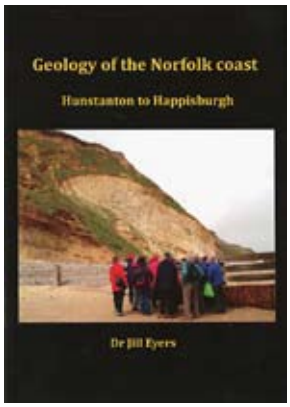
BOOK REVIEWS



Geology of the Norfolk Coast: Hunstanton to Happisburgh, by Dr Jill Eyers (Amberley Books, 2021, 68 pp) ISBN 978-1-904898-23-8

Jill Eyers is a lecturer with the Open University and lives in High Wycombe. She has published a number of books concerning South East England, mostly about archaeology but several about geology. The present book was written during the pandemic but clearly reflects considerable knowledge of the coast sections described. The title is somewhat misleading as only the north coast of Norfolk is covered, but it is good to see an up-to-date guide to some of the best coast sections of this area. Readily accessible books on the subject are rare because the geology is so complicated as well as controversial. Dr Eyers is up to date with the latest ideas on the stratigraphy of the Quaternary and has clearly talked to the right people, as shown by the 'pers. comm's mentioning John Lee. The book uses the current BGS stratigraphic nomenclature and so can be read in association with many professional papers on the subject, as well as the recent BGS Regional Guide and Sheet Explanations.

The book appears to be aimed at the keen amateur geologist but should be accessible to any intelligent person, so it would certainly form the basis of a rewarding geological holiday. Personally I would recommend the autumn: in the summer the areas visited will be busy with more traditional holidaymakers and accommodation will be expensive, while during spring there is quite a risk of late snow or a return of the 'beast from the east' and some of the sections could be dangerous if cliffs are left unstable by the winter storms. Winter in Norfolk can be remarkably cold, windy and wet, and the north coast is very exposed to bad weather coming down over the North Sea. I would recommend September and October; accommodation and restaurants become a big problem after the October half term week.

The first section of the book covers an 'Introduction to Norfolk Geology' and includes much that would be useful to the non-Geologist. The geology of the Cretaceous is covered briefly although the statement that all rocks from the Roach to the white Chalk can be seen at Hunstanton is very optimistic unless you have a good drilling rig with you. There follows a useful introduction to ice ages from the point of view of climate change, which will help anyone confused by much of the nonsense that we hear from the media. Dr Eyers does however subscribe somewhat to the politically acceptable view that any of the world's problems which can't be blamed on Mrs Thatcher or the EU must be caused by carbon dioxide, in that she mentions the theory that the Carboniferous ice age was brought on by the spread of land plants sucking carbon dioxide out of the atmosphere, rather than the rather more believable idea that the cooling was caused by the spread of the plants increasing the proportion of the sun's radiation reflected back into space. The lack of glaciations during the whole of the Mesozoic cannot be explained by the world's plant life all dying out at the end of the Permian.

Rant over! Table 2 is a brave attempt at producing a Pleistocene stratigraphy at a time when argument continues, and it is adequate for the users of this book. Personally I currently believe that there were two glaciations during the Anglian and two in the Wolstonian, but other workers differ! There follows a good clear and up-to-date, if rather long, review of how ice sheets work, followed by a brief overview of

the geology of Norfolk which contains useful warnings to beware of the tides and cliff stability. It also warns not to get confused if you read older papers or books, although this would of course be impossible to achieve. The stratigraphic table 3 which follows is very adequate for this book, it follows the current BGS stratigraphy and is based on the papers listed in the overview.

The main body of the book follows, covering seven sites or areas from west to east along the north coast. Moving from west to east is helpful as this means starting with the Cretaceous geology at Hunstanton before coming to grips with the complexity of the overlying Quaternary sequence. The strata here remind us of the variation of mid-Cretaceous stratigraphy across southern England. The Carstone, Red Chalk and white Chalk are well described and the geological log (figure 6) I find to be a rather embarrassing reminder of what a field notebook should look like. Farther east no 'solid' rocks younger than the Chalk will be seen, reminding us that here the Tertiary rocks, widely seen in the Thames Valley, have all been worn away.

The next section, the salt marshes of Thornham, Brancaster and Overy, is very much a change from the historic geology of the Cretaceous as we consider the processes currently in action along the coast. Walking these marshes would certainly be enjoyable and worthwhile but there are few actual sections to look at and Dr Eyers does not go into great detail about the geological processes, covering in more detail the spreading of the indicator plant species. Moving on to the Blakeney Esker we find the best example of an esker in England, best seen at Wiverton Downs. Dr Eyer's description is clear and accurate, and leads into the next section of the book, Kelling Heath, where she explains the Salthouse and Kelling sandurs, the kames and the Cromer Ridge.

The guide returns to the foreshore at West Runton, which is certainly one of the most important Quaternary sites in the British Isles, showing strata from Cromerian through to Wolstonian. At low tide you can see a wide spread of rounded flint clasts which at first site appears to be a recent marine beach deposit, but in fact it is 'solid' geology, the basal bed of the Wroxham Crag cemented to the underlying Chalk. At the base of the low cliff at the back of the beach is the only good section of the 'Freshwater Bed', a Cromerian deposit of a river flowing eastward to the sea. Surprisingly Dr Eyers does not mention the famous 'West Runton Elephant', an 85% complete skeleton of the steppe mammoth *Mammuthus trogontherii* which was exposed here by cliff retreat in 1990. This is the largest almost complete Mammoth known and the oldest found in Britain. Very large bones can be seen at the Norwich Castle Museum and Art Gallery, although the whole skeleton is considered too large to display.

The caption of figure 18 (page 41) is wrong in describing the Happisburgh Till as a grey clay 'which was deposited by the Wolstonian ice sheet'. The Happisburgh Till is shown as Cromerian, MIS 16 on table 3 (page 19), which is taken from the current BGS stratigraphy. The Happisburgh Till undoubtedly underlies the Anglian Lowestoft Till, although some geologists still believe, or just hope, that the Happisburgh Till is Anglian, MIS 12. The Hanworth Till is however Wolstonian, believed to be MIS 6, as is the 'Contorted Drift'. West Runton is the best site in this book to see the 'contorted drift' and it is well explained by Dr Eyers. Farther east at the Overstrand site the contortions are replaced by larger scale glaciotectonic activity, yielding the famous overthrust masses of Chalk, Wroxham Crag and Cromer Forest Bed visible in the cliffs. BGS work inland found even larger thrust masses proved by boreholes.

The final site is Happisburgh, where again Dr Eyers gives good descriptions of the Happisburgh Till and the overlying Ostend Clay. There follows a useful bibliography, which contains many names which will be familiar to Mercian Geologist readers, and a glossary. For those of you unfortunate enough not to know what an 'ognip' is, it is found under 'pingoes and ognips'. All in all I can certainly recommend this book for its purpose, it represents a brave and successful product to accompany you on a week's visit to the Norfolk Coast. Dr Eyers certainly knows her geology, even if she sometimes becomes as confused as the rest of us by the stratigraphy.

Richard Hamblin

The Peak District – Landscape and Geology, by Tony Waltham (The Crowood Press, 2021, 160 pages) Price £16.99. ISBN 978-1-78500-874-0

This attractive volume is an excellent overview of the landscape and geology of the Peak District by a geologist with an intimate knowledge of the area. It is profusely illustrated with almost 200 colour photographs and around 50 full colour maps and diagrams. The text is divided into three sections: Starting with the Rocks, Creating the Landscape, and Imprint of Mankind. The first describes the deposition and consolidation of the limestones, sandstones, mudstones and igneous rocks that form the White and Dark Peak regions. The second unravels the long and complex periods of subsidence, uplift and erosion, culminating in the effects of recent glaciation. It includes an excellent section on the origins and development of the numerous and extensive cave systems of the White Peak which have been a major interest of the author for many years. The third describes the extraction and use by man of the rocks for building and milling, and the minerals, such as lead and fluorspar, as well as the varied landscape itself for reservoirs and recreation. It concludes with descriptions of several areas for the visitor to enjoy, such as walks and caves around Castleton and cycling the Monsal Trail. It is a thoroughly readable and enjoyable book.

Tim Colman

Geology for Walkers: for the outdoor enthusiast curious about the geological story around them, by Steve Peacock (Published by the author, 2021, 183 pages) ISBN 979-8595445283, £12.00.

Do not be put off by the title. Walking is not obligatory, and this book is a well-written overview of geological process and the geology of Britain. The first half of its pages provide a very readable overview of rocks, plate tectonics and Earth history, presented in an innovative style with plenty of asides, analogies and welcome digressions. The second half then sweeps through the geological history of Britain, painting the broad picture of evolving plate tectonics and palaeogeographies. It is a lot to cover, but the author has told a good story; he may be light on fossils and the mineral resources, but that does not matter when he does describe the origins of water and oxygen, which are so frequently assumed and so rarely explained.

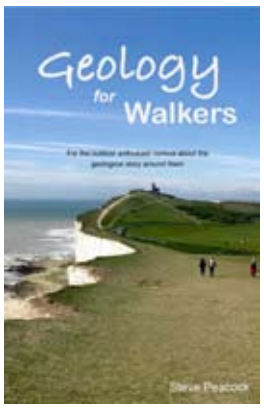
The text is just very good: an unusual style maybe, but refreshing. For a book aimed at the 'popular' or amateur market, it is surprisingly thin on photographs, and few are the author's own, but this is more than compensated by artwork that is exceptional, with maps and diagrams of the highest standard, all newly drawn by the author. As for the 'walking' part of the title, there are passing mentions to things seen on the long-distance footpaths, but this is not a trail guide; instead, it is good armchair material.

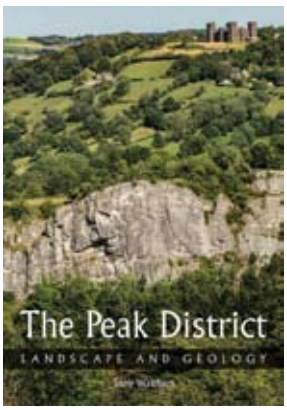
For want of a criticism, glacier meltwater did not create karst topography (page 147); even in glaciokarst the role of meltwater is either destructive or minimal. So nothing is ever perfect, but the overall impression is that this is a book firmly based in good science.

The book is self-published under the Amazon umbrella. Consequently it is not easily found. A Google search does not find the ISBN, but does find the book by its title. And it appears to be available only through Amazon, where the price varies daily around £12-something and is currently post free. Amazon do not furnish review copies, so this review is based only on a pdf; the author assures us that the printed book is of excellent quality, and it certainly looks good in the pdf. There is a short preview on the Amazon website, though it hardly does the book justice. This should be a good buy.

It is sad that the combination of a knowledgeable geologist and a good writer is a rarity; but here is the exception. It is a delight to find something midway between the usually turgid style of BGS reports and the geological inaccuracies of too many 'science writers'. The author has recently retired from a professional geological career, and he produced this book as a fun project, with no pressures from editors and publishers. He has done well, with a book that takes a new approach but is also bang up-to-date with sound geology.

Tony Waltham





THE RECORD

Secretary's Report 2020/1

Our individual membership now stands at 162 together with 37 joint members, 0 student members and 30 institutional members. We give a formal welcome to new members who have joined the Society during the year. We regret to record the death of Judy Small in January 2021. She had been a member of the Society for many years and served both on the Council and Editorial Board. She reported on several of the Society's excursions in *Mercian Geologist*.

This year's report is of necessity very short. In common with many societies the Covid pandemic, with its restrictions on travel and on how many people can meet together, and where, has severely affected the activities of the Society. Sadly we were unable to hold our normal programmes of lectures and field trips.

Lack of digital expertise and resources were the main reasons for not holding online meetings. However our members were recommended to engage with The Geologists' Association's excellent lecture programme and we hope many did. EMGS is an affiliated member of The Geologists' Association, and one of our members, Vanessa Banks, is its current President.

With the support of the speakers and leaders concerned, the 2020 lectures and field trips were carried over to 2021 to be held if possible.

Of course Council did not meet in person but its members kept in touch via email and phone throughout, doing what they could to maintain the Society's functions for which we are grateful. For example our overview of developments concerning sites of geological interest continued as in our comments to the planning authorities concerning the possible development of Gregory's quarry at Mansfield for housing.

Many thanks go to David Bate who in his first year as Editor and despite being unable to meet with the previous editor in person for the handover managed to communicate with authors, bring the Mercian to print and get it out to members whilst maintaining its high standard.

Council would like to send its condolences to any of our members who have been affected by Covid or lost friends or relations as a result of it.

Janet Slatter