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## VIEWS OF HIGHER SEED PLANT DESCENT SINCE 1879<sup>1</sup>

By Dr. G. R. WIELAND

YALE UNIVERSITY

IN the year 1876 the celebrated Thomas Henry Huxley visited at Yale my old preceptor, O. C. Marsh, finding intense interest in the new collections of vertebrate fossils from the Tertiary of the west. In the "Life and Letters of Huxley," edited by his son, Leonard, there are given full references to the sojourn in New Haven. In Huxley's opinion there was no European collection of mammalian fossils quite equal to that then assembled by Marsh. Its glory was in the fossil horses. For the first time, said Huxley, a series of fossil species leading into a living type had been brought to light.

Those were brilliant days in biology. The "Origin of Species" and the "Descent of Man" had appeared but a few years before. In the closing paragraphs of the "Descent" Darwin had paid fine tribute to the

genius of Haeckel, who "had confirmed nearly all his own conclusions." But as yet the lore of fossil plants had not reached the distinctiveness first seen in the invertebrate and then in the vertebrate records. Much was indeed known about fossil plants, going back to those patriarchs of paleobotany, Brongniart, Goepfert and Williamson. In 1868, too, William Carruthers had brought out a splendid account of the fossil cycadean stems from the secondary rocks of Britain, including histologic study of the utterly isolated and singular seed cone of *Bennettites Gibsonianus* from the Isle of Wight, while two years after came Williamson's later notes on the "History of *Zamia gigas*." But the "scaly heads and collars" of the Yorkshire coast still remained "Williamson's riddle," while Carruthers, perhaps too much impressed by the utter singularity of the mature cycadeoid cone structure, is credited with the thought that

<sup>1</sup> Opening address at the eastern meeting of the Botanical Society of America at Dartmouth, June 25.

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