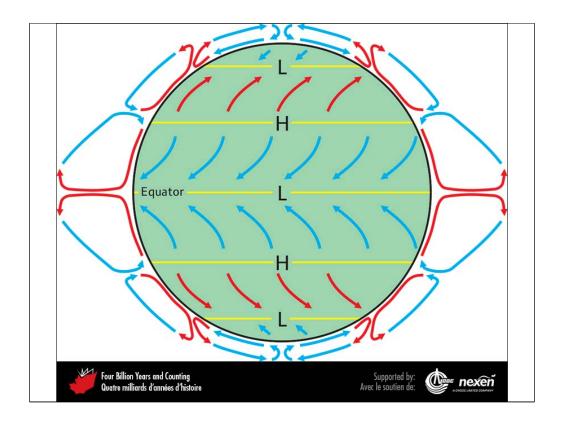
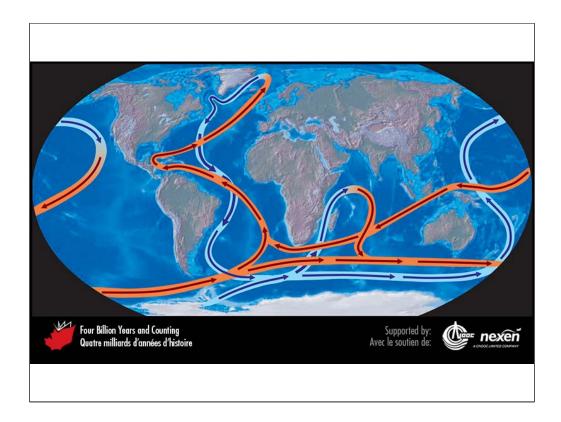
BOX 4



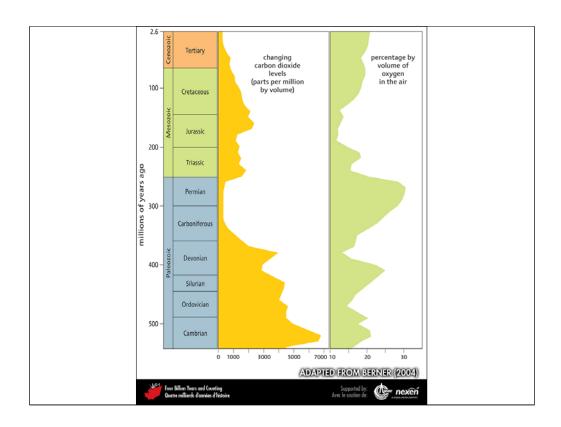
The atmosphere is our planet's outermost sphere. ROB FENSOME.



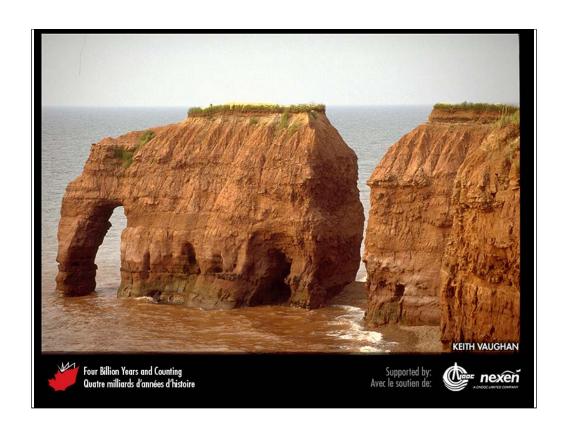
Earth's wind patterns showing the prevalence of easterlies (blue arrows denoting cooler air) in the tropics and at the poles, and westerlies (red arrows denoting warmer air) in temperate latitudes. The loops depict air circulation in the troposphere, with hot air rising in the lower and middle latitudes. L and H refer to latitudes of generally low and high pressure, respectively. ADAPTED FROM VARIOUS SOURCES.



Ocean circulation: warm currents are in red, cold currents are in blue. ADAPTED FROM VARIOUS SOURCES.



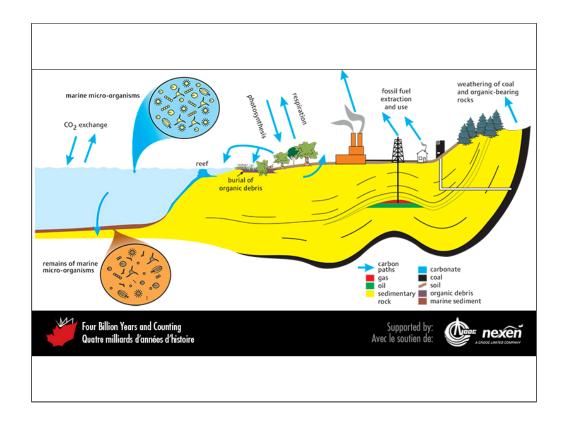
Variations in oxygen and carbon-dioxide levels in the atmosphere during the Phanerozoic. Both carbon-dioxide and oxygen levels have been much higher in the past—and oxygen sometimes also much lower. Note the strong inverse relationship between the two curves. ADAPTED FROM BERNER (2004).



Redbeds, such as the Permian strata seen here at Elephant Rock, near Tignish, Prince Edward Island, form only when there is free oxygen in the atmosphere. Since this photo was taken, the "elephant" has lost its trunk. KEITH VAUGHAN.

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The carbon cycle. In addition to the factors shown in this figure, plate tectonics has a major role: carbon (bound in minerals) is carried by subduction down to the mantle and is returned, for example, via volcanoes.