

# Quaternary Research Association

Registered Charity no: 262124

OCTOBER 2006

CIRCULAR

## CONTENTS

1. Subscriptions Reminder
2. Executive Committee Nominations
3. XVII INQUA Congress 2007
4. QRA Annual Discussion Meeting: The Growth, Maximum Extent and Deglaciation of the Last British Ice Sheet, University of St Andrews, 4-5<sup>th</sup> January 2007
5. QRA Annual Field Meeting, Brecon Beacons, Brecon, 22<sup>nd</sup>-26<sup>th</sup> April, 2007
6. QRA Research and Conference Grants
7. *Journal of Quaternary Science*
8. *Quaternary Newsletter*
9. *Quaternary Science Reviews* and *The Holocene*
10. Environmental Factors in the Chronology of Human Evolution and Dispersal (EFCHED)
11. Isotopes in Biogenic Silica (IBiS)
12. Calendar of QRA Meetings

QRA Conference Grants to support attendance at  
**INQUA XVII Congress, Cairns, Australia**

Deadline: 15<sup>th</sup> February 2007

Further Details in this Circular

<http://www.qra.org.uk>

## QRA CIRCULAR: October 2007

### 1. SUBSCRIPTIONS REMINDER

Members are reminded that **subscriptions are due on January 1<sup>st</sup>**. Please assist the Treasurer (address below) by EITHER putting in place a STANDING ORDER before this date OR SENDING YOUR CHEQUE punctually. In this way you are reducing the number of reminders and therefore postage costs. Overseas members who have difficulty paying by cheque or standing order can pay by visa (see website for details).

The subscription rates for QRA membership are as follows:

<b>Ordinary Members</b>	<b>£20</b>
<b>Student, retired and unwaged members</b>	<b>£10</b>
<b>Institutions</b>	<b>£35</b>

Dr Rick Shakesby, Department of Geography, University of Wales Swansea, Singleton Park, Swansea, SA2 8PP, Email: R.A.Shakesby@swansea.ac.uk.

It's worth noting that we have tightened up a lot on non-payment and will no longer send mailings to members who have not responded to subscriptions reminders!

### 2. EXECUTIVE COMMITTEE NOMINATIONS

Three members of the QRA Executive Committee complete their terms of office in April 2007: Peter Coxon (Vice-President), Neil Glasser and Jen Heathcote. The Executive Committee has nominated the following people to stand for election.

**Vice-President:** **Professor Barbara Maher (Lancaster)**

The Executive's nomination for Vice-President is not able to take up the invitation until April 2008. Hence the Executive proposes the following: that the current V-P, Professor Peter Coxon, serves a fourth year as V-P, his term of office terminating in April 2008, and that Professor Barbara Maher takes up the office for a three-year period commencing in April 2008.

**Ordinary member:** **Dr Martin Bates (Lampeter)**

**Ordinary member:** **Dr Jonathan Lee (British Geological Survey)**

Unless other nominations are passed to the Secretary by January 1<sup>st</sup> 2007, the nominees named above will begin their terms of office in April 2007 or, in the case of the Vice-President, 2008. If other nominations are made, there will be a ballot, which will be issued in the February 2007 circular.

Simon Lewis (Secretary)

### 3. XVII INQUA CONGRESS 2007

The XVII INQUA Congress will take place in Cairns, Australia from 28<sup>th</sup> July to 3<sup>rd</sup> August 2007. Information on the Congress can be obtained from the Congress website where you can also register to receive further information as it becomes available. <http://www.inqua2007.net.au>

For further information about INQUA, contact Prof. Pete Coxon, Secretary General, International Union for Quaternary Research (INQUA), Department of Geography, Museum Building, Trinity College, Dublin 2, Ireland. <http://www.inqua.tcd.ie/>

<p><b>4. QRA ANNUAL DISCUSSION MEETING THE GROWTH, MAXIMUM EXTENT AND DEGLACIATION OF THE LAST BRITISH ICE SHEET University of St Andrews, 4-5th January 2007</b></p>
---

A two day meeting with an optional field excursion, Saturday 6<sup>th</sup> January 2007:

*A transect from the coast of Fife to the Drumochter Pass.*

Leader: Professor Colin Ballantyne.

**Organizing Committee**

Dr William Austin (University of St Andrews)  
Professor Colin Ballantyne (University of St Andrews)  
Dr Doug Benn (University of St Andrews / UNIS)  
Dr David Evans (University of Durham)  
Professor Danny McCarroll (University of Swansea)  
Professor James Scourse (University of Wales)

**Address for correspondence:**

QRA 2007 Secretariat  
School of Geography and Geosciences  
University of St Andrews  
Irvine Building  
North Street  
St Andrews, Fife  
KY16 9AL

Phone: 01334 462894

Fax: 01334 463949

Email: [gg@st-andrews.ac.uk](mailto:gg@st-andrews.ac.uk)

Web: <http://www.st-andrews.ac.uk/gg/news/events/>

**Information on Abstract submission can be found overleaf.**

**A registration form can also be found in this Circular.**

# **CALL FOR ABSTRACTS & INSTRUCTIONS TO AUTHORS**

**QRA Annual Discussion Meeting, 2007**  
***The Growth, Maximum Extent and Deglaciation of the last British Ice Sheet***  
**The University of St Andrews**  
**4-5<sup>th</sup> January 2007**

**Deadline: Abstracts for oral or poster presentations at the meeting must be submitted by 1 November 2006.**

**Notification of Acceptance: 30 November 2006**

## **Correspondence Information**

Send abstracts in Word format by e-mail to:

Helen Olasz [ho10@st-andrews.ac.uk](mailto:ho10@st-andrews.ac.uk)

If you have any questions, please email Helen or call her on 01334 462894.

Include the full name, professional title, department, full address, telephone, fax, and e-mail of the presenting author. The presenter will receive all correspondence about abstract acceptance and will be responsible for transmitting this information to any co-authors. Please let us know your preference for oral or poster presentation.

## **Abstract Format**

The text of the abstract must be 400 words or less. Use font Times New Roman, size 12.

Abstract titles should appear in bold at the top of the first page. Names of all authors should be listed on a separate line after the title at the top of the first page. The name of the presenting author should be marked with an asterisk. Author names should be followed by a list of corresponding affiliations and current addresses. Identify each author and corresponding address with numbered superscripts.

References should be cited in parentheses (author, year) in the body of the abstract and arranged alphabetically in a "Literature Cited" list at the end of the abstract.

Figures and tables should be self-explanatory, high-quality and black and white.

<b>5. QRA ANNUAL FIELD MEETING: BRECON BEACONS</b> <b>22<sup>nd</sup>-26<sup>th</sup> April 2007</b>
---

**Organisers:** Simon Carr, Chris Coleman, Rick Shakesby

This fieldtrip presents an opportunity for the QRA to re-visit some classic late Quaternary sites (mostly reflecting the period from the LGM to the early Holocene), as well as new sites stemming from recent research. The sites in question (see below) cover a range of landscape settings, and the conference will cover themes focusing on glacial and paraglacial geomorphology, palaeobotany, climatology and environmental archaeology. It should be noted that the optional day involves strenuous walking and possibly high levels of exposure all day, and will require a good level of physical fitness.

**Programme:**

**Day 1. Theme:** Introduction to the Quaternary of the Brecon Beacons

**Sites:** Castle of Brecon Hotel, Brecon (Evening)

**Co-ordinator:** Simon Carr

**Contributors:** Adrian Humpage, Rick Shakesby, Chris Coleman, Gwilym Hughes

**Day 2. Theme:** Landscape evolution and archaeology in the Western Brecon Beacons.

**Sites:** Mynnydd Du, Rhandirmwym, Trecastle

**Co-ordinator:** Simon Carr

**Contributors:** Dave Evans, Alistair Curry, Gwilym Hughes, Rick Shakesby, Tim Mighall, Adrian Humpage

**Day 3. Theme:** The Lateglacial in the Central Brecon Beacons

**Sites:** Fenni Fach, Craig y Fro, Craig Cerrig-gleisiad, Traeth Mawr.

**Co-ordinator:** Rick Shakesby

**Contributors:** Adrian Humpage, Dave Evans, Simon Carr, Mike Walker, John Lowe.

**Day 4. Theme:** Deglaciation of the Usk Valley

**Sites:** Usk, Abergavenny, Llangattock Escarpment, Llangorse, Llanfrynach.

**Co-ordinator:** Chris Coleman

**Contributors:** Adrian Humpage, Adrian Palmer, Adrian Parker, Frank Chambers.

**Day 5 (OPTIONAL DAY). Theme:** Younger Dryas Upland Glaciation

**Sites:** Nant y Llannerch, Cwm Pwllfa, Waun Rydd Plateau, Cwm Oergwm.

**Co-ordinator:** Simon Carr

**Contributors:** Gareth Preston, Chris Coleman.

**See the registration form in this circular for registration fees and accommodation details.**

Further particulars available through the QRA web site (<http://www.qra.org.uk>) or can be obtained by contacting Simon Carr ([s.j.carr@qmul.ac.uk](mailto:s.j.carr@qmul.ac.uk); telephone 020 7882 2780)

**Annual General Meeting**

The 42<sup>nd</sup> Annual General Meeting of the Association will be held during the Annual Field Meeting. Details will appear in the next Circular.

## 6. QRA RESEARCH AND CONFERENCE GRANTS

Please note: Full details of all QRA grants and application forms are available on the website ([www.qra.org.uk](http://www.qra.org.uk)). Applicants for awards should read the details carefully before submitting an application.

If you require a hard copy, please contact Dr Mick Frogley at:  
Department of Geography, University of Sussex, Falmer, Brighton, BN1 9QJ  
email: M.R.Frogley@sussex.ac.uk  
tel: 01273 873237

### Quaternary Research Fund

**Purpose:** To foster research in any area of Quaternary studies  
**Eligibility:** Members of the QRA of at least one year's standing (NB postgraduates should apply to the New Research Workers' Awards)  
**Deadlines:** 15<sup>th</sup> January, 15<sup>th</sup> May and 15<sup>th</sup> September  
**Awards:** £50-500

### New Research Workers' Awards

**Purpose:** To foster research in any area of Quaternary studies by postgraduate students  
**Eligibility:** Postgraduate student members of the QRA of at least 6 months' standing  
**Deadlines:** 15<sup>th</sup> January, 15<sup>th</sup> May and 15<sup>th</sup> September  
**Awards:** Up to £500

### Quaternary Conference Fund

**Purpose:** To assist attendance at Quaternary science conferences and field meetings.  
**Eligibility:** Members of the QRA of at least one year's standing  
**Deadlines:** 15<sup>th</sup> January, 15<sup>th</sup> May and 15<sup>th</sup> September  
**Awards:** Normally up to £250

### The Bill Bishop Award

**Purpose:** To provide support for field-based research in the subject of geology and related sciences in the fields of (i) Cenozoic stratigraphy, palaeoenvironments and chronology in relation to hominid evolution and (ii) British Quaternary stratigraphy, palaeoenvironments and geomorphology  
**Eligibility:** Full and part time PhD and MPhil students  
**Deadline:** 15<sup>th</sup> January annually  
**Award:** £800 (maximum)

### Lewis Penny Medal

Awarded to a young or new research worker, and who has made a significant contribution to the Quaternary Stratigraphy of the British Isles and its maritime environment.  
**Deadline for nominations:** 15<sup>th</sup> November annually.

### QRA-RLAHA Luminescence Dating Award

**Purpose:** Set up in collaboration with the Research Laboratory for Archaeology and the History of Art at Oxford University, up to six optically-stimulated luminescence dates (from Pleistocene or Holocene sediments) will be awarded.  
**Eligibility:** PhD students  
**Deadline:** January 15<sup>th</sup> annually.

# QRA Annual Discussion Meeting, 2007

## *The Growth, Maximum Extent and Deglaciation of the last British Ice Sheet*

The University of St Andrews  
4-5<sup>th</sup> January 2007

Registration Form. All attendees must pre-register – one form per person. Please return this form by **Monday 4 December 2006** to:

QRA 2007 Secretariat  
School of Geography and Geosciences  
University of St Andrews  
Irvine Building  
North Street  
St Andrews, Fife, KY16 9AL

Further copies of this form are available at <http://www.st-andrews.ac.uk/gg/>, email [gg@st-andrews.ac.uk](mailto:gg@st-andrews.ac.uk), or telephone 01334 462894.

**1. Delegate Information** (\* fields used for name badges and delegate list which will be made available to all delegates)

Title\*: ..... First name\*: ..... Surname\*:.....

Address for correspondence: .....  
.....  
.....  
.....  
.....

Department: .....

University or Organisation\*: .....

Telephone: .....

Fax: .....

Email: .....

Special dietary requirements: .....

Where did you learn of this conference? .....

**2. Registration** Includes conference registration, lunch and morning and afternoon refreshments.

One day only      Thursday 4 January      £50     

OR

Friday 5 January      £50     

**OR**

Two days      Thursday 4 & Friday 5 January      £90     

Field Excursion, ***A transect from the coast of Fife to the Drumochter Pass.***

Leader: Professor Colin Ballantyne.

Saturday 6 January      £15     

### **3. Conference dinner**

A dinner will be held at the Lower College Hall, University of St Andrews, at 7.30pm on Thursday 4 January (dress casual/smart).

I wish to attend the dinner      £30     

### **4. Accommodation**

Please contact the Scottish National Tourist Board directly to book your accommodation. They can be contacted at <http://www.visitscotland.com/> or 0845 2255121.

### **5. Payment**

Please tick one of the following options:

I enclose a cheque for £..... Payable to *The University of St Andrews*

**OR**

Please send me an invoice for £..... quoting the following official order number.....

Invoices must be settled in full before the conference.

**OR**

An online payment facility will be available shortly. Please contact the QRA 2007 Secretariat for details.

Please note: If you have to cancel your place at the conference / field excursion / conference dinner after Monday 4 December 2006, we regret that we are unable to provide a refund. However, substitute participants will be accepted at the discretion of the organisers.

**Registration for QRA Annual Field Meeting, Brecon Beacons, Wales**  
**22<sup>nd</sup>-26<sup>th</sup> April, 2007**

**Organisers:** Simon Carr (QMUL), Christopher Coleman (Oxford Brookes), Rick Shakesby (Swansea)

**Registration: (payable in advance and not returnable after 1/3/07:** includes travel, evening conference facilities and field guide). Non-resident participation is welcome. Please tick the appropriate spaces and fill in amounts

I wish to register for the meeting: £60 (or £30 for students/unwaged; or £20 per day) £.....

**Maximum Numbers: 80**

**Accommodation: (cannot be guaranteed after 15/03/07)**

**Option 1: Castle of Brecon Hotel**

Accommodation is based on a shared room basis (rooms of 2 persons). If you wish to share with someone specific, please note this below. If no preference is given, room sharing will be allocated by the convenors.

I wish to be a resident at the Castle of Brecon Hotel (includes bed, breakfast and evening meal) for the following nights:

22nd April 2000 (£45).....	£.....
23rd April 2000 (£45).....	£.....
24th April 2000 (£45).....	£.....
25th April 2000 (£45).....	£.....

I have arranged to share a room with (name): .....

**Option 2: Canal Barn Bunkhouse**

Self-catering accommodation just outside the centre of Brecon. You will need to bring your own sleeping bag and towel, although bedding can be supplied for a small fee

I wish to be a resident at the Canal Barn Bunkhouse for the following nights:

22nd April 2000 (£15).....	£.....
23rd April 2000 (£15).....	£.....
24th April 2000 (£15).....	£.....
25th April 2000 (£15).....	£.....

**Special dietary requirements:** Vegetarian..... Vegan..... Other:.....

**Personal Details:**

Name:.....

Address:.....

.....

Telephone: ..... Fax: .....

E-mail: .....

I enclose a cheque payable to '**Queen Mary, University of London**' to value £.....

**Signature:**.....

**Please return this form and payment to:**

Dr Simon Carr, Department of Geography, Queen Mary, University of London, Mile End Road, London E1 4NS, UK..

Tel: 020 7882 2780; Fax: 020 8981 6276; E-mail: s.j.carr@qmul.ac.uk

(In the event of cancellation the QRA will refund booking monies less irrecoverable costs already incurred.)



### **Postgraduate QRA Meetings Awards**

- Purpose:** To enable a greater number of postgraduates to attend QRA meetings.
- Eligibility:** Any registered postgraduate who has been a member of the QRA for more than **6 months**
- Deadlines:** For Easter Annual Field Meeting or May Short Field Meeting: **January 15<sup>th</sup>**  
For September Short Field Meeting: **May 15<sup>th</sup>**  
For January Annual Discussion Meeting: **September 15<sup>th</sup>**
- Awards:** 50% of the costs of the meeting (excluding travel to the venue); six awards for the Annual Field Meeting, six awards for the Annual Discussion Meeting and three awards for the Short Field Meeting

### **XVII INQUA Congress, July 28th - 3rd August 2007**

Cairns Convention Centre, Cairns, Australia

Details at: [www.inqua2007.net.au](http://www.inqua2007.net.au)

Grants for attendance at INQUA 2007 will be available from several sources, including:

**1. Directly from the QRA.** Eligibility: QRA members of at least 1 year's standing. For this scheme only, members who are currently in receipt of other QRA Awards (or for whom 12 months have not yet elapsed since submitting their reports) are also eligible to apply. Applications from former grant holders who still owe outstanding reports will not be considered.

Applications for support (up to £1000) should be made on the ordinary QRA Conference Grants form; preference will be given to those presenting papers. Deadline for receipt of applications is **15<sup>th</sup> February 2007**. Applications for INQUA travel funding via the normal Conference Grants scheme will not be considered. Eligible applicants will also be expected to apply for support from other sources, including the Royal Society.

**2. The Royal Society**, via their conference grants scheme. Closing dates are 1<sup>st</sup> December 2006 and 1<sup>st</sup> March 2007. Details at: [www.royalsoc.ac.uk/funding/](http://www.royalsoc.ac.uk/funding/)

See the QRA website for forms and other guidelines on applying for conference awards.

## **7. JOURNAL OF QUATERNARY SCIENCE**

John Wiley offers *Journal of Quaternary Science* to members of the QRA at £62 per year for the eight issues of 2007. Postgraduate member rates are even lower at £31 for the year. This represents outstanding value for money for the Association's major international journal.

**The Executive Committee of the QRA urges all members to consider supporting JQS, the journal of the QRA.** A subscription to JQS has always been a very good deal and an excellent means of extending your support for the Association. The Association gains financially from JQS subscriptions and this is an important means of generating funds for members' scientific activities (see the section on funding). Therefore, we hope that you will give the matter of a JQS subscription very serious consideration.

For further subscription details contact the Journals Subscriptions Department, John Wiley & Sons, Ltd, 1 Oldlands Way, Bognor Regis, W. Sussex, PO22 9SA. Tel: +44 (0) 1243 779777; Fax: +44 (0) 1243 843232; e-mail: [cs-journals@wiley.co.uk](mailto:cs-journals@wiley.co.uk)

<http://www3.interscience.wiley.com/cgi-bin/jhome/2507>

## 8. *QUATERNARY NEWSLETTER*

Copy for the **February 2007** edition of *QN* should be in the hands of the Newsletter Editor, Dr Tim Mighall (Dr Email: [t.mighall@abdn.ac.uk](mailto:t.mighall@abdn.ac.uk), Department of Geography and Environment, University of Aberdeen, Elphinstone Road, Aberdeen, AB24 3UF, UK), no later than 1<sup>st</sup> January 2007.

## 9. *QUATERNARY SCIENCE REVIEWS, THE HOLOCENE*

Elsevier offer *Quaternary Science Reviews* to members of the QRA at reduced rates.

For further subscription details contact Elsevier Science, Regional Sales Office, Customer Support Department, P.O. Box 211, 1000 AE Amsterdam, The Netherlands. Tel: +31 20 485 3757; Fax: +31 20 485 3432; e-mail: [nlinfo-f@elsevier.nl](mailto:nlinfo-f@elsevier.nl)

*The Holocene* is also available at lower rates. Full details and contacts are available on the journals page of the QRA website

<http://www.qra.org.uk/journals.htm>

## 10. ENVIRONMENTAL FACTORS IN THE CHRONOLOGY OF HUMAN EVOLUTION AND DISPERSAL (EFCHED)

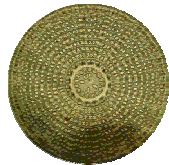
### **An advance invitation to a special event in Quaternary Science and Human Evolution**

The finale of the Natural Environment Research Council funded EFCHED programme will be hosted as a two day conference by the British Museum on Friday the 10<sup>th</sup> and Saturday the 11<sup>th</sup> of November. On Friday the emphasis will be the scientific achievements of EFCHED. On Saturday the program will be more interactive with question and answer sessions, flint knapping by Phil Harding of the Time Team, and lectures about the challenges and rewards of doing Archaeological research in Extreme environments.

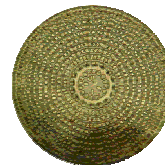
Admission will be free by ticket and includes information packs and lunch. On-line registration will begin in October by following the link to the NERC website:  
([www.nerc.ac.uk/funding/thematics/efched/](http://www.nerc.ac.uk/funding/thematics/efched/)).

Tickets will be issued on a first come first served basis. A full programme of speakers and titles will shortly be posted on the NERC website.

EFCHED is a thematic programme comprising eleven projects, bringing together researchers from the UK and abroad. By combining Palaeoanthropology, Archaeology and Palaeoecology, the programme has investigated the intricate relationship between changing climates and evolving humans. For more information on the EFCHED programme follow the link to the NERC website  
([www.nerc.ac.uk/funding/thematics/efched/](http://www.nerc.ac.uk/funding/thematics/efched/)).



A workshop **IsoPAL-3**



## Special theme – Isotopes in Biogenic Silica (IBiS)

To be hosted by the  
NERC Isotope Geosciences Laboratory (NIGL),  
British Geological Survey in association with the Quaternary Research  
Association (QRA)

Wednesday 18th April 2007

The workshop will comprise a series of short keynote presentations giving examples, or overviews of research using isotopes in biogenic silica.

The keynote presentations will involve isotope applications in terrestrial, marine and aquatic records.

*Speakers: To be confirmed*

*Posters are invited especially regarding the application of isotope techniques to specific sites (please let us know when you register).*

### Registration:

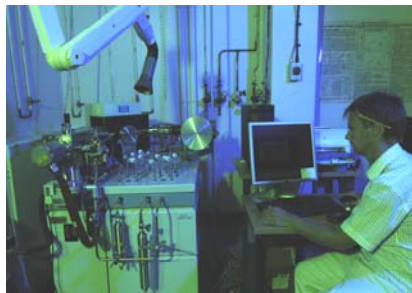
If you would like to attend then please contact the workshop co-ordinator to be placed on the mailing list:

For more information about IBiS visit: <http://www.bgs.ac.uk/ibis/>

Carol Arrowsmith

[caar@bgs.ac.uk](mailto:caar@bgs.ac.uk)

NERC Isotope Geosciences Laboratory,  
British Geological Survey, Keyworth, Nottingham. NG12 5GG.



## 12. CALENDAR OF QRA MEETINGS

NOTE: Offers to arrange meetings are always welcome and should be forwarded to the Meetings Officer, Dr Simon Carr, Department of Geography, Queen Mary, University of London, Mile End Road, London, E1 4NS. Email: [s.j.carr@qmul.ac.uk](mailto:s.j.carr@qmul.ac.uk)

**4<sup>th</sup> – 5<sup>th</sup> January 2007**

**QRA Annual Discussion Meeting**

**“The Growth, Maximum Extent and Deglaciation of the last British Ice Sheet”**

Venue: University of St Andrews

Organisers: Bill Austin, Colin Ballantyne, Doug Benn, Dave Evans, Danny McCarroll and James Scourse.

Contact: Bill Austin

e-mail: Bill Austin, [wena@st-andrews.ac.uk](mailto:wena@st-andrews.ac.uk)

**See details and registration form in this circular**

**22<sup>nd</sup> – 26<sup>th</sup> April 2007**

**Annual Field Meeting: Brecon Beacons**

Venue: Brecon

Organisers: Simon Carr, Chris Coleman, Rick Shakesby

Contact: Simon Carr

Email: [s.j.carr@qmul.ac.uk](mailto:s.j.carr@qmul.ac.uk)

**See details and registration form in this circular**

**May 2007**

**Short Field Meeting: Trent Valley**

Venue: TBA

Organisers: Andy Howard, David Bridgland and Mark White

Contact: Andy Howard

Email: [a.j.howard@bham.ac.uk](mailto:a.j.howard@bham.ac.uk)

**9<sup>th</sup> – 12<sup>th</sup> September 2007**

**Short Field Meeting Northern East Anglia**

Venue: UEA Norwich

Organisers: Jonathan Lee, Ian Candy, Anna Jarrow, Brian Moorlock

Contact: Jonathan Lee

Email: [jrlee@bgs.ac.uk](mailto:jrlee@bgs.ac.uk)

**September 2007**

**12<sup>th</sup> Annual QRA Postgraduate Symposium**

Venue: University of Copenhagen, Denmark

**Regular updates and details of meetings of interest to the QRA are available, along with links to sites of interest to Quaternary scientists, on the WWW at: <http://www.qra.org.uk>**

Web master: [jason.jordan@coventry.ac.uk](mailto:jason.jordan@coventry.ac.uk)

---

*QRA Circular is compiled for QRA members by*

Simon Lewis

Department of Geography, Queen Mary, University of London, Mile End Road, London, E1 4NS

t: 020 7882 7872

f: 020 8981 6276

e: [s.lewis@qmul.ac.uk](mailto:s.lewis@qmul.ac.uk)