

stone and overlying some yellow dolomite, calcareous shale, and red shales. They have been assigned by Heer to the Carboniferous series, but are regarded by Dawson as unquestionably Devonian. They may be correlated with the Upper Old Red Sandstone of Britain. Heer enumerates eighteen species; only three are peculiar to the locality, while among the others are some widely-diffused forms: *Calamites radiatus* (transitionis), *Palæopteris roemeriana*, *Sphenopteris Schimperii*, *Cardiopteris frondosa*, *Lepidodendron veltheimianum* and three other species, *Knorria imbricata*, and *Sagenaria* (*Cyclostigma*) *kiltorkensis*.¹⁷⁴ In Spitzbergen itself, according to the researches of Nathorst, the so-called "Heckla-Hook formation" contains a large assemblage of fish-remains, shells, and plants, which prove it to be the equivalent of part of the Scottish Old Red Sandstone.

North America.—It is interesting to observe that in North America representatives occur of the two divergent Devonian and Old Red Sandstone types of Europe. The American Devonian facies has already been referred to. On the eastern side of the ancient pre-Cambrian and Silurian ridge, which, stretching southward from Canada, separated in early Palæozoic time the great interior basin from the Atlantic slopes, we find the Devonian rocks of New York, Pennsylvania, and the interior represented in New Brunswick and Nova Scotia by a totally different series of deposits. The contrast strikingly recalls that presented by the Old Red Sandstone of the north of Scotland and the Devonian rocks of North Germany. On the south side of the St. Lawrence, the coast of Gaspé shows rocks of the so-called "Quebec group" unconformably overlain by gray limestones with green and red shales, attaining, according to Logan, a total thickness of about 2000 feet,¹⁷⁵ and in some bands replete with Upper Silurian fossils. They are conformably followed by a vast arenaceous series of deposits termed the Gaspé Sandstones, to which the careful measurements of Logan and his colleagues of the Canadian Geological Survey assign a depth of 7036 feet. This formation consists of gray and drab-colored sandstones, with occasional gray shales and bands of massive conglomerate. Similar rocks reappear along the southern coast of New Brunswick, where

¹⁷⁴ Heer, Q. J. Geol. Soc. xxviii. p. 161. Dawson, op. cit. xxix. p. 24.

¹⁷⁵ "Geology of Canada," p. 393.