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The Ordovician System: From overlapping unit stratotypes to Global Boundary Stratotype Sections and Points

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ABSTRACT

For nearly a century the Ordovician System was hidden as Murchison and Sedgwick tussled over the overlapping ground between their Silurian and Cambrian systems. The Ordovician is, in fact, one of the longest of the geological periods, characterised by major magmatic and plate tectonic activity; the roles of microcontinents and volcanic archipelagos were significant in shaping the Ordovician planet and the evolution of its biotas, associated with an immense biodiversification, significant fluctuations in climate and sea levels, and the first Phanerozoic mass extinction of marine invertebrates. The period was unique in being thalassocratic; epicontinental seas had a wider reach than during any other geological period. The land areas were restricted to isolated microblocks of archipelagos of various sizes with low relief, with rivers traversing gentle gradients, carrying sparse terrigenous material seaward. It is an ancient world with few parallels elsewhere in the Phanerozoic, and little in common with Holocene ecosystems and environments. The Ordovician System was introduced by Charles Lapworth as a solution to the stratotypes of overlapping units loosely defined by Adam Sedgwick for the Cambrian and by Roderick Murchison for the Silurian. Following a period of intensive research into all the key regions of the globe, unit stratotypes in the type areas of England and Wales have been replaced by seven global stages and three series based on Global Boundary Stratotype Sections and Points, enhancing the definition of these chronostratigraphic units and facilitating global correlation. As a consequence, the biological and geological events during the period can be recognised, and the magnitude and significance of originations and extinctions understood. A global synthesis of successions in Europe (*Geological Society, London, Special Publications*, 532) and the rest of the world (*Geological Society, London, Special Publications*, 533) has emphasised the importance of a universal language for Ordovician chronostratigraphy and its dividends.

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