

# Letters

## Climatic inequities?

Your article on the progress toward a climate treaty ("Time for Action," SN: 3/30/91, p.200) is timely and important. However, the comparative bar chart showing "million Btu's per person per year" is, I believe, unfair to Canada and the United States on the basis of both their temperature and their size. Canada and to a large extent the United States are colder than other nations in the OECD group, and thus need more energy to stay warm. In addition, the great size of these North American nations, combined with low population densities, makes energy use per person for all forms of transport higher than for the other OECD nations.

Cyrus F. Wood  
Physical Engineer  
Estes Park, Colo.

Your energy chart appears to be inaccurate. Sighting down the United States bar gives about 265 million Btu's per person per year, and dividing by 365 days gives about 726,000 per day. At 1,055 joules per Btu, this becomes 766,000,000 joules per day, and at 1 watt-second per joule, this converts to approximately 74 amps at 120 volts, 24 hours per day.

Even allowing for automobile usage, this seems rather high.

Peter Skye  
Glendale, Calif.

The graph reflects per capita energy use — the nationwide total divided by the number of citi-

zens. Such values give an indication of how much energy the average citizen consumes in a year, both directly (e.g., by driving a car) and indirectly (e.g., through the building of the highways upon which that car will travel).

— R. Monastersky

If the current theories about global greenhouse warming are correct, they suggest that it will be possible to manipulate the Earth's temperature by raising or lowering the carbon dioxide level. This opens up the possibility of "climate wars."

If, at some future date, the processes that would naturally lead to a new ice age occurred, the currently temperate countries could conspire to increase the carbon dioxide to maintain their climates, to the detriment of more equatorial countries that might benefit from this natural process. Conversely, if a natural warming cycle were to occur, currently temperate countries might engage in massive forestation or other programs to reduce carbon dioxide levels, to the detriment of colder countries such as Canada.

Any climate treaty worth considering should take these possibilities into account.

Jeffrey Roseman  
Director, Center for Health Risk  
Assessment and Disease Prevention  
University of Alabama  
Birmingham, Ala.

## Battling mortality with mutants

Arthur M. Jackson (Letters, SN: 4/6/91, p.211) proposes large-scale research efforts to identify and spread temperature-adaptive coral

mutations through recombinant DNA technology. His arguments have merit, but so little support is being given to basic research or environmental monitoring in coral reefs that much of the fundamental cellular and molecular biology of temperature response of corals (and their symbiotic algae) is unknown, as are the actual temperatures that corals experience at most sites.

If Caribbean sea temperatures in 1991 reach only the levels of the third-warmest year of the last four, there will be widespread coral mortality this year ("Bleached Reefs," SN: 12/8/90, p.364). Identification and propagation of the needed mutants would need to begin immediately, because corals are so slow growing. But no facilities currently exist to select and maintain corals on the scale required. Indian Ocean coral species with the highest temperature tolerances in the world were devastated in the Persian Gulf by Saddam Hussein's environmental terrorism, and even if wide-scale reef restoration were promptly implemented and fully successful, it could take centuries to replace the dead corals and maintain the reef framework.

We desperately need to apply modern biological tools toward adapting corals and other reef organisms to rising temperatures, but this is unlikely to save the world's reefs without simultaneous and immediate efforts to reduce the other pressures on reef health and to halt climate change by stabilizing greenhouse-gas concentrations in the atmosphere.

Thomas J. Goreau  
President, Global Coral Reef Alliance  
Chappaqua, N.Y.

Continued from p.19

ing. Outside his school duties, he wrote and published a monthly newsletter, PHOTON: PHYSICS FOR FUN, devoted to the wonders and joys of physics.

In 1980, he took a sabbatical to earn a masters degree in journalism at the University of Missouri, and never returned full-time to the classroom. He came to SCIENCE NEWS in 1981 as an intern and quickly distinguished himself. Joel Greenberg, the editor at the time, had the foresight to make Ivars a full-fledged member of the writing staff. And, as Ivars puts it, he himself had the foresight a few years later to marry Nancy Henderson, a writer with KIPLINGER'S PERSONAL FINANCE MAGAZINE.

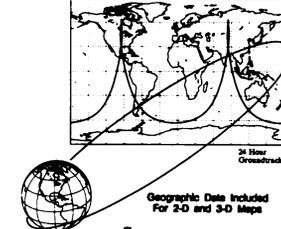
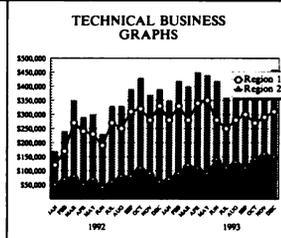
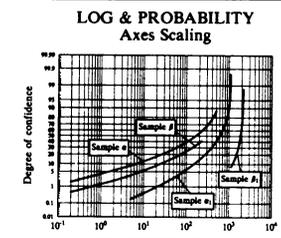
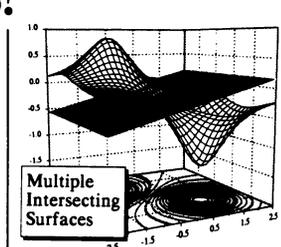
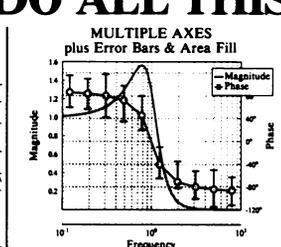
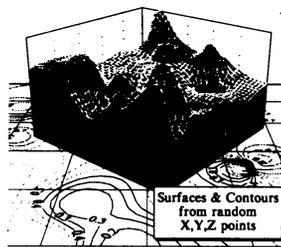
We at SCIENCE NEWS and our readers have watched Ivars mature into one of those rare writers who can describe the intricate realms of mathematics and physics in language comprehensible even to those who, like myself, regard balancing a checkbook as higher mathematics. For that feat alone, he deserves an award.

Periodically we are visited at the office by the younger Peterson generation — Eric, 4, and Kenneth, 19 months. And I wonder, as I watch them play with Ivars' computer, whether either will follow in the parental footsteps.

— Patrick Young, Editor

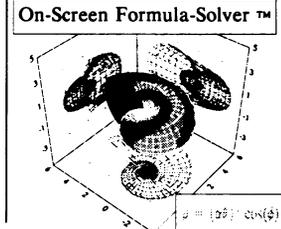
JULY 13, 1991

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