

Conserving Warwickshire's Geological Heritage



WGCG

Hidden wonders
in the landscape
of Warwickshire

In this Issue:

Brandon Marsh geology wall

Oxford museum trip

Norfolk fieldtrip

Outreach 2014 snapshot

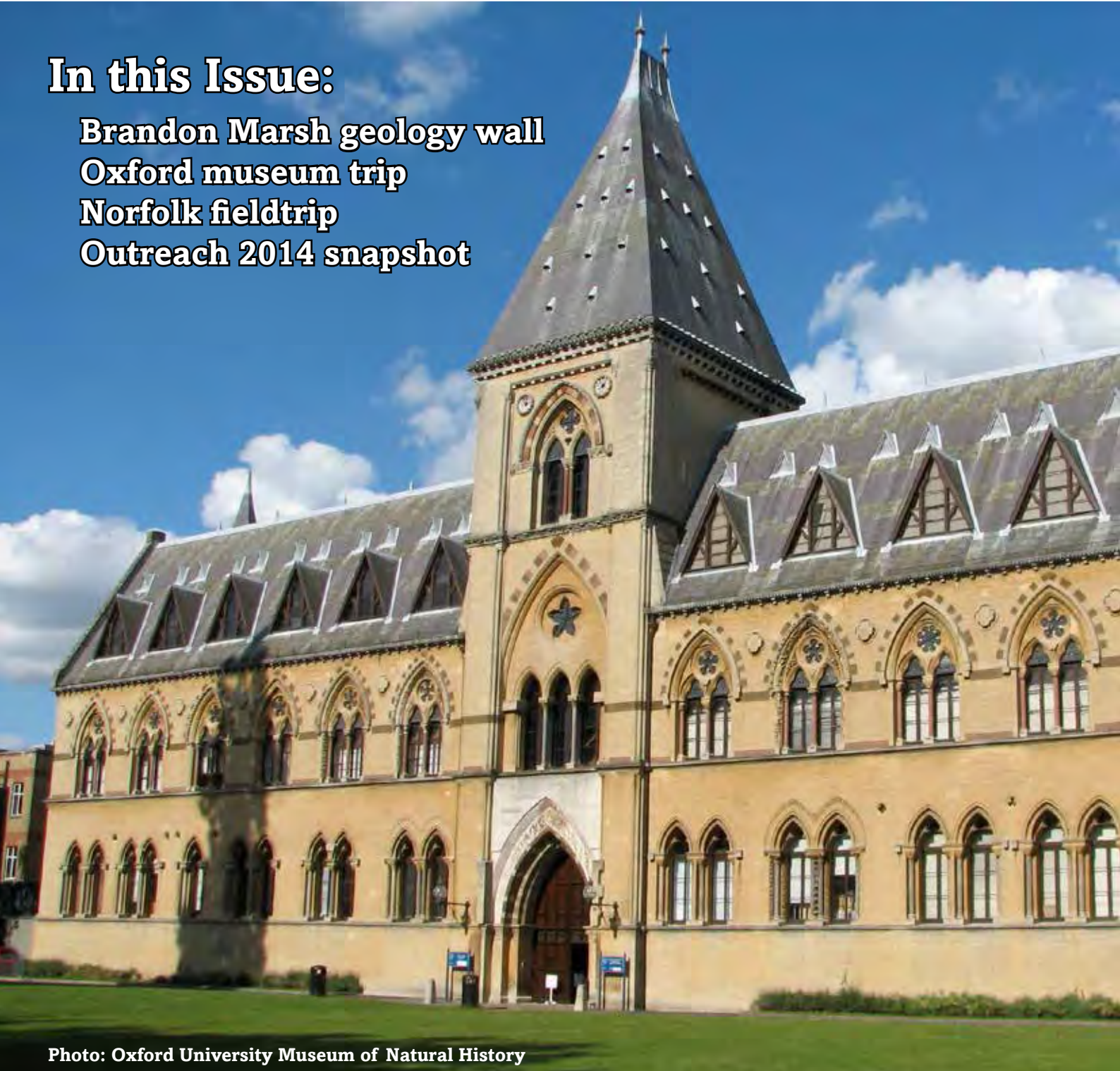


Photo: Oxford University Museum of Natural History

Newsletter

Spring 2015 Issue Number 29

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From the Chair

Brian Ellis

Firstly, many thanks to those of you who have paid your subscriptions for 2015 so promptly. It is pleasing to know that the group has your continuing support. It is also good to have another Newsletter which records some of the many and varied activities of WGCG. I am grateful to Ben Steer for designing this edition while Jim Passmore has been on holiday visiting his wife's family in Indonesia.

Lucy Hartley's article recounts some of the vicissitudes of gathering together all the stone required for the Warwickshire geology wall at the Warwickshire Wildlife Trust's headquarters at Brandon Marsh. Lucy is a landscape and garden designer who managed the project on behalf of the Trust. We are very grateful for the work she put in, along with our member Paul Stevenson, in getting the construction completed. We are now working on developing the interpretative materials which will be both in paper form and available on the WWT and WGCG websites.

There are also accounts of the successful field trip to North Norfolk and the visit to Oxford Museum, where the highlight was seeing 'behind the scenes'. Regrettably I missed both of those. We have a pictorial overview of the activities organised by the Outreach Team during 2014. There are also details of the field visit and residential field trip programme for the coming summer. The newsletter also has details of our 2015 Outreach activities at Packwood House and Compton Verney. The former is extending our visits to National Trust properties and the latter continuing our contacts there, picking up from our contribution to their 'Volcanoes in Art' exhibition a few years ago. Compton Verney has been successful in gaining a Heritage Lottery Fund award for developing the interpretation of the Capability Brown landscape and we will be part of their celebration called 'Park Life'.

The February edition of Down to Earth carries an account of the visit that the Ettington Primary School pupils made to Burton Dassett hills in 2014. After its success we are funding two school days in 2015 with St John's Primary in Kenilworth and a return visit with Ettington. This helps us meet one of Rob Holloway's wishes for the use of his bequest. Rob's other wish was that we support young geologists early in their careers. To this end we will be awarding bursaries to two students from Camborne School of Mines to undertake projects with BGS, one on antimony in S.W. England and the other on rare earth elements in Romania. We are also expecting applications from two students to support their work placements with British Gypsum. Finally there is a new venture this year enabling four school parties to visit the test mine at Camborne School of Mines, starting with 20 sixth formers on 25th February. Their programme looks so interesting that those of us who read it wanted to have the chance to join in.

Unusually the Newsletter has an obituary – of Professor Martin Brasier. He was known to several WGCG members for the work he did with the Charnia Group – a group of geologists who worked on the Ediacaran fossils (and their associated environments) in Charnwood and the Nuneaton area. His interpretation of Woodlands Quarry is the basis of much of our understanding of that site.

The February Down to Earth reports a different demise, that of a fellow local geological society in Ravensbourne. This is because of the Society's problems in recruiting members prepared to run the group. Chris Darmon's editorial in Down to Earth makes salutary reading. WGCG belongs to a grouping of, mainly county, geology societies – the Geological Trusts. This group performs a useful co-ordinating and networking function but it is also on hard times financially and its future is in doubt. It is heavily dependent on external project funding which has now dried up. The annual subscriptions of member groups (we pay £100) is not enough to pay for the part time administrator.

Fortunately WGCG is in much stronger financial health thanks to Rob Holloway's generous bequest. But, like Ravensbourne, we do face issues of recruiting a new generation of members willing to contribute to planning our activities. Two Trustees complete their six years terms of office in August 2015 – Frank Wells our Secretary and Ian Fenwick, who chairs the Education Committee, which is responsible for planning the winter and summer programmes. Two more, Jim Watts (Treasurer) and I (as Chairman) complete our terms of office as Trustees a year later. The Management Committee is taking steps to reduce the workload on Officers. At a strategic level we have adopted the working assumption that WGCG will not expand its range of activities by developing new initiatives in the foreseeable future. We will focus on our existing Winter and Summer programmes, our existing programme of conservation, outreach activities and the Holloway Bursaries. It is also the case that all the basic management structures have been put in place since we became a Charity and so we are a functioning working organisation.

At a more practical level we have decided to reduce the scope of the work of the officers by hiving off clearly specified parts of the jobs. Specifically we are looking to recruit a Minutes Secretary for the Management Committee (with no other responsibilities and not as a trustee), put in place some admin support for the Education Committee dealing with the logistics of arranging speakers and fixing details of the summer programme, thus reducing the work of the Chair of the Education Committee and appointing a professional book keeper to do much of the day-to-day work of the Treasurer. The job spec. for the Minutes secretary will be circulated shortly and we hope a member will be willing to take it on. We hope such moves will make becoming one of the officers more attractive. I would like to give up being Chairman (for domestic reasons) at the end of August, although continuing as a Trustee for a further year. This would have the advantage of me (and Jim as Treasurer) being on the Management Committee during a period of overlap between the membership of the existing committee but with some new Trustees and Officers, thus giving some continuity and support. There are some things I do now – for example publications, developing links with the Wild Life Trust, some of the Holloway Award links – which, with agreement of my successor, I would be willing to carry on, thus reducing the commitments of an incoming chair. I hope you agree these are positive moves.

We are a successful organisation. I want to finish on a positive note and pass on two bits of feedback which have come my way recently. Professor John Smellie said after his talk on Antarctic volcanoes that "this is one of the best audiences I have talked to. I have not had such a good response in the questions asked afterwards which really showed that people were actively involved". And I quote from an email I received recently from one of our contacts; "I do like WGCG and your active approach to getting good events happening and teaching your members".

Building of the geology wall at Brandon Marsh

....from Concept to Construction

Lucy Hartley

Concept

The original plan – and Concept back in 2010 - was to build the wall in the Sensory Garden. This was to be a joint project involving the Warwickshire Geological Conservation Group (WGCG) and Warwickshire Wildlife Trust (WWT). It was later decided that there would be more room if the straight perimeter fence alongside the Education Garden was replaced by the wall.

The agreed Concept was to build a wall showing a roughly north-south geological cross section of the county of Warwickshire in rocks sourced from the county. A schematic Plan using thirteen distinct strata was drawn up by Lucy Hartley to help with visualisation and guide construction. The local geological knowledge of John Crossling, Brian Ellis and Martyn Bradley was put into the plan right from the start and used to make modifications as the Concept turned into a Plan. The strata represent rocks from Nuneaton to Edge Hill. Coal, which is unsuitable for building directly was to be represented by black bricks using Coal Measures mudstones from Kingsbury. Embossed named bricks manufactured using Mercia Mudstones and rocks with surface fossil were selected for inclusion to add interest. Paul Stevenson gave advice on shape and other desired properties to look for in rock pieces suitable for building.

Sourcing Rocks

The WGCG set out to identify, source and get permission to collect suitable rocks from existing and disused quarries, salvage yards and brickworks. Each of the thirteen strata has its own story. The sourcing phase of the project took over a year to complete with varying input from WGCG members, WWT staff and Lucy Hartley. The notes given below represent only a summary.

1. Caldecote Volcanics

The oldest and one of the hardest rocks. Originally it was thought, wrongly, that there were enough pieces already at Brandon Marsh, saved from the disassembled previous geological display. In the end it was the last rock collected despite being the first needed at the start of the wall. We nearly failed to get the extra pieces needed after a long chase and at the last hurdle by the requirement of a pair of orange safety trousers! Luckily and eventually, our reluctant key holder to the now disused Boons Quarry conceded that maybe we could make our collection and not risk any lives without the orange trousers.



2. Hartshill Sandstone

Selected from the now disused Jees Quarry in Nuneaton. A very helpful key holder let us in and helped fill our salvaged bulk bags. The only slight drama was the tearing noise one of the bags made as it was lifted in and out of the Grabber truck hired to move the rocks!



Midland Quarry Products hold the keys to both Jees and Boons quarries. It took many calls for both visits to find the right people to ask and make arrangements with but both chases resulted in donations where we were able to select and collect as much as we needed so it was worth the frustration in the long run.

3. Diorite

We really did have enough of this already on site so there was not so much effort involved here...except of course the effort made by those who moved the rocks from where they had been left to where the wall was being built.

4. Coal Measures

The Baggeridge brickworks is now owned by Wienerberger. The team there were very kind in choosing and donating 200 vintage black pavements for us, to represent coal seams. The pavements are fired from Coal Measure mudstones.

5. Carboniferous Sandstone



Coventry City Council came across many tonnes of red Coventry Sandstone when digging in the central reservation of London Rd for underground works back in 2013. The pieces ranged from pebble to boulders the size of a kitchen unit. Again, after many phone calls, we were given permission to select and arrange collection of a few tonnes of suitable rocks for building with.

6. Red bricks from Kenilworth and Cherry Orchard

The Permo/Trias mudstones are unsuitable for wall building and we decided to represent those strata by bricks fired from the mudstones. A WGCG member kindly donated 75+ bricks he had on his property dating from at least mid last century and almost certainly made in Kenilworth. Bricks from the local Cherry Orchard brickworks were found at Warwick Reclamation Yard by John Crossling and brought on site as part of a mixed haul using the WWT trailer and staff.

7. Kenilworth Sandstone

This was donated by Warwickshire County Council and collected from the Sustrans cycleway and footpath in Kenilworth. This was entirely organised and executed by WGCG members.

8. Red Leamington bricks



These were part of the haul from Warwick reclamation yard and are embossed with 'Leamington Brick Company'.

9. Bromsgrove Sandstone

The Bromsgrove Sandstone quarry on Leek Wootton Golf Course had recently been temporarily re-opened for building work in Warwick. They were left with a large pile of boulders and rocks which the WGCG managed to get permission to look over and take from. Most of the pieces had to be cut on site before being brought to Brandon Marsh. This took multiple trips by Paul Stevenson and a Nature Force volunteer.

10. White Lias

This was not easy to find and get hold of. It was speculated and preliminarily researched that rock pieces could be taken from Ufton fields. The paperwork due to the site being SSS1 could have meant the project being held up for many months so this route was left and pieces were collected from here and there on public land and salvage yards instead.

11. Blue Lias



Blue Lias was sourced from Southam Quarry and donated by Cemex. It was brought in using WWT transport. Additional rock was obtained from salvage yards.

12. Hornton Stone

Another trip to a disused quarry. This time Avon Hill Quarry near Fenny Compton. The Grab hire driver we used for the larger hauls was amazed and curious as to the variety of places we had booked him for! The owner of this site spends most of his time out of the country but was happy to donate and allow WGCG members in to select rocks for collection.

13. Oolitic Limestone

The last rock came from the southernmost part of our county and was used to build the whole Education Garden side of the Geological Wall...and we had to cheat. Oolitic limestone is no longer quarried from Warwickshire and existing pieces are so rare it was conceded that we would need to buy in. The Oolitic limestone was bought from Smiths of Bletchington in the Cotswolds.

Other

Rubble used for infill was either donated by Hope Construction Materials (from next door to Brandon Marsh) or from opportunistic collections from skips by Paul or Lucy – hence the toy car!



The Quaternary pebbles for the top of the wall were donated and brought on site by WGCG members.

Construction

Clearance started on 3 Sept 2014 when a splinter group from Nature Force elected to stay on the Reserve and dig a trench for the wall foundation. We didn't have all the rocks on site yet and the trench revealed a possible problem with the base. In the bottom of the trench was a thick layer of concrete which ended partway along its length. The wall would have to be built over a transition from concrete to compacted soil.

A target deadline of 20 Sept to clear the Tool yard of any stored rocks added pressure to the operation. All the rocks needed to be moved out and this greatly restricted working area and used time which may have been better focussed on solving initial building issues. As it was the deadline was moved back giving more time to move and organise rocks. Deliveries and collections of Caldecote Volcanics, Hornton, Bromsgrove stone, the Lias's and Oolitic limestone were all undertaken during Sept and early Oct. In the meantime worries about the foundations and sourcing rubble, cement or lime and the necessary tools kept us busy. Paul Stevenson was cutting Bromsgrove stone to shape and setting aside 'best pieces' for prime positions in the wall.

The first rocks were laid in early Oct and the finishing touches to the top of the wall on 18 Dec. Paul worked meticulously through some difficult weather and lighting conditions, with both advisory and physical input from WGCG members; Lucy dropped by to break up rubble and arrange rocks as often as she could and many passers by – both staff and visitors - stopped in passing to admire the wall for the duration of the build. Each rock laid had to be the right type, size and shape to ensure a tight fit and be a suitable base for the layer which would go above it. Consideration was made to strengthening the wall with ties and mortar where needed and gaps left for wildlife to hibernate or nest. Changes and unique decisions had to be made during the build as issues arose. This was not an easy project and not one which could be brought swiftly together.



Lucy Hartley Gardens BSc (Hons)

- Fresh ideas and advice
- New design
- Garden rejuvenation
- Supply and planting

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The following pictures are a photo diary of the build as it progressed.



Early days – Paul Stevenson at work



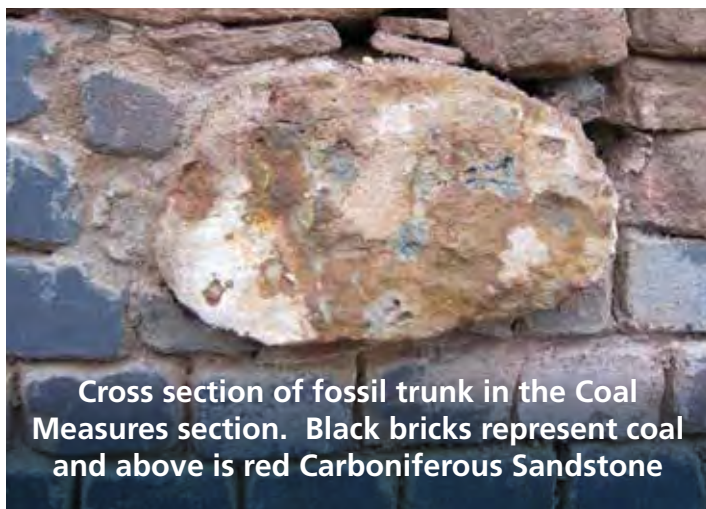
The wall begins to take shape



Trace fossil in Hartshill Sandstone



Difficult working conditions with building materials near the wall



Cross section of fossil trunk in the Coal Measures section. Black bricks represent coal and above is red Carboniferous Sandstone



Rubble used for infill



Work in progress



Bricks representing Mercia Mudstone rocks



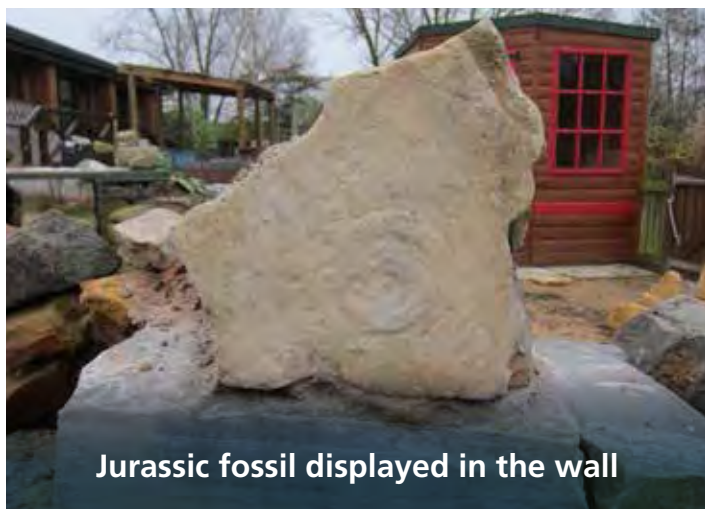
Paul Stevenson at work on laying Jurassic oolitic limestone on the Education Garden side of the wall



Metal wire used for tying the two sides of the wall together



Most of the piles of rock are now in the wall!



Jurassic fossil displayed in the wall



↑ Location of the different rocks in the wall

↓ The wall represents a schematic cross section of the rocks of Warwickshire from north to south



Oolitic Limestone

Education Garden

Oolitic Cotswold Limestone has been used for the wall facing the Education Garden

Outreach Events a 2014 Snapshot

Outreach Team

2014 saw WGCG punch well above its weight taking on 7 separate day events across Warwickshire with the aims of...

Promoting the group to potential new members

Informing visitors and the general public about local geology

Encouraging young & old alike to admire the geology around them

Below is a snapshot of each event from 2014:



This couldn't have been achieved without the help & support of WGCG members.

2015 will see a focus on 2 events (see page 20 for more details) if you think you can lend a hand please talk to Brenda Watts on brendawatts5@googlemail.com

Visit to Oxford University Museum of Natural History - 31 January 2015

Ian Fenwick



On this Saturday January morning, thirty members stood shivering in the bitter weather outside the Museum waiting for its doors to open. But... the wait was worth every minute of discomfort for inside, not only was it warm, but the collections glowed and an enthusiastic welcome awaited us. Prof. Paul Smith, who had spoken to the Group a year ago, had laid on coffee to set us on a journey behind the scenes that would have inspired Charles Dodgson (alias Lewis Carroll), who had in any case associations with the Museum.

The collections have a long history dating back to those assembled by the Tradescants (father & son) in the early 17th century. These found their way into the original Ashmolean Museum and, with other early collections such as the fascinating Edward Lhwyd fossil collection, formed the core of the new Museum of Natural History when it opened in 1860. It can therefore claim to be the oldest publicly exhibited collection in the world.

We split into two groups which just enabled us to squeeze into some of the storage areas where fossils collected nearly 400 years ago by Lhwyd greeted us; these included a large tooth of the Carcharodon, sometimes likened to the Great White Shark but with teeth many times larger.



Bust of
William Smith

By now we were 'coming to the boil' when we were introduced to Monica Price, Head of the Earth Collections. Monica is clearly enraptured by the Corsi collection of polished 'marbles' and she conveyed this to us with a huge smile on her face! The excitement was palpable – and with good reason. Not only the polished marble blocks, but also the mineral collections are of world class quality - quite simply, they took our breath away.

After a quick lunch break, Paul took charge of our group and regaled us with a fascinating account of the design and building of the Museum in the 1850s – the part played by the Pre-Raphaelite brotherhood, the trials and tribulations of experimenting with wrought iron structures Clearly, in three years Paul too has fallen deeply in love with this Museum!

We then ventured into the insect collections where we were welcomed by another enthusiast, Darren Mann, Head of the Life Collections. He explained how DNA analysis had enabled them to establish that there were three genes which determined the colour of a butterfly's wing – well demonstrated by an orange tip in the collection. Endless stories of long-lost collections were mixed with admiration that a daddy longlegs could be preserved – legs and all - after a journey from Australia, endless moves around the Oxford museums and still intact after 300 years! Then on to a very unglamorous cubby hole where Paul opened a cupboard, pulled out a shoe box and lifted out a rather scraggy looking specimen – parts of the Dodo; the only dodo of a single animal (all others apparently are composites of bones dredged up from a lagoon in Mauritius). This made some of us feel that the WGCG fossil collection wasn't stored too badly after all!



Dodo reconstruction
at the O.U.M.N.H

On the way, we ventured into the very room where the famous debate on evolution between T.H. Huxley & Bishop Wilberforce was held in 1860. Now sadly used as a store, it lacks that aura of a historic venue that one might expect. However, Paul told us that 'he had plans' to re-create the ambience and atmosphere of what must have been wonderful venue for this debate that is still discussed 150 years later.

As the tour drew towards its close, we were given a peep into the Museum archive where some of William Smith's working drawings were on display. Even his alterations to his section across the Radstock coalfield could be seen. Finally, Paul unearthed some wonderful early eighteenth century volumes on shells and on the birds of the Carolinas & Florida – both incredibly rare and, inevitably, valuable. The latter (a mere 60 x 40 cm) had only been found (re-found?) a few weeks ago at the back of a cupboard! We really wondered what would turn up when the next door was opened!

So ended a most exciting and enlightening visit made all the more enjoyable by the knowledge and sheer enthusiasm of Paul and his colleagues who had given up a whole day to show a group of interested amateurs around one of the world's great natural history collections. We owe them a huge debt of gratitude.

Report on Norfolk fieldtrip

Weekend 16-18th May 2014

Mike Allen



A group of some 16 members, occasionally supplemented by 'friends and family', were treated to an ironically inappropriate, but most acceptable, weekend of almost unremitting sunshine under the expert guidance of our leader Professor Peter Worsley of Reading University, endeavouring to come to grips with the complicated "ice-age" record for which north Norfolk is most celebrated. Equally appreciated was the hospitality offered by the Highfield Guest House, the main base for most of us in Sheringham, who also provided us with an excellent feast on the Saturday evening.

Activities began on the Friday in Hunstanton where everyone managed to assemble at the agreed time and place without mishap. Several members were visiting this location for the first time and were suitably impressed by the colourful geology that awaited them along the main cliffs facing counter-intuitively to the west across a hazy Wash and a wave-cut platform of box-weathered "carstone".



wave-cut platform of box-weathered
"carstone"



Distinctive cliffs

This stratum is the basal brown layer of ferruginous sand that underlies the "Red Chalk" and more familiar "White (Lower) Chalk" which make these cliffs so distinctive. A few well preserved body fossils were found in the Red Chalk amongst the main fauna of brachiopod, belemnite and sponge. One member (Gill) also found a well-preserved shark's tooth in the Chalk. Ammonites were not forthcoming on this occasion, but are the prime age indicator in these beds.

On top of all this (literally and metaphorically), our leader was keen to point out the phenomenon of cold-climate degradation that the top chalk surface underwent during the Pleistocene cold periods, producing a solifluxion 'head deposit'. Several other terms to do with the ice age were explained at this stage, such as cryoturbation and involutions. This served as our introduction to the main theme throughout the weekend concerning the Quaternary stratigraphy and its appearance in the landscape.

The afternoon was rounded off with a walk along the Ringstead glacial overflow channel and the adjacent 'Hunstanton' esker site, for which special access had been granted. The leader has done much work on this feature (the best example in England). Part of a 3 km. length of sinuous, shallow ridge winding across otherwise fairly flat ground was clearly visible. Time was spent considering the clasts within the till which led to a discussion of their provenance (from the west and north). This esker was formed during the most recent (Devensian) glaciation.

The following day was fully occupied with visits to four coastal locations, moving west to east from Weybourne Hope, through West Runton and Overstrand to Happisburgh.

Weybourne Hope marks the westward limit of the north Norfolk coastal cliff line, beyond which erosion gives way to an essentially accumulative coastline marked by the celebrated spit of Blakeney Point. This protects a large area of salt marsh flanking the former cliff line, much beloved of the ornithological brigade. Our leader pointed out that the idea that this spit has built out westwards through the agency of longshore drift may be false and that the coastline has in fact been shaped by redistribution of westward derived sediment and slow inland migration as sea-levels have risen with the melting of the last ice sheets from a 140m. lowstand over the last 20,000 years or so (since the 'Last Glacial Maximum'). In order to safeguard the stabilised land area it is nowadays necessary to maintain the spit by human intervention through the restoration of any breaches in the shingle / sand build up.

To the east, the cliffs reveal a threefold succession with Chalk (and chalk head) at the base, marine sands of the Baventian age (c.1 million years old), Weybourne (= Wroxham) Crag in the middle, with glacial sands and gravels forming the upper part of the cliff. Some attention was given to the nature of the upper surface of the Chalk.

This was highly irregular and appeared to have the characteristics of a karst weathering surface - what looked like ice-wedges at first glance were demonstrated to be solution pipes - but it also appeared that the Chalk itself had been squeezed upwards in diapiric fashion amplifying the irregularity. The glacial deposits were described as a 'diamicton', a non-genetic term for a poorly sorted deposit, but were a puzzle in apparently showing a clear bedding fabric. They also contained areas of decalcification, which may be due to a shallow level weathering effect.



Pipes in chalk head

At West Runton the most conspicuous feature in the cliffs is the half million year old 'Cromer Forest or Freshwater Bed', and in particular a dark peaty layer that occurs as a broad lens along the foreshore, intermittently but well exposed in several places. This represents the infill of a sluggish interglacial river channel that has yielded a rich fossil treasure trove ranging from microscopic spores to the largest (and oldest) almost complete 'elephant' yet recovered in Britain which has been identified as *Mammuthus trogontherii*. The contemporary environment was graphically evoked by our leader, who also wielded his trusty spade to excavate down to the underlying Beestonian sands containing evidence of an Arctic flora. Further along the cliffs we were able to see more clearly the overlying sediments, respectively inter-tidal flaser-bedded silt/sands, fluvial cross-bedded sands and the uppermost "contorted drift", a till containing large chalk blocks with much irregular bedding.

After picnic lunch we moved on to Overstrand where our attention turned to an exceptional demonstration of 'glacio-tectonics' preserved in the cliffs. The upper 2 (of 3) gigantic Chalk rafts interleaved with sheets of the Forest Bed etc. are seen in the lower part of this cliff at a point where the "Cromer Ridge" (a terminal moraine from possibly the Anglian Glaciation) intersects the coast.



Glacio-tectonics



Crag containing a large chunk of bone

Ahead of this moraine, large blocks torn up from a former landscape have been scraped up and overthrust by the advance of the ice sheet several km. thick. Although just minor wrinkles in the grand scheme of things, they certainly convey the power of the forces involved. The Chalk raft has a layer of Wroxham Crag attached to it. In this Crag one of the party (Max) found a large chunk of mammal bone.

Happisburgh has recently become well known for the discovery of the most ancient evidence of humans in Europe, footprints in sediments reckoned to be some 900,000 years or so old. The full story of this event was explained over refreshments at the local cafe before heading to the clifftop where the exact site was pointed out. This discovery has made workers think again about a finely wrought hand-axe discovered here in Cromerian age sediments and dismissed as an example of 'recycling' of young material into an older deposit. Nearby we were also shown the Happisburgh till bulging up into an area of symmetrically rippled lacustrine sediments, representing perhaps the diurnal deposition of mud/silt couplets.



Happisburgh - receding cliffline

Sunday was given over to examining several inland sites with more emphasis on their significance to present day landforms. We began with a stiff, short pull up the scarp face of the Cromer Ridge to gain the summit of Stone Hill. The view seaward included two 'tumps' near the coast, including the type location for the 'Beestonian' on, oddly enough, Beeston Hill! Both represent erosional remnants of older Pleistocene deposits. The nearby Briton's Lane Quarry works a thick accumulation of well bedded, gently southward dipping, fluvio-glacial outwash sands and gravels deposited from a waning ice front plain (referred to as 'sandur') that lay to the north. Deposits like these built up the Cromer Ridge, and much discussion focussed on their age. The leader's conviction is that they are of Anglian age, but there remained a certain degree of scepticism amongst the party. The series of short valleys incised into the steep face of the ridge, and their intervening interfluves, seemed remarkably "fresh" for such an age (c.450,000 years), as indeed does the sharp definition of the scarp face of the ridge itself.

Driving across Kelling Heath, another dip-slope spread of 'sandur' outwash, we reassembled in the car park on the celebrated Blakeney esker. I have to say that this esker seemed to present a clearer landform despite the thick covering of vegetation than that at Hunstanton. The history of the various theories advanced to explain this feature was detailed by the leader, but unfortunately there are few decent exposures of the associated tills to throw light on whether they be supra-, en-, or sub-glacial or of some other origin. The leader considered that this feature had to be of Anglian origin despite its clean-cut appearance, lying as it does beyond the Devensian ice front (in contrast to that at Hunstanton). The evidence for this assertion seemed sounder, based on the total decalcification of the associated till and the almost universal occurrence of 'chatter marks' on the flint clasts within the till, evidence of their having been through a prolonged cycle of attrition in a former beach deposit.

At Morston, a well preserved exposure of a raised pebble beach represents a former shoreline prior to the development with rising sea-levels of the salt marsh and Blakeney spit to the seaward. This was overlain by a distinctive reddish-brown sandy Devensian till equivalent to that missing earlier at Hunstanton, but extending around the Wash into Lincolnshire and Yorkshire.

The final site was well planned to be in the car park of the Red Lion at Stiffkey. Here a further, very localised 'Red Lion' till, highly chalky in character, has been distinguished from other chalky tills in the area. This could be seen in stratigraphic context above the Chalk (with "primary" flint pebbles lacking any 'chatter marks') and chalk head. It is also of Devensian age and reflects the more usual Chalk bedrock provenance to the west.

The proximity of good ale (and the hour) was the signal to bring things to a conclusion with a final vote of appreciation for the good offices of our leader. Speaking personally, I may be none the wiser, but I go away much better informed!

Obituary of Martin Brasier

Jon Radley

It is with sadness that I report the untimely death of Professor Martin Brasier (University of Oxford); a palaeobiologist of international renown and a great friend of Warwickshire geology.

Martin's postgraduate studies during the late 1960s and early 1970s were concerned with Recent foraminifera (single celled shelled marine organisms), a group with a long fossil record stretching back to the early Palaeozoic. Following time conducting marine surveys, his interests in these fascinating and diverse creatures and their biodiversity ultimately pushed his investigations deeper back into geological time.

After spells lecturing at Hull and Reading universities, he settled in Oxford in the late 1980s. There, his research into the nature of the early fossil record and the origins of life truly continued to flourish. Martin travelled, collected and researched Cambrian and Precambrian fossils globally, with the fossiliferous Cambrian outcrop of the Nuneaton inlier providing important data. Specifically, he had recognised the succession of trace fossils and, shelly fossils that we know from Nuneaton globally, flagging up the international significance of local SSSIs such as Woodlands quarry.

Martin published widely and wrote several books – academic and popular. Amongst these, 'Darwin's Lost World' (2009) is particularly accessible and helps to put his Warwickshire interests into context. Additionally he served on numerous international committees, not least providing astrobiological input to Nasa's search for life on Mars.

Professor Brasier was a 'leading light' in the Charnia group of geologists, researching the fossils and paleogeography of Charnwood Forest and the Nuneaton inlier. He will be remembered by several WGCG members as an informal and entertaining guide to the newly restored Cambrian sections at Woodlands Quarry. He is survived by his wife and three children and has left us an outstanding legacy of insight into the early origins of life on Earth.



Professor Martin Brasier FGS FLS
1947-2014

Outreach 2015 Events

Rock & Fossil Fundays

Packwood House - Sunday 24th May

Compton Verney - Sunday 14th June

If you're available for any of these dates and happy to promote geology & WGCG for a few hours then we'd be happy to have you on board.

No expert knowledge is required, just an interest in geology. We'll cover travelling expenses for all volunteers.

Fossil fun for Adults and Children, below is a sample of activities carried out:

- Meet Rex our Tyrannosaurus
- See our Trilobite
- Search for fossils
- Paint & colour in dinosaurs
- Complete puzzles
- Learn about where you live
- Model your own fossils
- See how minerals are used

If you think you could lend a hand please talk to Brenda Watts on brendawatts5@googlemail.com



Summer field trip programme 2015

Saturday 18 April

Building Stones of the Rugby area – visits to Leamington Hastings, Churchover and Clifton-upon-Dunsmore.

Meet Southam church (parking on-street or off the Coventry Road at CV47 1PP); 2pm.

Leader: Hugh Jones

8-10 May

Malham Field Weekend.

Leader Dr Tony Waltham
(ex-Nottingham Trent University)

Wednesday 20 May

The geology & landscape of Ebrington Hill - their influence on prehistoric settlement.

Meet Hidcote Gardens car park (GL55 6LR; GR SP 176430) 6.30pm.

Leader: Brian Meredith

Wednesday 17 June

Geological Walk around Meriden from the Upper Carboniferous to the Pleistocene deposits of the Blythe Valley.

Meet on Old Road, Meriden, at the eastern end of the village, off the B4102 (GR 251820) adjacent to Queens Head (CV7 7JP); 7pm.

Leaders: Brian Ellis & Ian Fenwick

Saturday 25 July

North Staffordshire Geology - Mow Cop & Hulme Quarry.

Meet lay-by N. of Mow Cop SJ 868586 at 10.30am. Coach to be arranged.

Leaders: Dr Pat Cossey & Eileen Fraser

Saturday 15 August

Day trip to Leckhampton Hill, Crickley Hill Cutting and Birdlip overlook.

Meet Leckhampton 10.30am.

Leader: Dr Joe Angseesing

Summer field trip programme 2015

11-13 September

Dorset Coast Field Weekend, Portland.

Leader: Alan Holliday

Outreach Events 2015

Sunday 24 May

Packwood House – 11am-4pm

Packwood Lane, Lapworth, Solihull,
West Midlands B94 6AT

Sunday 14 June

Compton Verney – 11am-4pm

Compton Verney, Warwickshire CV35 9HZ

Membership Form

Please print

NAME:

ADDRESS:
.....

POST CODE:

TELEPHONE NUMBER: MOBILE:

EMAIL ADDRESS:

Please confirm:

That we may keep your details as above on our database YES/NO

That you wish to receive details of meetings and newsletters by email YES/NO

Data Protection Act 1998: Your confidentiality is protected by the Data Protection Act.

Subscriptions: (1 January to 31 December) £12.00 Free to students in full time education

Please make cheques payable to WGCG and post to:

William Shakespeare,
WGCG Membership Secretary,
19 Wall Hill Road,
Brownhill Green,
Coventry CV5 9EN

email: bilshk39@gmail.com
telephone: 0797 4795384

Members are reminded of their responsibilities with respect to Health and Safety issues during the Group's activities. They are requested to read the appropriate WGCG Safety Guide for the activity, field trip or work party, and to abide by the decisions made by the leader.

Gift Aid - WGCG is a registered charity No. 1144717.

If you are a U.K. tax payer, please Gift Aid your subscriptions to us. This allows us to reclaim the tax direct from the Inland Revenue at no cost or inconvenience to you and provides an extremely valuable source of income to the Group.

Declaration: I am a UK taxpayer and I pay sufficient Income Tax and/or Capital Gains Tax to cover the amount of monies paid by myself to WGCG and wish all such monies to be subject to Gift Aid until I notify you otherwise.

Signature: Date:

Conserving Warwickshire's Geological Heritage



WGCG
c/o Warwickshire Museum
Market Place
Warwick
CV34 4SA



www.wgcg.co.uk



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Next newsletter coming Autumn 2015...