

stones, perhaps unconformably, lies a group of shales (Wianamatta beds) with abundant plants, chiefly ferns, sometimes aggregated into thin seams of coal (*Thinnfeldia*, *Odontopteris*, *Pecopteris*, *Macrotæniopteris*, *Phyllothea*, and *Unio* and *Unionella*). These two groups of strata are with some hesitation referable to the Trias.<sup>36</sup>

**New Zealand.**—Under the name of Trias, Sir J. Hector groups a great thickness of strata divisible into three series. (1) The Oreti series—a thick mass of green and gray tuff-like sandstones and breccias, with a remarkable conglomerate (50 to 400 feet thick) containing boulders of crystalline rocks sometimes 5 feet in diameter, found both in the North and South Islands; fossils, chiefly Permian and Triassic, but with a *Pentacrinus* like a Jurassic species. (2) Above these beds lies the Wairoa series, containing *Monotis salinaria*, *Halobia Lommeli*, etc., and also plants, as *Dammara*, *Glossopteris*, *Zamites*, etc. (3) The Otapiri series, which, from the commingling of fossils nearly allied to Jurassic species with others which are Triassic and some even Permian, and from the presence of many forms identical with those of the Rhætic formations of the Alps, is assigned to the Upper Trias or Rhætic division.<sup>37</sup>

**Africa.**—In South Africa the “Karoo beds” spread over a wide area of country, consisting of nearly horizontal incoherent sandy materials, from which the remarkable assemblage of amphibian and reptilian remains already referred to has been obtained. The similarity of the fossils in these rocks and in those which are assigned to the Triassic series in India and Australia deserves to be specially remarked.

**North America.**—Rocks which are regarded as equivalent to the European Trias cover a large area in North America. On the Atlantic coast, they are found in Prince Edward Island, New Brunswick, and Nova Scotia; in Connecticut, New York, Pennsylvania, and North Carolina; in Honduras and along the chain of the Andes into Brazil and the Argentine Republic. Spreading also over an enormous extent of the Western Territories, they cross the Rocky Mountains into California and British Columbia. They consist mainly of

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<sup>36</sup> C. S. Wilkinson, “Notes on Geology of New South Wales,” Sydney, 1882, p. 53. O. Feistmantel, *Mem. Geol. Surv. N. S. Wales, Palæontology*, No. 3, 1890; R. Etheridge jun. op. cit. No. 1, 1888.

<sup>37</sup> “Handbook of New Zealand,” p. 33. F. W. Hutton, *Quart. Journ. Geol. Soc.* 1885, p. 202.