

The electronic form of this issue, available as of January 11, 2007, at www.plantphysiol.org, is considered the journal of record.

On the Cover: To maintain or improve basic stomatal performance criteria such as regulation of water use or rates of CO₂ assimilation while global atmosphere and climate underwent long-term changes, structural and mechanical modifications to the stomatal apparatus were necessary. Pictured are cryo-SEM images of fresh leaves of the fern *Nephrolepis exaltata* showing a single stoma frozen in its fully open state. The top panel shows a surface view, while in the bottom panel the sample has been cryo-sectioned and etched to reveal detail of the two guard cells in cross section. In this species the guard cells undergo only moderate swelling and little mechanical interaction with adjacent cells to create the stomatal pore. By combining cryo-SEM, cell pressure probe, gas exchange, and modeling techniques, Franks and Farquhar (pp. 78–87) show how increasingly elaborate modes of guard cell swelling and mechanical interaction with adjacent cells during stomatal opening have given rise to a wide range of leaf gas-exchange capacities and sensitivities to environmental fluctuations. Images were created by P.J. Franks, assisted by C.X. Huang.

Real-Time Plant Physiology provides Open Access publication for all articles whose corresponding author is a member of ASPB. For more information on this new feature, please see the editorial in the September 2006 issue of *Plant Physiology* (Vol. 142, p. 5).

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^[C] Some figures in this article are displayed in color online but in black and white in the print edition.

^[W] Indicates Web-only data.

^[OA] Open Access articles can be viewed online without a subscription.