

# CAM QUA

The newsletter of the CAMBRIDGE QUATERNARY

ISSUE 35

MICHAELMAS 2006



## **Geographers and Archaeologists team up for a field excursion to Quidenham Mere, Norfolk.**

The group spent the day coring lake deposits on the edge of Quidenham Mere, Norfolk, and managed to collect just over nine metres of Holocene and the Late Glacial sediment. The lake sediments comprise marls containing abundant molluscs and ostracods, well-preserved pollen and remains of the algae *Chara*. Previous work shows the lake to be highly sensitive to climate fluctuations, reflected in changing water levels. The cores will be analysed by the Quaternary MPhil students and graduate students from Archaeology this term.

## Dates for your Diary

### Michaelmas 2006

#### October

- Wed 18<sup>th</sup>** Dr John Smellie (British Antarctic Survey)  
**SPRI** *"Antarctic volcanism – its pivotal role in assessing pre-Quaternary ice sheets"*
- Fri 20<sup>th</sup>** Prof. Stephen Oppenheimer (Oxford University)  
**QDG** *"The Origins of the British"*

#### November

- Wed 1<sup>st</sup>** Dr Andreas Vieli (University of Durham)  
**SPRI** *"Rapid Changes of ice sheets, ice shelves and glaciers: insights from numerical modelling"*
- Fri 10<sup>th</sup>** Dr Stephen Barker (Cardiff University)  
**QDG** *"Antarctic signature in the Greenland ice-core record: a link between north and south?"*
- Wed 15<sup>th</sup>** Prof. Danny McCarroll (University of Wales, Swansea)  
**SPRI** *"Deglaciation of the Irish Sea basin: a return to the Flood?"*
- Wed 29<sup>th</sup>** Dr Bryn Hubbard (University of Wales, Aberystwyth)  
**SPRI** *"Peruvian glaciers and hazards"*

**ZOO** talks are yet to be finalised check their website for details:

<http://www.zoo.cam.ac.uk/zooone/forthcoming/index.html>

**ARCH** talks also yet to be finalised – check the website for details too:

<http://www.arch.cam.ac.uk/pittrivers/GPRtalks.html>

**PSci (Plant Sciences)** are yet to be announced. Check the website:

<http://www.plantsci.cam.ac.uk/seminars/index.html>

**QDG** talks to be held at 5:30 pm in the Lloyd Room at Christ's College Cambridge.

Full program: <http://www.quaternary.group.cam.ac.uk/events/qdg/>

**SPRI** seminars to be held in the Scott Polar Research Institute Lecture theatre. Full program:

<http://www.spri.cam.ac.uk/research/seminars/physical/> Enquiries contact: Jeff Evans, (3)36570, ([jeffrey.evans@spri.cam.ac.uk](mailto:jeffrey.evans@spri.cam.ac.uk))

**Please send your announcements and seminar dates for next term to the editor, as soon as they are finalised.**

## **Geoarchaeology 2006**

A Conference at the University of Exeter,  
10th-13th September 2006

This 4-day conference organized by Prof. Tony Brown of SoGAER (School of Geography, Archaeology and Earth Resources) aimed to cover all aspects of geoarchaeology, and included sessions on fluvial geoarchaeology, floodplains and terraces, coastal environments and archaeology, geoarchaeology and environmental change, soils and archaeology & new techniques in geoarchaeology. There was also a session devoted to recent Aggregate Levy Sustainability Fund (ALSF) Projects. The keynote speakers were Karl Butzer and Jim Rose.

The first three days comprised intensive back-to-back 25 minute presentations punctuated by coffee, lunch and keynote speeches. There were at least 20 papers presented each day between 8.30am and 6.30pm. There were also evening activities including a conference dinner and a visit to Kent's Cavern. The fourth day was devoted to field excursion in the local area. The highlights presented below are the papers that particularly excited me, and in no way represents the full content of the conference:

### ***Monday 10<sup>th</sup> September***

Robert Hosfield presented a paper entitled 'Rolling Stones' dealing with the provenance of Palaeolithic hand axes assemblages and their association with changes in bedrock lithology and fluvial confluence areas.

C. Waddington talked on 'Managing sensitive archaeological landscapes using Geoarchaeology' and discussed landscape mapping using geomorphological divisions, each of which are associated with different archaeology and palaeoenvironments.

The keynote by Jim Rose 'Lithics in Gravels' dealt with East Anglian gravel deposits at Feltwell, Lakenheath, High Lodge, Warren Hill and an enigmatic

'Site X' located between Warren Hill and Hengrave. A 3m thick palaeosol overlying gravel, and beneath three tills at this site was interpreted as representing Mediterranean style climate in Britain. The lithic-bearing interglacial sediments at Pakefield, Happisburgh & West Runton were also considered. Palaeotemperature analyses from carbon/oxygen isotope plots were presented and cited as evidence for multiple glacial-interglacial events in southern Britain. Glaciations in MIS 16, 12, 10, 6 & 2 were proposed.

A. Macintosh offered a 'Comparison of the effectiveness of Geophysical techniques'. Magnetometry, resistivity, magnetic susceptibility and ground penetrating radar were all evaluated. It was observed that these techniques often failed on alluvial soils or coversands. For the best chance of success, the use of geophysics should follow English Heritage and Archaeological Dating Service guidelines.

'Archaeological survey methods in the valley of the R. Scheldt' was presented by M. Bats. She suggested 10m spaced boreholes on a staggered grid as the best survey method for archaeological features following exhaustive testing. She also suggested that using a 1mm sieve mesh was best for artifact recovery.

### ***Tuesday 11<sup>th</sup> September***

S. Fitch described 'Inundated palaeo-landscapes of the southern North Sea' including wonderful reconstructions of the Southern North sea landmass using Rockworks & Arc View/Arc GIS software. The reconstruction of rivers, saltmarsh and coasts was applied to a land area the size of Wales. There was discussion of the terms 'Bio-Geo-Archaeology' and 'Archeo-Geography' as more appropriate descriptions for this kind of approach. Fitch's final advice for advancement in Geoarchaeology was "Never apologise,

never go back and never say 'no' ''.

K. Hamilton presented a 'Great Yarmouth archaeological map' resulting from an intensive borehole study using a Terrier window sampler. Three-dimensional reconstructions of the geology and archaeology of the town allowed better conservation and planning decisions to be made.

Chris Hunt shared some 'New perspectives on Palynology'. He proposed the use of UV fluorescence to resolve re-worked pollen grains to ensure that the pollen assemblage is co-eval. Fresh pollen appears white, pollen preserved in anaerobic conditions appears yellow, recycled pollen appears brown, and 'thermally mature pollen' (burnt) pollen appears blue. He also advocated the use of 'palynofacies' analysis; that is all microscopic organic particles identified and classified into groups including; fungal spores, algae, insect remains, thermally mature material (charcoal) & VAMs (vesicular arbuscular mycorrhiza).

### ***Wednesday 12<sup>th</sup> September***

J. A. Entwistle described 'Geochemical traces of landscape change' using XRF (X-Ray Fluorescence) analysis of whole dry crushed soil to produce elemental spectra, rather than employing wet chemical analysis techniques.

Markus Fuchs gave a keynote talk on 'Holocene soil erosion in Southern Greece - Man or climate?' He described the filling and emptying of sediment sinks, and colluvial systems de-coupled from the alluvial cascade. It appears that different sediment sinks have different response times, often resulting in a long lag between erosion and final deposition. Kirsty Penkman described her recent work on the 'Amino Acid dating of sediments'. In the past, traditional AA dating was carried out on unbleached shells which are open systems allowing amino acids to leave as well as enter the shell matrix. This often gave AA dates

younger than expected. Laboratory bleaching removes the extraneous amino acids and leaves only those bound within calcite crystals. The unstable nature of aragonite in shells means that when aragonite re-crystallises to calcite the system becomes open for a time. The use of *Bithynia* opercula which are made of calcite appears to offer the best and most reliable closed system for dating. Using this technique, 12 amino acids are now used to calculate the amino acid ratio. Free vs total amino acid plots are used to assess preservation of shell material, and there appears to be the possibility of extending the reach of AA dating back beyond 500,000 years.

K. Challis investigated the use of airborne and ground based LiDAR to predict preservation of waterlogged deposits. This method involved the use of aerial LiDAR Last Pulse Back (LPB) intensity as a measure of wetland ground conditions. It has proved useful in predicting %water content in the surface 50cm of sediments. Attempts to measure similar characteristics using ground based LiDAR have been fraught with problems. Range effects and surface vegetation rather than soil can all effect the data. Visible light ground-based LiDAR have not been proved and are thought to be ineffective.

Steve Boreham

# **London Quaternary Lectures**

**22nd November 2006**

**Sponsored by: Quaternary Science Reviews  
Organised by: The Centre for Quaternary Research, Department of  
Geography, Royal Holloway, University of London**

**15.30**

**Dr Eric Wolff**

**British Antarctic Survey**

**'European Project for Ice Coring in Antarctica:  
800,000 years of climate & environmental change  
from ice cores'**

**LQL No.76**

**16.30 - 17.00 Tea**

**17.00**

**Dr Takeshi Nakagawa**

**Geography Department, Newcastle University**

**'Orbital forcing & climate response in monsoon  
regions: new light from Lake Biwa, Japan'**

**LQL No.77**

**18:15pm Wine reception**

***in The Main Lecture Theatre (Q169), Queen's  
Building, Royal Holloway, University of London***



# The Palynologists' Revenge?

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## Now it's pollen delaying trains

**First it was leaves on the line, then the wrong kind of snow, now pollen has caused problems for rail managers.**

High levels of it over the summer blocked some train radiators on the Cambrian Line between Shrewsbury and Aberystwyth, Arriva Trains Wales has revealed.

Details emerged when a passenger watchdog complained about delays.

Mike Bagshaw of Arriva Trains said: "We are confident that the problem will not arise next summer."

It is not the first time Mother Nature has caused rail companies problems.

Leaves on the line has been a common complaint, but in 1991 British Rail blamed the "wrong type of snow" for the delay to trains.

Ivor Morris, treasurer of the watchdog, Shrewsbury to Aberystwyth Rail Passenger Service (Sarpa), said the issue emerged at a meeting with Arriva.

He said: "The meeting had been arranged to discuss, in the main, the feasibility of a new hourly service between Aberystwyth and Shrewsbury.

"But some members of our group were annoyed that some services on the Cambrian Line had been up to an hour late in June.

"Arriva said the gradient on the track at Talerdig (near Machynlleth), the hot weather and high levels of pollen were to blame. They said pollen had blocked train radiators and they had failed."

Mr Bagshaw, commercial director for Arriva Trains Wales, said: "Thick pollen was affecting the radiators on a very small number of our trains, on a small section of the Cambrian railway line, near Welshpool.

"Of the 116 trains in our fleet this problem affected just a handful of trains and only for a short period in June."



The Cambrian Line links mid Wales with England

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### BBC ACTION NETWORK



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How you can start making a difference on railway issues

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17 Aug 06 | Mid Wales  
£5m to clear leaves from tracks  
02 Nov 04 | England  
Heat on the line  
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Going Loco: Send your bizarre tales of train travel  
20 May 03 | UK  
Railtrack 'beaten' by leaves on line  
02 Nov 99 | UK

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Health - pollen

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Arriva Trains Wales  
Sarpa

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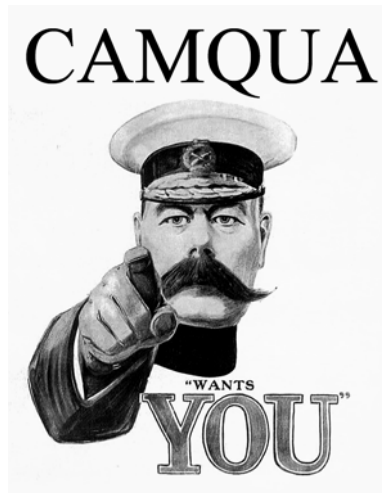
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<http://www.quaternary.group.cam.ac.uk/camqua>

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**Editor:** Sarah Farquhar ([saf28@cam.ac.uk](mailto:saf28@cam.ac.uk))  
Department of Geography, University of Cambridge