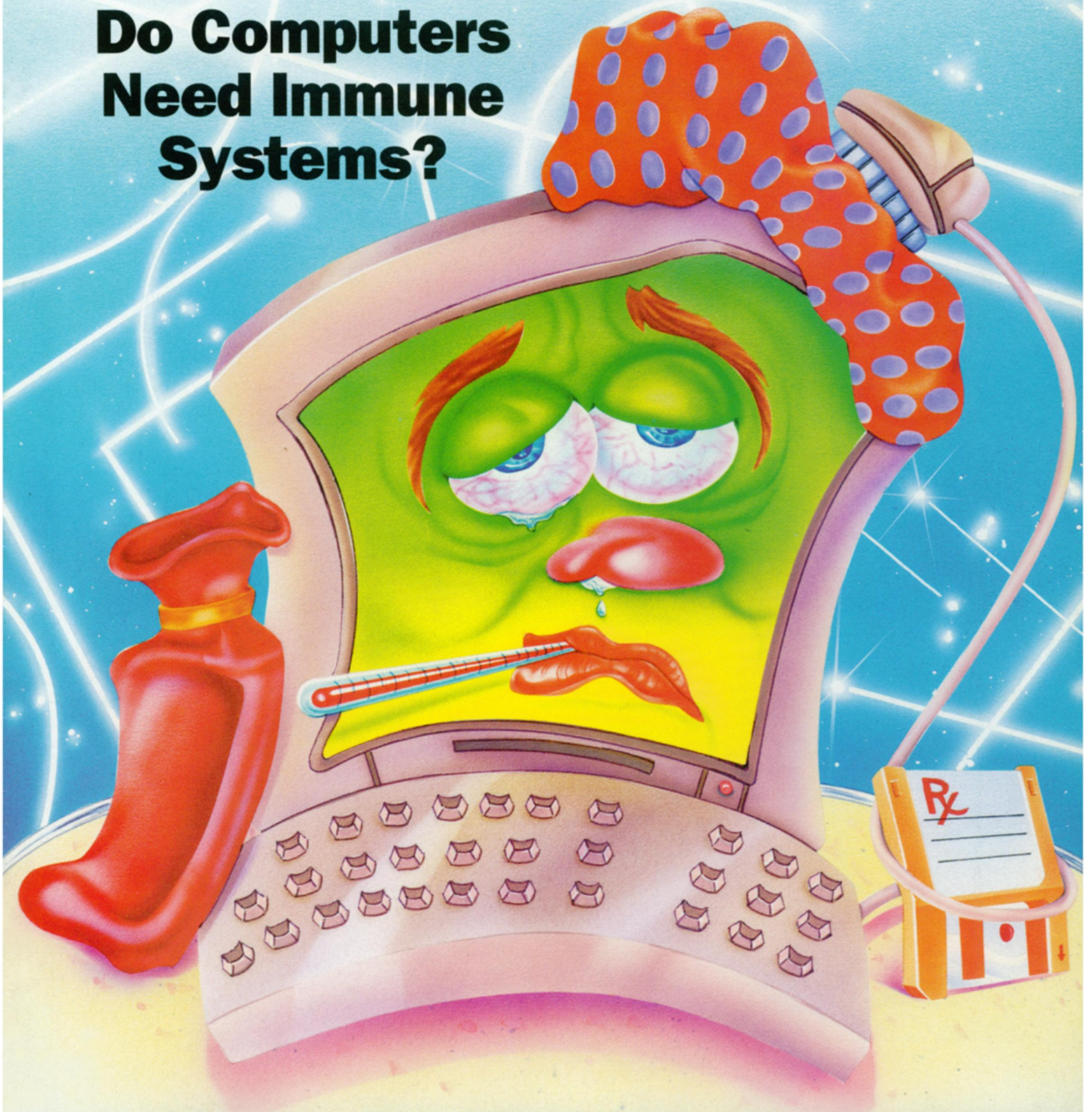


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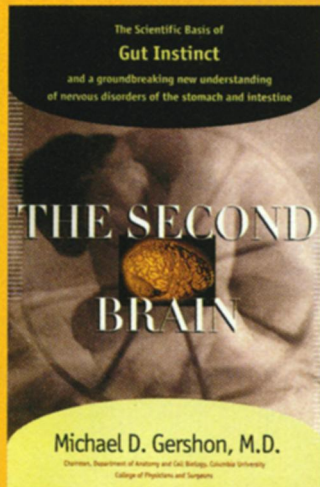
# SCIENCE NEWS

July 31, 1999  
Vol. 156, No. 5  
Pages 65-80

## Do Computers Need Immune Systems?



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Gershon's research over 3 decades indicates that because our first and second brains are similar, drugs designed to affect mood or thought are promising treatments to provide relief from bloating, gas, abdominal pain, diarrhea, and constipation. Parkinson's and Alzheimer's diseases also affect nerve cells in the gut, and since biopsies are easier to obtain from the gut than the brain, the bowel may hold the key to improved diagnosis and their eventual cure.

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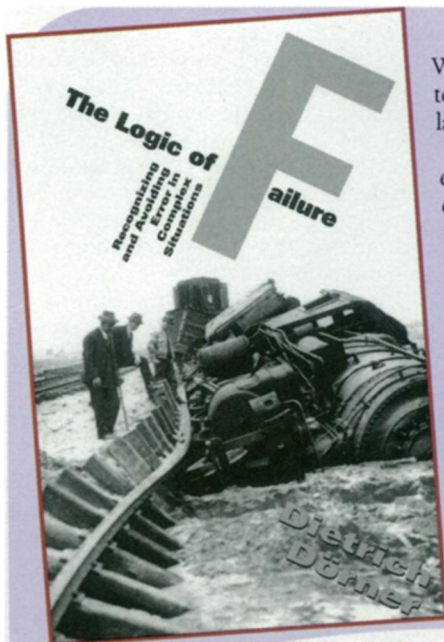
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Why do trains crash when the signals are working? Why does a nuclear reactor melt down with all operators alert at their posts? Why do so many of our best-laid professional and personal plans so often go awry?

Dietrich Dörner, winner of Germany's highest science prize, considers why—given all our intelligence, experience, and information—we make mistakes, sometimes with catastrophic consequences. Surprisingly, he finds the answer not in negligence or carelessness, but in what he calls "the logic of failure": certain tendencies in our patterns of thought—such as taking one thing at a time, cause and effect, and linear thinking—that, while appropriate in an older, simpler world, prove disastrous for the complex world we live in now.

Dörner finds no lack of examples. Why did the Aswan Dam planners who brought the blessings of cheap electricity to Egypt not realize that they would also interrupt the annual floods that for millennia had kept the Nile Valley rich and fertile? Why do planners of Third World health programs not realize that increased life expectancy requires increased food and thereby inadvertently end up contributing to starvation?

Working with intriguing computer simulations of his own invention, Dörner exposes the flaws in our thinking. His examples—sometimes hilarious, sometimes horrifying—and brain-teasing thought experiments teach us how to solve complex problems. Together they make *The Logic of Failure* a corrective tool, a guideline for intelligent planning and decision making.

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