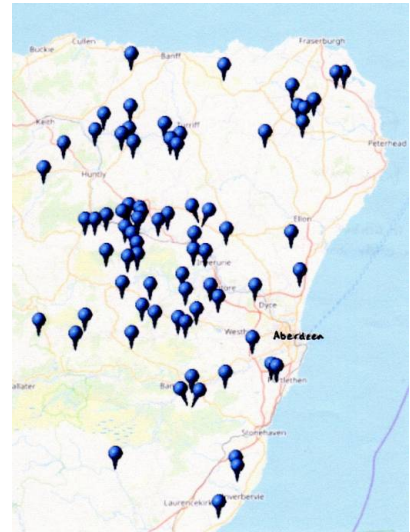


Fig. 8: 'Recumbent' Stone Circles across Aberdeenshire. (Wikipedia)



Fig. 10: Some of the variety of shapes / ornamentations of carved stone balls

But who did manufacture them? Here we can only descend into the realms of educated speculation, and the best clues would seem to come from archaeological context. Unfortunately most were discovered at random during agricultural or constructional activity, but a small percentage were found in or near Neolithic or Iron Age sites. Some of the decorations have been compared with ornamentation found on late Neolithic pottery known as 'Grooved Ware' found in Orkney and Fife. This leads to a general consensus that they were mostly, if not all, made between 4000 BC to around the time of Christ, although it has also been suggested that a few of the more elaborately decorated examples might have much younger, even fraudulent, origins.

The final obvious question is why were they made? Once again we can only speculate. And speculation seems to have run riot (!), leading to all the following imaginative suggestions:

Weapons: either as mace-heads - some multi-bossed forms look just the part (Fig. 11), or (rather oversized?) slingshots. One specimen (Fig. 12), found amongst a group of 5 at Skara Brae, looks not unlike a hand grenade, and would certainly satisfy the requirements of a hand thrown missile!

Leather-making: used in the preparation of hides.

Weights: either in connection with fishing (net weights) or weaving (loom weights).

Movable parts of a primitive weighing apparatus. ►



Fig. 11: A multi-bossed carved stone ball similar to a medieval mace-head (but only 7cm diam.)

For transporting megalithic blocks: Used like ball bearings in the movement and transport of megalithic blocks.

Used as a kind of 'bolas': (Fig. 14) the grooves between the bosses on some stones would be ideal for attachment to leather cords, much like those used by gauchos or their indigenous forebears of Patagonia, and among Inuit cultures.

Currency: some form of currency - certainly more practical than the stone 'Rai' of the Yap islanders!

Oracular divination: rolling the ball and placing interpretations on how they come to rest, rather like reading tea-leaves or the lines on one's hands (palmistry).

The right to speak: using the stone as a sign to decide who had the right to speak - symbolic of democratic organisation as portrayed in William Golding's novel 'Lord of the Flies: whoever holds the conch shell has authority to address a meeting. In this case authority would be supported by the comfortable fit of the ball in the hand.

Memory aids amongst pre-literate societies.

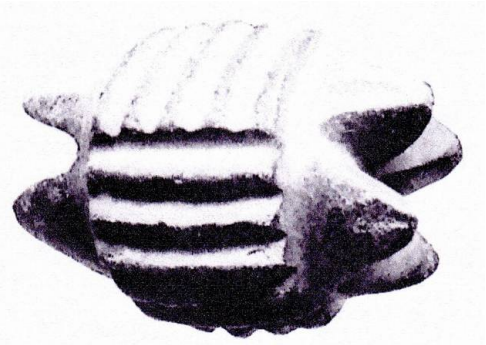


Fig. 12: A most unusual carved stone object (? ball) from Skara Brae, Orkney



Fig. 13: A typical Bolas made from ? diorite, used by Tehuelche Indians (note median groove for attachment to cord) found high on a hillside above El Calafate, Patagonia

Personally, I find most of these suggestions wide of the mark: why go to the lengths of so much effort for such mundane applications? These objects would surely have some sort of status-symbolic value, either in religious ceremony or equivalent social ritual. One problem seems to be that we have no real idea of how extensive their manufacture was, and therefore no real grasp of whether they had rarefied symbolic or everyday practical significance. Unlike the stone-age hand axe, which an expert flint knapper could 'knock-up' in relatively quick time, these objects probably required the expenditure of much time and labour, so, for what it's worth, I would incline towards a more arcane, symbolic or artistic value and purpose. But perhaps you may come to wiser conclusions? ■

Mike Allen

Wonders of our Website!

Did you know? On the [Newsletter page of the BCGS website](#) you can find all the Society's newsletters from Newsletter No.1 in August 1975 to this one No.290! At our anniversary celebration we hope to have a display which includes interesting items from past newsletters. **You** can assist us in finding items to display by searching this archive and sending anything suitable to Mark Jeffs at honsec@bcgs.info.