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Cover: The tiny town of Parkfield, Calif., earned a dubious honor in 1985 when federal geoscientists predicted that a strong earthquake would strike the region sometime before 1993. Advance warnings of potential danger can save lives, but they can also spawn serious side effects if mishandled. At Parkfield and other hazard-prone areas, researchers and state officials hope to avert communication catastrophes with new, highly systematic procedures for issuing public alerts. (Photo: Richard Monastersky)



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## Letters

### The Ungava breakthrough

Northern Canada's "Christmas quake" looks to me like a case of glacial rebound ("Christmas Quake Presents Geologic Gift," SN: 3/16/91, p. 164).

The Ungava surface fault lies perpendicular to, and upon a concentric ring away from, the area of greatest ice-mass concentration in several major glaciation events. We in Minneapolis lie on the outermost feathered edge of these concentric rings. We've rebounded more than 150 feet since the last glaciation, and northeastern Minnesota has risen 330 feet.

Geologists should address that rebound in the Ungava peninsula, especially when studying surface "plate tectonic" effects.

*Brad Bjorklund  
Minneapolis, Minn.*

*The Ungava region is still rising from the retreat of the mammoth North American ice sheet, and*

*this "glacial rebound" may have played a role in producing the quake. However, seismologist Archibald Johnston of Memphis State University says, "I personally don't feel glacial rebound is a very important factor in midplate earthquakes." If it were, scientists would expect to see many more earthquakes in regions that previously bore a heavy glacial cap — but the once-glaciated regions of Canada and Scandinavia tend to be pretty quiet . . . except for Ungava.*

— R. Monastersky

**According to your** "Christmas quake" article, scientists are calling the Ungava event "the first known instance of a quake fault rupturing the land surface in the eastern half of North America."

Yet the Reelfoot Lake in northwestern Tennessee is a direct result of the New Madrid quakes of 1811 and 1812.

David Crockett, who visited the area around that time, wrote of fighting a bear within the

confines of an earth fault so narrow that he and the bear could not pass, so deep that they could not climb out and so long that neither end of the crack was close enough to allow an escape from the fight.

Incidentally, the bear lost.

*William Grimes  
Hartford, Tenn.*

*Geologists have yet to find conclusive evidence that the New Madrid fault broke through the surface. Reelfoot Lake and secondary fissures developed as a result of the tremendous ground-shaking, but these are not examples of the actual fault breaking through. Some accounts of the New Madrid events describe waterfalls in the Mississippi River that may have resulted directly from surface rupturing by the fault itself, but scientists lack the evidence to settle that question. Ungava stands as the only documented case of a rupture plane breaking the surface in eastern North America.*

— R. Monastersky

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