THE RECORD

EMGS 2017 summer programme: 7 excursions

In May the first visit of the season was to Charnwood Museum in Loughborough to see their Charnwood Rocks exhibition. Organised by the Russell Society, and introduced by Frank Ince, this brought together rocks, minerals and fossils from the Charnwood area to celebrate the 60th anniversary of the first report of a Precambrian fossil in Charnwood Forest.

Also in May 2017 Tim Colman led a small group to the Sedgewick geological museum in Cambridge.

June saw an excursion to Creswell Crags, where the group examined the dolomitic limestones exposed in the gorge that was formed during the Pleistocene glaciations. Some of the group also went into the caves on the very informative 'Life in the Ice Age' tour.

The July weekend excursion to Ravenstonedale, in Cumbria, was by Tim Colman to examine the structures and geomorphology of the Carboniferous Limestone, with exposures in gorges and on limestone pavements. Included was a walk along the Adam Sedgewick trail and the opportunity to visit his birthplace.

In August, Vanessa Banks led a joint excursion with the North Staffordshire Geological Society to Monsal Dale. It explored some of the Quaternary landforms and hydrological features in the dale, and considered formational influences on both the hydrogeology and mass movement within the Peak Limestone Group.

In September another joint visit, with Stamford Geological Society, was made to Ketton Quarry, where the entire Middle Jurassic sequence can be seen.

The temporary exhibition at Wollaton Hall, 'Dinosaurs of China: Ground Shakers to Feathered Flyers' was visited by a large group in September, with the benefit of a personal guided tour by the curator Adam Smith. It was a rare opportunity to see the spectacular new discoveries from China, notably of feathered dinosaurs where the feathers really are visible.

EMGS 2017-2018 winter programmes: 7 meetings

After the AGM in March 2017, Adam Smith, curator of the Nottingham Natural History Museum at Wollaton Hall, introduced swimming plesiosaurs and flying dinosaurs to the Society. His academic focus is on Mesozoic marine reptiles, particularly plesiosaurs and ichthyosaurs, and he described new plesiosaur species with an analysis of how these extinct reptiles swam.

In April Dr Julie Prytulak described the biggest volcano on Earth. Lying on the Shatsky Rise on the Pacific Ocean floor 1500 km east of Japan, the Tamu Massif is a Jurassic volcano some 500 km in diameter and 4000 m high, with its crest 2000 m below sea level. Tamu did not originate over a mantle plume, but was driven by partial melting and compositional variation at a depth of 100–250 km within the mantle, in the style that generates Large Igneous Provinces. Efforts from a diverse group of scientists are gaining invaluable information about the deep interior of the Earth.

Opening the next winter season in October, the lecturer had to cancel at very short notice, but Tony Waltham stepped in with a photographic montage of the geology of the Canyonlands of America. The Colorado Plateau is distinguished by spectacular landforms mainly formed in Mesozoic sandstones and beautifully exposed in the dry lands of Utah and Arizona.

In November's lecture, Colin Summerhayes reviewed the development of climate change models. He showed how cores of marine sediment, stalactites, ice, tree rings and corals reveal the factors, natural and man-made, influencing climate change. Over the past million years our climate has been governed by orbital change and solar change. Over the past 2000 years those natural changes drove us into the Little Ice Age. Present orbital and solar properties are like those of the Little Ice Age, yet temperatures are rising. The only driver we can find to explain that divergence is the rise in emissions of carbon dioxide.

In December, Tony Waltham reprised his Glossop Lecture at the Engineering Group of the Geological Society in London, 'Control the drainage: the gospel accorded to sinkholes'. The main karst geohazard is the development of new sinkholes within the soil profile over cavernous limestone; they develop by suffosion, where soil is washed down into cavities in the stable rock. Most are formed by rainstorms, new drainage inputs or water table decline. Rock collapse is less common. Most sinkholes are induced by civil engineering activities, and are therefore largely avoidable.

David Martill began 2018 with the results of his dinosaur hunting in the Sahara Desert. An extensive plateau, the Hamada Kem Kem, fringes the ancient plain of the Tafilalt in southeastern Morocco. This desert borderland, once recognised for its trans-Saharan gold routes, is now famed for its ancient fossils. A vigorous international fossil trade provides thousands of families with an income much better than can be gained from grazing goats and growing dates. Thousands of Palaeozoic trilobites, goniatites, orthoconic nautiloids and crinoids are now in museums and on mantelpieces around the world. Rising above these Palaeozoic beds, the Kem Kem escarpment is formed of Cretaceous sandstones rich in terrestrial vertebrates, with a wide variety of dinosaurs, pterosaurs, crocodiles, turtles and some of the largest fishes ever to have inhabited rivers, all preserved within this Lagerstätte. *Spinosaurus*, a fish eating, semi-aquatic dinosaur was probably longer than *T. rex*. *Carcharadontosaurus* was a large predator of other dinosaurs. Even the pterosaurs were gigantic, with some *Coloborhynchus* and *Alanqa* exceeding six metres in wingspan.

In her last Presidential Address in February, Vanessa Banks continuing the theme from previous years by speaking on karst processes in the Peak District. Describing the wide range of erosional and depositional karst processes and landforms to be found in the region, she discussed their timing and how they have contributed to our knowledge of the geological and hydrogeological history of the area.