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BGS signs MOU with Afghanistan

The importance of natural resources to the economic development and political and social stability of Afghanistan cannot be overstated. The BGS was asked by the Crown Agents to undertake a consultancy and give advice to the Islamic Transitional Government of Afghanistan. Dr Ian Penn and Dr Mike Stephenson of the BGS travelled to Kabul where they met with several representatives of the Afghanistan Government and aid organisations which led to a report: *A plan for the post-conflict rehabilitation of the mining and oil sectors and terms of reference for follow-on activities.*

Following this visit the Afghanistan Minister of Mines and Industries, His Excellency Mr Joma Mohamadi, visited the BGS's Keyworth headquarters for two days in January 2003 for a series of meetings with technical experts. The advice given to him will provide a basis for his further discussions with the World Bank and the US Government.

Tragically, Minister Mohammed Mohammadi was among eight people killed in a plane crash on 24 February 2003. The light aircraft crashed into the Arabian Sea, west of Karachi. Also on board were three other Afghan officials, including Mr Popal who accompanied the Minister on his visit to the BGS.

M Stephenson, BGS © NERC

The sum total of all the geological maps held by the Afghan Geological Survey (AGS) is stored in this room. Maps and reports produced by the AGS before the troubles were hidden, at great personal risk, by geologists, so that they would not be destroyed during Mujaheddin looting. The BGS and aid agencies, such as the World Bank, are helping to plan the reconstruction of the AGS. Plans are now afoot to scan and catalogue the maps.

BGS © NERC

The photo shows Dr David Falvey (left) at the signing ceremony in Abu Dhabi on 25 April shaking hands with the UAE Minister of Petroleum and Minerals Resources, His Excellency Obaid Saif Al-Nasseri (right).

UAE contract

The BGS has recently signed a contract in the United Arab Emirates for geological and geophysical survey work of the Eastern Emirates including the geologically complex ophiolite zone that runs north of the Oman border. The work, funded by the UAE Government for over £7 million, will take four years, involving BGS staff and subcontractors in airborne geophysics and deep seismic. It is likely to include some university collaboration and lead to new interpretations of the UAE ophiolite complexes.

Britain's highest mountain

Ben Nevis is not Britain's highest mountain. This honour falls to the Anton Dohrn Seamount, a former volcano, situated in the middle of the deep-water Rockall Trough, about 200 kilometres (125 miles) due west of the Outer Hebrides. It was named after a German research ship which, in turn, was named after the German zoologist Anton Dohrn (1840-1909).

The seamount is shaped like a 'squashed top hat' with a flat upper surface and steep sides which grade into the floor of the north-east Atlantic Ocean. The top is roughly circular in shape and about 40 kilometres (25 miles) in diameter. The height of the seamount has been calculated using echo-sounder records. From ocean floor to summit it is approximately 1740 metres high (just over 5700 feet), whereas from sea level to the summit of Ben Nevis is only 1343 metres (4406 feet).

The BGS has collected several short seabed cores from the flat top of the seamount. The samples commonly comprise a mixture of angular, irregularly-shaped volcanic clasts in a carbonate matrix. The age and geochemistry of the volcanic fragments suggest they were derived from the Earth's mantle about 45 million years ago at the very end of the volcano's life. After the eruption ceased the seamount was eroded and subsided beneath the waves.

The Anton Dohrn Seamount is only one of many huge extinct volcanoes which have been discovered by the BGS on the Atlantic Margin west of Britain. Most were probably active for only a short time between about 57 and 55 million years ago, but some of them still form large dome-shaped features at the seabed several tens of kilometres across.

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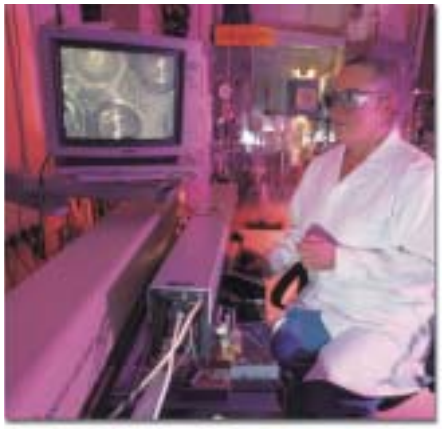
Tests reveal Amesbury Archer was a settler from the Alps

BGS scientists have helped to establish the origins of a man who may have helped to build Stonehenge. Carolyn Chenery says 'Tests using oxygen isotope analysis of dental enamel show he was originally from the Alps region, probably Switzerland, Austria or Germany'.

Tooth enamel stores a chemical record of its owner's childhood environment, such as local climate and geology. For instance, most of the oxygen that goes into teeth and bones comes from the water we drink and virtually all the water we drink is ultimately derived from precipitation as rain or snow. Oxygen isotope analysis of dental enamel from the burial at Amesbury indicate that the 'Archer' came from a colder climate region than we find in Britain today, possibly from somewhere in central Europe.

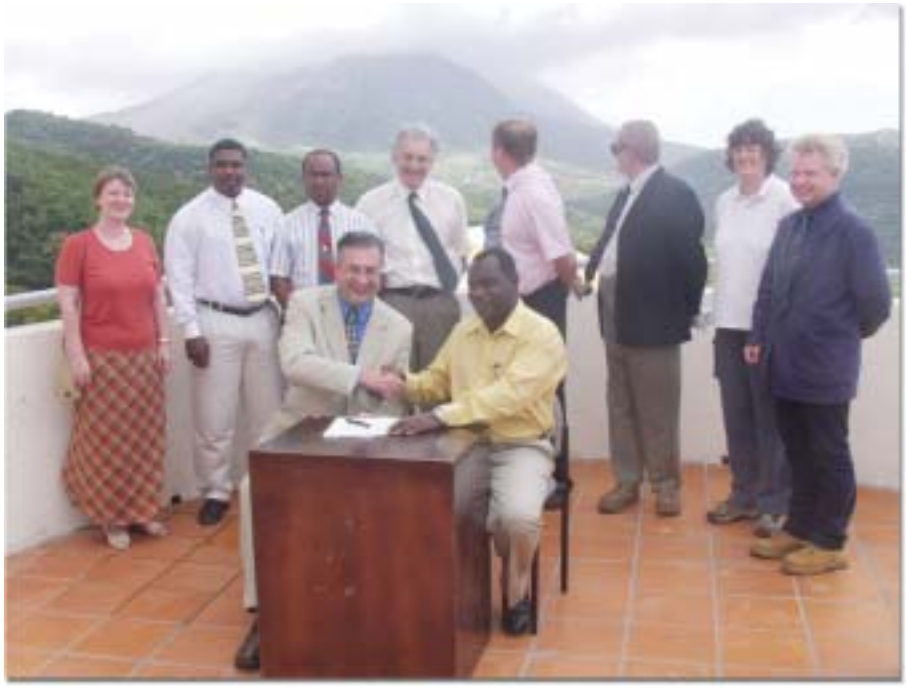
From the items buried with him, the Archer was obviously an important man, and because he lived at the same time that Stonehenge was first being built, archaeologists believe he may have been involved in its creation. The importance of the Archer was detailed in a BBC2 'Meet the Ancestors' special on 19 February 2003.

The project was led by Wessex Archaeology. Other tests were carried out by the British Museum, the National Museums of Wales and Scotland, the National Trust Museum at Avebury and the Universities of Durham, Exeter, Oxford and Southampton.



Tim Cullen, BGS © NERC

Carolyn Chenery using a laser to extract oxygen from dental enamel for oxygen isotope analysis.



BGS © NERC

David Ovadia (left), Director of Marketing, International and Corporate Development at the BGS, and Horatio Tuitt (right), Director of the Emergency Department, Government of Montserrat signing the five-year contract to monitor the Soufrière Hills Volcano. With the volcano in the background, the signing ceremony was watched by (from left to right) Sarah Booker (Foreign and Commonwealth Office), John Skeritt (Government of Montserrat Financial Secretary), Hon. John Osborne (Chief Minister of Montserrat), Rod Matthews (Department for International Development), HE Anthony Longrigg (Governor of Montserrat), Prof. John Shepherd (University of the West Indies Seismic Research Unit), Dr Gill Norton (BGS Acting Director of the MVO) and Dr Jurgen Neuberg (University of Leeds).

Montserrat Agreement

The Government of Montserrat and the BGS have a signed a five-year contract related to the monitoring of the Soufrière Hills volcano. The formal agreement followed a meeting on 7 March 2003, of the Board of Management of the Montserrat Volcano Observatory (MVO) at its new headquarters at Flemmings in Salem.

The new contract continues the long-term involvement of BGS staff in the monitoring of the volcanic activities on the island. Over the next five years BGS staff will be replaced with local and regional scientists, according to David Ovadia, Head of International and Corporate Development at the BGS. 'The basic principle of the new contract is that in year one the existing compliment of BGS scientists will continue and by the end of five years we will make ourselves redundant, having passed on a strong basis of first-rate science that will continue into the future.'

Ask-about-Geology

The BGS has launched a free 'Ask-about-Geology' service for schools, colleges and private individuals.

Project leader Keith Westhead of the BGS says 'People have always phoned in with questions and our geologists are happy to help. But we needed to find a way to streamline the service and make sure that we respond swiftly and accurately all the time.' Typical questions include 'why do you get marine fossils on the top of hills?', 'Why are White Cliffs white?' and 'Why do earthquakes happen?' The service is available on the Education pages of the BGS web site at www.bgs.ac.uk. Simply type your question, stage in education and e-mail address into the web site, and the BGS will attempt to answer the question. The service is available by phone too. Contact the BGS Central Enquiries Desk on 0115 936 3143.

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Classic rock sequence revealed

The rock sequence of Pembrokeshire, Wales, from the Marloes Peninsula to Strumble Head, is a geological classic of varied Lower Palaeozoic sedimentary and volcanic rocks that has attracted the attention of geologists for over 150 years. But to the north of Strumble Head, the rock sequence from Fishguard to Cardigan has remained largely unknown, mainly due to the inaccessibility of the sequence.

A BGS team, comprising Jerry Davies, Richard Waters, David Wilson, Philip Wilby and Mark Williams, have made a detailed survey of the coastal sequence, chartering a boat out of New Quay skippered by Steve Hartley. The whole rock sequence from Fishguard to Cardigan has been photographed, documenting the spectacular tectonic fold structures in the cliffs. The boat also facilitated fossil collection, with the result that over 60 graptolite-bearing localities were identified.

The graptolites enable the sequence to be dated and correlated with comparably aged rock sequences elsewhere in Wales, but there was a big surprise! Much of the sequence, representing more than 1.3 kilometres of rock thickness, lies within the *clingani* graptolite Biozone. It must have been deposited very rapidly during 2–3 million years, between about 452 and 449 million years ago. Elsewhere in Wales only a few tens of metres of black mudstone are known from the same interval. Evidently, at Cardigan something was allowing huge volumes of sediment into this part of the marine Welsh Basin.

The graptolite evidence indicates that the Cardigan area was subsiding rapidly during the late Ordovician and the resulting marine trough became the locus for deposition of over a kilometre of sediment. The formation of the trough was probably controlled by contemporaneous faulting, evidenced by rapid thickness changes in the sedimentary sequence, and these faults may also have been the focus for eruption of the older (mid Ordovician) Fishguard Volcanic Group that lies to the south

The BGS's 1:50 000 Cardigan Sheet 193 (England and Wales) and accompanying sheet description are available through BGS enquiries or can be ordered through the BGS web site.

Digital Bathymetry of the UK

The BGS has released Version 1.0 of a vector-attributed digital bathymetry of UK and adjacent European waters. The product is known as DigBath250, and its purpose is to provide a regional-scale digital bathymetry as a primary data-set for geographical information systems (GIS), and mapping and modelling of the seabed and sub-seabed. It may also be employed in tidal, current and water column modelling. It has been produced to a specification for non-navigation applications only.

Version 1.0 is based upon BGS and UK Hydrographic Office (UKHO) bathymetric data originally compiled and published in BGS 1:250 000 offshore geological maps. The UKHO have endorsed the release of DigBath250 and licensed the use of their data.

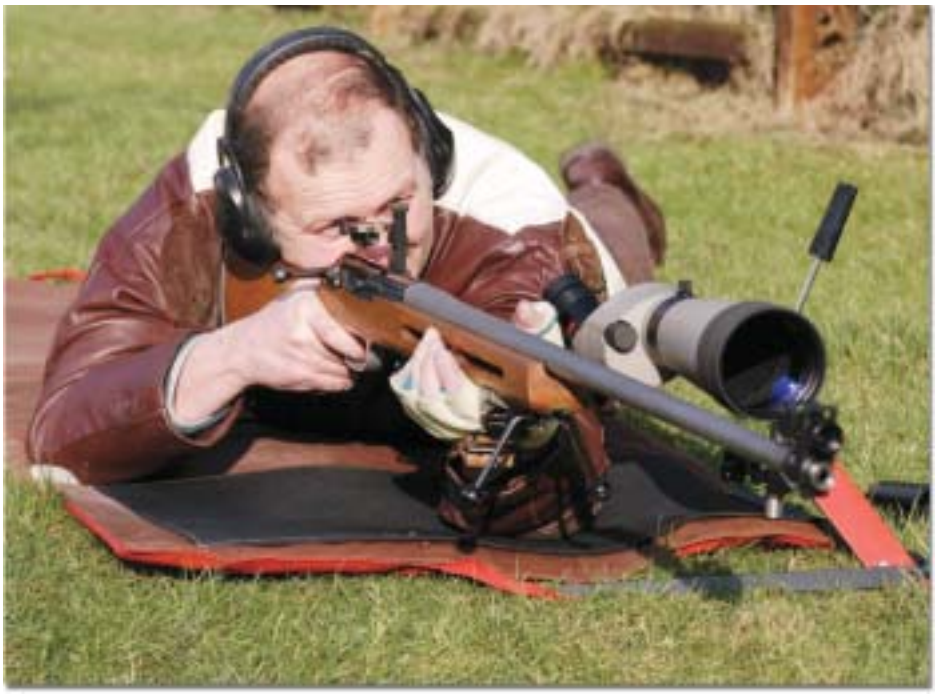
Its coverage is the whole of the UK Continental Shelf and Slope and adjacent Irish waters in the Irish and Celtic Seas. It has been divided into six sectors. Each sector can be licensed at a cost of £250 + VAT with all six available for £1250 + VAT.

Further information about DigBath250, including specification and how to obtain a licence, can be found on the BGS web site at: www.bgs.ac.uk/products/

Bang on target

Mark Shaw of BGS Keyworth has been selected for the National Rifle Association fullbore rifle team to compete against the Continental (Europe) Palma team in May. The Palma long-range match, originating in the USA, is shot at distances of 800, 900 and 1000 yards. The 'bullseye' at these ranges has a diameter of 20 inches, but the rifle can group to less than half this diameter if all error — human and otherwise — is omitted.

Fullbore Target Rifle shooting is one of few sports in which England, and Great Britain, can claim to be 'World Class'. Nottinghamshire has a strong squad, with several shots who have represented their country and two who have captained Great Britain teams and are Commonwealth Games medallists. The sport is competed for by both men and women on equal footing.



Tim Cullen, BGS © NERC

Mark Shaw has been selected for the National Rifle Association fullbore rifle team. The rifle calibre is 7.62 mm with a bullet muzzle velocity of about 2500 mph. The rifle sights have no magnification. The spotting scope is to see where your shots have been scored and to watch for shifts in light refraction which indicate changes in wind speed and direction.

Sustainable Minerals in the Developing World

A joint meeting of the Association of Geoscientists for International Development and Environmental Group of the Geological Society, London.

24–25 November 2003

The Geological Society, Burlington House, London

Conference sponsors: Department for International Development,The Association of Geoscientists for International Development, Society of Economic Geologists, The Geological Society, The British Geological Survey

ISEG 2003 7-11 SEPTEMBER 2003

6th International Symposium on Environmental Geochemistry

ISEG 2003 7-11 SEPTEMBER 2003

The 6th International Symposium on Environmental Geochemistry will follow on from previous symposia held every three years, the most recent being at Vail, Colorado, USA (1997) and Cape Town, South Africa (2000).

The Edinburgh Symposium under the chairmanship of John Farmer and involving the participation of AEG, BGS, IAGC, IMM, IWGMG and SEGH, will bring together geochemists, environmental chemists, biologists, soil scientists, aquatic scientists and medical specialists. The main themes for the scientific programme will be:

- Archives of Environmental Contamination
- Geochemical Surveys
- Mining
- Contamination and Cleanup
- Geochemistry and Health
- Analytical Geochemistry

SEPTEMBER 7TH - 11TH EDINBURGH SCOTLAND 2003

For further programme and registration details, visit our website on www.iseg2003.com

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