

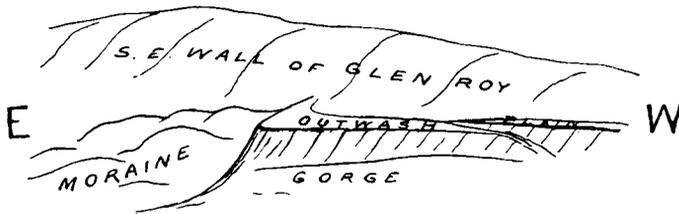
Southward the gravel thins out, until at a distance of 470 feet from the old cliff the section is only 1 foot thick. The bed consists of pebbles for the greater part, sandstones, porphyry, etc., of the neighbourhood. They are all well-rounded and water-worn. The flints are old chalk flints, usually broken and angular in form, occasionally flaked as if broken by impact with other stones, and sometimes red in colour. Their presence here seems to indicate the existence, somewhere in the bed of the North Sea, of Cretaceous deposits, probably derived from the Chalk formation which appears to have at one time existed in the North of Scotland, and of which the rounded, water-worn flints of Aberdeen are remains.<sup>1</sup>

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September 18, 1908.

#### A RECENT VISIT TO GLEN ROY, BY AN AMERICAN GEOLOGIST.

SIR,—In June last it was the writer's good fortune to visit Glen Roy with the excellent paper by Jamieson in his hand (*Quart. Journ. Geol. Soc.*, 1892, vol. xlviii, pp. 5–37). It is a pleasure to confirm from observation the correctness of the conclusions reached by the author. It seems to the writer, however, that there are indications in the valley of a later chapter of glacial history, which, from enquiries, it is inferred has not yet been worked out, if it has indeed been noted. The object of this communication is to draw attention to the more clearly revealed facts in order that others who are nearer the locality may search for additional indications of this glacial episode.



The great glacial dam at the south base of Bohuntine Hill is clearly a terminal moraine laid down at the margin of the ice which proceeded from the Ben Nevis centre and impounded the drainage of the glen to produce one of the local lakes. There is, however, another heavy morainal obstruction in Glen Roy, situated just above the entrance to Glen Glaster, which affords the clearest evidence that the glacier

<sup>1</sup> [See the following:—(1) "On the Cretaceous Fossils from the Drift of Moresat, Aberdeen," by G. Sharman & E. T. Newton, *GEOL. MAG.*, 1896, pp. 247–54, giving a list of fifty-three species belonging to the Lower Greensand, Gault, Upper Greensand, and to the Upper and Lower Chalk. (2) A second paper also in this Magazine for 1898, pp. 21–32, by A. J. Jukes-Browne & John Milne, giving a list of fifty-nine species, all from the Speeton Clay, Lower Greensand, Gault, and Upper Greensand, but none from the Chalk.—*ED. GEOL. MAG.*]

which deposited it entered the valley from a centre of dispersion to the eastward, and subsequent to the Lake period, the history of which Jamieson has so well cleared up.

The topography of this obstruction and its material are typical of terminal moraines, and what is most conclusive regarding its western frontage, there is an outwash apron which starts from its western margin and slopes gently away into the lower valley. This outwash plain has been cut away in a gorge subsequently eroded by the River Roy. The plain is, however, perfectly preserved on both sides of the valley, and seen from above as a conspicuous feature in the landscape at the time visited, because of a carpet of green, which contrasted sharply with the brown hue of the less fertile moraine and the valley walls.

It thus seems probable that the waning of the ice in the western mass around Ben Nevis was succeeded by an augmentation of the ice in the more eastern of the near-lying centres of dispersion.

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*September 26, 1908.*

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## OBITUARY.

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### CHARLES FREDERICK COCKBURN.

BORN 1830.

DIED OCTOBER 6, 1908.

MAJOR-GENERAL C. F. COCKBURN, R.A., joined the Army on December 19, 1849. He served in Canada, the Crimea (including the siege and fall of Sebastopol), Gibraltar, and Halifax (Nova Scotia). He was at the Royal Small Arms Factory, Solinger, Prussia, from 1859 to 1862, and was Assistant Superintendent at the Birmingham Factory for five years. He was the fifth generation of his family in the Army and the fourth in the Royal Artillery.

General Cockburn was an enthusiastic collector of fossils, especially from the Chalk, and immediately after the fall of Sebastopol employed any spare time he had in making a collection of Danian and other fossils from that region. His collection was described by W. H. Baily in the Quarterly Journal of the Geological Society, vol. xiv, 1858, and the types formerly in the Museum of Practical Geology are now in the British Museum. As this was one of the pioneer collections, its importance was such as to necessitate a visit from Dr. Karakasch only this year, and this geologist had the pleasure of meeting General Cockburn at Dover during his visit. Baily's paper was supplemented by a few pages of stratigraphical notes from the General's pen. During the years he collected, General Cockburn supplied many workers with valuable material from the Chalk, and