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Six crystals of silicate spinel, a high-pressure mineral abundant in the transition zone of Earth's mantle, confined in a diamond-anvil cell (mount diameter, 0.45 millimeter). High-pressure x-ray studies of these crystals reveal that the  $Mg_2SiO_4$  end member is 13% more

compressible than the  $Fe_2SiO_4$  end member even though its molar volume is 6% less. Such anomalous compressibility suggests that the behavior of  $Mg^{2+}$  and  $Fe^{2+}$  at mantle pressures is divergent. See page 206. [Photo: R. M. Hazen]



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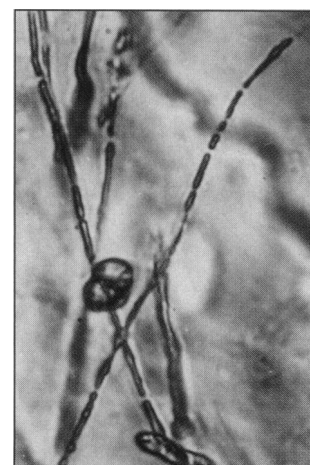
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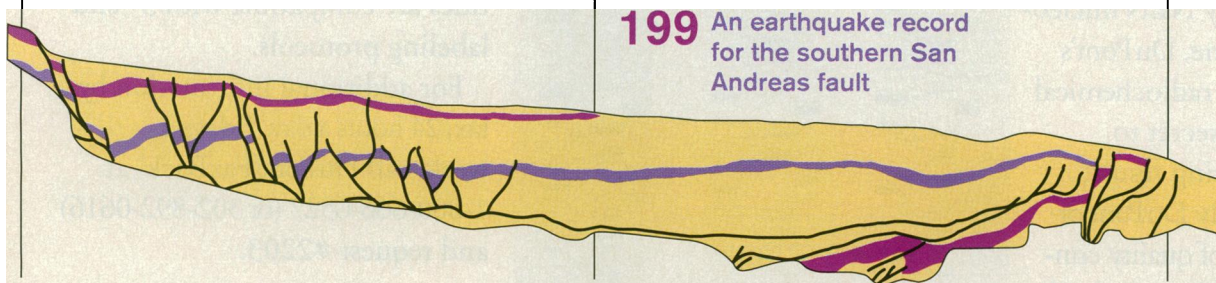
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