Geologists' Association - South Wales Group
Cymdeithas Y Daearegwyr - Grŵp De Cymru

Registered Charity Number 1054303

50 YEAR ARCHIVES 1960-2010 - PUBLICATIONS

This section includes details of the publications issued by the Group from 1960 to 2010.

The compilation is based on the actual publications themselves, cross referenced and checked against the 1992 listing of Alun J Thomas (Secretary 1966-1989), plus other papers, then from various records up to 2010, including annual reports and newsletters etc.

The publications are listed in approximate date order.

Print copies (marked * below) of most of the publications are in an accompanying cardboard archive box, or, for the posters, in an accompanying roll.

Only one publication is known to have been issued for which no print copy has been found.

Only one poster (1974) is known to have been issued for which no print copy has been found.

From time to time, other publications have been considered, as recorded in committee minutes, newsletters and Annual Reports, but only those that were actually issued are recorded in this section.

1965 to 1970

The ***Welsh Geological Quarterly*** (edited by Dr Douglas Bassett) was published in several numbers, forming 5 volumes, between 1965 and 1970. *Original numbers are in the cardboard archive box.

This was an in-house periodical, cyclostyled and published 4 times a year.

The Group was unable to sustain support for this and despite the Editor's efforts it ceased publication in 1970 with volume 5 part 1.

Included was the article ***The First Ten Years, 1960-1969*** by Bassett, D.A. (ed.) (1969) in *The Welsh Geological Quarterly*, vol 4 parts 2/3, (Winter 1968/Spring 1969), pp.63-70.

The ***Welsh Geological Quarterly*** is archived separately in
1960-2010 - WELSH GEOLOGICAL QUARTERLY 1965-1970.

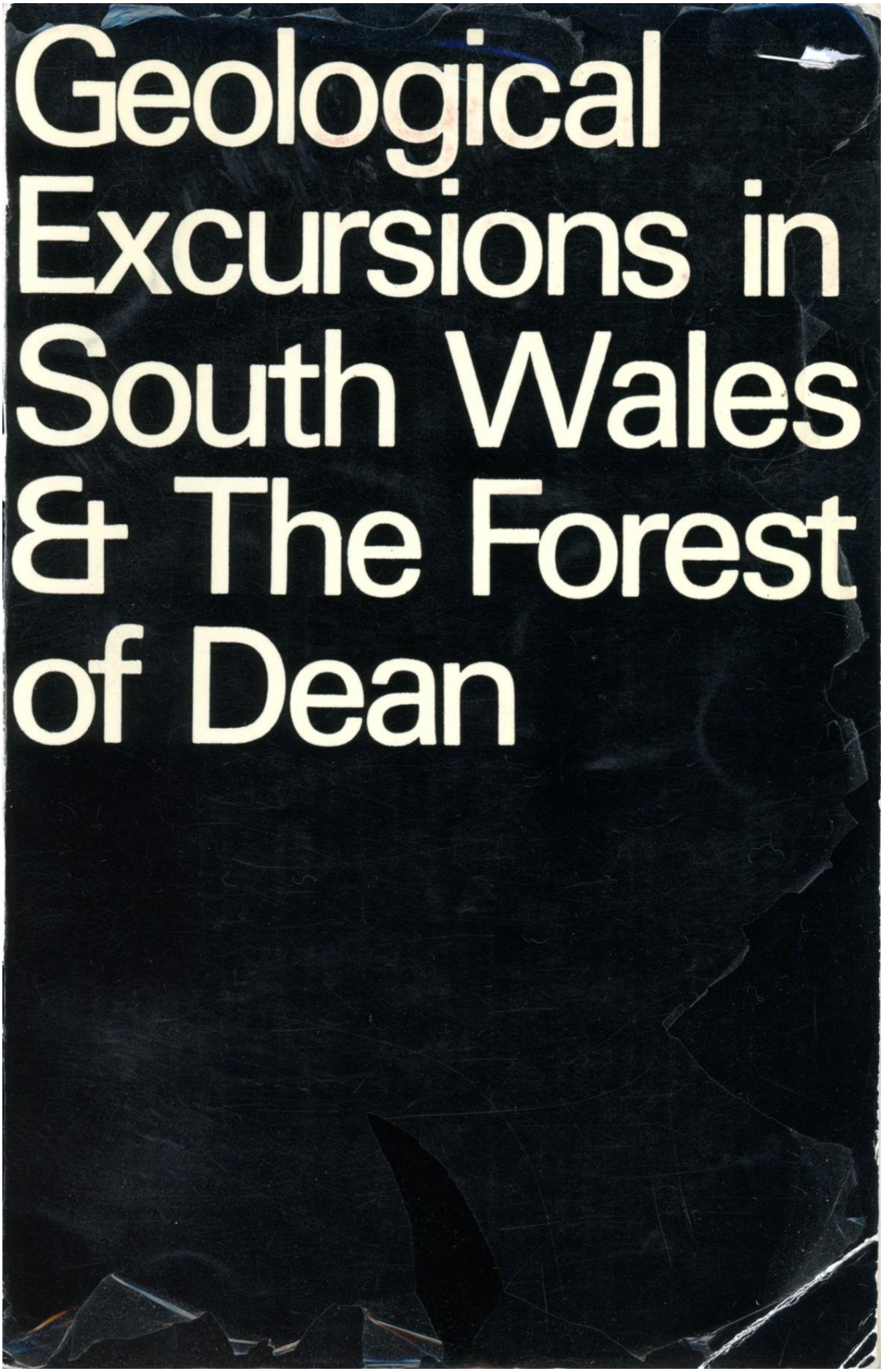
1970

Field Meeting of the South Wales Group on the Stack Rocks to Bullslaughter Bay Section of the South Pembrokeshire Coast by Trevor M. Thomas, field excursion, *Proceedings of the Geologists' Association.* vol.81, (1970), pp 241-248.

[This was the only SWGA publication in the PGA until 1984]

1971

**** Geological excursions in South Wales and the Forest of Dean*** edited by D.A. Bassett and M.G. Bassett, 266 pp., published September 1971 by the Geologists' Association South Wales Group. £1.75 (£1.50 to members)



Price £1.75
Available from
H J Lear Ltd, 13 - 17 Royal Arcade, Cardiff
Singleton Bookshop Ltd, College House, Singleton Park, Swansea.

Geologists' Association
South Wales Group

Geological Excursions in South Wales & The Forest of Dean

Edited by Douglas A Bassett & Michael G Bassett

Cardiff 1971

CONTENTS

Background to *Geological excursions in South Wales and the Forest of Dean:*

> "The Publications Subcommittee set up after the cessation of *The Welsh Geological Quarterly* presented a short list of 'Recommendations' to the Committee meeting of 1 October 1970 and there was set in train action to produce a geological excursion guide involving - invitations for written contributions and invitations for sources of funding the cost of printing 2500 copies (about £1000) to be published in September 1971 to coincide with the *BAAS Swansea Conference.*
> 20 contributors were soon assembled, their accounts edited into a continuous format and readable style.
>
> Messrs H.J. Lear provided a considerable proportion of the funding, and publication was made on schedule.
>
> It proved, with its attractive cover and convenient size. its 21 up-to-date itineraries of South Wales geology and readable style, to be a publication that met a considerable demand. By June 1973 H.J. Lear (Cardiff's principal bookstore) had sold most of its stock (of 1000 copies) and was seeking to buy in bulk first from Swansea's Singleton Bookshop (where sales of their 1000 had been much slower) and later from the Group's own stock of 500. The book went out of print in 1978 still at its publication price of £1.75 (£l.50)."
>
> "In 1971 the British Advancement for the Advancement of Science came to Swansea for its annual conference. To coincide with this large conference the Group under the editorship of Dr Douglas A. Bassett and Dr Michael G. Bassett published what was to be the 1st of an occasional series of excursion guides to parts of Wales *Geological excursions in South Wales and the Forest of Dean.* With up-to-date descriptions in its 21 itineraries. its readable style and its distinctive black-and-white cover it was to be a "best seller" and sold out before the decade's end. The timing of the publication was doubly appropriate falling as it did during the 2-year chairmanship of Trevor Thomas - for long the Groups first Field Excursions Secretary and a leader of field excursion for the Group on no less than 10 occasion and one of the 'Guide's' 20 contributors."
>
> "by 1979 all 2500 copies were sold"

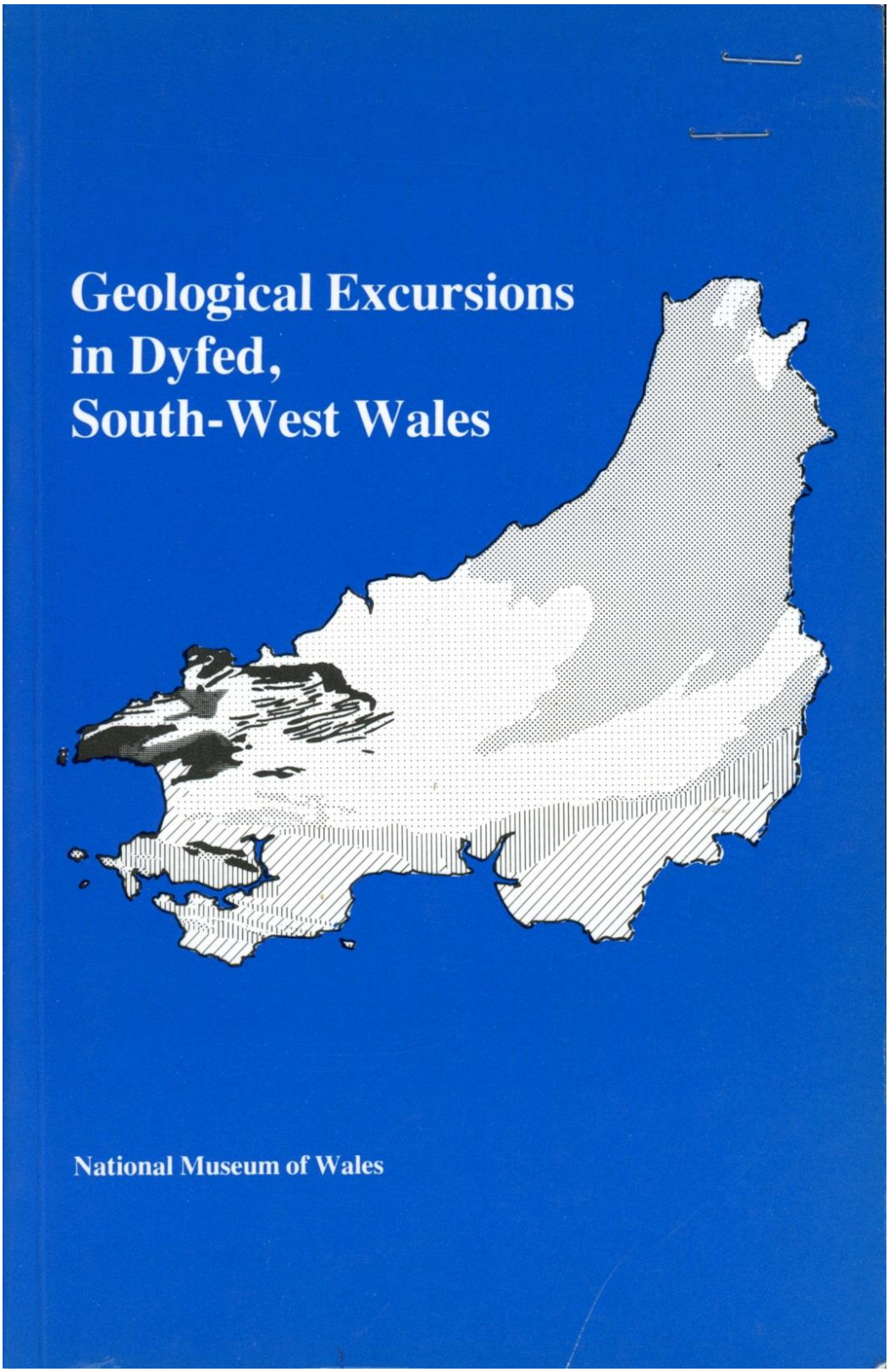
1980

Meetings of the Group 1960-1980 [Incorporating *The First Ten Years*].
(1980) Thomas, A.J. pp.1-14. Unpublished duplicated typescript.

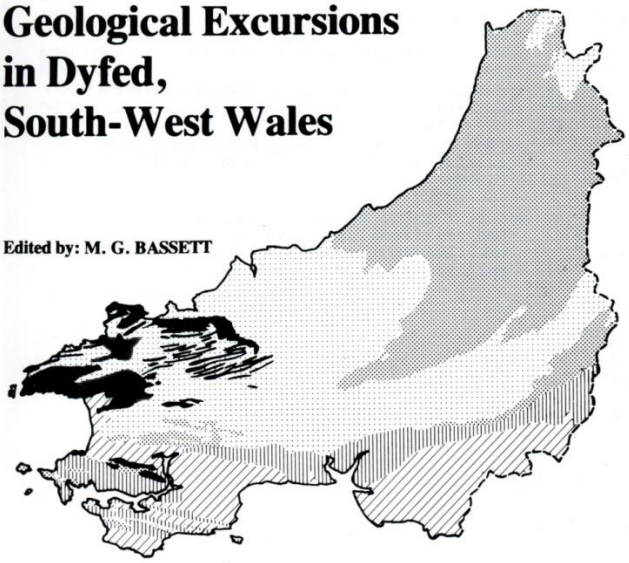
[copy not found]

1982

**** Geological excursions in Dyfed, south-west Wales*** edited by M.G. Bassett, 325 pp., published May 1982 for the Geologists' Association South Wales Group by the National Museum of Wales. £6.50 (£5.00 to members). ISBN 0 7200 0249 4



Geological Excursions in Dyfed, South-West Wales



Edited by: M. G. BASSETT

Published for the Geologists' Association, South Wales Group by the National Museum of Wales

Cardiff May 1982

CONTENTS

Background to *Geological excursions in Dyfed, south-west Wales:*

> "Minute 91 of the Committee meeting of Monday 19 October 1977 (held at South Glamorgan Outdoor Centre Portbcawl) recorded the Editor's recommendation (and the Committee's support) that a geological excursion guide to Dyfed be prepared. Earlier committee considerations had included a series of geological booklet guides and a volume devoted to the geological evolution of Wales" (but these had come to nothing).
>
> *Geological excursions in Dyfed, southwest Wales* edited by Dr M.G. Bassett, 325 pp., was published in May 1982 in a format and size similar to its predecessor with 19 itineraries written by 24 contributors.
>
> A large proportion of the printing costs (£8,000 for 3000 copies) was borne by Messrs H.J. Lear and by the National Museum of Wales, joint publishers with the Group (whose Publications Account had been emptied of its £1265). This Guide too has proved popular, selling at £6.50 (£5.00 to members) and the Group's stock had fallen to 100 copies by March 1992."

(from flier)

> <u>Geological excursions in Dyfed</u>
> This volume, edited by Dr Michael G Bassett (Editor of the Group), comprises itineraries by 24 authors for 19 excursions in the district s of Carmarthen, Ceredigion, Dinefwr, Preseli and South Pembrokeshire both to areas that are well-known and to areas of interesting but little-known geology.
> It is the second volume to be published by the Group in its Occasional Series. The first, <u>Geological excursions in South Wales and the Forest of Dean</u>, eds BASSETT DA, BASSETT MG, has been in popular demand since its 1971 publication (it has been out of print since 1979)

1984

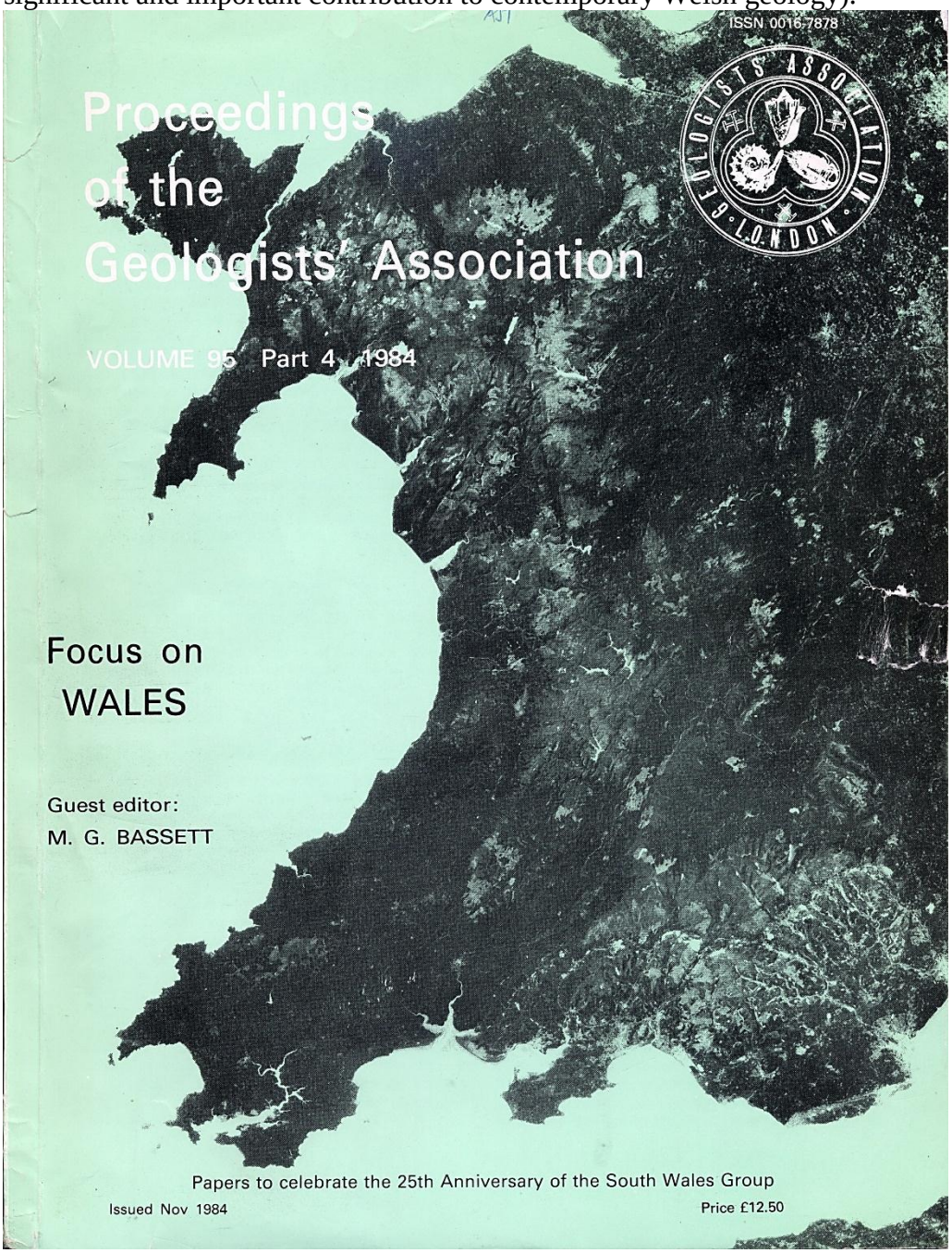
**** Focus on Wales*** edited by M.G.Bassett, *Proceedings of the Geologists' Association*, Vol. **95**, pt.4, pp.289-398.

Published in November 1984 to celebrate 25 Years of the Group.

This was based on the papers read at three Group symposia on 11 December 1982 *The geological evolution of Wales* (6 speakers), 3 March *1983 Lower Palaeozoic* Wales (6 speakers), and 14 January 1984 *Upper Palaeozoic Wales* (7 speakers).

[see **1960-2010 - LECTURE MEETINGS, TALKS and EVENTS** for details of the Symposia]

These comprised the entire part, Part 4 of volume 95 of the PGA. This was the first example of an entire Part of the *Proceedings* being given over to the contribution of a Group of the Geologists' Association. It was a major episode in the publishing history of the Group (and a significant and important contribution to contemporary Welsh geology).



The Geologists' Association

This Association, founded in 1858, exists to foster the progress and diffusion of the science of Geology, and to encourage research and the development of new methods. It holds meetings for the reading of papers and the delivery of lectures, organises museum demonstrations, publishes Proceedings and Guides and conducts field meetings.

Candidates for election must be recommended by two or more members. Present Annual Subscription, £12.00.

For Forms of Proposal for Membership, and further information, apply to the Honorary General Secretary, Dr. C. P. Green, The Geologists' Association, Burlington House, Piccadilly, London, W1V 0JU.

VOLUME 95 PART 4 1984

Published for
THE GEOLOGISTS' ASSOCIATION, LONDON
by
SCOTTISH ACADEMIC PRESS, 33 MONTGOMERY STREET, EDINBURGH

1984 cont.

Twenty Five Years: a brief history by A.J.Thomas, pp.1-4.

This leaflet is archived separately in
1960-2010 - 25th ANNIVERSARY 1984.

Twenty-five Years, 1959-1984
(1984) Bassett, M.G., Cope, J.C.W. and Thomas, A.J.
In Introduction *In* Bassett, M.G. (ed.) Focus on Wales. *Proceedings of the Geologists' Association*, **95**(4), pp.289-290 (see above)

**** The South Wales Group of the Geologists' Association, 1959-1984***
(1984) Bassett, M.G., Cope, J.C.W. and Thomas, A.J.
in Bassett, D.A. (ed.) *Nature in Wales*, vol 3 parts 1/2, pp.69-71.

[this is actually a copy of the text of ***Twenty-five Years, 1959-1984***
In Introduction *In* Bassett, M.G. (ed.) Focus on Wales. *Proceedings of the Geologists' Association*, **95**(4), pp.289-290 (as above)]

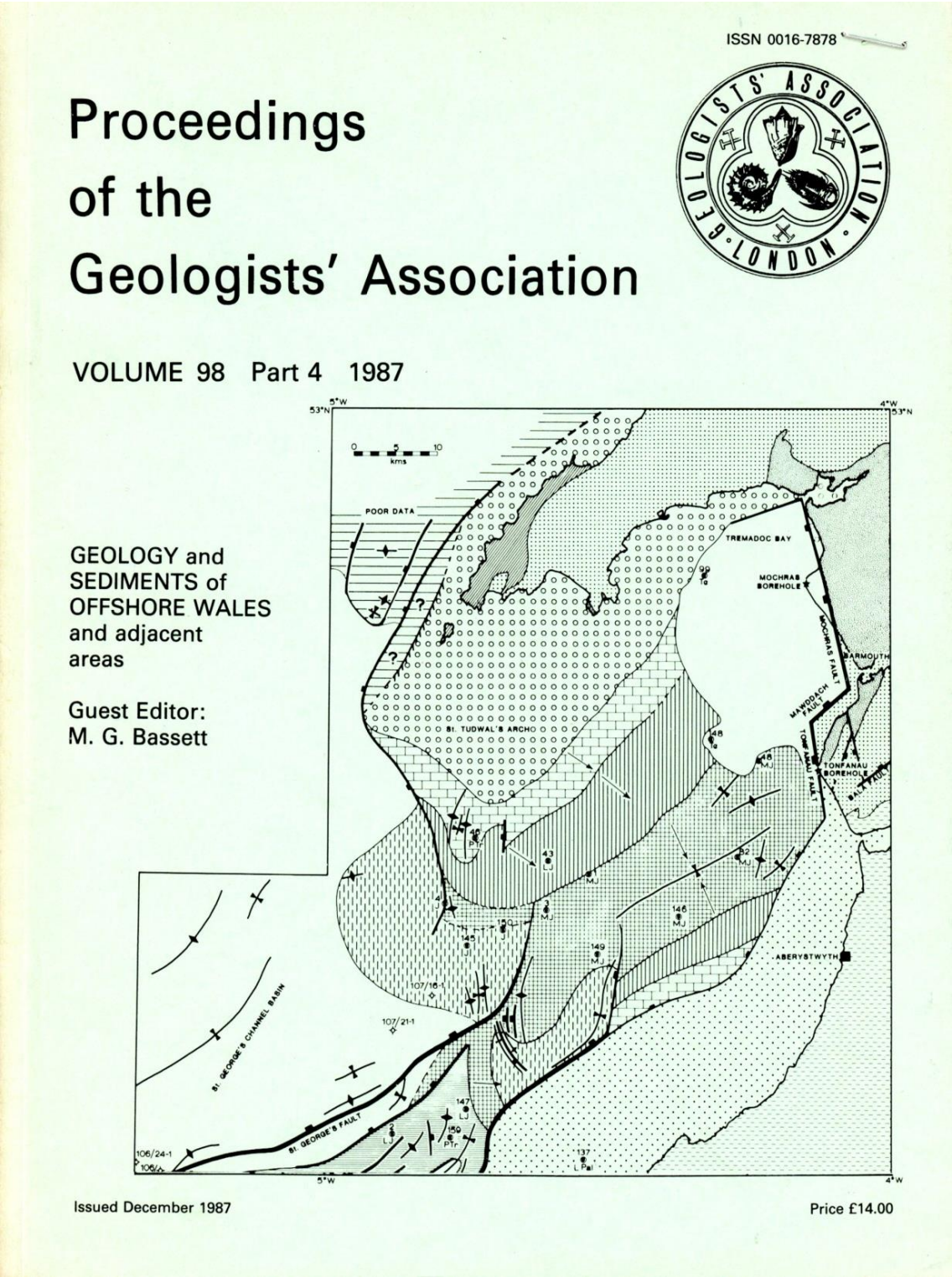
1987

**** Geology and sediments of offshore Wales and adjacent areas*** edited by M.G. Bassett, *Proceedings of the Geologists' Association*, Vol. **98**, pt.4, pp.273-414.

Published in December 1987. Again forming the entire part 4, of vol. 98, of the PGA.

This was again based on the papers read at a Group symposium, the fourth, held on 15 February 1986 *The Offshore Geology of Wales and adjacent areas* (13 speakers).

[see **1960-2010 - LECTURE MEETINGS, TALKS and EVENTS** for details of the Symposium]



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Candidates for election must be recommended by two or more members. Present Annual Subscription, £12.00.

For forms of Proposal for Membership, and further information, apply to the Honorary General Secretary, Dr. R. B. Stokes, The Geologists' Association, Burlington House, Piccadilly, London, W1V 9AG.

VOLUME 98 PART 4 1987

GEOLOGY and SEDIMENTS of OFFSHORE WALES and adjacent areas

Published for
THE GEOLOGISTS' ASSOCIATION, LONDON
by
SCOTTISH ACADEMIC PRESS, 33 MONTGOMERY STREET, EDINBURGH

Ephemera 1960-1990 (after Alun J Thomas in 1992)

Group notices were typewritten (earlier duplicated; later from about 1979 - photocopied and often reduced) on (eventually) - A4 sheets usually folded, and consisted of:-

for distribution to all Members;

Notices of Meetings. Programmes of Meetings
Field Excursion booking forms
Agenda and *Minutes of Annual and Special General Meetings, Reports of Officers*
Rules of the Group
Membership Subscription Form
Membership Card, (usually) 15 x 11.5cm and folded, coloured ticket card, printed annually (Ellis of Caerphilly from 1960 to 1980, Brook and Williams of Barry to 1990) with Programme for the Session, Subscriptions and List of Officers, and bearing the badge or logo of the parent body (earlier 'Geologists' Association London'. later - from 1990 - 'Geologists' Association 1858') - for issue to paid-up or eligible Members.

[Many of the above are archived, or included, in other sections of these Archives]

for distribution to members of Committee

Notices of Committee Meetings, Agenda and Minutes of Committee Meetings. Committee Lists and *Standing Orders* -.

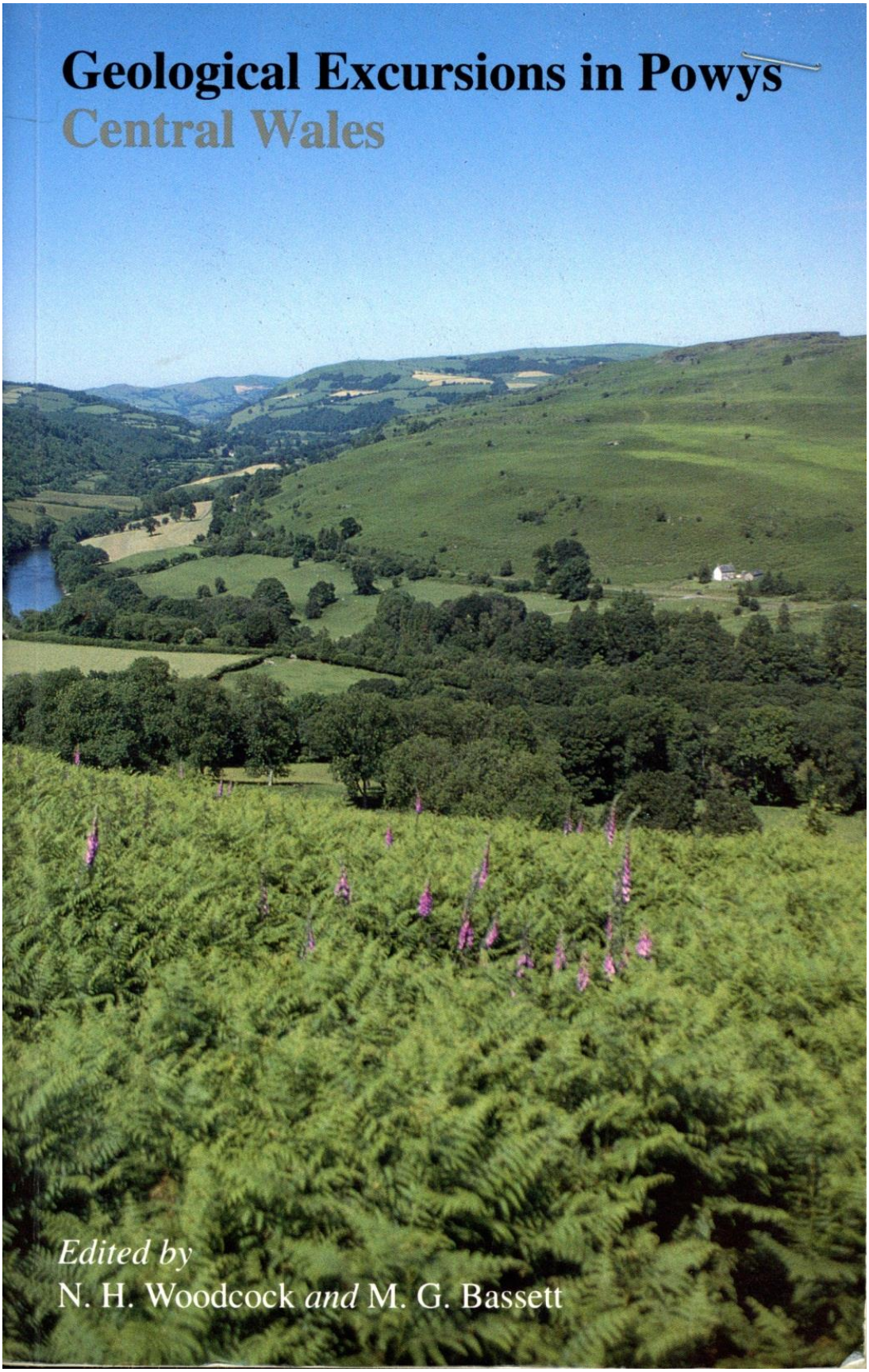
[Many of the above are archived, or included, in other sections of these Archives]

A ***poster,*** 50 x 75 cm. with stylised geological column in red on white overprinted in black with "Geologists' Association South Wales Group" (designed by Dr Robert M. Owens), 500 screen-printed by D.K. Conroy was produced at cost for the Group in 1974 - for display in schools, colleges (free).

[copy not found]

1993

**** Geological excursions in Powys Central Wales*** edited by N.H. Woodcock and M.G. Bassett, 366 pp., published August 1993 by the University of Wales Press, National Museum of Wales on behalf of the Geologists' Association South Wales Group. £12.95 (£11.00 to members). ISBN 0 7083 1217 9.



Geological Excursions in Powys Central Wales

Edited by

N. H. WOODCOCK *and* **M. G. BASSETT**

UNIVERSITY OF WALES PRESS
NATIONAL MUSEUM OF WALES

Published on behalf of the Geologists' Association, South Wales Group

CARDIFF, August 1993

CONTENTS

Background to *Geological excursions in Powys Central Wales:*

Geological Excursions in Powys was published in 1993 as the 3rd in this Group's series of excursion guides, following *Geological Excursions in South Wales and the Forest of Dean* and *Geological Excursions in Dyfed.*
It was produced jointly by the South Wales Group, the National Museum of Wales and the University of Wales Press.

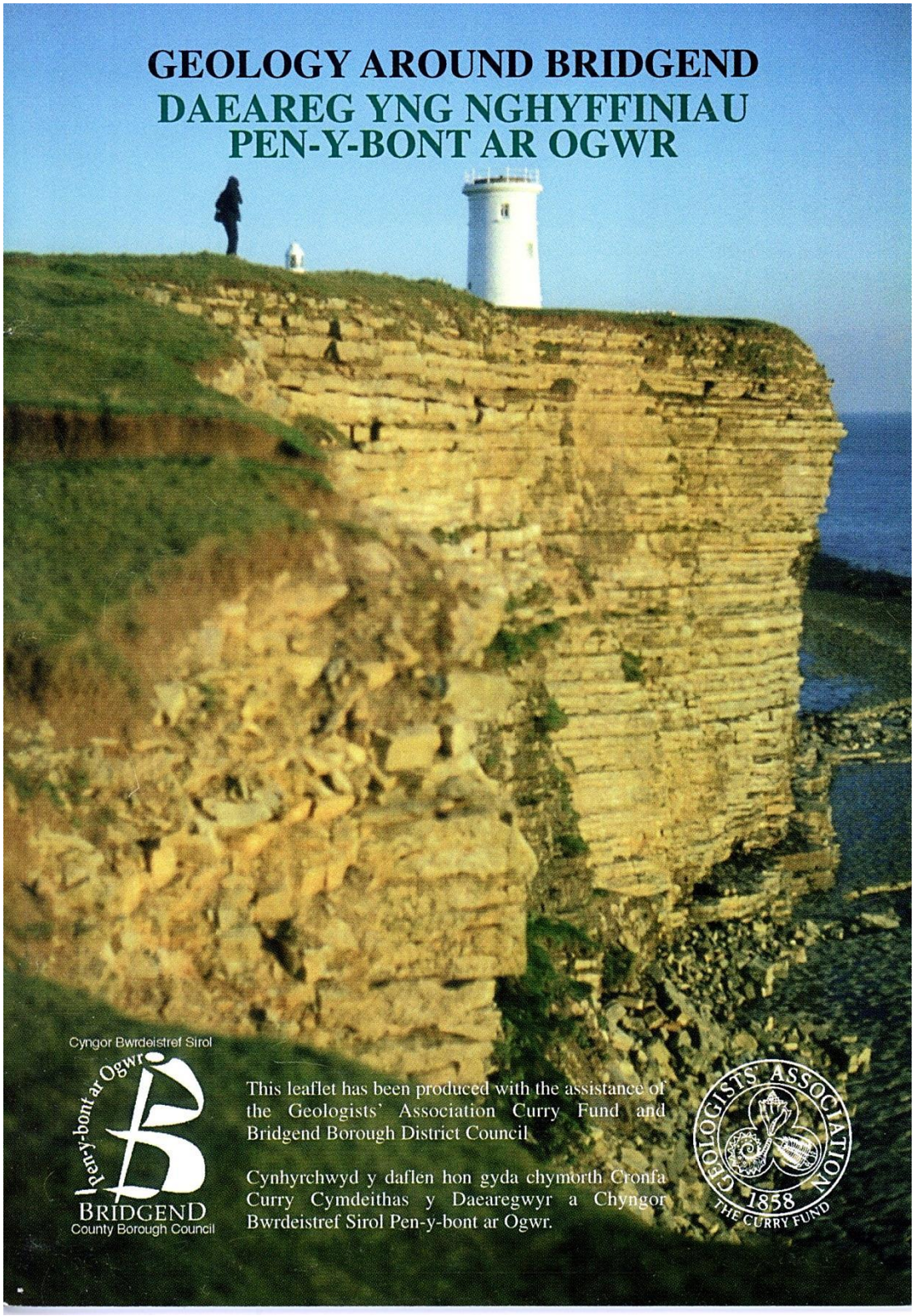
Geological Excursions in Powys normally sells at £11 to Group members (the full price is £12.95) but for a limited time (late 1990s) you can buy copies for **£7.50 each.**
The guide is 366 pages long, in the handy A5 pocketable size of the other 2 guides.
A very informative introductory chapter is followed by 15 excursion itineraries covering the whole of Powys.

The 3 guides covered the southern half of Wales (as far north as the Berwyn Hills).

1998

**** Geology around Bridgend / Daeareg yng Nghyffiniau Pen-y-bont ar Ogwr***
by Stephen Howe, 8 pp, published August 1998 by the Geologists' Association South Wales Group. £1.50.

A bilingual illustrated colour booklet prepared for the Group's presence at the 1998 Eisteddfod. Produced with the assistance of the Geologists' Association Curry Fund and Bridgend Borough District Council.



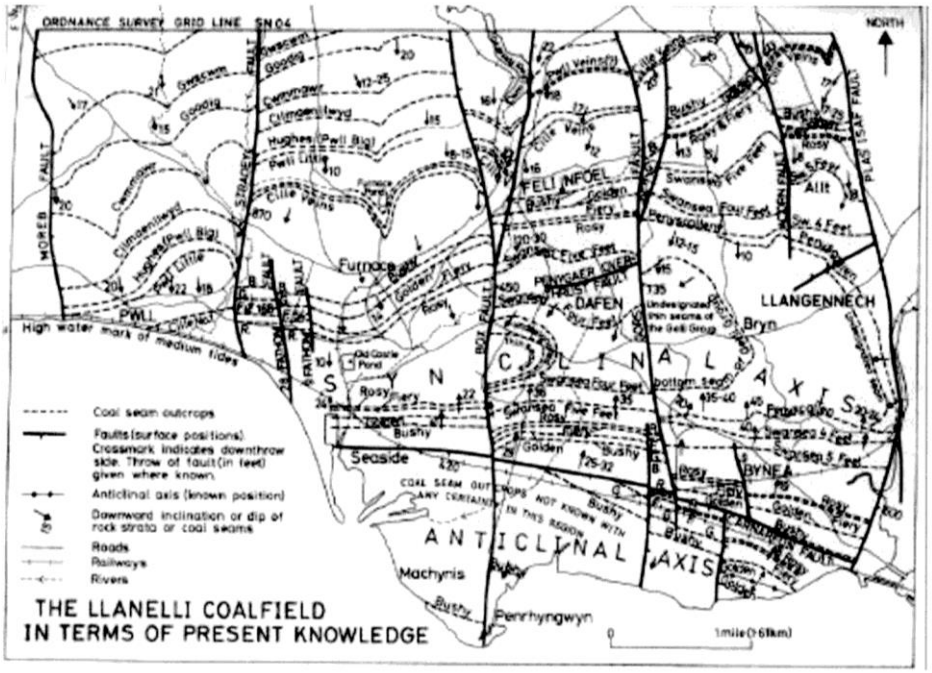
2000

**** The South Wales Group of the Geologists' Association at the National Eisteddfod: Llanelli 2000 / Grŵp De Cymru o Gymdeithas Daearegwyr yn Eisteddfod Genedlaethol: Llanelli 2000*** by D.A. Bassett, 16pp, produced August 2000 by the Geologists' Association South Wales Group.

For the Group's display at the 2000 Eisteddfod, founder Chairman Doug Bassett produced a bilingual poster ***A Selection of Geologists from Llanelli and the Adjacent area / Detholiad o Ddaearegwyr o Llanelli a'r Cyffiniau*** (2000) [see below], together with this accompanying bilingual leaflet. Produced with the assistance of the Department of Geology National Museums & Galleries of Wales, and the National Lottery Charities Board.

THE SOUTH WALES GROUP OF THE GEOLOGISTS' ASSOCIATION AT THE NATIONAL EISTEDDFOD: LLANELLI 2000

GRŴP DE CYMRU O GYMDEITHAS Y DAEAREGWYR YN EISTEDDFOD GENEDLAETHOL: LLANELLI 2000



2000

Website

In the autumn of 2000, the possibility was raised of a SWGA website.

Andy Kendall and Rhian Hicks were approached – an SWGA website was set up over the winter of 2000-2001. Rhian was elected to the committee in March 2001, with specific responsibility for the website, which she held until well after 2010.

2000s

Banner

Probably around 1998, for the Eisteddfod presence, the Group had a ***Banner*** made, nearly 2m long by c45cm wide, with the Group's name (bilingual) and logo. This was in use for well beyond 2010.

Conservation and RIGS

In 1997 Cardiff CC undertook a **Cardiff City Nature Conservation Strategy : Geological Survey**. Following a desk survey starting in late 1997, field assessment visits to sites identified by the desk study started in 2000, with the Group involved to 2003, followed by follow up visits again by the Group to the more promising sites during 2004-2007. In 2008 the Group was involved with other partners in starting a South Wales RIGS initiative. This gained funding and in 2009 the RIGS project started, again with the Group significantly involved.

Regarding the work undertaken by the Group on the Cardiff sites, 2000-2007, this was written up by Steve Howe but never published as such, as a final list of SSSIs, RIGS, SINCs (49 sites) recommended by the Group.

And details of 53 sites (corresponding mostly to the 49 sites above), as identified in the desk study, are also on record in the Group's archives.

As is a draft publication ***Geological Sites of Interest within the County of Cardiff (RIGS and SINCS)*** by South Wales RIGS Group and South Wales Geologists Association (April 2009). This includes full details of several of the 19 RIGS and 19 SINCs identified by that time, plus mention of existing SSSIs, LNRs, and GRC sites. A list is also given of around 340 sites identified in the desk study, updated by the field visits as appropriate.

2003

**** A Geological Perspective 1960-1992*** compiled by Alun J. Thomas 53pp, published December 2003 by the Geologists' Association South Wales Group. £1.00

A Geological Perspective is also archived separately in
1960-2010 - A GEOLOGICAL PERSPECTIVE 1960-1992 AJT

GEOLOGISTS' ASSOCIATION, SOUTH WALES GROUP

A GEOLOGICAL PERSPECTIVE

1960-1992

Compiled by
ALUN J. THOMAS

Geologists' Association, South Wales Group
Cardiff, December 2003

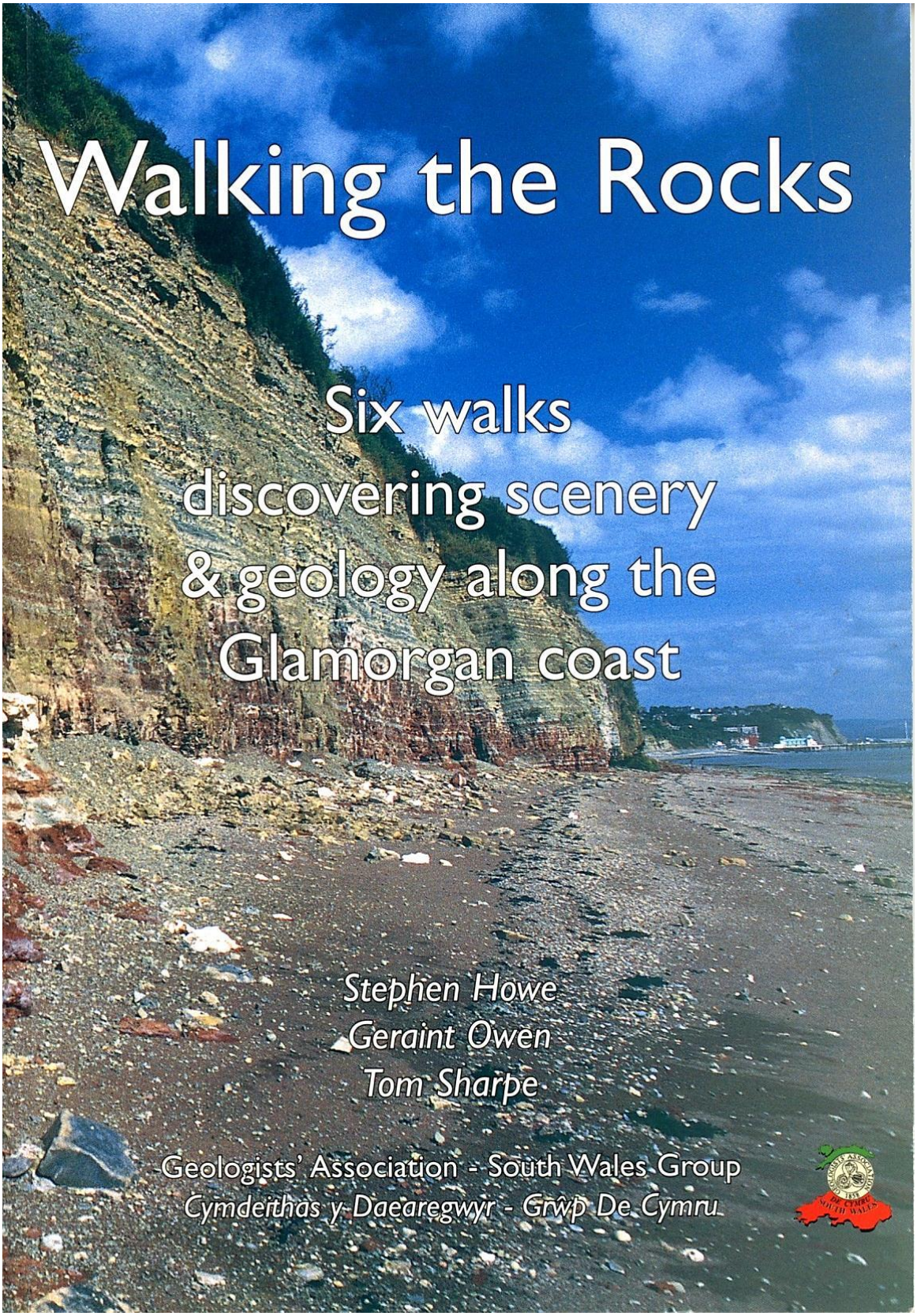
CONTENTS

2004

**** GA Geofest@Cardiff / GA Geofest@Caerdydd .*** Leaflet (2004) advertising the November 2004 Geofest at the National Museum of Wales

2004 cont.

**** Walking the Rocks: Six walks discovering scenery & geology along the Glamorgan coast*** by Stephen Howe, Geraint Owen, Tom Sharpe, 116pp, published November 2004 by the Geologists' Association South Wales Group. £7.95 (£6.00 to members). ISBN 0 903222 01 9.



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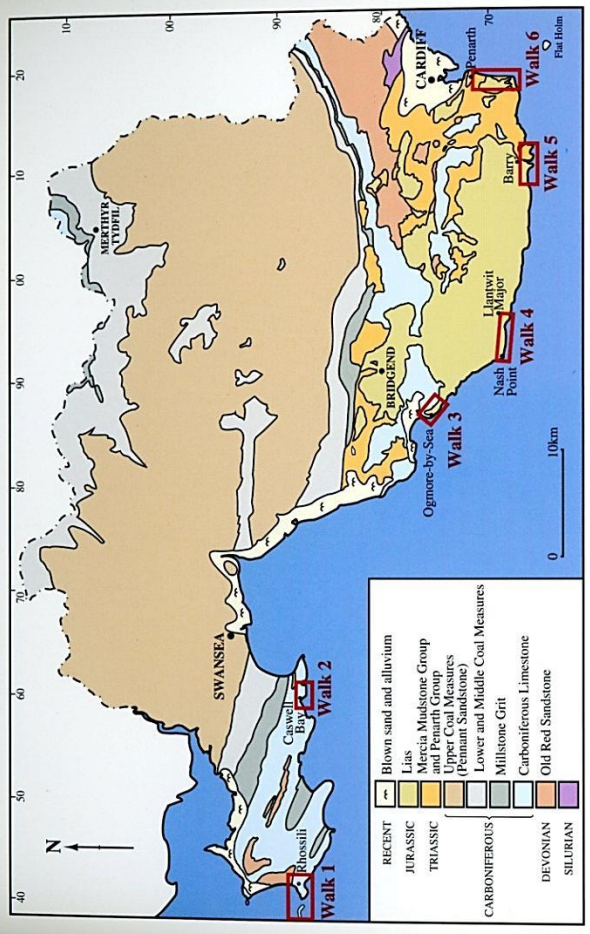


Walking the Rocks

Six walks discovering scenery and geology along the Glamorgan coast

Stephen Howe
Department of Geology, National Museum of Wales, Cardiff CF10 3NP

Geraint Owen
Department of Geography, University of Wales Swansea, Swansea SA2 8PP

Tom Sharpe
Department of Geology, National Museum of Wales, Cardiff CF10 3NP

Geologists' Association - South Wales Group
Cymdeithas y Daearegwyr - Grŵp De Cymru

Contents

Background to *Walking the Rocks: Six walks discovering scenery & geology along the Glamorgan coast*

New Book: Walking the Rocks

We are pleased to announce the publication of a new guide-book produced by the Group: ***Walking the Rocks. Six walks discovering scenery and geology along the Glamorgan coast.*** The authors are Tom Sharpe, Steve Howe and Geraint Owen, and the book builds on the successful series of walk leaflets. Three of the walks are new and the others are greatly expanded compared with what the leaflets can cover.

The book is illustrated throughout with maps, diagrams and photographs in full colour, and has 120 pages, including an outline of the geology of South Wales, comprehensive descriptions of six walks - at Rhossili and Caswell Bay on Gower, Ogmore-by-Sea, Nash Point to Llantwit Major, Barry Island to Porthkerry, and Penarth to St Mary's Well Bay - a glossary and a guide to further reading.

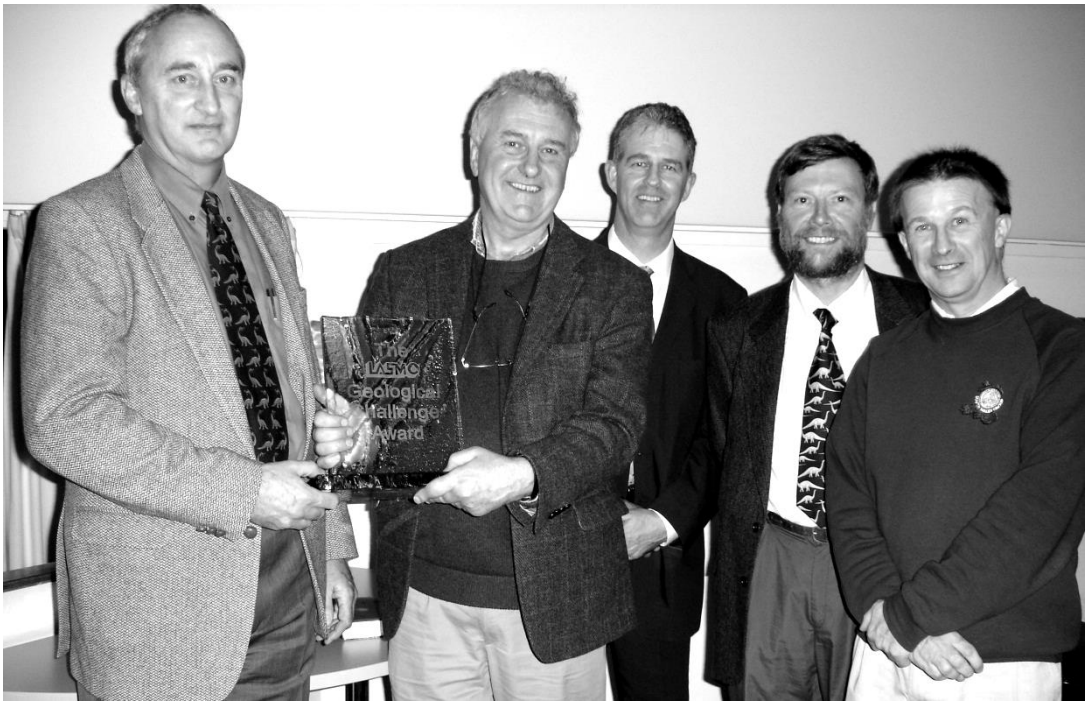
And the price? A very modest £7.95 is the full price, but as a member you can buy copies at the **special reduced members' price of just £6.00,** and all proceeds come back to the Group. You can buy copies at lecture meetings or at the *Geofest* in November, or you can send off the enclosed order form (postage free). If you want to buy your copies at a meeting, why not pass the order form onto a friend or neighbour who might be interested! And don't forget, Christmas isn't that far off; *Walking the Rocks* will make an excellent present for someone who wants to add an extra element of interest to some lovely walks.

2005

By October 2005 the print-run of 1000 copies of ***Walking the Rocks***, produced in time for the Geofest in Cardiff last November, had sold out!
* Another 1000 copies were printed, with corrections.

In December 2005, the **ENI Geological Challenge Award** was awarded to SWGA for **Walking the Rocks**

Award for SWGA !



At the beginning of December, Steve Howe, Tom Sharpe and Geraint Owen were delighted to attend a meeting of the Geologists' Association in Burlington House, headquarters of The Geological Society, to receive the **ENI Geological Challenge** on behalf of the Group for our guide to ***Walking the Rocks***. The ENI Geological Challenge rewards success in contributing to public understanding of geology. It is organised through *Down to Earth*, the free geological magazine, and sponsored by ENI, one of the world's leading integrated energy companies. The judges were award-winning geology author Richard Fortey of the Natural History Museum, Chris Darmon of GeoSupplies, who produce *Down to Earth*, and John Bell of ENI. The judges were impressed by 'the professionalism shown, not only in the writing and production of the book, but also the fact that the book has been a success in terms of the number of copies sold.' The three authors each received an engraved glass plaque, and the South Wales Group received a cheque for £250.

Leaflets 1991 - 2010

From time to time, the Group has published a ***Geological Walks in Wales*** leaflet; series editors Stephen Howe, Geraint Owen, Tom Sharpe.

1 ***Porthcawl*** (1991)
S.R. Howe
National Museum of Wales / Amguedffa Genedlaethol Cymru Department of Geology
Information Series No. 1

*** 1** ***Porthcawl*** (2nd edition October 1997)
S.R. Howe, National Museum of Wales
Sponsored by Bridgend County Borough Council
Produced by Geologists' Association – South Wales Group: *Cymdeithas y Daearegwyr – Grŵp De Cymru*

*** 1** ***Porth-cawl*** (Gorffennaf 1998)
S.R. Howe, Amgueddfa Genedlaethol Cymru
Cynhyrchwyd gan: *Cymdeithas y Daearegwyr – Grŵp De Cymru*

*** 2** ***Penarth, Lavernock and St. Mary's Well Bay*** (1991)
S.R. Howe
Sponsored by A.F.Budge (Mining) Ltd., Retford, Notts.
National Museum of Wales / Amguedffa Genedlaethol Cymru Department of Geology
Information Series No. 2

* **3** ***Dunraven Bay, Southerndown*** (1991)
S.R. Howe
Sponsored by Mid Glamorgan County Council
National Museum of Wales / Amguedffa Genedlaethol Cymru Department of Geology
Information Series No. 3

*** 3** ***Dunraven Bay, Southerndown*** (2nd edition June 1998)
S.R. Howe, National Museum of Wales
Produced by Geologists' Association – South Wales Group: *Cymdeithas y Daearegwyr – Grŵp De Cymru*

*** 3** ***Bae Dwnrhefn, Southerndown*** (Gorfennaf 1998)
S.R. Howe, Amgueddfa Genedlaethol Cymru
Cynhyrchwyd gan: *Cymdeithas y Daearegwyr – Grŵp De Cymru*

*** 4** ***Head of the Clydach Gorge*** (1991)
T. Sharpe
Sponsored by AGK Engineering Ltd., Chesterfield, Derbyshire
National Museum of Wales / Amguedffa Genedlaethol Cymru Department of Geology
Information Series No. 4

*** 5** ***Cwm Graig Ddu Road Section, Garth, Powys*** (1991)
Dr. R.M. Owens
Sponsored by A.F.Budge (Mining) Ltd., Retford, Notts.
National Museum of Wales / Amguedffa Genedlaethol Cymru Department of Geology
Information Series No. 5

*** 6** ***Pontneddfechan: The Afon Nedd and Sgwd Gwladus A Geological Walk*** (1991)
Dr. Geraint Owen
Sponsored by A.F.Budge (Mining) Ltd., Retford, Notts.
Geologists' Association (South Wales Group) and Department of Geography, University College of Swansea

*** 7** ***Ogmore-by-Sea, Vale of Glamorgan*** (March 1996)
S.R. Howe, National Museum of Wales
Sponsored by the Committee on the Public Understanding of Science (copus)
Geologists' Association, South Wales Group

*** 7** ***Aberogwr, Bro Morgannwg*** (Gorfennaf 1998)
S.R. Howe, Amgueddfa Genedlaethol Cymru
Cynhyrchwyd gan: *Cymdeithas y Daearegwyr – Grŵp De Cymru*

*** 8** ***Craig-y-nos and Penwyllt*** (March 1996)
Geraint Owen, University of Wales Swansea
Sponsored by the Committee on the Public Understanding of Science (copus)
Geologists' Association South Wales Group

*** 9** ***Llansteffan*** (March 1996)
Geraint Owen, University of Wales Swansea
Sponsored by the Committee on the Public Understanding of Science (copus)
Geologists' Association South Wales Group

*** 10** ***Porth yr Ogof to Sgwd Clungwyn, Ystradfellte, Powys*** (March 1996)
T. Sharpe, National Museum of Wales
Sponsored by the Committee on the Public Understanding of Science (copus)
Geologists' Association, South Wales Group

*** 11** ***Cribarth from Craig-y-Nos*** (April 1998)
Geraint Owen, University of Wales Swansea
Assisted by The Curry Fund of the Geologists' Association
Geologists' Association South Wales Group

*** 12** ***Barry Island – Friars Point*** (April 1998)
Alun J Thomas, Barry
Assisted by The Curry Fund of the Geologists' Association
Geologists' Association South Wales Group

*** 13** ***Building Stones of Cardiff 1. Cardiff Bay*** (Spring 2004)
LPG/DSW
Geologists' Association South Wales Group

*** 14** ***Building Stones of Cardiff 2. Cathays Park to Queen Street*** (July 2005)
Eric Robinson
Sponsored by Cardiff Science Festival / Gŵyl Wyddoniaeth Caerdydd
Geologists' Association South Wales Group

*** 14** ***Cerrig adeiladu Caerdydd 2. Parc Cathays i Heol y Frenhines*** (Gorffenaf 2005)
Eric Robinson, cyfeiethiad Dyfed Elis-Gruffydd
Cardiff Science Festival / Gŵyl Wyddoniaeth Caerdydd
Cymdeithas y Daearegwyr, Grŵp De Cymru

*** 15** ***Building Stones of Newport High Street and Stow Hill*** (July 2009)
Eric Robinson
Geologists' Association South Wales Group

**** Dinosaur footprints at The Bendricks*** (June 2007)
Tom Sharpe
Geologists' Association South Wales Group

Background to the ***Geological Walks in Wales*** leaflets:

The first ones (six in total) were produced in 1991, for *Welsh Geology Week*, 4-14 July 1991.

Then, during **Science Week set96**, the Group organised a programme of guided geological walks. The walks resulted in the publication of four new walks leaflets. In December 1997 "We have recently produced a new leaflet in the Geological Walks in Wales series. This one has been written by Steve Howe, and covers Carboniferous Limestone and Triassic rocks along the foreshore at *Porthcawl*. This will be the venue for one of our Science Week walks in 1998. The leaflet was produced with the aid of a grant from Bridgend County Borough Council for which we are very grateful. Like the other leaflets, it sells at just 25p, and copies are available at any of our meetings. Leaflets on Cribarth and Barry Island, funded by a grant from the Geologists' Association's Curry Fund, should be published in early 1998.

1998: Copies can be bought for 25p each at meetings, or by writing to the secretary. "We are keen to encourage wide distribution of these leaflets - if anyone can arrange for a local retailer to display them, please contact the secretary".

1998: Two new *Geological Walks in Wales* leaflets were published in May, covering *Cribarth* in the Swansea Valley and *Friars Point, Barry Island*. They were produced with the aid of a grant from the GA Curry Fund, and bring to 12 the number of leaflets in the series. Copies can be purchased for 25p each at lecture meetings, or post-free from the secretary.

1998: For the Eisteddfod venture, the walk leaflet to *Southerndown* was revised and reprinted, and Welsh language versions published for *Southerndown, Aberogwr* and *Porth-cawl:* all these sell at the usual 25p each.

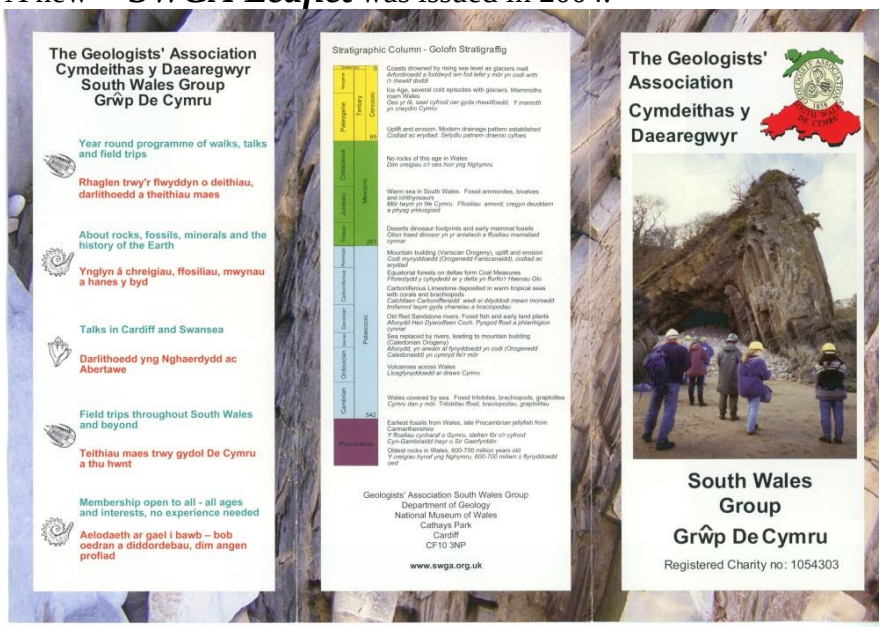
March 2006: Cardiff Science Festival funding from the Festival allowed the publication of two others - English and Welsh versions of a guide to the *Building Stones of Cardiff:*

Ephemera 1991-2010

The *Membership Subscription Form* was issued in a completely revised format in October 1991, bearing a ***new Group logo*** (designed by Mrs D. Gaye Evans) consisting of a perspective outline (as if viewed from the south) of Wales overprinted with the (revised) parent body badge and the words 'South Wales'. The * leaflet itself underwent frequent revisions with a publications order form, the geological code of conduct, subs, and questions (with answers) about the Group over the next few years.

The logo was subsequently amended to incorporate the Welsh "De Cymru", rearranged slightly, in 2004.

A new * ***SWGA Leaflet*** was issued in 2004.



Newsletters commenced in 1990. These were used to send out programmes, news and other notices to members.

Newsletters are archived separately in **1960-2010 - NEWSLETTERS.**

Posters c1995 - 2010

Posters have been designed and printed, usually at around A0 size, from time to time, for use at displays, conferences, meetings and other gatherings. Almost all are laminated.
The originals (13 for 1995-2010) are all rolled up into one roll. Copies are printed below for convenience and reference.

They include:

Dinosaurs in South Wales / Deinosoriaid yn Ne Cymru

The Marginal Lias of the Vale of Glamorgan / Lias Ymylol Bro Morgannwg

The Geology and Scenery of Gower / Daeareg a Thirwedd Bro Gwyr
Pleistocene and Recent / Pleistosen a Diweddau

Fossil Plants of the Coal Measures / Planhigion Ffosil yr Haenau Glo

On the Trail of Triassic Tracks (post 2000)

Geology of the Glamorgan Coast / Daeareg Arfordir Morgannwg
Devonian Period / Y Cyfnod Defonaidd
Carboniferous Period / Y Cyfnod Carbonifferaidd

Geology of the Glamorgan Coast / Daeareg Arfordir Morgannwg
Triassic Period / Y Cyfnod Triasig
Jurassic Period / Y Cyfnod Jwrasig (post 2004)

Geologists' Association – South Wales Group / Cymdeithas y Daearegwyr – Grwp De Cymru (prob. 2000)

A Selection of Geologists from Llanelli and the Adjacent area / Detholiad o Ddaearegwyr o Llanelli a'r Cyffiniau (2000) [see also **2000** above]

Minerals of Barry Island and adjacent areas (with Russell Society W&W Oct. 2008)

South Wales RIGS (Sept 2009)

Cardiff RIGS (Oct 2009)

50 years of the Geologists' Association South Wales Group (2010)

At a different level, small posters have been designed and printed for individual meetings, used for sending to members, pinning up at venues such as the universities, libraries etc. etc. eg
* ***Pebbles on the Beach*** (?March 2007)

GEOLOGISTS ASSOCIATION
- SOUTH WALES GROUP

CYMDEITHAS Y DAEAREGWYR
- GRWP DE CYMRU

Dinosaur fossils are known from only a few horizons in the Mesozoic rocks of South Wales; rare, mostly isolated bones, representing just a few species, have been found at five localities in the Vale of Glamorgan. Although [illegible] known from only two localities, footprints are much more abundant.

Cafwyd hyd i ffosilau deinosoriaid dim ond mewn ambell [illegible] De Cymru. [illegible] Bro Morgannwg. [illegible]

© J. Sibbick

All the dinosaur bones and footprints are preserved in rocks of late Triassic (Norian) to early Jurassic (Hettangian) age. During this time the Vale of Glamorgan was initially a low lying desert, pierced by a line of limestone hills, which was later gradually inundated by the sea. The hills became islands, which acted as refuges for the land fauna. Although the climate was generally hot and arid, heavy downpours occurred from time to time, and caused local flash flooding.

Mae holl esgyrn ac olion traed y deinosoriaid yn gyfyngedig i greigiau sy'n dyddio o'r cyfnod Triasig diweddar (Norinaidd) hyd y cyfnod Jwrasig cynnar (Hettangaidd). [illegible] Bro Morgannwg yn ddiffeithdir [illegible]

DINOSAURS IN SOUTH WALES

DEINOSORIAID YN NE CYMRU

© NMGM Liverpool

Dinosaur footprints were first discovered at a locality near Porthcawl in 1878, in rocks of late Triassic (Norian) age. These consisted of a five-print trackway of a medium sized, tridactyl theropod, formerly identified as 'Brontozoum' but now assigned to the ichnogenus *Anchisauripus*. Sometime later, a single block of similar age was found in the grounds of Nottage Court, also near Porthcawl. It contained three footprints belonging to two different animals, assigned to the ichnogenera *Anchisauripus* and *Otozoum*. The latter is considered to be the footprint of a prosauropod similar to *Thecodontosaurus*.

*Cafwyd hyd i olion traed deinosoriaid am y tro cyntaf ar safle ger Porthcawl, yn 1878, [illegible] 'Brontozoum' [illegible] **Anchisauripus**. [illegible] Porthcawl. [illegible] **Anchisauripus** ac **Otozoum**. [illegible] **Thecodontosaurus**.*

The bones of diverse small animals, including dinosaurs, other reptiles and early mammals were washed into fissures in the limestone hills during periods of heavy rain. In some of these fissure-fill deposits, of late Triassic to early Jurassic age, large numbers of small bones accumulated. Amongst these, three one-metre-long, juvenile skeletons of the prosauropod dinosaur *Thecodontosaurus*, have been identified from material collected near Bridgend in the 1950s.

*[illegible] **Thecodontosaurus**, [illegible] ger Pen-y-bont ar Ogwr yn y 1950au.*

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© G.R. Tear

In 1974, over 400 small, three-toed dinosaur footprints were discovered in red siltstones of late Triassic (Norian) age on the coast at The Bendricks, near Barry. These have been assigned to the ichnogenus *Grallator*, and are thought to have been made by a small (2 metre long) theropod, similar to *Coelophysis*. Further investigation of this area has revealed footprints from a total of five ichnogenera, including *Anchisauripus* and *Otozoum* as well as other non-dinosaurian reptiles, found at a number of horizons along the coast between The Bendricks and Sully Island. This area is one of the most prolific Upper Triassic dinosaur footprint sites in the UK.

*Yn 1974 darganfuwyd dros 400 [illegible] **Grallator** [illegible] **Coelophysis**. [illegible] **Anchisauripus** ac **Otozoum** [illegible] y cyfnod Triasig Uchaf.*

Of the isolated dinosaur bones that have been found, the most spectacular is the mould of a lower jaw of *Zanclodon*, a 4m-long theropod; it was found in a block of sandstone of late Triassic (Rhaetian) age near Pyle in 1898. Other bones have been recovered from marine sediments of early Jurassic (Hettangian) age in the Penarth Lavernock area.

*O'r holl esgyrn unigol y cafwyd hyd iddynt, yr un mwyaf trawiadol yw mowld [illegible] **Zanclodon**, theropod 4 m o hyd. Cafwyd hyd iddo ger Y Pîl yn 1898 [illegible] (Rhaetaidd). [illegible] y cyfnod Jwrasig cynnar (Hettangaidd).*

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GEOLOGISTS' ASSOCIATION
- SOUTH WALES GROUP

CYMDEITHAS Y DAEAREGWYR
- GRWP DE CYMRU

THE MARGINAL LIAS OF THE VALE OF GLAMORGAN

LIAS YMYLOL BRO MORGANNWG

During the late Triassic, the Vale of Glamorgan was a low-lying desert pierced by a series of limestone hills. Towards the end of the period the sea began advancing over the area, flooding the flat desert floor and isolating the limestone hills as islands. These were finally inundated during the Sinemurian age of the Jurassic. Around the shores of the islands white and cream limestone of the Sutton Stone and Southerndown Beds was deposited in shallow water, whilst farther offshore, in deeper waters, the darker limestones and mudstones of the familiar Blue Lias accumulated. The lateral passage between these two sets of deposits is well seen along the coast between Pant-y-Slade and Dunraven Bay.

Yn ystod y cyfnod Triasig diweddar roedd Bro Morgannwg yn ddiffeithdir isel y codai cadwyn o fryniau calchfaen uwchlaw iddo. Tua diwedd y cyfnod hwn dechreuodd y môr ymestyn ar draws y iseldir gan foddi'r diffeithdir ac ynysu'r bryniau calchfaen. Cafodd yr ynysoedd eu boddi yn ystod cyfnod Sinemuraidd yr oes Jwrasig. O amgylch glannau'r ynysoedd dyddodwyd calchfeini gwyn a melynwyn Carreg Sutton a Haenau Southerndown mewn dw'r bas, tra oedd calchfeini a cherrig llaid tywylloch y Lias Glas cyffredin yn ymgasglu yn y dyfroedd dyfnach, ymhellach o'r lan. Mae'r newid llorweddol rhwng y naill set a'r llall o ddyddodion i'w gweld yn glir ar hyd yr arfordir rhwng Pant-y-sldd a Bae Dwnrhefn.

© S.R.Howe

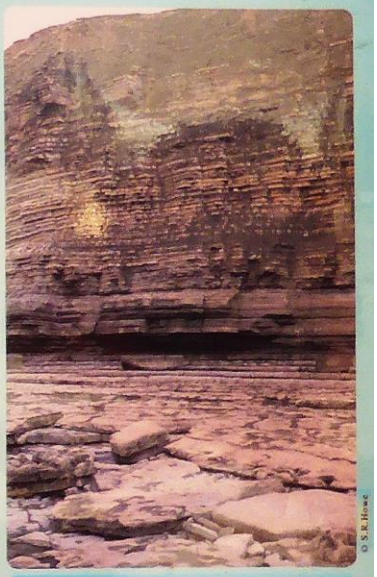
The coast between Pant-y-slade and Dunraven Bay.
Yr arfordir rhwng Pant-y-sldd a Bae Dwn-rhefn.

© S.R.Howe

Southerndown Beds, Pant-y-slade.
Haenau Southerndown, Pant-y-sldd.

Upwards in the succession, the Sutton Stone grades gradually into the Southerndown Beds, a series of thin, finely conglomeratic, sandy limestones with thin shale partings which were deposited in deeper water than the Sutton Stone. Ammonites are rare in both the Sutton Stone and in the Southerndown Beds.

Yn uwch i fyny yn yr olyniaeth creigiau mae Carreg Sutton yn newid yn raddol, gan ddod yn Haenau Southerndown, cyfres o galchfeini tywodlyd, mân amryfaenog a thenau, â haenau tenau o sidl rhyngddynt, a ddyddodwyd mewn dw'r dyfnach na Charreg Sutton. Mae amonitau'n brin iawn yng Ngharreg Sutton a Haenau Southerndown.



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The Southerndown Beds can be seen to pass into the muddy limestones and shales that are so typical of the Blue Lias. The latter are rich in fossils, especially ammonites, bivalves and crinoids.

Yma, mae modd gweld Haenau Southerndown yn newid i fod yn galchfeini lleidiog a sialau sydd mor nodweddiadol a'r Lias Glas. Mae'r Lias Glas yn llawn ffosilau, yn enwedig amonitau, cregyn deuglawr a chrinoidau.

© S.R.Howe

At Pant-y-Slade the Carboniferous Limestone surface on which the Mesozoic sediments rest has a step-like nature, and is heavily eroded and bored. The Sutton Stone is a white coloured, at times coarsely conglomeratic limestone, which in places is draped over the platform edges. It contains pebbles of Carboniferous Limestone and chert and is thought to represent a beach deposit. It contains bivalves and corals, many of which have been replaced by later mineralisation. Although the Sutton Stone has no pronounced bedding and, despite its conglomeratic nature, it was used as a freestone during the Medieval Period.

Yn Mhant-y-sldd mae gan wyneb erydog a thyllog y Calchfaen Carbonifferaidd y gorwedd y gwaddodion Mesosôig arno ffurf sy'n ymdebygu i risiau. Yma ac acw mae Carreg Sutton, sy'n galchfaen gwyn ac amryfaenog iawn mewn mannau, wedi'i thaenu dros ymylon y llwyfan. Mae'n cynnwys cerigos o Galchfaen Carbonifferaidd a chornfaen, a chredir ei bod yn cynrychioli gwaddodyn traeth. Mae'n cynnwys, hefyd, gregyn deuglawr a chwrelau y mae mwynau mwy diweddar wedi cymryd lle nifer ohonynt. Er nad oes i Garreg Sutton wedd haenog amlwg, ac er gwaethaf ei natur amryfaenog, câi ei defnyddio fel carreg rywiog yn ystod y Canol Oesoedd.

© S.R.Howe

The Jurassic rocks along this coast are generally gently folded and faulted, and cut by two prominent sets of joints. These all have an effect on the coastal scenery and help to produce the spectacular coastline that now forms part of the Glamorgan Heritage Coast. Between Pant-y-Slade and Dunraven Bay caves have developed at the contact between the hard Carboniferous Limestone and the overlying softer, Sutton Stone. Deep fissures eroded in the Carboniferous Limestone platforms create spectacular blow-holes, especially during stormy weather.

A siarad yn gyffredinol, mae'r creigiau Jwrasig ar hyd yr arfordir hwn wedi'u plygu'n raddol a'u torri gan ffawtiau, ac wedi'u rhannu gan ddwy set amlwg o fregion. Cafodd y rhain i gyd effaith ar y golygfeydd arfordirol a buont yn rhannol gyfrifol am greu'r arfordir trawiadol sydd bellach yn rhan o Arfordir Treftadaeth Morgannwg. Rhwng Pant-y-sldd a Bae Dwn-rhefn mae ogofâu wedi datblygu yn y man lle daw'r Calchfaen Carbonifferaidd caled i gysylltiad â'r graig feddalach, sef Carreg Sutton, sy'n ei orchuddio. Mae'r agennau dyfnion erydog yn y Calchfaen Carbonifferaidd yn creu mordyllau trawiadol iawn, yn enwedig ar adeg tywydd stormus.

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Cynhyrchwyd trwy gymorth nawdd gan Gronfa Curry Cymdeithas y Daearegwyr

GEOLOGISTS' ASSOCIATION - SOUTH WALES GROUP

CYMDEITHAS Y DAEAREGWYR - GRŴP DE CYMRU

THE GEOLOGY AND SCENERY OF GOWER

DAEAREG A THIRWEDD BRO GŴYR

PLEISTOCENE AND RECENT

PLEISTOSEN A DIWEDDAR

North Gower Coast
Along the north coast of Gower the Carboniferous rocks dip northwards into the Loughor estuary. Sedimentation within the estuary is largely a result of the redistribution of fluvio-glacial deposits. The installation of training walls in the 19th century to control the flow of the river Loughor led to increased sedimentation on the south side, and the development of extensive marshlands, such as those between Llanrhidian and Whiteford Point.

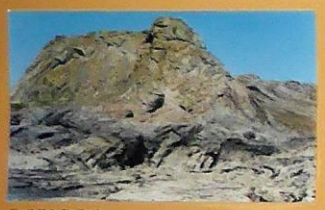
Arfordir gogleddol Gŵyr
Ar yr arfordir gogleddol ([illegible]) mae'r Calcifiedian Carboniferaidd yn goleddu ogleddwyd. [illegible] mewn'd afon Llwchwr. Ar ei gilydd mae'r gwaddodion y llenwi yn gyntaf y wlddwchartiad rhydwlodion fluviogleiddiol. Mae marjiadiadau gwaith yn ymwadi y 19eg gantrif i reoli llif afon Llwchwr wedi arwain at fwy o waddodiad ar ochr deheuol y llenwi a datblygiad marshlandiau, megis y rhwng Llanrhidian a Thywyn Chwitffordd.

Whiteford Point
Sweeping northwards from the Gower coast, across the mouth of the Loughor estuary, is Whiteford spit. This extensive sand dune system is built on a ridge of Devensian moraine boulder clay. The sand is derived from glacial material deposited in Carmarthen Bay which has subsequently been blown inland by prevailing winds, notably between the 14th-16th centuries. Extensive salt marshes have developed in the lee (east) of the spit.

Tywyn Chwitffordd
Yn ymestyn i'r gogleddi o arfordir Gŵyr ac ar draws aber moryd Llwchwr y mae safiol Chwitffordd. Dathlygodd y system dwyni sang hon ac gefnau o ghgleiri morainol Defnonodd. Daw'r tywod o waddodion rhewlifol a ddyddodwyd yn Mae Caerfyrddin. Yn dilweddiarach, ac yn ennedig yn ystod y cyfnod rhwng y 14eg gantrif a'r 16eg gantrif, chwythwyd y tywod tua'r tir gan y prifwynteudd. Mae morfleydd helt eang wedi datblygu yng nghysgod y

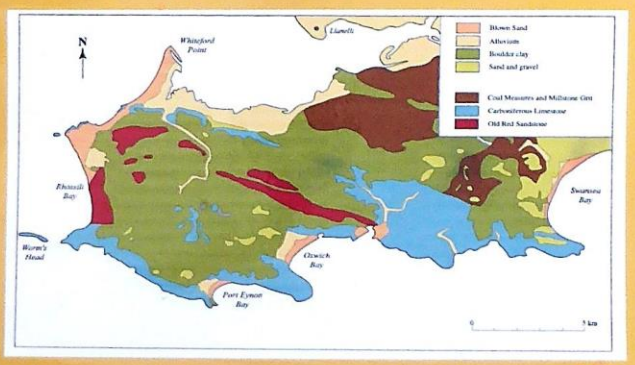
Submerged forest, Whiteford Point.
Evidence of former lower sea levels can be found in many places around the shores of Carmarthen and Swansea bays. In some places, such as here at Whiteford Point, the remains of ancient forests, dating to approximately 10000 years BP, are exposed at low spring tides.

Coedwig suddedig, Trwyn Chwitffordd
Ceir tystiolaeth o gyn-leiddiau mor is mewn ardal tiroedd ar hyd glannau Bae Caerfyddin a Bae Abertawe. Mewn rhai mannau, megis Trwyn Chwitffordd, mae gweddillion hen gaeau ysgeiddiol yn dinoethi ar lanw isaf y gwanwyn. Tua 10,000 o flynyddoedd. Cw gwaddi ar oleg llaw mewn'ed



Goat's Hole, Paviland
Goat's Hole is one of many caves to be found around Gower, especially on the south coast. This cave is of particular geological and historical interest as it has yielded one of the richest assemblages of Palaeolithic finds in Britain. It was excavated in 1823 by Dean Buckland, a famous geologist of the day, who found a headless human skeleton covered in red ochre. This became known as the 'Red lady of Paviland' but is now known to be the skeleton of a male and has been dated at 24,000 years BP.

Twll y Geifr, Paviland
Mae Twll y Geifr yn un o nifer o ogofau sydd i'w gweld yn ardal Gŵyr, yn enwedig ar hyd arfordir y de. Mae'r ogof hon o ddiddordeb daearegol a hanesyddol arbennig gan iddi ddod ar ei anogofiau cyfoethocaf o ddeunydd olion Paleolithig yn Ynysoedd. Fe'i cloddiwyd yn 1823 gan Ddeon Buckland, daearegydd enwog yn ei ddydd, a gafodd hyd i sgerbwd dynol heb ben ynddo wedi'i orchuddio mewn ocr coch. Ailenwyd hi'r 'Dywedyrgwraig Paviland', ond erbyn heddiw, gwyddys mai sgerbwd gŵr yw'r ffosil a dyddiwyd i tua 24,000 o flynyddoedd yn ôl.



Broughton Bay
The Devensian till deposits exposed in Broughton Bay, on the northwest Gower coast, are derived mainly from ice that moved south across Carmarthen Bay, and is close to the southern limit of Devensian ice cover in western Gower. As at Whiteford, many of these deposits are now covered by sand dunes that are currently being rapidly eroded.

Bae Broughton
Dyddodwyd y till Defnonaidd sydd i'w weld yn Bae Broughton, ar arfordir gogleddol-orllewinol Gŵyr, yn bennaf gan iâ a lifai tuag ac ar draws Bae Caerfyrddin, lleoli gwaddodion hyn yn agos at derfyn deheuol y llen yn Defnonaidd yng ngorllewin penrhyn Gŵyr. Megis y rhedia ti'r wlad i Dywyn Chwitffordd, mae llawer ory dyddodion hyn bellach wedi eu gorchuddio gan dywyn, sydd ar hyn o bryd yn erodio'n gyflym.

Raised beach, Heatherslade Bay
The south Gower coast exhibits many examples of raised beaches, which provide clear evidence of changing sea levels in times past. Some of the best and most easily accessible examples are to be found in Heatherslade Bay. Here a cemented pebbly deposit lies on a dissected platform of Carboniferous Limestone, cut at a height of about 8 metres above present day sea level. Most of the rounded pebbles are of Carboniferous Limestone, although other rock types occur in small quantities and the deposit also contains remains of the fossil limpet Patella vulgata. Due to the presence of the latter this raised beach is usually referred to as the Patella beach. This beach is dated to about 125,000 years BP and was formed during the Ipswichian Interglacial.

Cyn-traeth, Bae Heatherslade
Mae rhai o arfordiroedd'r de gwaed ar ffod arfordir de Gŵyr ac maent yn darparu wybodaeth bendant am gyfnewidiadau yn lefel y môr yn y gorffennol. Ymhlith'r enghreifftiau gorau'r rhwydlar ra cynnwyd yn Bae Heatherslade. Yma mae dyddodion graean cryfion, wasanaeth, wedi'i gynnwyd ar ochr dwyreinio'r ardal Carboniferaidd, wedi'i erydu ac wedi'i ddatgelu'n ôl ar uchder tua 8 metr uwchben lefel bresennol y môr. Cerrigau'r Carboniferaidd yw'r rhan fwyaf ohonynt, ond ceir ychydig o'r rhai eraill hefyd, megis y gragen y gragen fach yn bresenol. Mae'r dyddodion hefyd yn cynnwys gweddillion fossil cragen fach y limpet Patella vulgata. Oherwydd presenoldeb y cragen, cyfeirir at y traeth hwn yn aml fel y traeth Patella. Credir bod y traeth yn 125,000 o flynyddoedd yn ôl ac wedi'i ffurfio yn ystod Rhyngrewlifiad Ipswichaidd.

Pwllcu Bay
Pwllcu Bay lies at the mouth of the Bishopston valley, in which limestone is exposed that contains many karstic features. At the back of the bay a series of extensive shingle ridges, or storm beaches, composed mainly of locally derived Carboniferous Limestone, much of which has been derived from quarrying on the western side of the bay.

Pwll-du
Bae Pwll-du yw aber dyffryn Llandaitsi Carsentic, ynwn lle mae calchfaen a ceir o nodweddion carstig i'w gweld. Yng nghefn y bae mae cyfres o gefnennau sych cynnwys cerigar o Calcifiaian Carboniferaidd bord yn bennaf, a dipw llawer ohonynt, sy ennwedig y rhanau y de ch'r gefnau agosaf at y môr, ac hen dywarel ar ochr orllewinol y bae.

Arthur's Stone, Cefn Bryn
Running WNW-ESE through the centre of the Gower Peninsula is the upthrusted, faulted Old Red Sandstone ridge of Cefn Bryn. On its summit, occupying a prominent position overlooking the north Gower marshes, is the huge capstone of a Neolithic chambered tomb, known as Arthur's Stone. This cap stone is a 24 tonne erratic block of Millstone Grit conglomerate, probably derived from the north crop of the South Wales Coalfield, and brought here by glacial action.

Maen Ceth, Cefn Bryn
Mae Cefn Bryn, sydhau ffawtiadig a brigwthiadig o Hen Dywodfaen Coch, yn ymestyn ar ffrwyniau-dde-dde-ddwyrain. Yr gorllewin-ogledd-orllewin drwy gaeau penrhyn Gŵyr. Ar ei gopa, ac yn sefll mewn man amlwg yn edrych dros ffoffwydd hen gaeau'r Gŵyr, mae maen capan arbedd carreddi siambr Neolithig yr enw Maen Ceth. Maen dyfed 24 tunnell fetrig o garreg hen Millstone Grit hefyd yw'r maen capan yn ôl ac yn ôl pob tebig, a ffrig y gogledd maes glo'r De Cymru, ac a ghaniwyd hwy dr gan ôl.

Solifluction terrace, Rhossili Bay
Extending for 5km, Rhossili beach is the longest in Gower. Behind the beach, Rhossili Down, a prominent ridge of Old Red Sandstone, rises to 193 metres. At the foot of the fault-bounded western edge of these hills is a broad terrace of solifluction debris has accumulated, with cliffs at the back of the beach 10-15 metres high. This material consists of angular rock fragments of local origin, incorporated in a reddish brown matrix derived from the Old Red Sandstone hills above.

Teras gwaddol, Bae Rhossili
Bae Rhossili yw'r hiraf yn y sir. Y tu ôl i'r traeth, ac yn ymestyn ar hyd ymyl y Sgwrs Coch, mae Rhossili Down, uchelfa dywodfaen yn Hen Dywodfaen Coch, yn codi i uchder o 193 metr. Wrth ochr ddeheuol gorllewinol y terfyn, sy'n ffinio'r ardal sydd wedi'i ddatblygu'n ddiweddar, mae'r gwaddodion wedi ymgasglu mewn gwaddodion solifluction. Ceir gwaddol yw y cliogwch 10-15 metr o uchder yn ochr y traeth. Yn cynnwys cerrig onglog fesul darnau anghyfan lliwiau cyfch o hen ysgolhaig'r tiroedd.

Produced with financial support from the Geologists' Association Cymru Fund and the National Lottery Charities Board

Tua 300 miliwn o flynyddoedd yn ôl, roedd de Cymru'n gorwedd ar y cyhydedd. Roedd yr hinsawdd yn gynnes a llaith, ac roedd coedwigoedd trwchus yn ffynnu.

About 300 million years ago, South Wales lay at the equator. The climate was hot and humid and thick forests flourished.

PLANHIGION FFOSIL YR HAENAU GLO

FOSSIL PLANTS OF THE COAL MEASURES

Gwastatir arfordirol sang llawn coed oedd de Cymru, ag afonydd mawr yn ystumio ar ei draws. Gadawodd yr afonydd haenau o laid, tywod a graean ar y gwastatir arfordirol a chreu deltâu mawr, fel rhai'r Mississippi heddiw, allan i'r môr.

South Wales was a wide, forested coastal plain crossed by large meandering rivers. The rivers deposited layers of mud, sand and gravel on the coastal plain and built large deltas, like that of the Mississippi today, out into the sea.

Roedd llifogydd o'r afonydd a lefelau'r môr yn codi yn boddi'r gwastatir dro ar ôl tro, gan ladd y planhigion a'u claddu mewn o dan haen o sediment. Pan fyddai'r llifogydd yn cilio, neu lefel y môr yn disgyn, câi'r deltâu eu hailsefydlu, a byddai'r coedwigoedd yn tyfu eto.

River floods and rises in sea level repeatedly submerged the plain, killing the plants and burying them beneath a layer of sediment. When the floods receded or sea level fell, the deltas were re-established, and the forests grew again.

Rhwng y llifogydd, byddai dyddodion trwchus o blanhigion yn pydru - mawn - yn cronni ar lawr y goedwig. Dros filiynau o flynyddoedd, cywasgodd yr haenau o dywod a llaid a adawyd ar ben yr haenau o fawn, y dyddodion planhigion gan ei drsi'n lo.

Digwyddodd hyn sawl tro. Mae yna ryw 100 haen o lo yng nghadwyn greigiau Maes Glo De Cymru.

Between floods, thick deposits of decaying plant matter – peat– built up on the forest floor. Over millions of years, the layers of sand and mud deposited on top of the layers of peat, compressed the plant material and it was changed into coal.

This happened many times. There are about 100 seams of coal in the rock sequence of the South Wales Coalfield.

CYMDEITHAS Y DAEAREGWYR - GRŴP DE CYMRU

GEOLOGISTS ASSOCIATION - SOUTH WALES GROUP

Planhigion Cyffredin yr Haenau Glo

Planhigion ffosil

Ceir ffosiliau'r planhigion oedd yn tyfu yn y goedwig yn aml yn yr haenau o dywod, silt a llaid sydd rhwng yr haenau glo. Mae sawl gwahanol fath. Roedd rhai yn tyfu ar y gorlifdiroedd llaith, corsiog, ac eraill yn tyfu ar dir uwch neu fwy sych.

Common Coal Measures plants

Plant fossils

Fossils of the plants which grew in the forests are often found in the layers of sand, silt and mud which occur between the coal seams. There are many different kinds. Some grew on the damper, swampier river flood plains, while others grew on higher or drier ground.

Cnwpfwsoglau

Planhigion tal, tebyg i goed oedd y rhain. Roedden nhw'n tyfu mewn ardaloedd gwlyb ac yn cyrraedd hyd at 40 metr o daldra. Nhw sydd wedi creu'r rhan fwyaf o'n glo. Mae cnwpfwsoglau anferth wedi diflannu erbyn hyn, and mae eu perthnasau bywn fach ac yn tyfu ar fynyddoedd a rhostroedd.

Club-mosses

These were tall, tree-like plants up to 40 metres in height. They grew in wetter areas. They make up most of our coal. Giant club-mosses are extinct but their living relatives are small and grow on mountains and moorlands.

Rhisgl Sigillaria
Sigillaria bark

Rhisgl Lepidodendron
Lepidodendron bark

Gellir adnabod y gwahanol fathau o gnwpfwsogl yn ôl y marciau ar eu rhisgl.
Different kinds of giant club-moss can be identified by the markings on their bark.

Cnwpfwsogl modern — Modern club-moss

Mae egin, dail, conau a gwreiddiau'r coed yma'n ffosiliau cyffredin hefyd.

Shoots, leaves, cones and roots of these trees are also common fossils.

Lepidostrobus, côn y cnwpfwsogl anferth
Lepidostrobus, the cone of the giant club-mosses

Stigmaria, gwreiddyn y cnwpfwsogl anferth
Stigmaria, the root of the giant club-mosses

Alignad — Reconstruction

Calamites

Annularia

Marchrawn

Mae'r marchrawn modern mwyaf (*Equisetum*) ond ychydig fetrau o daldra. Roedd eu perthnasau hynafol, oedd yn tyfu ar dir corsiog ar lannau llynnoedd, yn tyfu i fod gymaint â 10 metr o daldra.

Horsetails

The largest modern horsetails (*Equisetum*) are only a few metres tall. Their ancient relatives, which grew on swampy ground around the edges of lakes, reached up to 10 metres in height.

Alignad — Reconstruction

Deilen Cordaites — Cordaites leaf

Cordaites

Physgleyn neu goed hyd at 30 metr o daldra oedd y rhain. Roedden nhw'n perthyn i gonifferau cynnar ac yn tyfu mewn ardaloedd mwy sych. Roedd ganddynt ddail hir tebyg i drasi.

Cordaites

These were shrubs or trees up to 30 metres high. They were related to early conifers and grew on drier areas. They had long strap-like leaves.

Alignad — Reconstruction

Rhedyn

Rhedyn yw rhai o'r ffosiliau mwyaf cyffredin. Mae rhai'n rhedyn go iawn ac eraill yn goedredyn tebyg i'r ffurfiau modern, and mae'r rhan fwyaf yn perthyn i grŵp sydd wedi diflanna – yr hadredyn.

Asterotheca

Ferns

Some of the commonest fossils are those of ferns. Some are true ferns and tree-ferns similar to modern forms, but most belong to an extinct group – the seed ferns.

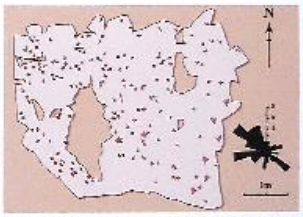
Sphenophyllum

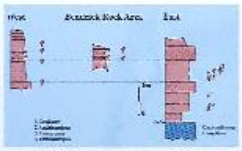
Sffenoffylau

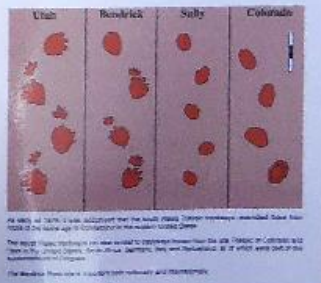
Planhigion sgraelu bychain oedd y rhain, oedd yn byw ar dir agored.

Sphenophylls

These were small, scrambling plants that grew on open ground.







CYMDEITHAS Y DAEAREGWYR
- GRŴP DE CYMRU

GEOLOGISTS ASSOCIATION
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ON THE TRAIL OF TRIASSIC TRACKS

The rocks of the Glamorgan coast near Cardiff contain the oldest dinosaur tracks in Britain.

They occur in Upper Triassic (Norian) redbeds, about 210 million years old.

Although tracks are known from three localities, tracks are exposed in situ at only two sites: **Barry** and **Sully**.

Tracks for sale:

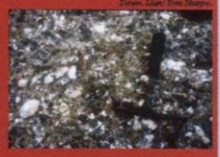
GEOLOGISTS ASSOCIATION - SOUTH WALES GROUP

CYMDEITHAS Y DAEAREGWYR - GRŴP DE CYMRU

Devonian Period

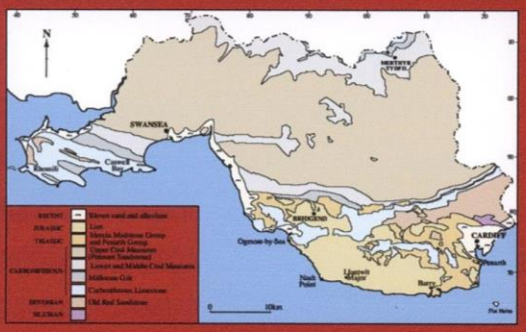
The oldest rocks exposed along the Glamorgan coast are conglomerates belonging to the Devonian Old Red Sandstone sequence. The rounded quartz pebbles in the conglomerates were deposited by rivers flowing southwards from a high mountain chain created by continental collision in the Silurian Period. The Old Red Sandstone sediments of South Wales were deposited on a wide coastal plain of an ocean which lay to the south. These resistant rocks form the hills of Gower, such as Rhossili Down at the western end of the peninsula.

Old Red Sandstone conglomerate on the summit of Rhossili Down. Photo: Tom Sharpe.
Amrylfaen yr Hen Dywodfaen Coch ar gopa Rhosili Down. Llun: Tom Sharpe.



Y Cyfnod Defonaidd

Y creigiau hynaf sy'n brigo ar hyd arfordir Morgannwg yw amryfeini a briodolir i ddilyniant yr Hen Dywodfaen Coch Defonaidd. Dyddodwyd y cerigos cwarts crwn yn yr amryfeini gan afonydd a lifai tua'r de o gadwyn o fynyddoedd uchel a grëwyd o ganlyniad i wrthdrawiad cyfandirol yn ystod y Cyfnod Silwraidd. Dyddodwyd gwaddodion Hen Dywodfaen Coch de Cymru ar wastatir arfordirol llydan cefnfor a orweddai tua'r de. Mae'r creigiau gwydn hyn yn ffurfio bryniau Gŵyr, megis Rhosili Down ym mhen gorllewinol y penrhyn.

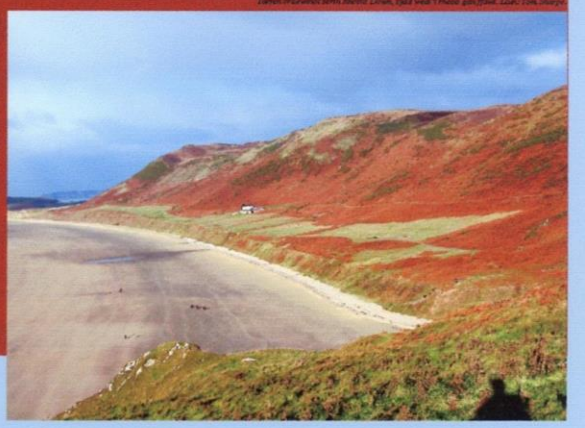


GEOLOGICAL MAP OF GLAMORGAN.
MAP DAEAREGOL O FORGANNWG.

From the Gower peninsula west of Swansea to Penarth near Cardiff, the coast of the old county of Glamorgan displays some wonderful geology. The high cliffs which form much of the coast expose rocks which record changes in climate and environment over a period of over 170 million years. During this time, from the late Devonian Period 370 million years ago to the early Jurassic 200 million years ago, Wales moved from south of the equator to the latitude of the modern Mediterranean. At different times, the area has been a wide coastal plain crossed by large rivers, been submerged beneath a shallow tropical sea, and been uplifted in a hot desert climate.

O Benrhyn Gŵyr i'r gorllewin o Abertawe hyd Benarth ger Caerdydd, mae arfordir hen sir Forgannwg yn dwyn i'r golwg ddaeareg ryfeddol. Mae creigiau r clogwyni uchel, sy'n ffurfio r rhan fwyaf o r arfordir, yn cofnodi newiadau hinoddegol ac amgylcheddol dros gyfnod o 170 miliwn o flynyddoedd. Yn ystod y cyfnod hwn, o ddiwedd y Cyfnod Defonaidd, 370 miliwn o flynyddoedd yn ôl, hyd y Jwrasig cynnar, 200 miliwn o flynyddoedd yn ôl, symudodd Cymru o i suffle i'r de o'r cyhydedd hyd ledred Môr y Canoldir heddiw. At wahanol adegau, bu r ardal yn wastatir arfordirol llydan y llifai afonydd ar ei draws, yn wely môr trofannol bas, ac yn dirwedd ymgodol dan ddylanwad hinsawdd diffeithdir poeth.

Steep, fault-controlled western scarp of Rhossili Down. Photo: Tom Sharpe.
Tarren ar Gwrthol orllewin Rhosili Down, cydd wedi'i rhwng gan ffaut. Llun: Tom Sharpe.



Carboniferous Period

At the start of the Carboniferous Period, the wide coastal plain of the Old Red Sandstone was submerged beneath a warm, shallow sub-tropical sea. Thick deposits of lime-rich debris built up on the sea bed, derived from the shells of creatures such as brachiopods, crinoids and corals. This Carboniferous Limestone is over 1000 m thick on Gower and forms the spectacular cliffs of the south coast of the peninsula. It also occurs around Porthcawl and Ogmore-by-Sea, and forms headlands at Barry and the islands of Flat Holm and Steep Holm in the Bristol Channel.

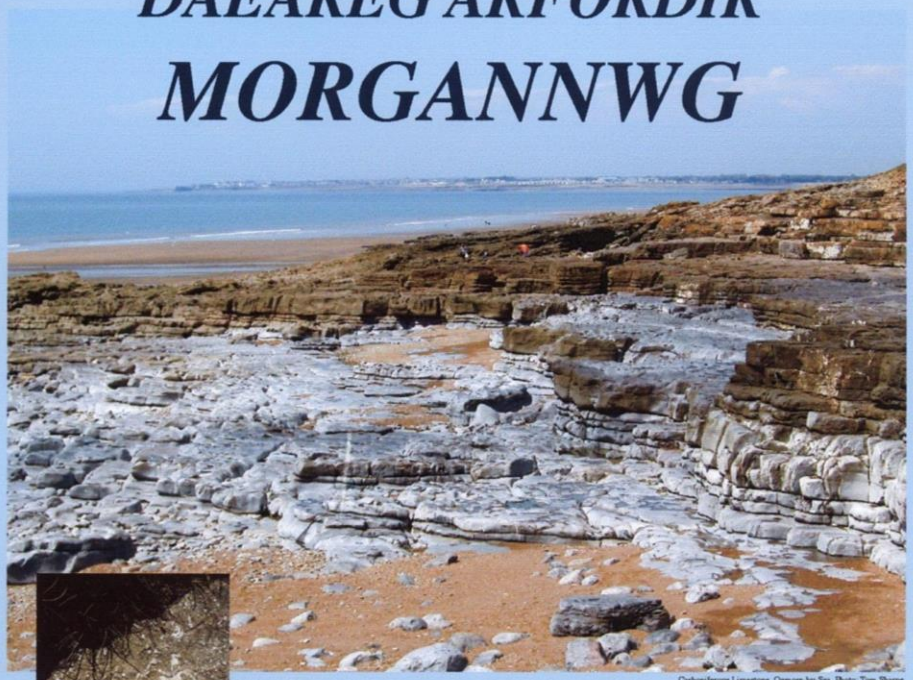
Y Cyfnod Carbonifferaidd

Ar ddechrau'r Cyfnod Carbonifferaidd, roedd gwastatir arfordirol llydan yr Hen Dywodfaen Coch wedi'i foddi dan ddyfroedd môr isdrofannol bas a chynnes. Ymgasglodd gwaddodion trwchus o falurion calchaidd, yn deillio o weddillion braciopodau, crinoidau a chwrelau, ar wely'r môr. Yng Ngŵyr mae'r Calchfaen Carbonifferaidd, sy'n ffurfio clogwyni trawiadol arfordir deheuol y penrhyn, dros 1,000m o drwch. Mae hefyd yn brigo yng nghyffiniau Porth-cawl ac Aberogwr, ac yn ffurfio pentiroedd gerllaw'r Barri ac ynysoedd Echni a Ronech ym Môr Hafren.

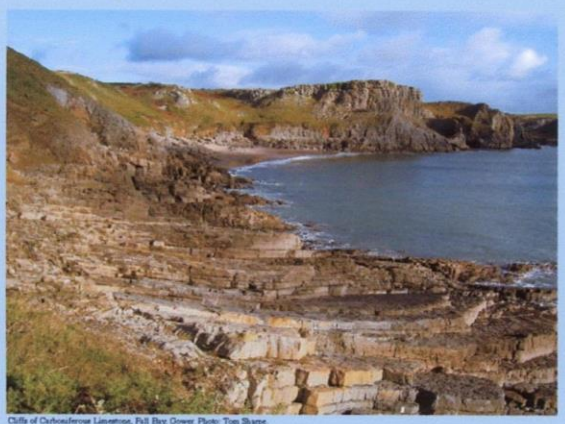
Carboniferous Limestone fossils, Ogmore-by-Sea. (Clockwise from top left) *Delepinea, Siphonophyllia, Michelinia,* and *Syringopora*. Photos: Tom Sharpe.
Ffosilau'r Calchfaen Carbonifferaidd. (Clockwedd o'r uchaf ar y chwith) *Delepinea, Siphonophyllia, Michelinia,* a *Syringopora*. Llunia: Tom Sharpe.

GEOLOGY OF THE GLAMORGAN COAST

DAEAREG ARFORDIR MORGANNWG



Carboniferous Limestone, Ogmore-by-Sea. Photo: Tom Sharpe.
Calchfaen Carbonifferaidd, Aberogwr. Llun: Tom Sharpe.



Cliffs of Carboniferous Limestone, Pall Bay, Gower. Photo: Tom Sharpe.
Clogwyni o Galchfaen Carbonifferaidd, Pall Bay, Gŵyr. Llun: Tom Sharpe.

Fragments of crinoid stems in Carboniferous Limestone, Worm's Head, Gower. Photo: Gerallt Owen.
Darnau o gorsau crinoidau mewn Calchfaen Carbonifferaidd, Pen Pyrod, Gŵyr. Llun: Gerallt Owen.

On Gower, bays have been eroded at Oxwich and Port Eynon where Millstone Grit sediments are preserved in the cores of synclines. The Millstone Grit here is more muddy and much softer than the conglomerates and sandstones which occur in the north of the South Wales Coalfield.

The overlying Coal Measures are soft and poorly exposed around the head of Swansea Bay, but the hard Pennant Sandstone at the top of the sequence forms the steep hills on which Swansea is built.

Yng Ngŵyr, cafodd baeau Oxwich a Phort Einon eu herydu lle y ceir gwaddodion Grut Melinfaen yn brigo yng nghreiddiau synclinau. Yma, mae'r Grut Melinfaen yn fwy mwdlyd ac yn feddalach na'r amryfeini a'r tywodfeini a geir ar gyrion gogleddol maes glo de Cymru.

Meddal yw'r Cystradau Glo gorchuddiol, y ceir brigiadau gwael ohonynt o amgylch glannau Bae Abertawe, ond mae'r tywodfaen Pennant caled ar ben uchaf y dilyniant yn ffurfio'r bryniau serth y codwyd Abertawe arnynt.

Triassic Period

There are no Permian rocks preserved in South Wales, and in the Vale of Glamorgan late Triassic rocks rest with angular unconformity on the Carboniferous Limestone. Most of the Carboniferous sequence, including the upper part of the Carboniferous Limestone, and all of the Millstone Grit, and Coal Measures, including the Pennant Sandstone is missing.

Y Cyfnod Triasig

Nid oes creigiau o'r Cyfnod Permaidd yn brigo yn ne Cymru, ac yn Mro Morganwg ceir anghydffurfedd onglog rhwng y creigiau Triasig diweddaraf a'r Calchfaen Carbonifferaidd oddi tanynt. Mae'r rhan fwyaf o'r dilyniant Carbonifferaidd, gan gynnwys rhan uchaf y Calchfaen Carbonifferaidd, y Grut Melinfaen yn ei grynswth, a'r Cystradau Glo, gan gynnwys Tywodfaen Pennant, yn eisiau.

Horizontal beds of Triassic conglomerate lying unconformably on steeply dipping beds of Carboniferous Limestone on Barry Island. Photo: Tom Sharpe.
Gwely(au) llorweddol o amryfaen Triasig yn gorwedd yn anghydffurfiedig ar wely(au) o Galchfaen Carbonifferaidd ar oleddf serth, Traeth y Barri, Llun: Tom Sharpe.

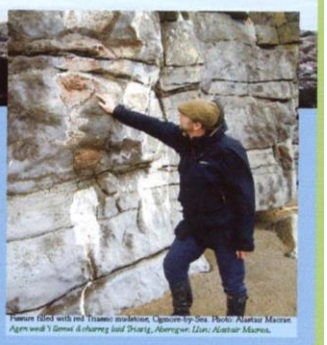
In the **Triassic**, the Vale of Glamorgan was a desert plain with hills of Carboniferous Limestone rising above its surface. The lowest Triassic beds are conglomerates and breccias made up almost entirely of Carboniferous Limestone pebbles. These are flash-flood and scree deposits laid down on the flanks of the limestone hills.

Fissures in the limestone are filled with red Triassic and later sediments. These have preserved reptile and mammal bones.

*Yn ystod y Cyfnod **Triasig**, roedd Bro Morganwg yn wastatir diffeithdir y codai bryniau o Galchfaen Carbonifferaidd uwchlaw iddo. Amryfeini a breciâu sy'n cynnwys cerigos a darnau onglog o Galchfaen Carbonifferaidd yn anad dim yw'r gwelyau Triasig isaf. Gwaddodion fflachlifau a sgri yw'r rhain ac fe'u dyddodwyd wrth odreon y bryniau calchfaen.*

*Mae agennau yn y calchfaen wedi'u llenwi â gwaddodion **Triasig** coch a dyddodion diweddarach, sy'n cynnwys esgyrn ymlusgiaid a mamolion.*

Gypsum nodules in Triassic red and green marls of the Mercia Mudstone Group, Penarth. Photo: Stephen Howe.
Cnepynnau gypsum mewn marlau coch a gwyrdd Triasig Grŵp Carreg Llaid Mercia, Penarth, Llun: Stephen Howe



Fissure filled with red Triassic mudstone, Ogmore-by-Sea. Photo: Alastair Macrae.
Agen wedi'i llenwi â cherrig laid Triasig, Aberogwr. Llun: Alastair Macrae.

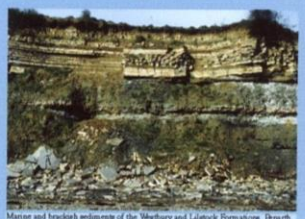
Unconformity between the red Triassic conglomerate and dark grey Carboniferous Limestone, Ogmore-by-Sea. Photo: Tom Sharpe.
Anghydffurfedd rhwng yr amryfeini Triasig coch a'r Calchfaen Carbonifferaidd llwyd, Aberogwr. Llun: Tom Sharpe

Triassic conglomerate with large boulders of Carboniferous Limestone, Ogmore-by-Sea. Photo: Tom Sharpe.
Amryfaen Triasig ac yddo gloghfeini mawr o Galchfaen Carbonifferaidd, Aberogwr. Llun: Tom Sharpe.

Towards the end of the **Triassic** period, the sea gradually advanced across the area, producing at first brackish, and then fully marine sediments.
*Tua diwedd y Cyfnod **Triasig**, ymledodd y môr yn raddol ar draws yr ardal, gan ffurfio gwaddodion dŵr lled hallt yn gyntaf ac yna waddodion morol.*

Further from the limestone contact, the **Triassic** beds are mostly red and green marls of the Mercia Mudstone Group. These contain layers of gypsum nodules precipitated in sediments in and around a large lake or inland sea. Some sandstone beds contain dinosaur trackways.

*Ymhellach o fan cyffwrdd y calchfaen, marlau coch a gwyrdd Grŵp Cerrig Llaid Mersia yw'r gwelyau **Triasig** yn bennaf. Mae'r rhain yn cynnwys haenau o gnepynnau gypswm a waddodwyd mewn gwaddodion ar wely neu o amgylch glannau llyn mawr neu fôr mewndirol. Ceir elion traed deinosoriaid mewn rhai gwelyau tywodfaen.*



Marine and brackish sediments of the Westbury and Lilstock Formations, Penarth. Photo: Stephen Howe.
Gwaddodion morol a dŵr lled hallt Ffurfiannau Westbury a Lilstock, Penarth, Llun: Stephen Howe

Jurassic Period

As the sea spread across the Triassic desert, the hills of Carboniferous Limestone became islands, before eventually being completely submerged. Shallow-water limestones and conglomeratic limestones, such as the Sutton Stone, occur around the shorelines of these islands in the western Vale.

Y Cyfnod Jwrasig

Wrth i'r môr ymledu ar draws y diffeithdir Triasig, ffurfiai'r bryniau o Galchfaen Carbonifferaidd ynysoedd, cyn iddynt gael eu boddi'n gyfan gwbl. O amgylch glannau'r ynysoedd hyn yng ngorllewin Bro Morganwg ceir calchfeini dŵr r bas a chalchfeini amryfaenog megis Carreg Sutton.

Unconformity with Jurassic Sutton Stone resting on an eroded, fluted surface of Carboniferous Limestone, Ogmore-by-Sea. Photo: Stephen Howe.
Carreg Sutton Jwrasig yn gorwedd yn anghydffurfiedig ar wyneb erydog a rhychiog Calchfaen Carbonifferaidd, Aberogwr. Llun: Stephen Howe.

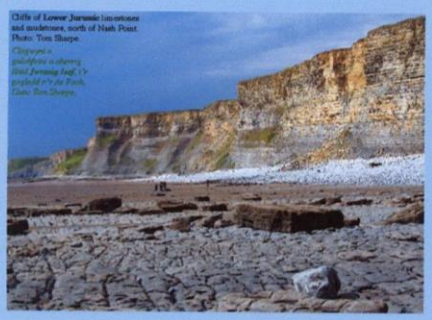
Hall Cliff, Porthkerry, with St Mary's Well Bay Formation at the base, overlain by the Lavernock Shales, with the Porthkerry Formation at the top of the cliff. Photo: Tom Sharpe.
Traeth Highlugwyn y Tarw, Porthceri, mae Ffurfiant Bae Ffynnon y Santes Fair ar y gwaelod, yna Shêlau Larnog, a Ffurfiant Porthceri yn rhan uchaf y clogwyn. Llun: Tom Sharpe.

The high cliffs of the Glamorgan Heritage Coast expose the deeper-water marine limestones and mudstones of the Blue Lias. They are divided into three: the St Mary's Well Bay Formation, the Lavernock Shale Formation, and the Porthkerry Formation*. The Porthkerry Formation underlies much of the plateau of the Vale of Glamorgan.

Mae calchfeini a cherrig llaid morol dyfroedd dyfnach y Lias Glas yn brigo yng nghlogwyni uchel Arfordir Treftadaeth Morganwg. Fe'u rhennir yn dri ffurfiant: Ffurfiant Bae Ffynnon y Santes Fair, Ffurfiant Siâl Larnog a Ffurfiant Porthceri. Mae Ffurfiant Porthceri yn sail i rannau helaeth o Iwyfandir Bro Morganwg.*

The **Jurassic** rocks contain ammonites, bivalves, corals, crinoids, and marine reptiles. Only the lowest four zones of the Lower Jurassic are preserved in South Wales. Younger Mesozoic beds were either never deposited here, or have been eroded away.

*Mae'r creigiau **Jwrasig** yn cynnwys amonitau, cregyn deuglawr, cwrelau, crinoidau ac ymlusgiaid morol. Dim ond pedair cylchfa isaf y Jwrasig Isaf sydd i'w cael yn ne Cymru. Naill ai ni chafodd creigiau Mesosöig mwy diweddar eu dyddodi yma neu fe'u sgubwyd ymaith gan gyfryngau erydol.*



Cliffs of Lower Jurassic limestones and mudstones, north of Nash Point. Photo: Tom Sharpe.
Clogwyni o galchfeini a cherrig llaid Jwrasig Isaf, i'r gogledd o'r Ae Fach, Llun: Tom Sharpe.

Jurassic fossils: *Montlivaltia, Liostrea, Gryphaea* and *Pentacrinites*. Photos: Tom Sharpe.
Ffosilau Jwrasig: (Clorwedd o'r uchaf ar y chwith) Montlivaltia, Liostrea, Gryphaea a Pentacrinites. Llun: Tom Sharpe.

Geological structure

The Palaeozoic rocks were folded and faulted during the end-Carboniferous Variscan Orogeny, mainly on east-west axes. Later Mesozoic earth-movements, related to the opening of the Atlantic Ocean, reactivated these structures. These are cut by northwest-southeast faults which are the continuation of structures on the south side of the Bristol Channel. To the west of Nash Point, these cause a change in the direction of the coastline.

Adeiledd daearegol

Yn ystod yr Orogeni Farisgaidd, ar ddiwedd y Cyfnod Carbonifferaidd, plygwyd a ffawtiwyd y creigiau Palaeosöig, ar hyd echelinau dwyrain-gorllewin yn bennaf. Cafodd yr adeileddau hyn eu hadfywio gan symudiadau daear Mesosöig diweddarach a oedd yn gysylltiedig ag agor Cefnfor Iwerydd. Torrir ar draws y rhain gan ffawtiau gogledd-orllewin-de-ddwyrain, adeileddau y gellir eu holrhain o ochr ddeheuol Môr Hafren.

Anticline in **Carboniferous Limestone**, Worm's Head, Gower. Photo: Tom Sharpe.
*Anticlin mewn **Calchfaen Carbonifferaidd**, Pen Pyrod, Gŵyr. Llun: Tom Sharpe.*

Open syncline in **Jurassic** rocks, Lavernock. Photo: Stephen Howe.
*Synclin agored mewn creigiau **Jwrasig**, Larnog. Llun: Stephen Howe.*

Jurassic rocks cut by faults parallel to the coast north of Nash Point. Photo: Tom Sharpe.
*Ffawtiau sy'n gyfochrog ag arfordir gogleddol yr Ae Fach yn torri trwy creigiau **Jwrasig**. Llun: Tom Sharpe.*

At Tresgin y Wlith, an east-west north-directed fault has brought the massive Sutton Stone against the less competent Lias limestones and mudstones. Photo: Tom Sharpe.
Ger Tresgin y Wlith, mae ffawtiau anghyfeiriadol y gellir ei olrhain o'r dwyrain i'r gorllewin wedi dwyn gwelyau trwchus Carreg Sutton i gysylltiad â chalchfeini a cherrig llaid llai cadarn. Llun: Tom Sharpe.

*Some classifications give these as members. *Mae rhai dosbarthiadau yn cyfeirio atynt fel aelodau.*

Further reading: Howe, S., Owen, G., & Sharpe, T., 2004. ***Walking the rocks: six walks discovering scenery and geology along the Glamorgan coast.*** Cardiff: Geologists' Association South Wales Group, 120pp.
Darllen pellach: Howe, S., Owen, G., a Sharpe, T., 2004. ***Walking the rocks: six walks discovering scenery and geology along the Glamorgan coast.*** Caerdydd: Cymdeithas y Daearegwyr Grŵp De Cymru, t.120.

GEOLOGISTS' ASSOCIATION - SOUTH WALES GROUP

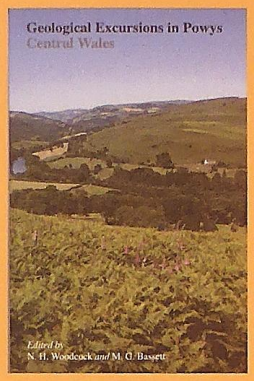
CYMDEITHAS Y DAEAREGWYR - GRŴP DE CYMRU

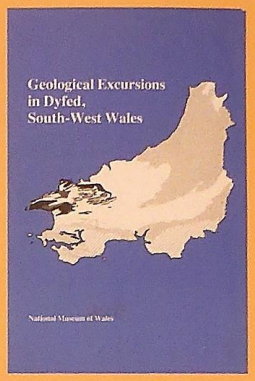
The South Wales Group of the Geologists' Association promotes geology in South Wales through lectures, field meetings and publications. Membership is open to **anyone with an interest in geology**.

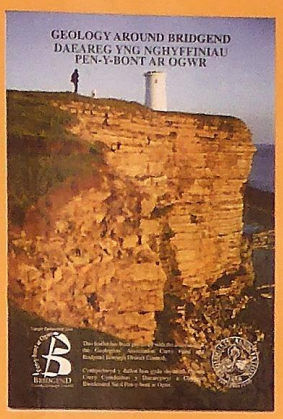
Mae grŵp De Cymru o Gymdeithas y Daearegwyr yn hyrwyddo Daeareg yn Ne Cymru trwy gyfrwng darlithoedd, cyfarfodydd maes a chyhoeddiadau. ***Mae modd i unrhyw un sydd â diddordeb mewn daeareg ddod yn aelod.***

Regular lecture meetings are held at Cardiff and Swansea Universities. Topics cover all aspects of geology and are suitable for all levels of knowledge. Light refreshments beforehand allow members to chat and socialise. At an annual *Holiday Geology* meeting, held at the National Museum of Wales, members show their own slides and specimens in a highly informal and friendly setting.

Rydym yn cynnal darlithoedd rheolaidd yn Mhrifysgolion Caerdydd ac Abertawe. Mae'r pynciau yn ymdrin â phob agweddi ar ddaearyg, ac yn addas ar gyfer pob lefel o wybodaeth. Cewch gyfle hefyd i sgwrsio a chymdeithasu cyn y ddarlith dros funiaeth ysgafn. Rydym hefyd yn cynnal cyfarfod blynyddol o dan yr enw Daeareg Gwyliau yn Amgueddfa Genedlaethol Cymru. Bydd yr aelodau yn dangos eu sleidiau a'u sbesimenau eu hunain mewn cyd-destun hynod o anffurfiol a chyfeillgar.

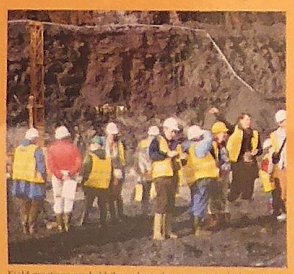






The Group produces its own publications to cater for a range of geological ability. These include country-wide field guides, geological booklets, and guided walks leaflets to local areas of interest.

Mae'r Grŵp yn cynhyrchu ei gyhoeddiadau ei hun, sy'n cwrdd â gofynion daearyddiaeth ar bob lefel. Mae'r rhain yn cynnwys llawlyfrau maes ar gyfer pob rhan o Gymru, llyfrynnau daearegol, a thaflenni sy'n sôn am deithiau tywys i fannau lleol sydd o ddiddordeb i ddaearegwyr.



Field meetings are held throughout the year, particularly in spring and summer. They vary from half-day to weekend excursions and visit a wide range of localities. They enable members to collect fossils and minerals and there is usually expertise on hand to help with identification!

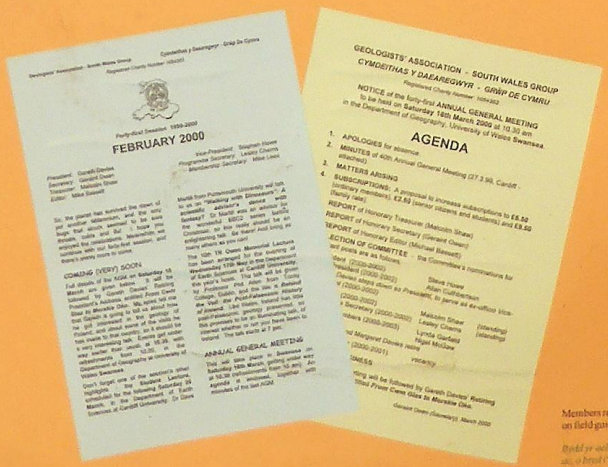
Rydym yn cynnal cyfarfodydd maes trwy gydol y flwyddyn, yn arbennig yn y gwanwyn a'r haf. Mae'r rhain yn amrywio o deithiau hanner-diwrnod i deithiau penwythnos ac yn ymweld ag amrywiaeth o wahanol ardaloedd. Dyma gyfle i'r aelodau gasglu ffosiliau a mineralau – fel arfer bydd arbenigwr wrth law i'ch helpu i adnabod sbesimenau!

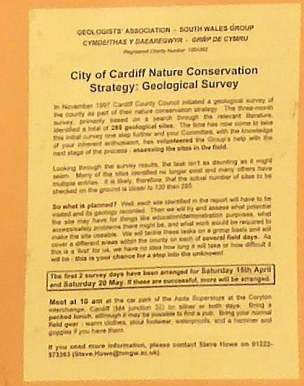
The Group participates in local and national festivals, notably the Welsh National Eisteddfod and the national Geologists' Association Reunion, with displays and geological demonstrations.

Mae'r Grŵp yn cymryd rhannau mewn gwyliau lleol a cheneddlaethol, yn arbennig yr Eisteddfod Genedlaethol ac Adunoad Cymdeithas Genedlaethol y Daearegwyr.

The Group collaborates with the South Wales RIGS movement and members are encouraged to help with filed surveys and site assessments as well as getting their hands dirty with site clearance projects.

Mae'r Grŵp yn cydweithio â mudiad RIGS De Cymru ac mae'n annogir aelodau i helpu gydag arolygon maes ac asesiadau o safleoedd, heb sôn am orfod dipio o ran brwsio wrth fynd i'r afael ã phrojectau eraill.





Members receive regular mailings, which include a *Newsletter* and occasional special offers on field guides and other publications.

Bydd yr aelodau yn derbyn gohebiaeth drwy'r post yn rheolaidd, gan gynnwys cylchlythyr ac, o bryd i'w gilydd, gynigion arbennig ar lawlyfrau maes a chyhoeddiadau eraill.

Does this interest you? If so, come along and see for yourself. For full details on current membership rates please take one of our Membership Forms.

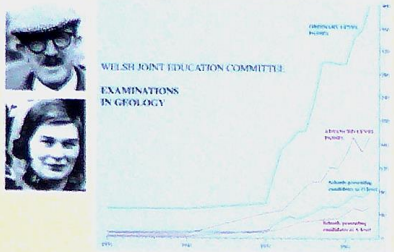
Ydy hyn o ddiddordeb i chi? Os felly, dewch heibio i weld beth hudwn ei gynnig i chi. Mynnwch un o'n Ffurflenni Aelodaeth i gael gwybodaeth cyfredol.

Produced with financial support from the Geologists' Association Cymru Fund

CYMDEITHAS Y DAEAREGWYR - GRŴP DE CYMRU

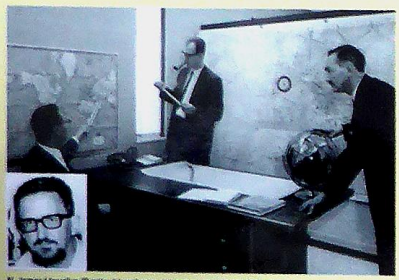
GEOLOGISTS' ASSOCIATION - SOUTH WALES GROUP

DETHOLIAD O DDAEAREGWYR O LANELLI A'R CYFFINIAU
A SELECTION OF GEOLOGISTS FROM LLANELLI AND THE ADJACENT AREA



Roedd D. Emlyn ("Doldi") Davies (1880-1967) o Florestfach, a Gaynor E. Evans (Llewis bellach) o Bontardulais – c. 1926 yn achos y naill a 1933 yn hanes y llall – yn athrawon daearyd arbenigol yn Ysgolion Sir y Bechgyn a'r Merched yn Llanelli. Rhoesant gychwyn llwyddiannus ar brosiec a gynhychodd, rhwng y 1930au canol a'r 1980au hwyr, tua 140 o raddedigion prifysgol mewn daearyd yn cynnwys dros pem a dyfarnwyd iddynt raddau anrhydeddol. Aeth nifer fawr o'r disgyblion yn eu blaen i fod yn ddaearegwyr proffesiynol ac yn athrawon yn y pwnc.

D.Emlyn ("Doldi") Davies (1880-1967) of Florestfach, and Gaynor E.Evans (now Leavis) of Pontardulais were, from 1926 and 1933 respectively, the pioneer teachers of geology at the Boys' and Girls' County Schools in Llanelli. They successfully started a process which produced, between the mid 1930s and the early 1990s, some 140 university graduates in geology, including over one hundred with Honours degrees. A large proportion of the pupils became professional geologists and teachers of the subject.

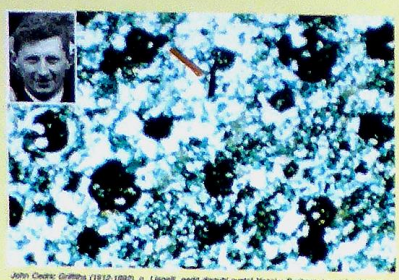


N. James Llewellyn (Bentley-Llewellyn yn ddiweddarach) (1917-1998) o Pottery Street oedd y cyntaf o lond dwrn o ddisgyblion Llanelli i ddilyn gyrfa fel geofflaegydd proffesiynol (fe'i gwelir yma (dde) yn swyddfeydd Century Geophysical Corporation, Tulsa, Oklahoma). Mae'r map ar fur y swyddfa yn adlewyrchu natur rynglobol gwaith y cwmni.

N. James Llewellyn (later Bentley-Llewellyn) (1917-1998) – of Pottery Street – (here shown (right) in the office of the Century Geophysical Corporation in Tulsa, Oklahoma), was the first of the small handful of Llanelli pupils to become a professional geophysicist. The map on the wall of the office reflects the international nature of the firm's work.

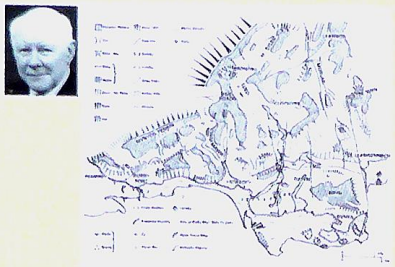
Roedd Emily Dix (1904-1973) o Ben-clawdd yn un o gyfoedion T.N. George yng Ngholeg y Brifysgol, Aberteifi. Arbenigai ym maes astudio molysgiaid ffosil a fflora ffosil y Cystradau Glo, yn gyntaf pan oedd yn Gynorthwy-ydd Ymchwil i'r Athro A.E. Trueman yn Abertawe ac yna yn Ddarlithydd yng Ngholeg Bedford ar gyfer Gwragedd, yn Llundain.

Emily Dix (1904-1973) of Pencelwedd was a contemporary of T.N.George at the University College of Swansea. She specialised in the study of the fossil molluscs and the fossil flora of the Coal Measures, first as a Research Assistant to Professor A.E.Trueman at Swansea and then as Lecturer in the Bedford College for Women in London.



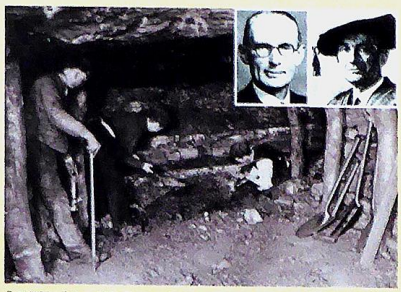
John Cedric Griffiths (1912-1992), o Llanelli, oedd disgybl cyntaf Ysgol y Bechgyn i astudio daearyg ar gyfer y Dystysgrif Ysgol Uwch. I gael ei ddenbyn gan Goleg y Brifysgol, Aberteifi, ac i fynd yn ddaearegwr-da proffesiynol. Gyda diddordeb o'r cychwyn mewn mwynoleg a phetrografiaeg, gwelhiedd yn gyntaf yn y diwydiant olew a nwy ac yna yn Mhrifysgol Pennsylvania. Yno, cafodd ei gydnabod gan lewer yn arbenigwr mewn daeareg fathemategol a'r benodi'n Athro yn 1957.

John Cedric Griffiths (1912-1992) of Llanelli, was the first pupil from the Boys' School to study geology for the Higher School Certificate, to enter University College, Swansea and to become a professional geologist. Interested from the beginning in mineralogy and petrography, he worked first in oil and gas and then in the University of Pennsylvania. There he became a widely recognised expert in mathematical geology and was appointed a Professor in 1957.



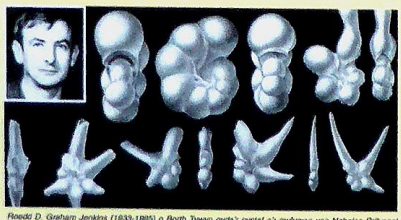
David Q. Bowen yw'r unig ddisgybl o Ysgol y Bechgyn, Llanelli, i arbenigo mewn geomorffoleg a daearyg Gwaternaidd a dilyn gyrfa broffesiynol yn y maysydd hyn. Ar hyn o bryd mae'n Athro yn y pynciau hyn yn Mhrifysgol Caerdydd. Mae'r darlun, o'r gyfrol The Llanelli Landscape (1980), yn dehongli tirffurfiau cyffiniol y dre.

David Q. Bowen is the only pupil from the Boy's School at Llanelli to specialise in geomorphology and Quaternary geology in a professional capacity. He is currently a professor in these subjects at the University of Cardiff. The illustration, taken from his book The Llanelli Landscape (1980), interprets the landforms of the area immediately around the town.



Roedd William R. Jones (1880-1970) (chwith) a David W. Phillips (1899-1963) yn teilwion glowyr a weithiodd yn y pyllau glo i ennill arian er mwyn sicrhau addysg brifysgol. O Felin-foel, Llanelli, y deuai William Jones ac i ddechrau bu'n ddaearegydd mwynglodda nasnachol yn y Dwyrain Pell ac yna'n Athro mewn prifysgol. Roedd yn arloesw ym maes astudio llwch yn ysgyfaint glowyr de Cymru a mwynwyr nur ardal Witwatersrand yn Ne Affrica. Deuai David Phillips o Dy-croes, Rhydaman, ac roedd yn beirianneydd ac yn ddisgreyddd ar staff Bwrdd Ymchwil Diogelwch mewn Meyngloddiau yn Mhrydain cyn iddo ddarbyn Cadair Dasareg Gymhwysol yn y Brifysgol Dechnegol newydd yn Ne Cymru Newydd.

William R. Jones (1880-1970) (left) and David W. Phillips (1899-1963) were both sons of coal miners who worked in the mines to raise money for a university education. The former, from Felinfoel, Llanelli, was initially a commercial mining geologist in the Far East and then a university professor. He was a pioneer in the study of the dust in the lungs of coal miners from South Wales and gold miners in the Witwatersrand in South Africa. The latter, from Ty Croes, Ammanford, became an engineer and geologist with the Safety in Mines Research Board in this country before accepting the Chair of Applied Geology in the new Technical University in New South Wales.

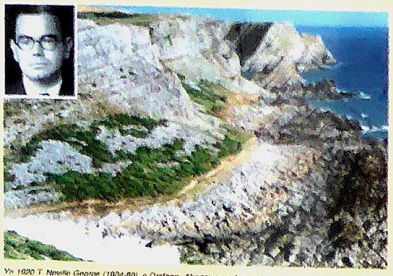


Roedd D. Graham Jenkins (1933-1985) o Borth Tywyn gyda'r cyntaf o'r mylnwyr yng Ngholeg Prifysgol Cymru, Aberystwyth, i arbenigo ym maes astudio ffosilau bychain hynny, y foraminiffera, a'r cyntaf o gyr bach o ddisgyblion o Ysgol y Bechgyn, Llanelli, i fynd yn micropaleontologwr. (Mae tri ohonynt o Borth Tywyn, yn cynnwys ei frawd Huw!) Aeth ei waith ymchwil academaidd a masnachol ag ef i Awstralia a Seland Newydd, gwaith oedd yn golygu mordeithiau ar longau ymchwil gefnfor.

D. Graham Jenkins (1933-1985) of Burry port was one of the very first students at the University College of Wales, Aberystwyth to specialise in the study of the minute fossils Foraminifera, and the first of a small group of pupils from the Boys' School, Llanelli to become a professional micropaleontologist. (Three of these are from Burry Port, including his brother Huw!). His research work took him to Australia and New Zealand, in both the commercial and the academic field, and involved voyages on deep-sea research vessels.

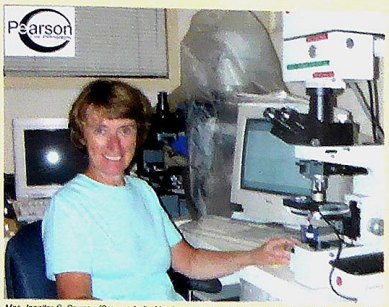
Daviz E. Thomas (1902-1978) o Rydaman oedd gyda'r cyntaf i reddio ag anrhydedd mewn daearyg yng Ngholeg Prifysgol Cymru, Aberystwyth (lle y dylanwyd ddo yn ngystal raidd anrhydedd mewn Daearyddiaeth ac Anthropoleg). Am y rhan fwyaf o'i fywyd cafodd e gyflogi fel syrfiwr daearegol a mwynglodduau yn ei wlad fabwysiadig, Awstralia, yn enwedig yn rhaleth Victoria. Ymhlith pethau eraill, cfi ei gydnabod yn awdurdod byd-eang ar y ffosil eraptwlig hwnnw, y graptolit (a gefodd ei gyflwyno ddo yn y blynnau sy'n gefndir i Aberystwyth gan ei athrawon prifysgol).

David E. Thomas (1902-1978) of Ammanford was one of the first Honours graduates in geology at the University College of Wales, Aberystwyth (where he was also awarded an Honours Degree in Geography and Anthropology). He was employed throughout the greater part of his life as a geological and mine surveyor in his adopted country, Australia, particularly in Victoria. Among other things he was recognised as a world authority on the enigmatic fossil, the graptolite (which his university teachers had introduced him to in the hills behind Aberystwyth).



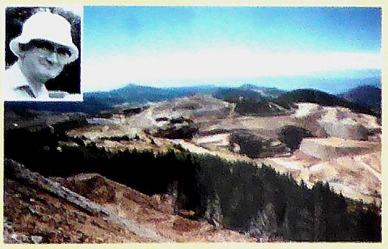
Yn 1920 T. Neville George (1904-88), o Drefoys, Abertawe, oedd y mylnwr cyntaf astudio daearyg yng Ngholeg y Brifysgol, Abertawe, oedd newydd gael ei sefydlu. Hynwyddai ddysgu'r pwnc yn Llanelli ac mewn ysgolion eraill yn ne Cymru yn ennendig rhwng 1933 a 1947 pan oedd yn Athro Daearyg yn Abertawe. Cyfranneodd yn fwy fathyn at waith Cymdeithas Addysg y Gweithwyr a dosbarthiadau allanol y brifysgol yn ardal. Yn ednabyddus gan lawer fel athro rhagorol, er bell fwy ymchwil oedd Cyhwe y Calchfaen Carbonifferaidd a'i ffosilau.

T. Neville George (1904-1988), of Morriston, Swansea was, in 1920, the first student in geology at the newly created University College of Swansea. He actively supported the teaching of the subject at Llanelli and at other schools in South Wales, particularly from 1933 to 1947 when he was Professor at Swansea. He also enthusiastically contributed to the work of the WEA and the University's Extra-Mural classes in the district. Widely known as a very fine teacher, his main research work was in the Carboniferous Limestone Series and its fossils.



Mae Jennifer S. Pewsey (Pearson bellach) o Llangennech yn un o blith tair ar ddeg o ferched o ysgolion Llanelli a raddiodd mewn daearyg. Er 1980 mae Jennifer a'r (y naill a'r lall yn raddedigion Abertawe) wedi darparu gwasanaeth petrografiaeg arbenigol ar gyfer diwydiant glo gelaeg Gogledd America ac mae ganddynt labordai yn British Columbia a Chicago. Ceir manylion ai au safleoedd.

Jennifer S. Pewsey (now Pearson) of Llangennech, is one of the twenty-three women graduates in geology from Llanelli schools. Jennifer and her husband (both Swansea graduates) have, since 1980, provided a sophisticated petrographic service for the coking-coal industry in North America with laboratories in British Columbia and in Chicago. Details are given on their web-pages.



Mae William D. Stephens a Jeffrey M. Watkins yn ddau ymhlith nifer fach o ddisgyblion Llanelli sydd wedi treulio eu gyrfaoedd ar eu hyd yn y diwydiant mwynglodda metelau. Mae'r cyntaf o'r ddau, a ddechreuodd o yna yn 1955 gan weithio yn bennaf i'r Anglo-American Co. a Charter Consolidated plc, wedi archwilio amrywiaeth mawr o safleoedd yn Ewrop, dalleudir Affrica, y Dwyrain Canol, De a Chanolbarth America, Canada ac Awstralia. Mae Jeffrey Watkins, a ddechreuodd weithio yn 1968, wedi bod a'r staff De Beers fyth oddi ar hynny, yn Angola i ddechrau ac yna yn Brasilia yn yr'ol i pedair blynedd ar hugain diweddar. A hyn o bryd, ef yw rheolwr ymchwilio'r De America y cwmni a Llywydd De Beers (Brasil), hynny yw, Sociedade Pesquisa é Exploracao de Minerios, S.A.!

William D. Stephens (in photo) and Jeffrey M. Watkins are two of the small number of Llanelli pupils who have spent the whole of their careers in metalliferous mining. The former, starting in 1955, and working mostly with the Anglo-American Co. and Charter Consolidated plc, has explored a large variety of sites in Europe, Southern Africa, the Middle East, South and Central America, Canada and Australia. The latter, starting in 1968, has been with De Beers throughout, initially in Angola and, for the last twenty-four years, based in Brasilia. He is currently the company's exploration manager for South America and the President of De Beers (Brazil) – i.e. Sociedade Pesquisa é Exploracao de Minerios, S.A.!

Roedd T. Ellis Lloyd (1932-1991), cyn ddisgybl Ysgol y Gwaith Copar, yn un ymhlith nifer o Ysgol Sir y Bechgyn a ddaeth yn athro daearyg. Yn ddiweddiyddi mwynglawdd yn Zambia i ddechrau, ac wedyn ar ddeng ddyneidd ar hugain, yn athro daearyg yn King Edward VI Five Ways School, Birmingham.

Yn ddiyn ei farwolaeth sydyn ac annisgwyl, comisiynodd yr ysgol ei frawd Alan i gynllunio a gwneud panel-seramag mawr i'w hoeglan yng Nghanolfan y Chweched Dosbarth. Mae'r cytlynnied yn darllen fel a ganlyn: "Ellis Lloyd – geologist, sailor, rugby enthusiast and sympathetic listener"

T. Ellis Lloyd (1932-1991), a pupil of Copperworks School, was one of the many from the Boys' County School who became a teacher of geology. Initially a mine geologist in Zambia he was, for thirty years, a teacher of geology at King Edward VI Five Ways School, Birmingham.

Following his sudden and unexpected death, the School commissioned his brother Alan to design and make a large ceramic panel to hang in the Sixth Form Centre. The dedication reads "Ellis Lloyd – geologist, sailor, rugby enthusiast and sympathetic listener"

Cynhyrchwyd trwy gymorth nawdd gan Bwrdd Elusennau 'r Loteri Genedlaethol.

Produced with financial support from the National Lottery Charities Board.

GEOLOGISTS' ASSOCIATION – SOUTH WALES GROUP

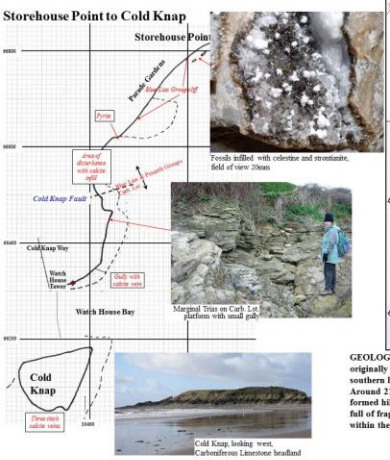
CYMDEITHAS Y DAEAREGWYR – GRŴP DE CYMRU

Minerals of Barry Island and adjacent areas

THE RUSSELL SOCIETY WALES AND WEST

CYMDEITHAS RUSSELL CYRMU A'R GORLLEWIN

Storehouse Point to Cold Knap

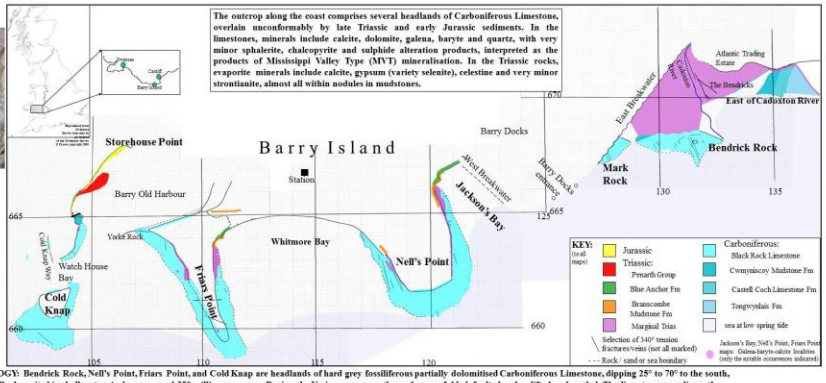


Fossils infilled with celestine and strontianite, field of view 20mm

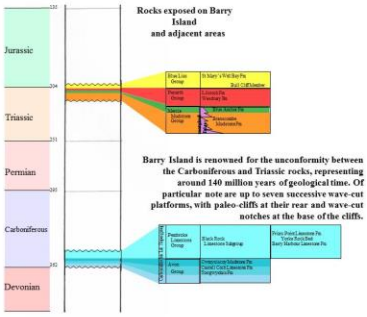
Marginal Trias on Carb. Lst platform with small gully

Cold Knap, looking west, Carboniferous Limestone headland

The outcrop along the coast comprises several headlands of Carboniferous Limestone, overlain unconformably by late Triassic and early Jurassic sediments. In the limestones, minerals include calcite, dolomite, galena, baryte and quartz, with very minor sphalerite, chalcopyrite and sulphide alteration products, interpreted as the products of Mississippi Valley Type (MVT) mineralisation. In the Triassic rocks, evaporite minerals include calcite, gypsum (variety selenite), celestine and very minor strontianite, almost all within nodules in mudstones.



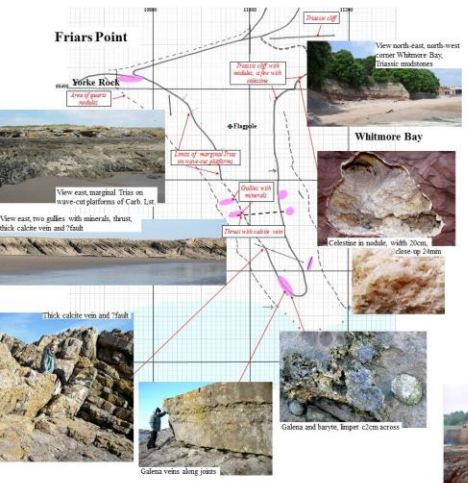
Geological time scale and stratigraphy



Barry Island is renowned for the unconformity between the Carboniferous and Triassic rocks, representing around 140 million years of geological time. Of particular note are up to seven successive wave-cut platforms, with paleo-cliffs at their rear and wave-cut notches at the base of the cliffs.

GEOLOGY: Bendrick Rock, Nell's Point, Friars Point, and Cold Knap are headlands of hard grey fossiliferous partially dolomitised Carboniferous Limestone, dipping 25° to 70° to the south, originally deposited in shallow tropical seas around 350 million years ago. During the Variscan orogeny the rocks were folded, faulted and uplifted and eroded. The limestones now lie on the southern limb of a local east-west anticline. They are crossed by many later 340° to 360° vertical tension fractures; some show movement and many are varyingly infilled with calcite.
Around 215 million years ago, during the late Triassic, the area now lay on the north margin of a large inland hypersaline lake, in an arid to semi-arid climate. The Carboniferous Limestone formed hills and/or islands. From time to time the lake level rose, resulting in a succession of wave-cut platforms with paleo-cliffs behind. Rock falls are preserved as breccias ("marginal Trias") full of fragments of Carboniferous Limestone on these platforms. The red coloured beds overlying and extending laterally from the marginal Trias were deposited as fine grained muds and silts within the lake. The lake was invaded by seawater around 205-210 million years ago, the hills/islands eventually becoming completely buried by very late Triassic to early Jurassic sediments.

Friars Point



View north-east, north-west corner Whitmore Bay, Triassic mudstones

View east, marginal Trias on wave-cut platforms of Carb. Lst

View east, two gullies with minerals, thrust, thick calcite vein and ?fault

Celestine in nodule, width 20cm, close-up 24mm

Thick calcite vein and "fault"

Galena and baryte, limpet c2cm across

Galena veins along joints

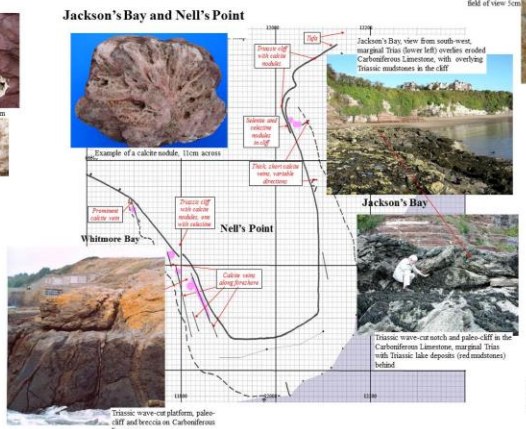
EVAPORITE MINERALS: Gypsum nodules developed in soils close to the Triassic hypersaline lake. The gypsum has subsequently been altered, mainly to calcite, but occasionally gypsum (variety selenite) and strontium minerals (celestine and very minor strontianite) can still be found in the nodules, mainly on the north-west sides of both Jackson's Bay and Whitmore Bay. The three photo examples to the right are all from the north-west corner of Jackson's Bay.

White-buff celestine, field of view 11cm

Selenite, field of view 16cm

Blue celestine, field of view 5cm

Jackson's Bay and Nell's Point



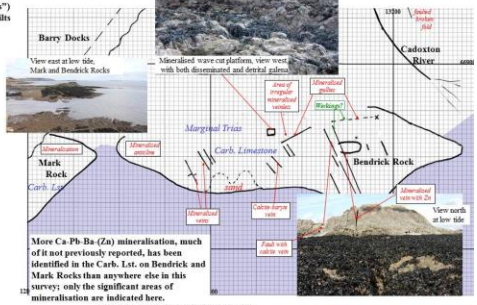
Example of a calcite nodule, 11cm across

Jackson's Bay, view from south-west, marginal Trias (lower left) overlies eroded Carboniferous Limestone, with overlying Triassic mudstones in the cliff

Triassic wave-cut platform, paleo-cliff and breccia on Carboniferous limestone

Triassic wave-cut notch and paleo-cliff in the Carboniferous Limestone, marginal Trias with Triassic lake deposits (red mudstones) behind

Bendrick Rock



View east at low tide, Mark and Bendrick Rocks

Mineralised wave cut platform, view west, with both disseminated and dentral galena

View north at low tide

More Ca-Pb-Ba-(Zn) mineralisation, much of it not previously reported, has been identified in the Carb. Lst. on Bendrick and Mark Rocks than anywhere else in this survey; only the significant areas of mineralisation are indicated here.

MISSISSIPPI VALLEY TYPE (MVT) MINERALISATION

In the area around Barry Island, minerals interpreted as the products of MVT mineralisation include calcite, dolomite, galena and baryte, with varying amounts of quartz plus very minor sphalerite, pyrite and chalcopyrite. They are found mostly in the Carboniferous Limestone, very occasionally in the base of the marginal Trias. They are most prominent on Bendrick Rock and Mark Rock, less so further west. The mineralisation occurs in several forms, such as veins in the 340° tension fractures, irregular veinlets and disseminations, and appears to be of both pre late-Triassic and post-Triassic in age. The three photo examples shown here are all from Bendrick Rock.

In general, MVT deposits consist typically of baryte, calcite, sphalerite, galena and fluorite veins and replacement bodies, precipitated from low-temperature, highly saline metalliferous brines expelled from deep sedimentary basins. They are found typically within limestone districts, with minerals precipitated when the brines react with limestone, dissolving it and replacing it. In the South Wales-Mendip orefield, mineral deposits of this type have been worked at several localities over the last two millennia, some sites being relatively large, others very small.

Calcite and pink cockscomb baryte, Field of view 2cm across

FAULT ZONE: Notable differences in the age, dip, fractures, and mineralisation in the Carboniferous Limestone east and west of the Cadoxton River suggest a reactivated 340° fault zone just east of the river, of pre- and post-late Triassic age.

Sphalerite, galena and baryte, field of view c7mm

Irregular veinlets of galena, compass 10cm long

This poster gives a summary of the study: Garfield, L.P. and Wellings, D.S. (2008). Minerals of the Glamorgan coast : Barry Island and adjacent areas. *The Russell Society Wales and West*, 92pp. **The main object of the study was to find mineral localities on Barry Island and adjacent areas, to identify the minerals as far as possible, and to record their location. It involved a significant amount of literature searching to locate previous mineral finds (not all of which are now identifiable or accessible), and an extensive field survey from 2004 to 2008. The locations and maps determined in the field survey were recorded by GPS and photographs.**

South Wales RIGS

Geoconservation

South Wales RIGS Group Project

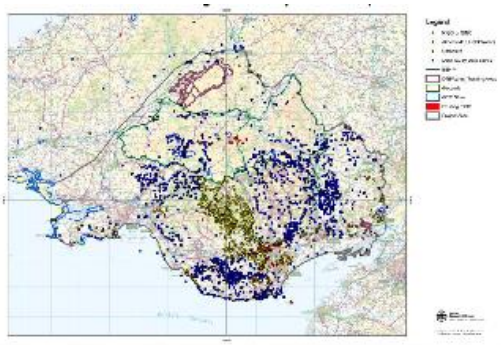
What are RIGS?

Protected through local authority planning system, RIGS are selected for their scientific, educational, historical and aesthetic values:

- **Scientific** sites are important for ongoing research in the Earth sciences
- **Educational** sites provide and outdoor geological classroom for all ages and abilities
- **Historical** sites demonstrate the importance of geology in archaeological and historical constructions, the development of geology as a science and commemorate the outstanding contributions of important geologists.
- **Aesthetic** sites demonstrate the importance of geology to understanding and appreciating some of our cherished landscapes and scenery

South Wales RIGS project draws together experts, students of geology and communities to contribute to our understanding and conservation of our geological heritage.

This project is funded by: the Aggregates Levy Sustainability Fund / Arlennir gan Gronfa Gynaliadwyedd yr Ardoll Agregau



Project Area and distribution of potential sites identified in desk study to date (as of September 2009 3525 sites identified)

Procedure

Identification of Sites

Literature Search
Personal Communication
Populate Spreadsheet

REVIEW

Initial Site Visit

Does the site still Exist?
Review Access
Further Examination?
Review of geology
Complete Site Visit Form

REVIEW

RIGS Write-Up

Review of geology by specialist
Population of background information
Write up RIGS Summary Form

Framework

Volunteers have been drawn mainly from the South Wales Geologists Association who will visit sites. Experts are drawn from BGS, the National Museum of Wales, CCW and Cardiff University and others to form a framework of people who can contribute experts and amateurs and students learning through field work.

Deliverables

The major deliverable of this 3 year project is the identification of a set of sites across the region which best defines our local geology so that they can be protected as RIGS. The steps required to do this will have a number of valuable spin offs:

- A detailed evaluation all of the sites of geological interest in the region
- A detailed bibliography of literature relating to the geology of south Wales.
- A network of people who are involved in modern geological interpretation of South Wales
- A standard lithostratigraphic frame work for the region

Progress To Date

- 3525 Potential sites identified to date
- 917 Sites already visited
- 247 Sites presently allocated to field workers
- 92 potential RIGS and SINC sites identified to date

Cardiff County Council

The South Wales RIGS Project with Volunteers from the South Wales Geologists' Association is about to complete its audit of RIGS and SINCs within the county of Cardiff, based on an initial study by Cardiff University.

The study involved visiting almost 300 sites which identified 18 RIGS and 20 SINC's as well as providing summaries of existing SSSI's and GCR sites.

This data will be used to inform the councils Local Development Plans and its interpretation will be included in local walks leaflets produced by the council.

Standardised data recording

Database of Site Data

Volunteer Training Documents

Strategy documents

WWW.SWRIGS.ORG.UK – South Wales RIGS Website

FFOREST FAWR GEOPARK

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

South Wales RIGS

Geoconservation

Geologists' Association South Wales Group – Cardiff RIGS

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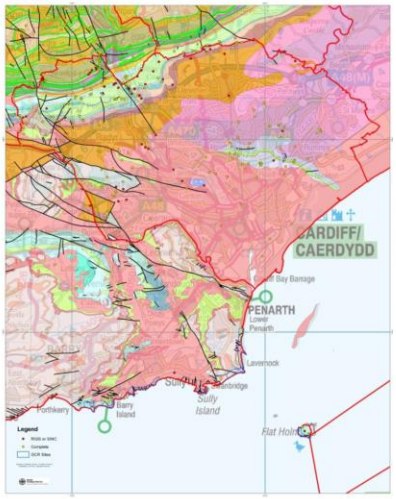
Cardiff County Council - Distribution of Sites



Garth Iron Mines

Lesser Garth Cave

Sink Hole at Craig Llanishen

Porthkerry Member at Coedbychan Quarry

Junction between Devonian and Carboniferous, including the Rhwebina Ironstone

The type section for Llanishen Conglomerate at Llanishen Railway Station

Quartz Conglomerate at Craig Llanishen

Brownstone Formation at Thornhill Road

St Maughans Formation at Cefn Mably Woods

Raglan Mudstones at Llandaff Weir

RADYR STONE - Mercia Mudstone Group (Marginal Facies) sites in Cardiff: Western Ave, Plymouth Woods, Llandaff Weir and Radyr

Rhonddda Beds in the Lower Pennant at Craig Gwilym

Lower Coal Measures at the Penllrych Brickworks

Hunts Bay Subgroup at Creigiau Quarry

Pembroke Limestone Group at Blaengwynlais

Castell Coch Limestone at its type locality

Flat Holm

Cwmyniscoy Formation at Cefn Gane

Disused haematite Mine in Avon Group Limestones

Geology of Cardiff told by RIGS, SINCS and GCR Sites

The following network of sites were identified by the South Wales Geologists' Association as the best in the county of Cardiff. Along with existing GCR and SSSI and National Nature Reserves, the sites have been chosen to illustrate the stratigraphy and geological features of the county.

RIGS

Cefn Mably Woods
Llanishen Railway Station
Thornhill Road
Craig Llanishen
Tongwynlais – Castell Coch View
Castell Coch Quarry
Cefn Garw Quarry
Blaengwynlais Quarry (Bwlch-y-Cwm)
Creigau Quarry
Georgetown
Craig Gwilym
Radyr Quarry
Plymouth Great Wood
Llandaff Weir
Western Avenue
Coedbychan Quarry
Fforest Fawr
Garth Wood Mine
Craig Llanishen Sink Hole
Lesser Garth Cave

Sites of Importance for Nature Conservation (SINC's)

Michaelstone-super-Ely
Nant Transh yr hebog
Tongwynlais
Craig Llanishen
Maes Mawr
Pentwyn Farm Quarry
Garth Wood Quarry
Garth Hill
Plymouth Great Woods
Llandaff Fields
St Fagans
Radyr
Little Garth Hill
Nant Gwynlais
Craig Llanishen Sink hole
Fforest Fawr
Nant Cwmnofedd
Rhymney River
Velindre Bluff

Exisiting SSSI's and LNR's

Coed-y-Wenallt
Tongwynlais
Taff Gorge Quarry
Howardian Local Nature Reserve

GCR

Rumney Quarry
Penylan Quarry
Rhymney River
Tongwynlais
Ton Mawr Quarry
Flat Holm Island

www.swrigs.org.uk

Partners of the South Wales RIGS Project

50 years of the Geologists' Association South Wales Group

Fieldtrips
Fieldtrips have always been an important part of the Group's programme. The first field meeting was held on 9 April 1960. Trevor Thomas, a geologist working for the Ministry of Housing in Cardiff, led the Group to localities in the Vale of Glamorgan. Three more excursions, to the Vale of Neath, Chepstow, and the Llandeilo-Llandovery area, were also held in the spring of 1960.


1961 Newgale


1965 Aberaeron


1984 Clevedon


1974 Porthclais


2007 Nash Point


1991 Marros


2005 Black Mountains


2005 Newport


2006 Flat Holm

2009 Burrington Combe

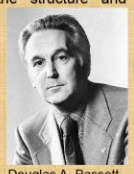
Geoconservation
In recent years, the Group has become more involved with geoconservation, beginning with a geological site survey for Cardiff County Council. Fieldtrips identified about 30 potential RIGS within the Cardiff area. The Group is now an active partner in the Southeast Wales RIGS project, a Welsh Assembly Government Aggregate Levy Sustainability Funded project led by BGS Cardiff Office.

www.swga.org.uk

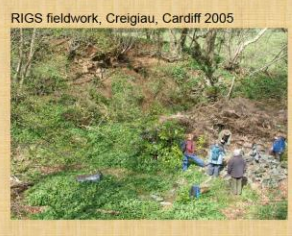
The South Wales Group of the Geologists' Association held its first lecture meeting in Cardiff on 23 January 1960 when GA President Prof David Williams of Imperial College spoke on mineral prospecting. The SWGA was the third of the GA's local groups to be established. Since then, the SWGA has continued its annual programme of winter lectures in Swansea and Cardiff and summer field excursions.

Late in 1959 two meetings were held in Cardiff and Swansea to gauge interest in forming a geological group in South Wales. These led to the formation of a committee, chaired by Prof J.G.C Anderson, which met on 4 December 1959 to plan the structure and organisation of the group.

Over 100 people attended the inaugural meeting on 23 January 1960, when a committee chaired by Dr Douglas Bassett, Keeper of Geology in the National Museum of Wales, was elected. The first AGM was held in Swansea on 5 April 1960.

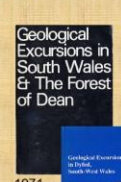

Douglas A. Bassett, Chairman 1960-62

RIGS fieldwork, Creigiau, Cardiff 2005

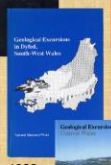


Geofest 2008

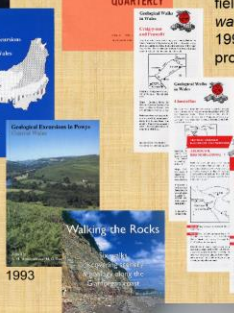
Publications
The first publication of the Group was the *Welsh Geological Quarterly* which ran for 15 issues between 1965 and 1969. Since then, the focus has been on producing local field guides and leaflets. Our *Geological walks in Wales* series of leaflets began in 1991 and continues, with 20 leaflets produced to date.



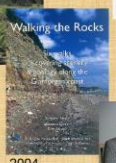
1971



1982



1993



2004

In 2005, *Walking the Rocks* won the ENI Geological Challenge Award.

Special events
Over the years, the Group has organised many conferences and symposia, with the first, on the geology of the Arctic and Antarctic, held in Cardiff in November 1960. Some, on the geology of Wales, have been published as thematic issues of the *Proceedings of the Geologists' Association*.

The Group regularly brings a display to the GA Reunion and has a stand or runs activities at various events around South Wales, bringing geology to the wider public.

One of our most ambitious and successful events was in November 2004 when the Group hosted the GA Reunion in Cardiff, turning it into a weekend of family activities and fieldtrips called Geofest@Cardiff.

In 2008, over 1700 people attended a one-day Geofest organised by the Group in Cardiff as our contribution to the 150th anniversary of the GA.


Geofest 2004 fieldtrip, Big Pit

Doug Bassett leaflets c1991-2010

From time to time, founder Chairman Douglas Bassett produced leaflets to accompany his lectures to the Group.

These include (there may be others; these are the only ones known about):

**** From Giraldus Cambrensis to the 'Welsh Geology Week'*** : ***800 years of discovering geology, with particular reference to Wales*** by Douglas A. Bassett, July 1991, 38 + iv pp, produced for Welsh Geology Week, July 1991 by the Department of Geology, National Museum of Wales, Cardiff.
Almost certainly Doug Bassett also used this for his lecture to the SWGA on Saturday 16 November 1991 at Swansea : **Wales and Geology,** Dr Douglas A. Bassett (late National Museum of Wales)

**** South Wales Geologists*** by Douglas A. Bassett, 1996, 16pp, produced for the Sixth T.R. Owen Memorial Lecture on 5 June 1996 at Banwen Community Centre, by the Geologists' Association, South Wales Group.

**** A Register of Officers and Committee Members 1959-1996*** by Douglas A. Bassett, 1996, 16pp, produced for the Sixth T.R. Owen Memorial Lecture on 5 June 1996 at Banwen Community Centre, by the Geologists' Association, South Wales Group. [Part of this is reproduced under Section **1960-2010 - COMMITTEE MEMBERS**]

**** William Daniel Conybeare MA FRS*** ***Notes to accompany a lecture to the Group, on the Rector of Sully, Dean of Llandaff and Gentleman Geologist*** by Douglas A. Bassett, 2001, 24pp, produced for a lecture to the Geologists' Association, South Wales Group on 20 October 2001, at the University of Wales Cardiff.

**** William Daniel Conybeare MA FRS*** ***Notes to accompany a lecture to the Group, on the Rector of Sully, Dean of Llandaff and Gentleman Geologist SUPPLEMENT 1 List of Institutions and Journals*** by Douglas A. Bassett, 2001, 4pp, produced for a lecture to the Geologists' Association, South Wales Group on 20 October 2001, at the University of Wales Cardiff.

**** Sir Roderick Impey Murchison KCB, FRS, FGS, FRGS (1792-1871)*** by D.A.B. 2003, 24pp, produced for a lecture to the OUGS in January 2003, at the National Museum of Wales, Cardiff.
Almost certainly Doug Bassett would have used this for his planned talk to the SWGA on October 25 2003 in Cardiff. Alas he was indisposed and a lecture on Murchison was delivered by Prof. Mike Bassett instead.

**** The Murchison Symposium A Selection of Illustrations*** by Douglas Bassett 2003, 12pp, produced for a lecture to the OUGS in January 2003, at the National Museum of Wales, Cardiff.
Almost certainly Doug Bassett would have used this for his planned talk to the SWGA on October 25 2003 in Cardiff (see above).

**** Sir Roderick Murchison and Company : Prologue*** by Douglas A Bassett 2003, 16pp, produced for a lecture to the OUGS in January 2003, at the National Museum of Wales, Cardiff.
Almost certainly Doug Bassett would have used this for his planned talk to the SWGA on October 25 2003 in Cardiff (see above).