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Britain has recently become linked again, via the channel tunnel, to mainland Europe (this time by human effort). What evidence is available for earlier connections during the late Tertiary and Quaternary ? Although it is generally believed that Britain last became separated from the mainland about 8500 years ago, earlier separations of both Britain and Ireland are considered in this book, based on a wide array of data reflecting the multidisciplinary nature of Quaternary research. Current reviews of geological, paleobiological, and biological data impinging on this problem are recorded in this volume, which arose from the Annual Discussion Meeting of the Quaternary Research Association held at the University of Cambridge in January 1993.

B.M. Funnel sets the scene by outlining the late Cenozoic succession in the North Sea Basin and relating it to global sea-level history. He notes the switch from mainly biogenic to clastic deposition in the Basin during the late Pliocene, reflecting the influence of erosion by the main rivers entering the southern North Sea following the first glaciations of the northern hemisphere. Expansion of the Great European Delta probably closed the southern connection of the North Sea to the Atlantic Ocean, ending Britain's insularity during the early Tiglian, about 2.3 million years ago. Island status was clearly established by high sea levels of the last interglacial, some 130,000 years ago. Following the last glaciation, about 7000 years ago, a connection between the northern North Sea and the English Channel left Britain in its present state of isolation ... excepting, of course, the channel tunnel.

What do paleobiologists and others have to say about Funnel's outline ? Meijer and Preece note that marine mollusc faunas during Quaternary warm phases (Middle Tiglian, Eemian and Holocene) are diverse, with more than 100 taxa including many species with southern affinities. Presumably the Strait of Dover was open during these phases, allowing entry into the southern North Sea. Conversely, during cooler phases from the Late Tiglian up to and including the Holsteinian (about 400,000 years ago) poorer faunas with less than 40 taxa and lacking southern elements are recorded. Possibly a barrier preventing such entry existed then, a conclusion supported by other paleobiological evidence.

Clearly the faunas and floras of Britain, especially those of Ireland, are impoverished compared to those of neighbouring countries of mainland Europe. A.J. Stuart in his review of the Pleistocene vertebrate history of Britain and Ireland shows this to be the case, and discusses which of many faunal absences are plausibly attributed to the effects of isolation. A.J. Sutcliffe, another Pleistocene mammal expert, concentrates on the Late Pleistocene record. He notes important faunal changes, in particular the absence of horses and humans, and the presence of hippos during the last interglacial : useful biostratigraphic indicators, as well as evidence for Britain's isolation from Europe.

A. Turner, discusses the same general topic, but focuses on the story of larger land carnivores. Their wide distributions in fossil and living faunas make them good potential indicators of the changing links between Britain and the European mainland during the last ice age. He finds evidence for extensive contact until the early Middle Pleistocene. After that, his data support some form of marine barriers by the Hoxnian (about 186,000 to 245,000 years ago) and complete isolation during the last interglacial. Evidently the teeth of last interglacial spotted hyaenas (*Crocuta crocuta*) are significantly larger than those from the following Devensian glacial. Turner believes that such differences might well result from an isolated Britain. However, it is an oversight that the critical table (Table 2) on which this observation is based, while specifying most carefully the tooth measurements used and the glacial/interglacial phases, nowhere alludes to the species (*Crocuta crocuta*) described.

A.M. Lister develops a theme on the rapid dwarfing of red deer on Jersey, one of the Channel Islands, that he published on in 1989. (Indeed, F.E. Zeuner first described this mini-deer as a new subspecies, *Cervus elaphus jerseyensis*, in 1946.) Uniquely, the island also has normal-sized red deer remains in strata both preceding and following the dwarfing episode. From a detailed study of local sea-level history, Lister calculates the period that Jersey would have been isolated, concluding that the dwarfing process occurred over less than 6000 years. This case is most interesting as it relates to the recently-discovered dwarfing of woolly mammoths (*Mammuthus primigenius*) on Wrangel Island off the coast of northeastern Siberia. There, the process of dwarfing can be traced too. About 12,000 years ago Wrangel was connected to mainland Siberia as indicated by the presence of normal-sized mammoth remains radiocarbon dated to that period. About 10,000 years ago (or earlier), with melting ice sheets and rapidly rising seas, Wrangel with its mammoths became isolated. Probably because of restricted forage, the mammoths had become dwarfed (nearly half-size) by 7000 years ago. The species died out there some 3800 years ago.

If the postglacial colonization of Britain was difficult for many plants and animals, then securing a foothold in Ireland must have been much worse. Both R.J.N Devoy and R.T.R. Wingfield tackle this problem by reviewing evidence for the interplay between behaviour of the Earth's crust and sea-level change (key factors in determining insularity). Wingfield's model suggests that land connections *did* exist, first to Ireland and later to the Isle of Man after 11,350 years BP. If so, the faunal absences discussed earlier by Stuart require explanation. In the final chapter, P. Coxon and S. Waldron review the floristic record of Ireland's temperate stages, emphasizing its unique biogeographical composition. They outline how such a distinct flora may have arisen against a background of glaciations and major sea-level changes. They recognize that certain groups of taxa have been able to survive on the western fringes of Europe throughout the Pleistocene, and have recolonized Ireland to produce disjunct populations, possibly on many occasions.

The value of this book lies in its multifaceted nature and its concentration of facts, many not published elsewhere, that bear on the question of when Britain was and was not an island. Consensus suggests that during the Middle Tiglian (about 2 million years ago), Eemian (last interglacial) and Holocene (present interglacial), Britain was isolated. But it must be recognized that late Middle Pleistocene events are not very clear. As Preece comments, if there were one or

more additional interglacial stages (as seems likely from the deep-sea oxygen isotopic record), then they must surely have been accompanied by high sea-level stands (but these have not yet been recognized in subsiding areas like The Netherlands). Such gaps in our knowledge are noted in the volume, making them easier to focus on in future. As in music, sometimes the spaces between notes can be as important as the notes themselves.

This is a well-edited, handsome volume with colourful and durable hard covers. Abstracts head each paper, and substantial reference lists follow. A handy 7-page index concludes the book. Because the price is extremely high, I suspect the book will be mainly confined to appropriate libraries and to the bookshelves of ultra-keen Quaternary scientists, and biogeographers who wish to understand the British case itself, or who wish to view it as a test-bed for studies of insularity in other parts of the world : the basic principles are the same.

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