



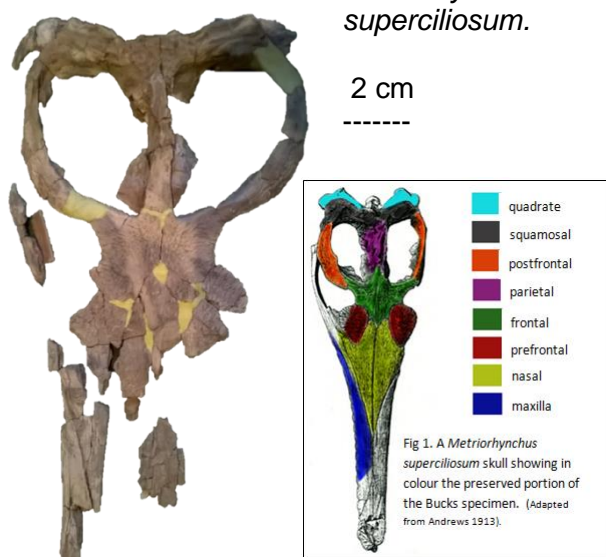
Buckinghamshire Earth Heritage Group

Newsletter No. 27 July 2016

Discovery of a Jurassic Crocodile Skull in North Bucks - Simon Penn

In January 2014, while examining a temporary exposure of Lower Oxford Clay (Callovian Stage 163-166Ma) in North Bucks, I found and excavated the skull of the marine Jurassic crocodile, *Metriorhynchus* sp. The recovered specimen is fragmentary; however enough of the skull was recovered allowing for a cranial reconstruction. (Figure 1). The specimen itself lacks the lower jaw and any postcranial remains, but approximately 70% of the skull's dorsal surface is well preserved and showcases classic highly textured crocodilian bone sculpturing.

Fig 1. reconstructed skull. Probably that of *Metriorhynchus superciliosum*.



Metriorhynchus is a late Jurassic marine crocodile ranging from the Callovian through to the Kimmeridgian. It is a genus of crocodile that evidences several specialisations, suggesting it spent most of its time living in the sea. Most convincingly *Metriorhynchus* bore salt reducing glands in the skull which is a common feature found in modern day sharks, seabirds, marine iguanas and turtles. The genus also exhibits flipper-like limbs, a fluke-bearing tail and a massive reduction in osteoderm armour (the bony plates or scutes in modern crocodiles).

All these adaptations favoured the animal's marine lifestyle, allowing *Metriorhynchus* to become an effective marine predator, sacrificing armour and other terrestrial capabilities in order to improve its manoeuvrability in the seas of the late Jurassic.

The posterior of the skull in the Bucks specimen is largely complete, lacking only the occipital condyle, (the ball joint where the vertebral column would have articulated with the skull).

The parietals and post frontals are largely intact giving an accurate width to the rear of the skull and defining the two large voids where muscles that powered the lower jaw resided. The mid-section of the skull consists of two well-sculpted and complete frontals bordered anteriorly by two partial prefrontals. It is these fused elements that create semicircular recesses on the skull's margin indicating the location of the animal's orbits. The snout of the specimen is less complete than the rear of the skull and is only well preserved on the right-hand side. Here, a complete nasal element and a partial maxilla possess 10 teeth sockets containing three worn roots, one complete tooth and one small replacement tooth (Fig 2).



The remains were found protruding from a degraded clay bank. I carefully dug the bone out, over a period of 3 days in increasingly difficult wet and cold conditions. Each fragment of bone was labelled and if necessary given a coat of protective PVA emulsion, to prevent further crumbling. Once home, over the course of a week I managed to reconstruct the 45cm long skull on the dining room table using oasis (used in flower arranging) to give me a soft and pliable surface to support what, over time, became a three dimensional skull.

Rock & Fossil Day – Saturday 9th April at Bucks County Museum

The annual Rock and Fossil Day was held at the Buckinghamshire County Museum in Aylesbury. This is a free public event coordinated by Mike Palmer. The museum exhibited items on the geology of Buckinghamshire including locally found dinosaur and ichthyosaur bones, while the BEHG displayed field trip photos and conservation achievements.

Members of the public were encouraged to bring in rock and fossils they had found for identification by the groups' experts. Several really nice flint echinoid fossils were seen during the course of the day.

Thanks goes to the following BEHG Members for volunteering and making the day a success; Mike Palmer, Jill Evers, Ian Hudson, Phil Clapham, Roy Cole, Graham & David Hickman.



Buckingham Spring Fair -Sunday 17th April



Jill Evers and Roy Cole did an excellent job representing the BEHG at the Buckingham Spring Fair held in Buckingham town centre.

Lots of information sheets about the group's activities were handed out and people were really enthusiastic indicating they were going to join - several of these were families. We hope that translates into action.

As the BEHG establishes a future events calendar it is hoped that new members will be attracted to the group and bolster numbers.

Coombs Quarry – New Trustees

In 2015 the Thornborough and Coombs Woodland Enterprise Trust was established to preserve and enhance 168 acres of green space including Coombs Quarry. In April 2016 Jill and Roy met with the new Trustees to offer help and advice on how to maintain the site from a geological perspective.

Plans are being formulated for a mini clean-up team to visit and also for updating or refreshing the information board.



Soulbury Stone – Making Erratic News in March and April 2016

Geology rarely makes the news but on 30th March 2016 Radio 4 and various local media reported on the Soulbury Erratic Boulder.

The Soulbury Stone as it is referred to, is an erratic boulder left behind when the glacial ice sheet carrying it melted. It is made of Carboniferous limestone and is believed to have been carried by the ice from the Peak District.

The stone has special meaning to the locals and rests in the roadway near an intersection. The motorist involved is alleged to have reversed into the stone and submitted a claim to Buckinghamshire County Council declaring it as an obstruction under the Highways Act. A bitter dispute with locals followed who were opposed to moving the stone.

A solution was finally reached with white lines being painted around the stone such that it now has its own island.

Photo and link to the Guardian article:

<https://www.theguardian.com/science/2016/apr/02/the-soulbury-stone-never-loses-and-now-the-council-knows-it>

The Soulbury Erratic is registered as a Local Geological Site (LGS) in Buckinghamshire.



Ivinghoe Beacon geological / archaeological walk – May 28th 2016

Following the AGM held this year at Ivinghoe Village Old School, members of the BEHG explored the geology and archaeology of Ivinghoe Beacon. This is a beautiful location on Chalk hills offering spectacular views of the vale and of dry valleys. Classic features such as chalk dip and scarp slopes were seen and Quaternary periglacial features were examined.

For more information see BEHG website:

bucksgeology.org.uk/ivinghoe_beacon.html

Photo below: Mike Palmer at Incombe Hole



BEHG Minutes of AGM - Ivinghoe Village Old School Community Hub,

Saturday 28th May 2016

Present

Philip Clapham, Roy Cole, Jill Eyers, Ian Hudson, Bryan Moseley, Mike Palmer (minutes), Judith Stanton.

1 Apologies

Julia Carey, Graham Hickman, Mick Oates.

2 Minutes of previous AGM, 20th June 2015

Published in BEHG Newsletter No 26 (December 2015)

Agreed as a correct record. No matters arising.

3 Membership report

Membership was reported to be 16 at the last committee meeting (5.4.2016). Mike reported that the committee meeting preceding the AGM had discussed approaches for increasing membership.

4. Review of the previous 12 months

4.1 Conservation

Jill noted that changes in management of a number of key sites had temporarily made access difficult over the last year. With new management groups now in place Jill circulated a Local Geology Sites action list for the committee to review in the coming months

4.2 Field Meetings and Talks

Jill circulated a list of events that have taken place in the last 12 months. These included:

- Northmoor Family Day, Jill Eyers (26th April)
- Munday's Hill Quarry Visit, Jill Eyers (10th May)
- Stonehenge Dawn Visit, Jill Eyers (17th May)
- Whiteleaf Quarry Visit, Jill Eyers (20th June)
- Coombs Quarry evening picnic with OUGS, Jill Eyers (2nd July)
- Henley Show, BEHG display, Hambleden, Jill Eyers (12th Sept)
- Rock & Fossil Day at Bucks County Museum, Mike Palmer & assorted BEHG members (9th April)
- Buckingham Spring Fair, BEHG display, Roy Cole & Jill Eyers (17th April)

Ian thanked Jill for the Stonehenge visit noting how much work had been involved in organising the day and suggested that we look to repeat this in 2017.

Jill also noted that a small number of events had had to be cancelled due to insufficient interest. This was largely due to low membership and publicity issues which had been discussed in the committee meeting preceding the AGM. It was felt that procedures were now in place to reduce significantly future cancellations.

Cancelled meetings included

- Buckingham Sandpit and Coombs Quarry conservation days (see 4.1.)
- Ivinghoe Winter Walk (rescheduled as a post AGM walk)
- Introduction to Rocks, Fossils & Minerals Workshop (to be rescheduled following membership drive)

4.3 Newsletter and Website

Graham was unable to attend the AGM. Mike noted that one newsletter had been produced since the last AGM. Mike reported that plans to increase the frequency of publication were discussed at the committee meeting preceding the AGM and it is hoped that this will translate into a more regular production.

Mike also reported that Graham is planning to leave the county in April 2017 and that; therefore, we would need to appoint a new Newsletter Editor and Website Manager.

5 Treasurer's Report

Jill circulated combined Income and Expenditure Accounts (attached) for the last two years (no accounts being presented at the last meeting)

Jill noted that the fee for the web domain 2015 and for web hosting had been omitted from the accounts as these had been paid on a personal credit card. Members present felt that Jill should reclaim these cost

Jill also noted that the GA's affiliation fee would be paid as a direct debit from 2017 onwards.

Jill suggested that our current funds as shown in the accounts meant that we could afford to spend money on Group events and publicity. Suggestions towards this will be discussed at the next committee meeting.

Buckinghamshire Earth Heritage Group		
Income and Expenditure Account for year ending 31st March 2016		
Income:	£	£
Book Sales	22.50	
Membership	160.50	
		183.00
Expenditure:		
UK RIGS subscription (2015 & 16)	20.00	
Geological Association subscription (2015 & 16)	80.00	
Insurance (2015 & 16)	219.11	
Materials & equipment	84.26	
Web Domain (2016)	8.38	
Web Hosting	0	
		411.75
Excess of Expenditure over Income		228.75
		=====
Opening Bank Balance (31 st March 2014)		£5,707.83
Less Excess of Expenditure over Income		228.75
Balance as per Bank Statement (31 March 2016)		£5479.08

6 Election of Officers

The following members were elected/re-elected as detailed below

Officers re-elected

- Chairman – Mike Palmer
- Secretary (acting) – Mike Palmer
- Vice Chair and Membership Secretary – Julia Carey
- Treasurer (acting) – Jill Eyers

Other Committee members re-elected

- Webmaster and Newsletter Editor – Graham Hickman
- Committee members - Philip Clapham, Jill Eyers, Ian Hudson, Mick Oates, Judith Stanton

New committee members

- Roy Cole elected to committee and to the new post of Events Secretary

7. Any other business

The committee reported on the suggestion to change the group's name to the Bucks Geology Group. All present were in agreement. The Committee will approach non-attending committee members for their view.

8. Date of next Meeting

Saturday 20th May 2017

End of minutes

BEHG Special General Meeting - BCMRC, Halton.

Tuesday 28th June 2016

Following the suggestion at the recent AGM to change the name of the Group to the **Bucks Geology Group** a Special General Meeting was held on Tuesday 28th June 2016 to allow the wider membership to their say on the suggestion. We can now report that all present agreed to the name change and so we are now constitutionally known as the **Bucks Geology Group**. A new logo will follow.

2016 Future Programme –

Further trips and talks will be scheduled as the year progresses. Please check the BEHG website or email the organisers before any event, for the latest update.

Saturday July 30th 2016, 9am-11am – East Burnham Quarry. An opportunity to visit a working gravel pit extracting aggregates from the Boyn Hill Terrace. For details contact Graham Hickman at (hickmanq@bp.com) or call 07763363266

Sunday August 7th 2016, meet 11.30am. Coombs Quarry Picnic and Tour. For details contact Jill Eysers: at (j.eyers@btopenworld.com) or call 01494 881325.

Saturday and Sunday August 13th & 14th. College Lake BBOWT – Geology Rocks. Mike Palmer will be manning a stand on behalf of the Museum's Marsworth Collection. Members are encouraged to support this event.

September 2016 TBD - Geological Fly drive across Bucks. North to South Geological traverse across Buckinghamshire. For details contact Graham Hickman (hickmanq@bp.com) or call 07763363266.

TBD Charnwood Forest, Leicestershire. Roy Cole offered to lead this trip later in the year

Saturday November 5th 2016 TBD. Festival of Geology. University College London, Gower Street, London. WC1E 6BT. Free public event. Family friendly.

Membership

Membership was due on January 1st 2016 Please forward on membership fee to Julia.

Annual membership runs from 1st January. Individual membership for the 2016 calendar year is **£7.50** and family membership is **£12**.

A copy of the membership form is available on our website:
www.bucksgeology.org.uk/pdf_files/BEHGMembershipForm2016.pdf

If you would like to join please complete and send the application form together with payment to:

Membership Secretary, Julia Carey, c/o BMERC. Place Service 9th Floor, County Hall,
Aylesbury. Bucks. HP20 1UY

email: jcarey@buckscc.gov.uk

Alternatively, you can pay your subscription direct to the **BEHG** account at :
Lloyds TSB (White Hart Street, High Wycombe)
Sort code: 30-94-28 Account no. 00744003

Confirmation of receipt will either be by email or by post. The BEHG welcomes all new members.

The Buckinghamshire Earth Heritage Group aims to record, conserve and promote the geology of Buckinghamshire and Milton Keynes.

Website: www.bucksgeology.org.uk

For general enquiries please contact:

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Affiliated to the Geologists' Association

