



**Circular 398
October 2012**

Registered Charity No: 503617

President: Brian Jones

www.emgs.org.uk

2012 Mercian Geologist – Collection

With the large increase in postage this year's copy of Mercian Geologist will be available for collection at the first two indoor meetings in an effort to reduce costs. They will be arranged by post code. Please look through the copies for your post code and take any you are able to hand deliver nearby. After the second meeting any not collected will be posted.

PLEASE NOTE: The postage paid on the label is invalid so they must NOT be put into the postal system as they are.

AUTUMN/WINTER 2012 LECTURE PROGRAMME

Saturday, 20th October 2012 – 6.00 pm

A Revised Lithostratigraphy for the Triassic Sherwood Sandstone Group of England and Scotland

Speaker: Keith Ambrose

Saturday, 17th November 2012 – 6.00 pm

The Piltown Forgery – 100 years on

Speaker: David Bate

Saturday, 8th December 2012 – 6.00 pm

To be followed by the Christmas Buffet – please remember to bring a glass!

56 Years of Aircraft Flying into Ash

Speaker: Colin Small

Saturday, 26th January 2013 – 6.00 pm

Thermal and Structural Evolution of the Himalayan and Karakoram Continental Crust

Speaker: Mike Searle

**Saturday, 9th February 2013 – 6.00 pm
(To be followed by the Society's Annual Dinner)**

The Age of Tsunamis

Speaker: David Tappin

Saturday, 16th March 2013 – 6.00 pm

Cultural and Historical Geographies of Onshore Oil Exploration in 20th Century Britain

Speaker: Andrew Naylor

LECTURE VENUE

Indoor meetings will take place in lecture theatre B3 of the Biology building at the University of Nottingham. If you require to use the lift to B3, please speak to the security attendant who will assist you. B3 is equipped with induction loop hearing assistance. If you are attending meetings or joining a coach at the University of Nottingham, enter from the South Entrance on University Boulevard. Cars should be parked in the car park on the bend in the road just beyond the security point after Science Road. The entrance to the Biology building is at the right hand side of the rear of this car park.

Saturday, 20th October 2012 – 6.00 pm

A Revised Lithostratigraphy for the Triassic Sherwood Sandstone Group of England and Scotland

The Sherwood Sandstone Group was formerly designated by Warrington *et al.* (1980) for the basal sandstones of mainly Triassic age in the British Isles. The group crops out in south west England then forms a near continuous outcrop northwards, splitting into two south of the Pennines and extending up the east and west coasts to Teeside and Cumbria. Outcrops occur in southern Scotland, north of the Solway Firth, and on the Isle of Arran. Equivalents occur in the East Irish Sea and North Sea basins.

The name replaced the long standing 3-fold division of Pebble Beds (later named the Bunter Pebble Beds by Bonney, 1900), Upper Mottled Sandstone and Lower Keuper Sandstone of Hull (1860). The original SSG included beds of questionable Permian age such as the Lenton Sandstone and Kinnerton Sandstone formations whilst other similar units, such as the Bridgnorth, Penrith and Collyhurst Sandstone formations were not included.

Over the years the SSG has had many local names applied to the constituent formations reflecting a number of factors. In recent years the desire of the British Geological Survey to produce seamless geological maps and 3D models has led to the need to critically review the lithostratigraphy of many groups of rocks. The Mercia Mudstone Group was the first of the Triassic

successions to be covered and, more recently, the Sherwood Sandstone Group has been looked at for England, Wales and Scotland. This review focussed on the need to adequately describe lithological variability, provide a stable nomenclature and minimise confusion. Three options were considered: status quo, clean slate and compromise. The clean slate option has been chosen, with three formation names applied to the original names proposed by Hull (1860). Some established names have been retained as members. The review has also led to a redefinition of the Sherwood Sandstone Group, citing the incoming of the fluvial facies as the base of the group. Thus all underlying aeolian sandstones, variously labelled in the past as Permian or Triassic, are now no longer included in the Group.

Whilst the lack of fossil evidence in the Group and underlying formations is a constraint on correlation the use of geophysical logs, mainly gamma-ray and sonic velocity, has greatly assisted in the correlation of the group between the various basins.

Saturday, 17th November 2012 – 6.00 pm

The Piltdown Forgery – 100 years on

On 21st November 1912 the *Manchester Guardian* broke the news of a '*Remarkable discovery in Sussex – a skull millions of years old*'. The newspaper felt sufficiently confident to assert that '*There seems to be no doubt whatever of its genuineness, and more than a possibility of its being the oldest remnant of a human frame yet discovered on this planet*'. Thus was the tiny hamlet of Piltdown thrust rudely upon the world stage where it remains, if somewhat uncomfortably, to this day. In 1912 England would proudly claim to be the cradle of mankind: for the Piltdown Man, the *Earliest Englishman*, was clearly the missing link between man and ape. Yet from the outset there were detractors who considered this creature's ape-like jaw to be at odds with his relatively well-

developed cranial capacity, quite apart from his ability to fashion a cricket bat from the tusk of an elephant! Over the next forty years Piltdown Man became increasingly marginalised as finds of early man from Asia and Africa demonstrated that the evolution of the jaw, and thus the ability to vocalise, had preceded the development of the human intellect, rather than the other way round. Then, during 1953-55, the entire Piltdown assemblage was shown to be fraudulent. Piltdown Man found new fame as one of the world's greatest scientific forgeries, spawning a vast literature from experts and amateur sleuths in the quest to discover who it was, all those years ago, that made a monkey out of the scientific establishment.

Saturday, 8th December 2012 – 6.00 pm

56 Years of Aircraft Flying into Ash

Between 1953 and 2009 there have been 129 known encounters of aircraft with volcanic clouds. Of these, 94 events were confirmed as aircraft having encountered a volcanic cloud, with 79 reporting some degree of airframe and engine damage. 26 of these encounters were severe and caused significant engine and airframe damage, with 9 involving engine shutdown in flight. Since 1976 encounters are running at approximately 2 per year and are becoming more widely reported.

This talk will review the nature of volcanic ash clouds and why they are a hazard, and summarise the history of aircraft encounters with them. It will also look at why the encounters happen, typical effects on the aircraft, and the resulting effects on the travelling public, and will conclude by looking at what is being considered to help the airlines mitigate the effects and to keep aircraft flying.

Saturday, 26th January 2013 – 6.00 pm

Thermal and Structural Evolution of the Himalayan and Karakoram Continental Crust

Geological mapping combined with thermobarometry, metamorphic modelling and U-Pb geochronology along the Himalayan (Indian plate) and Karakoram (Asian plate) Ranges has resulted in a better understanding of the structural and thermal evolution of continental crust in a classic continent-continent collision belt. The Himalaya shows a relatively simple evolution from early deep crustal subduction along the northern margin at UHP coesite eclogite grade through kyanite and sillimanite + muscovite, sillimanite + K-feldspar and sillimanite + cordierite grade culminating with widespread partial melting in the middle crust and generation of anatectic leucogranites. The Greater Himalayan Sequence has been extruded south during the Early Miocene (~24-15 Ma) period of Channel Flow when ~100 km of southward extrusion of a middle crust layer occurred in between major bounding shear zones, the Main Central Thrust zone with an inverted metamorphic isograd sequence along the base and the low-angle, north-dipping South Tibetan Detachment normal fault along the top. In the Nanga Parbat syntaxis very young (Plio-Pleistocene) sillimanite + cordierite grade metamorphism and anatexis may provide an insight into active thermal structure of the deep crust today. The upper, middle and lower Himalayan crust are decoupled and each show different rheology, fluid composition, seismic properties and structural evolution.

The Asian plate Karakoram terrane in North Pakistan shows a much more complex and long-lasting structural and thermal evolution. During and following collision and accretion of the Kohistan Arc and the Indian plate to the southern margin of Asia, crustal thickening along the Karakoram resulted in polyphase deformation, metamorphism and melting. Abundant Middle Jurassic and Cretaceous (170-90 Ma) Andean-type subduction-related granite intrusion is recorded as well as widespread kyanite and sillimanite grade regional metamorphism spanning at least 65 million years. The major phase of kyanite- and sillimanite- grade metamorphism in the Baltoro region peaked during Oligocene – Lower Miocene time (28-22 Ma). The main bulk of the Baltoro granite batholith comprises co-magmatic biotite monzogranites and garnet two-mica leucogranites with sheets of K-feldspar megacrystic granites. U-Pb monazite ages from the Baltoro granites range between 25-13 Ma, very similar to most of the Himalayan leucogranites along the Indian plate. The youngest granites within the Baltoro batholith are core leucogranites around the Trango Towers and Biale (~13 Ma). Although most deformation and metamorphism ended before final emplacement of the Baltoro granites, deeper level metamorphism and partial melting continued. The youngest metamorphism dated along the Karakoram is represented by the Dassu gneiss dome in the southernmost part of the Karakoram Metamorphic Complex, composed of Pliocene sillimanite – K-feldspar orthogneisses intruded by tourmaline-aquamarine gem-bearing pegmatites. Metamorphism along the Karakoram is diachronous in space and time and it is quite likely that active granulite or eclogite facies metamorphism occurs today at depth beneath the Karakoram.

Saturday, 9th February 2013 – 6.00 pm

The Age of Tsunamis

Do we live in the 'age of tsunamis'? With the Indian Ocean event of 2004 where 220,000 people died, the 2006 Samoa tsunami and the 2010 event in Chile, it certainly seems like it. The massively destructive tsunami that struck Japan in March last year is another such event. The impact was a surprise because usually natural disasters strike the third world and Japan is considered to be the best prepared country in the world to deal with these events. This talk presents on the different tsunami sources and then focuses on the 11th March 2011 Japan event.

The speaker has researched tsunamis for 14 years, beginning in 1998 with the devastating event in Papua New Guinea that killed 2,200 people. Since then he has worked on numerous tsunamis, including that of the 2004 Indian Ocean. He has visited Japan three times since 11th March studying the tsunami impact.

Saturday, 16th March 2013 – 6.00 pm

Cultural and Historical Geographies of Onshore Oil Exploration in 20th Century Britain

(Details in next Circular)

SUBSCRIPTION RATES FOR 2012

Please note the subscription rates are now as follows:

Ordinary member - £18.00

Joint member - £22.00

If you have not yet done so, please let the Treasurer have your subscription as soon as possible. If you pay by standing order please can you check the amount which was paid from your account as a number of payments at the old rate have been received. If your subscription is one of those, please can you let the Treasurer have a cheque for the difference and ensure your standing order instruction is amended for next year.

New Members

Mr Barrie Wright, Bingham, Nottingham.

Calum Goodger, East Bridgford, Nottingham

Information for Other Societies

We hold information of lectures and field meetings for other local societies such as the NSSGA, Black Country Geological Society and Leicester Lit & Phil Society. If you would like details of any of these, please contact the Secretary.

Society Publications

- (1) **Leicester Building Stones Guide;**
- (2) **East Midlands Field Guide;**
- (3) **Sandstone Caves of Nottingham** (new full colour edition)

Copies available by contacting the Secretary or at Indoor Meetings.

EMGS Website

The publications page on the Society website (www.emgs.org.uk) has been tidied up and updated. It now includes links to two archives:

One is the archive of the early Mercian Geologists where scanned copies of complete issues are being diligently prepared thanks to the hard work of David Bate. This is still being added to (with successive volumes) and will eventually reach volume 12 for 1991.

The other is the archive of papers and reports in the more recent issues. These will go onto the webpage two years after they appear in the paper issues of the Mercian. Currently only the 2009 material is online, but files will be extracted and posted, working backwards as far as 1992, and this takes time. Files for 2010 onwards are already prepared and will go online on their second birthday.

Marketing the Society's Publications

We are still in need of a volunteer to promote the marketing of the Society's publications such as the East Midlands Field Guide, Leicester Building Stones Guide and the Sandstone Caves of Nottingham books. If you have any expertise in this field, or even if you haven't but would like to volunteer to help, please contact the secretary or any other member of Council.

The National Stone Centre

Are looking for volunteers for guiding and other activities on the site at Wirksworth. If you can help, please contact Ian Thomas on 01629 824833 or ian@nationalstonecentre.org.uk

e-mail addresses

To minimise postal costs and photocopying charges which amount to approximately £4.00 each year for every member who still receives their Circular by post, we would very much like to send you your Circular by e-mail. If you have not already done so, please send your e-mail address to the Circular Editor, sue.miles@freethcartwright.co.uk.

Please can you also confirm your name and address when sending your e-mail so we can correlate these details with our membership listing.

The next Circular will be published in November 2012.

The next Council Meeting will be held on 20th October 2012.

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