

About the Cover

Long divide

This month's cover was produced by Brian Hayes, and is derived from images he included in the column "Dividing the Continent" that he wrote for the November 2000 issue of *American Scientist* (available at <http://www.americanscientist.org/issues/pub/dividing-the-continent/>). It illustrates how the algorithm he used proceeds to find the continental divide of North America, drawn as the thin red trail of pixels in the final image. Basically, it floods the ocean basins and keeps track of where they meet as the flood rises.

Brian Hayes has been writing the column "Computing Science" for *American Scientist* for many years, and it is a constant source of interesting mathematical and computational ideas. Some of his columns have been collected in the book *Group Theory in the Bedroom*, reviewed by David Austin in this issue of the *Notices*. The elevation data for Hayes's maps come from <http://www.ngdc.noaa.gov/mgg/global/etopo5.HTML>.

He writes: "The basic idea is to raise the level of both oceans in stages until the waters meet. The line along which they meet is the continental divide. This physical process is easy to describe, but that's because water performs an extraordinary parallel computation when it seeks its own level. Trying to emulate that process in a sequential, digital computer takes considerably more trouble." He also tells us that an animated version of the process can be found at <http://bit-player.org/bph-publications/AmSci-2000-11-Hayes-Cont-Divide/animate.html>.

—Bill Casselman, *Graphics Editor*
(notices-covers@ams.org)

