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Book Review

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An Cumann Tíreolaíochta na hÉireann

Book Review

Advances in Irish Quaternary Studies, edited by Peter Coxon, Stephen McCarron and Fraser Mitchell, Springer, Paris, 2017, ISBN: 9462392196 (hardback), 316pp., \$179.99.

Our understanding of the Quaternary period in Ireland, and particularly of the last Irish ice sheet, has evolved at a rapid pace over the past thirty years, fuelled by advances in dating techniques and, in particular, by high-resolution mapping of both Ireland's seabed – through the Infomar project – and its onshore landforms – through landform mapping from LiDAR and remote sensing datasets. Therefore, a publication which brings together much of this new data in one place is timely.

For many years, Quaternary scientists in Ireland have spoken about publishing an updated edition of Edwards and Warren's 1985 publication *The Quaternary History of Ireland*. Thousands of papers have been published on all aspects of the Irish Quaternary since 1985 by researchers on this island as well as on the island of Britain and from further afield. The field guides by IQUA and the QRA have also added to, and summarised our knowledge of Irish Quaternary. McCabe's beautifully illustrated *Glacial geology and geomorphology: the landscapes of Ireland* (2008) was the first dedicated book since 1985 to look at the glacial geomorphology of the island, and went a great deal of the way to filling the gap that had evolved.

This present volume sets out to 'review the substantial body of recent research into the Irish Quaternary' since the publication of *The Quaternary History of Ireland* (p. 1). A brief introduction to the history of studying the Irish Quaternary by the editors provides a useful entry into some of the main debates within the discipline, including the 'shelly boulder clays' of the east coast of Ireland, which caused debate in the late nineteenth century (when some cited it as evidence for the Marine Submergence Theory) and which continues to be used as evidence in a different debate today – that of a glaciomarine model for the deglaciation of the Irish Sea (Eyles and McCabe, 1989; Scourse *et al.*, 2001). There follows seven chapters on the sequencing and glacial geology of the island of Ireland and two further chapters on the colonisation of Ireland by mammals and by humans. The chapters include a noteworthy addition by Simms and Coxon on the pre-Quaternary landscape of Ireland, which highlights evidence for, and the consequences of, pre-glacial karst in areas such as Fenit (where it suggests that the features elsewhere identified as relict tower-karst may, in fact, be more analogous to tors – p. 32) or the Gort lowlands with its large phreatic conduits (p. 30). This chapter also tackles some perennial questions in relation to Irish drainage patterns, such as the origin and timing of the deep incisions into pre-Carboniferous rocks in the lower reaches of the Barrow, Nore and Suir rivers (p. 35).

Edwards and Craven's chapter on relative sea-level change around the Irish coast is an excellent summary of the current knowledge of the complex question of relative sea-level around Ireland during and after Last Glacial Maximum.

Meehan's useful chapter on glacial geomorphology is a catalogue of the various glacial landforms, and where they occur on the island. It contains many images, including reproductions of a digital elevation model of Ireland, which is used at various scales to show the different geomorphological features. However, at some scales, the features which have been mapped cannot be seen easily, such as Figure 14 of that chapter, which attempts to show all subglacially deposited or moulded bedforms in Ireland. The features are mapped using different coloured lines within the GIS, but the differences between the colours are lost at the scale at which the map is reproduced, therefore reducing the usefulness of the map. Maps which may have been created on packages other than, or in conjunction with, a GIS fare somewhat better in this regard (such as those within Ballantyne and Ó Cofaigh's chapter on the last glacial ice sheet). Nonetheless, the reproduction of photographs is also not clear. Knight's paper on the deglaciation of the northern Irish Sea basin has a rich sequence of photographs from key sites along the coast, but the lack of sharpness of the reproduction means that in Figure 10, the striae cannot be distinguished in Photograph A nor the structures indicating fluidal deformation in Photograph F.

The importance of the work, its timeliness and the wealth of data contained and summarised therein could perhaps be said to be impoverished by poor cross-referencing between chapters. There is also no chapter numbering, which has a knock-on consequence in the numbering of figures (figure numbers repeat, with a Figure 1 in each chapter). To that extent, the book reads more like ten individual papers rather than a coherent, edited book. Perhaps that is how it is meant to be read, if each chapter is available online separately, and in an academic environment where academic papers are being preferred to book chapters. The 'individualisation' of the papers is also suggested by the publication and contact information being present at the foot of the first page of each paper, and by some repetition between chapters. Some may argue that to impose a coherence would diminish the complexity of the material. Nonetheless, the volume would be enhanced by references from one chapter to another. For example, Ballantyne and Ó Cofaigh's excellent synopsis of our understanding of the extent and chronology of the last Irish ice-sheet could easily have included references to Meehan's chapter. Doing so would also have encouraged the non-expert reader to examine the digital elevation models and other illustrations provided by Meehan, and see 'for themselves' how the ice-sheet shaped the land. The chapter by Edwards and Craven on relative sea-level change around the Irish coast includes references to other chapters in the book, and is the richer for it.

The contributors to the book, as well as the editors, have all made a significant contribution to the study of the Irish Quaternary over the past thirty years. However, of the fifteen contributors, only one is female. This is a pity – particularly given the excellent work being done on off-shore sediments and on lake sequences by some female scientists. One hopes that, when this current volume is updated in the future, there will be a gender-balanced contributors' list.

However, the book fulfils its goal. It is a very well researched summary of the current state of Irish Quaternary studies, and will be a useful tool for both researchers and students for years to come.

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