

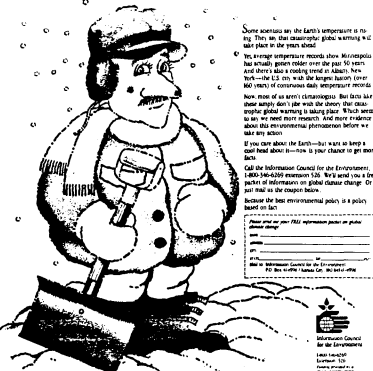
colder over the past 50 years.... Facts like these simply don't jibe with the theory that catastrophic global warming is taking place."

Actually, say climatologists, the temperature in Minneapolis, or Albany, or the state of Kentucky—all cited in the ads—has little or no bearing at all on the global warming question. "What they [the ads] say [about temperature trends in specific regions] may be true," says Thomas Karl of the National Climatic Data Center (NCDC) in Asheville, North Carolina, "but it's selective information; it's a bit of disinformation."

Karl and hundreds of his colleagues last year and again this year put together greenhouse warming reports based on hundreds of temperature records from around the globe. The combined record shows that the globe as a whole warmed during this century. That conclusion might not have been affected even if Minneapolis had gotten colder—but it hasn't. Richard Heim of NCDC can't find evidence of the decline in the best version of U.S. climate records available.

So why the ad campaign? The Information Council for the Environment is funded by a group of electric utilities, coal

## If the Earth is getting warmer, why is Minneapolis getting colder?



Why, indeed. Advertisement that was scheduled to run in May campaign.

## A Transforming Look at C<sub>60</sub>

Mineralogist Peter R. Buseck and microscopist Su Wang of Arizona State University in Tempe just wanted to get some crisp images of crystals made of C<sub>60</sub>, the 60-carbon "fullerene" molecule whose fame grows by the week. But their imaging technique may have wrought an intriguing transformation in the material.

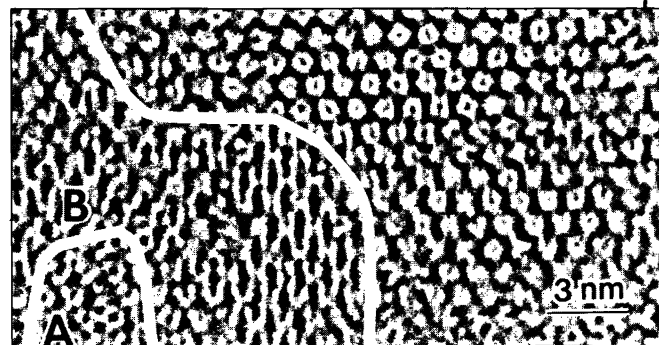
The Tempe researchers got a sample from front-line fullerene researchers Donald R. Huffman and Lowell D. Lamb of the University of Arizona, crystallized it, and took a look at the crystals with a high-resolution transmission electron microscope (HRTEM)—an instrument that is well suited for revealing the molecular architecture of crystals.

The sample, they were told by Lamb, consisted largely of molecules of C<sub>60</sub> and C<sub>70</sub>, another fullerene, in a ratio of 9 to 1. The images indeed reveal crystalline planes made mostly of C<sub>60</sub> molecules. Also visible, though, are patches of what Buseck thinks are smaller (A) and larger (B) molecules, consisting of anywhere from 32 to about 130 carbon atoms.

The odd-sized molecules might have been present in the original

sample, but Buseck thinks they also might have formed during the very act of imaging them in the HRTEM. The same beam of electrons used to image the crystals might have triggered chemical rearrangements of the sample's native fullerene molecules. And therein lurk some intriguing possibilities.

"If the sizes of fullerene molecules can indeed be changed in electron beams, then this might eventually provide a way for tailoring them to desired dimensions and configurations," the researchers conjecture in the report of their study, which will appear in *Chemical Physics Letters*.



Buseck and Wang

companies, and manufacturers, which are among the targets of proposed legislation that would impose energy taxes and regulations in order to curb emission of greenhouse gases. To beef up its credibility, the council enlisted three of the half-dozen or so outspoken greenhouse dissidents among United States scientists: Robert Balling and Sherwood Idso of Arizona State University and Patrick Michaels of the University of Virginia.

If the ad campaign goes national, the greenhouse debate could be in for even stormier times.

## Please Sir, \$250 Million More

What will it take to convert the nation's power grid into a showcase of components based on high-temperature superconductors (HTSCs)? A \$250-million industry-government partnership, according to a report released last Tuesday by an ad

hoc industry group. Its mission would be to prevent the United States from losing the global horserace to commercialize HTSC electric power products.

At a press conference convened by the Council on Superconductivity for American Competitiveness (CSAC)—a Washington-based HTSC advocacy group—Gregory J. Yurek, chief executive officer of the American Superconductor Corporation of Watertown, Massachusetts, held up examples of flexible HTSC tapes and wires made by his company. He claimed these experimental products are poised for the next stage of commercial development, which includes finding ways to manufacture large amounts of the materials reliably and cheaply. That next step is unlikely to be taken at the national laboratories, whose HTSC R&D efforts are aimed at less commercial goals, added Thomas Schneider of the Electric Power Research Institute in Palo Alto. What to do?

After listing the financial, le-

gal, and other roadblocks customarily invoked these days to explain the waning U.S. standing in global technology races, Yurek and other speakers at the press conference identified the federal government as the only source that could provide a financial bridge.

The industry report recommends that, beginning in 1992, the government spend \$250 million over 5 years—over and above the roughly \$230 million the United States now spends yearly on HTSC research and development. The money would be earmarked for developing working, credible prototypes of motors, generators, storage devices, transmission lines, and other made-in-the-USA components of an electric power system made out of HTSC materials.

Once the commercial potential of HTSC-based power technologies had been demonstrated, the private sector would more readily take the development baton from the government, Schneider said.