innovations as early as the Anisian, rapidly establishing trophically diverse marine communities. In this study we quantify and examine the proliferation of ecological variation during the early stages of Mesozoic marine reptile evolution, using an analysis of morphological and biomechanical variation (disparity) in lower jaw elements. Results from morphospace analyses show that Triassic marine reptiles evolved an exceptional array of lower jaw morphologies and biomechanical characteristics, associated with diverse and divergent feeding ecologies. These included very robust lower jaws with large coronoid processes and durophagous dentition, characteristic of shell crushing placodonts and thalattosaurs. In addition to slender jaws with sharp and conical teeth found in ichthyosaurs and eosauropterygians, that preyed upon fish and soft-bodied invertebrates. Calculating morphological and biomechanical disparity through time reveals that Triassic marine reptiles became very disparate by the Anisian and this level of variation was maintained until the Triassic–Jurassic boundary, despite faunal turnovers and a large decline in species diversity during the Late Triassic. Overall this study quantitatively supports the notion that Triassic marine reptiles became ecologically diverse early in their history, and reveals that marine reptiles persisting into the Norian and Rhaetian remained trophically diverse.

Edinburgh Museum's dinosaur, Waterhouse Hawkins's *Hadrosaurus foulkii*

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'Benjamin Waterhouse Hawkins (1807-1894), best known in Britain for his dinosaur reconstructions at the Crystal Palace Park in London, is notable also for his mounted facsimile skeletons of *Hadrosaurus foulkii* (part casts, part restorations) at Philadelphia (1868) and elsewhere. In the 1980s, as the result of an inquiry by Don Baird, it was realised that the Edinburgh Museum of Science and Art (a precursor of National Museums Scotland) had the last of the casts. This cast was commissioned for display at the US Centennial Exhibition of 1876 at Philadelphia, and then transfered to the Edinburgh Museum by the Museum Director, one of the Commissioners for the 1876 Exhibition. It was the first modern (bipedal) display mount of a dinosaur in a museum in Europe, and would today be of enormous historical importance. However, it was discarded as out of date in 1928, its armature having gone for scrap during the Great War. A photograph of this mount has recently been discovered in the NMS archives. The display strategy used is discussed.

Barosaurus revisited: the concept of *Barosaurus* (Dinosauria: Sauropoda) is based on erroneously referred specimens

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The sauropod dinosaur *Barosaurus lentus*, from the Upper Jurassic Morrison Formation of the western United States, is a regular in popular dinosaur books. It is invariably illustrated and described as virtually identical to *Diplodocus* but with a proportionally longer neck. It has even been suggested that that *Barosaurus* and *Diplodocus* are sexual dimorphs. This popular interpretation of *Barosaurus* is based

primarily on the referred specimen AMNH 6341. However, its cervical vertebrae do not closely resemble those of the holotype YPM 429. The best-preserved of the type vertebrae is a posterior cervical designated 'R', probably C14. This vertebra resembles those of brachiosaurids more than those of diplodocids: the neural arch is set forwards on the centrum, the articular surfaces are anteriorly inclined, and the neural spine seems to be unsplit, with the spinozygapophyseal laminae forming a diagonal cross in dorsal view and converging to a low point. The vertebra also has unique features, notably its extremely broad, wing-like, prezygapophyseal rami. The situation is further confused by other referred *Barosaurus* specimens, including CM 1198, CM 11984, ROM 3670 and two separate juvenile individuals, probably belonging to two different taxa but catalogued together as AMNH 7535. These specimens, together with *Kaatedocus*, may form a morphological sequence between *Diplodocus* and the popular conception of '*Barosaurus*'; but YPM 429 seems distinct from them all. This complex situation emphasises that the diversity of Morrison Formation sauropods is still far from being resolved. New taxa continue to be named, more await description, and even well-known taxa conceal cryptic diversity.

Ageleodus: widespread mid-Palaeozoic sharks known only from teeth

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Ageleodus pectinatus was first described by Agassiz (1838) from the Burdiehouse limestone (mid-Viséan, *Taphrognathus transatlanticus* Conodont Zone) of Scotland but is better known from copious specimens in the Westphalian Coal Measures of Europe and North America, usually placed in the same species. *Ageleodus* was first found in the Southern Hemisphere from Tournaisian and Visean bonebeds from central Queensland (Eastern Gondwana). This chondrichthyan of uncertain phylogeny is known only from isolated dental elements that are mostly accepted as teeth from a basal elasmobranch; Lebedev proposed an alternative hypothesis in 1996 when he interpreted them as specialized branchial denticles. *Ageleodus* is comparatively common in fluvial (lacustrine/lagoonal) and possible marginal marine sediments of late Famennian of Pennsylvania, Tournaisian of New Brunswick and Nova Scotia, Russia, Tournaisian? to Westphalian age in Britain, Westphalian of Belgium, the Netherlands and Nova Scotia, as well as in Devonian-Carboniferous boundary beds in Victoria, Australia. Their occurrence in Late Devonian and basal Carboniferous rocks in central Russia, the Catskills, and Mansfield (Vic) provides evidence of the past Palaeotethyan distribution and possible origin of this shark genus.

DGM 1475-R, a fragment of three-dimensionally preserved pterosaur wing membrane from the Santana Formation of Brazil

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A portion of phosphatised soft tissue preserved in association with several bone fragments of a medium-sized pterosaur (DGM 1475-R) was described by Martill and Unwin in 1989 as remnants of three-dimensionally preserved wing-membrane. The true identity of the specimen was thrown into doubt by Kellner's reinterpretation of the soft tissues, in 1996, as a portion of integument associated with the thorax, and remains unresolved. Restudy of DGM 1475-R shows that the soft tissues are adjacent