50 YEARS AGO

The report of Dr. C. P. Haskins, president of the Carnegie Institution of Washington ...comments on the slight change during half a century in the structure and basic orientation of the Institution; although when the Institution was founded, the idea, let alone the practice, of scientific investigation in the United States was almost unknown, except as an integral but subsidiary part of university work, and an editorial in *Science* during 1903 expressed grave doubts as to the function or future of an organization devoted to such an idea...[Dr Haskins] believes, despite the radical changes in the American scientific scene, that this conception of the Institution has stood the test of half a century and is as relevant today. The Institution has been able to play an important part in technological change in times of national emergency; and today...continues to pursue its aims of research towards the same goals and in essentially the same manner as it has throughout its working life.

From *Nature* 20 April 1957

100 YEARS AGO

Apparently, the British government is indifferent to any increase of facilities for the advancement of knowledge, for it makes no attempt to show active interest in organisations and institutions concerned with science and higher education. The Carnegie Institute at Pittsburg was dedicated last week in the presence of a large and distinguished company, but neither the British ambassador nor any member of the British embassy was present...The German Emperor was represented by a special commission of six members of the highest rank; France and Italy were also represented...The omission is only another instance of the failure of British statesmen to understand the significance of anything relating to science or progressive learning.

From *Nature* 18 April 1907

50 & 100 YEARS AGO

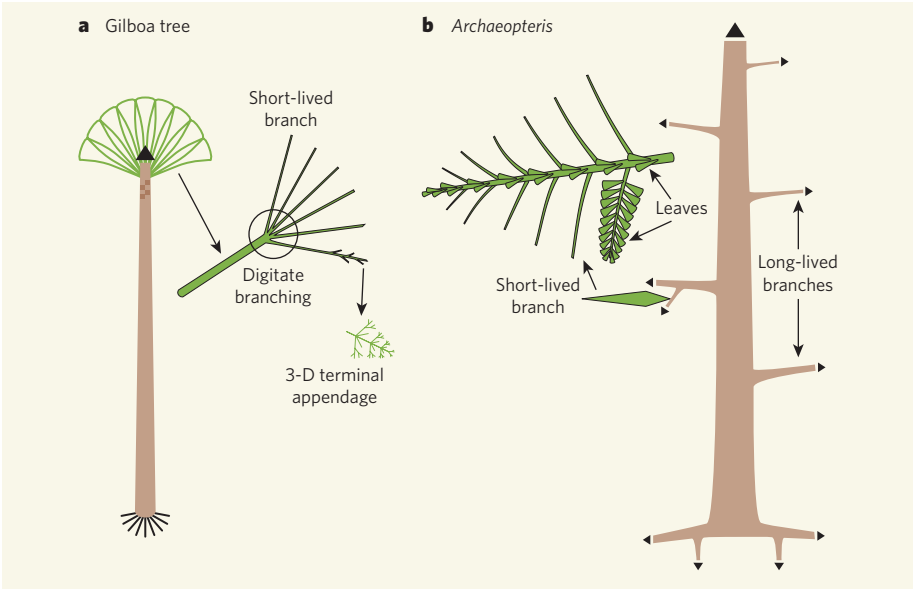

Figure 2 | Two types of Devonian tree. **a**, The newly described Gilboa tree[1], a member of the Pseudosporochnales (Fig. 3), had no leaves and a limited root system, and displayed an economical strategy whereby a single, long-lived organ — the trunk — grew vertically. **b**, In contrast, *Archaeopteris* possessed leafy twigs, and had long-lived roots and branches that grew at the same time as the trunk. Photosynthetic organs are shown in green; black triangles indicate long-lived organs.

specifically, by their three-dimensional terminal appendages.

One benefit often assumed for taller plants is their enhanced ability to capture light. Ten years ago, Niklas[7] simulated the architecture of early land plants and tested their efficiency in performing several essential functions. The Gilboa tree fits closely with the morphology that optimizes two functions, mechanical stability and reproduction. But the reduced surface area of its crown was not optimal for light interception.

Two contrasting ways of making trees evolved during the Devonian (Figs 2a, b; Fig. 3). The way represented by *Archaeopteris*, and by most extant trees of temperate and tropical areas, requires a complex machinery of tissues and organs to achieve growth in all spatial directions and to build the larger body sizes recorded in the plant kingdom. The Gilboa tree represents an economical alternative where, beyond the necessary investment in spores to ensure reproduction, the products of photosynthesis were mainly devoted to vertical growth of the trunk. The new specimens from New York[1] show that the first giants in the history of the land plants achieved the tree habit and significant biomass despite their inability to construct optimal photosynthetic structures, such as leaves or horizontal branches, and despite not building an extensive root system. ■

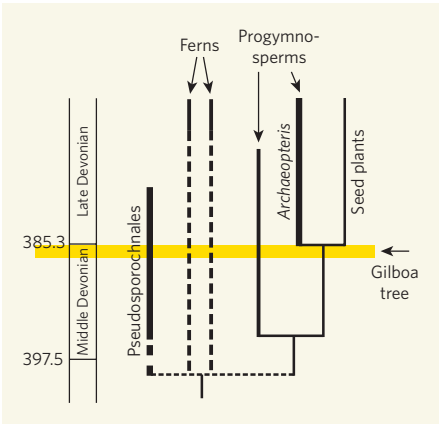

Figure 3 | Trees in time. Two contrasting ways of making trees, evident in the fossils of the Gilboa tree and of *Archaeopteris*, evolved in the Devonian but are still found today. The Gilboa tree is a member of the extinct group, Pseudosporochnales. *Archaeopteris* is a member of the progymnosperms, extinct relatives of the seed plants[6,8]. Timescale is millions of years ago. Many representatives of ferns and seed plants exist today, the latter being by far the main constituent of the current terrestrial flora.

Brigitte Meyer-Berthaud (CNRS) and Anne-Laure Decombeix (Université Montpellier 2) are in the Unité Mixte de Recherche Botanique et Bioinformatique de l'Architecture des Plantes (AMAP), CIRAD, 34398 Montpellier Cedex 5, France.
e-mails: meyerberthaud@cirad.fr; anne-laure.decombeix@cirad.fr

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