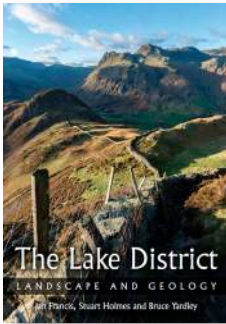


Book reviews

The Lake District: Landscape and Geology. Ian Francis, Stuart Holmes & Bruce Yardley. The Crowood Press, 2022. Paperback, 176 pages, £18.99.



Question: What do the cinematic masterpiece *Brief Encounter* and this book have in common? Read on; all will be revealed in a timely manner!

The paperback *The Lake District: Landscape and Geology* is a delight to read. The authors, by following Einstein's razor, commonly stated as: *Make things as simple as possible, but not simpler*, keep their text tight and economical, and yet by no means superficial. With its straightforward descriptions of how Lakeland rocks formed and how they have affected the landscape, along with 230 illustrations including magnificent aerial photographs and well-chosen maps, the book will appeal to a wide audience.

Young science students, amateur earth scientists, lapsed geologists (like me), as well as visitors to the Lake District with an interest in how the landscape was shaped, all stand to gain from it.

The first six chapters explore the birth of Lake District rocks, their stratigraphy and tectonics, the sculpting of the landscape by ice and water, and the effects of geology on Lakeland scenery. The final four chapters tackle human influences, starting with the hunter-gatherers and the first farmers and leading through to current approaches to protecting Lakeland's fragile landscapes. Descriptions of seven Guided Excursions complete the book. (Several excursions are within easy reach of the M6 motorway and so readily accessible from Edinburgh.)

Additionally, a splendid companion website <https://www.lakedistrictgeology.co.uk/> is made freely available. Its varied supplementary materials are well worth visiting. The screenshot (Figure 1) shows one such feature—a specially created Google Earth project. Clicking on the coloured placemarks reveals photographs and descriptions of key locations mentioned in the book. Very impressive!



Figure 1
Screenshot of the associated Google Earth photographic guide describing all the book's main localities. Image published by permission of the authors.

My introduction to geology and landscape stemmed from schooldays in Ambleside in the early 1960s, and from being led deep into the fells by our mathematics and geography teachers. After a career in geophysics, I was intrigued to find out what advances had been made over the intervening years. I was not disappointed; here are three examples. First, the map of Cumbria's Roman roads has been vastly improved and recast. It now draws on modern airborne lidar imagery with its astonishing resolution and ability to discern old roads beneath trees. Secondly, under the heading 'A new role for old rocks', the vexed question of underground disposal of high-level radioactive waste is sensitively examined. This stubborn problem perturbs me, not least

as the radioactive cloud from the Windscale fire of 1957 is now known to have passed eastwards, directly over my school, rather than blowing harmlessly into the Irish Sea, as the public were originally told. Worryingly all the 'hot' waste in the Windscale atomic pile left over from the accident (~10 tonnes of melted radioactive fuel) still resides at the surface, awaiting safe disposal. Thirdly the recognition of huge collapsed volcanic calderas has followed painstaking mapping of the Borrowdale volcanic rocks. Large freshwater crater lakes with a thick sedimentary infill have been pinpointed. I now appreciate how the mini-turbidites, mud-draped ripples, truncated layers and miniature flame structures displayed on my 50yr old Coniston-slate coffee table arose!

In a stimulating break with the usual geological convention of describing rocks by starting with the oldest, the authors choose to begin with the youngest (last Glacial) and work backwards, but on reaching the middle (Old Red Sandstone age) they jump back abruptly to the beginning (Skiddaw slates), before moving forwards to reach the middle once again. Why? In telling a tale out of chronological order emphasis can be placed on how the different components of a story relate to each other and form part of a unified account. The film *Brief Encounter*, told in nonchronological flashbacks (as the storyline jumps back and forth in the narrator's memory), also uses this device. In the case of *Brief Encounter*, the film begins in Carnforth Railway Station's refreshment room (with the couple's final parting) but soon flashes back in time, thereafter, working its way forward through the affair to revisit the opening scene. On this second viewing the audience can appraise the parting from a more enlightened perspective. In the case of Lakeland's rocks, the nonlinear narrative prompts the reader to contemplate how the late-Palaeozoic and Mesozoic sediments, that encircle the Lake District, relate to the older sequences of the central fells. By visiting the Old Red Sandstone twice, the authors emphasise it as the pivotal period when the earlier mountain building and igneous activity of colliding plates gave way

to a world where erosion dominated with the deposition of conglomerates and proximal sediments. Eventually, as the Lake District domed up, the interior rocks were more deeply exposed and the sculpting of the landscape began, thereby initiating the classic radial distribution of Lakeland rivers. Ultimately glacial actions further scoured the landscape to generate the valley lakes and high tarns that characterise today's glorious Lakeland scenery.

It is impossible to close this review without singling out the illustrations for special praise. All are closely allied to the text to make a telling point about the geology or landscape. Stuart Holmes's aerial shots, many taken from his paraglider, have won numerous awards. It is easy to see how wild and mountainous landscapes are his passion. My favourite shot is taken hovering high above the church of St John's in the Vale, looking south to Thirlmere, with bright sunlight picking out the trap topography of the Borrowdale Volcanics. Far beyond lies the unmistakable skyline of the central fells, beneath a layer of low-altitude, fluffy cumulus clouds and a brilliant blue sky.

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