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Cyathealean Antarctic ferns from the Aptian Cerro Negro Formation: *Rafaherbstia nishidai* gen. et sp. nov. and associated fertile organs

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Abstract

New remains corresponding to Cyathealean tree ferns are described for the Aptian Cerro Negro Formation at Byers Peninsula, Livingston Island (South Shetland Islands, Antarctica). A new genus and species, *Rafaherbstia nishidai*, is proposed for several permineralized dictyostelic stems characterized by a heterogeneous pith with a central star-shaped sclerenchyma mass, U-shaped meristeles developing small hooks at the margins of the leaf gap, sclerenchyma sheaths surrounding the vascular strands, and leaf traces omega-shaped and multi parted. The new taxon shows a combination of features that preclude its placement in one of the eight recognized families of Cyatheales, supporting that previous diversity of tree ferns was higher than in modern times. Fragmentary isolated sori with preserved sporangia containing trilete spores, recovered from the sedimentary matrix surrounding the