

Briefings

edited by IVAN AMATO

Oil and Water

Oil may have sparked the latest Mideast war, but water—or the lack of it—may be a cause of the next one. “Water security will soon rank with military security in the war rooms of defense ministries,” says Joyce Starr, head of a 3-year-old Washington, D.C. group called the Global Water Summit Initiative.

Starr, a sociologist formerly with the Center for Strategic and International Studies, also in Washington, says that most countries in the Middle East deplete water supplies faster than they can be replenished. The need for remedies is urgent; the region’s population growth exceeds 3% a year.

In the spring issue of *Foreign Policy*, Starr argues that water shortages will breed instability. Much of the Middle East depends on the same few rivers and aquifers, but cooperation on any matter—let alone water—is not the region’s strong point. Israel, which is already overdrawing its water supplies, relies heavily on an aquifer partly underlying the West Bank. Turkey is busily damming the Tigris and Euphrates, lifelines for Syria and Iraq. Egyptians fear what countries upstream from them will do to the Nile, already depleted by a decade-long drought.

In recognition of the fact that water may soon replace oil as a major source of conflict, Starr’s group—which has on its board experts such as geologist Farouk El-Baz of Boston University—is sponsoring a Middle East Water Summit, to be held in Istanbul next November. The United States has failed to recognize the key role water resources play in regional stability, says Starr. She says that summit organizers, including the World Bank, believe that “a passive governmental approach to Middle East water scarcity will doom any future peace initiative.”

Senate Boosts SSC, Main Injector Funding

In sharp contrast to the budget-trimming in the House of Representatives last month (*Science*, 24 May, p. 1058), the Senate Appropriations Committee recently voted \$508.7 million for the SSC next year, just \$25 million shy of the Administration’s request. If the vote holds up in the full Senate, and then in conference with the House, it will nearly double last year’s SSC budget allocation.

The committee also approved \$25 million to begin construction of Fermilab’s main injector, a long-anticipated upgrade to the laboratory’s Tevatron accelerator—still shy of the \$43 million sought by DOE, but more than the \$10 million approved by the House.

Borderless Grants

The Howard Hughes Medical Institute (HHMI) has awarded grants worth \$10.8 million to 21 biomedical research teams working in Canada and Mexico. The 5-year grants, most between \$450,000 and \$500,000, mark the beginning of a new international program to complement HHMI’s support of about 220 full-time investigators at research facilities in the United States.

“These grants represent an exciting new direction for the institute,” said HHMI president Purnell W. Choppin in announcing the initiative. “The boundaries of science are not constrained by national borders.”

Next year, HHMI expects to broaden the program by doling out grants to scientists in the United Kingdom, Australia, and New Zealand.

Can-do Bugs

Everyone is in favor of recycling—but recycling can create problems of its own. That, unfortunately, has been the case for aluminum cans. It takes partial incineration to strip them of colorful paints and coatings, which pollutes the air and also destroys 15% of the metal, valued at \$75 million annually.

Now, Technical Research Associates (TRA) of Salt Lake City says it has a way around the snag. In the course of an Air Force-supported project to find a way to degrade polyurethane paints, the company found a natural microbial brew that also strips paints, epoxies, and polymeric coatings from aluminum cans. The process can strip a batch of

cans to bare metal in 30 minutes.

TRA won’t reveal details about its microbial swabbers. “Let’s just say we are good at finding organisms to do what has to be done,” says TRA’s Gale Bowers-Irons.

Logger’s Dismay

The spotted owl has a new comrade in the logging wars of the Northwest: a robin-sized seabird called the marbled murrelet, which nests in the high, mossy branches of coastal old-growth forests.

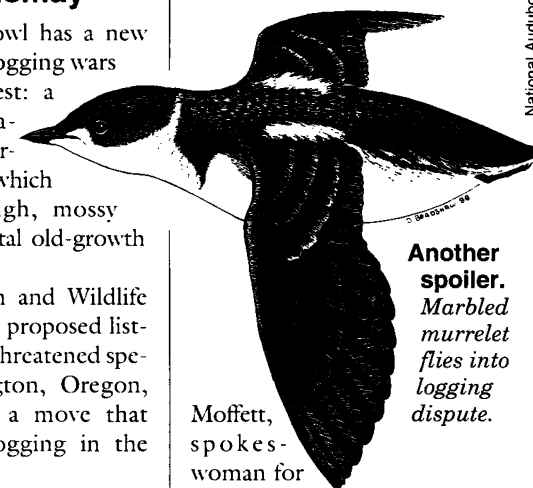
The U.S. Fish and Wildlife Service last week proposed listing the bird as a threatened species in Washington, Oregon, and California, a move that could restrict logging in the bird’s domain.

The murrelet’s range extends from Alaska, where its population numbers 50,000 to 250,000, to central California. But whereas the northern murrelets nest in burrows and rocks along the shore, the U.S. populations commute to the water from bedroom communities in the canopies of old-growth forests. The wildlife service blames logging for the scarcity of murrelets in the Pacific Northwest—2000 are estimated to remain in California, 2000 in Oregon, and 5000 in Washington.

Neither the Fish and Wildlife Service nor the Audubon Society, which first documented the bird’s dependence on old-growth forests, will venture a guess about the amount of forest that might go off limits to

logging if the bird’s proposed status as a threatened species is approved. But any newly restricted area could be large. There is little overlap between its habitat, which is within 50 miles of the coast, and that of the spotted owl, which lives farther inland.

This is the second blow to the Northwest timber industry in recent weeks: Three weeks ago the Federal District Court in Seattle halted 171 federal timber sales that it judged to be in violation of laws protecting habitats of the spotted owl. With three federal agencies, three courts, and three states all making conflicting regulations on spotted-owl protection, “nothing is making sense right now,” according to Sharla



Another spoiler.
Marbled murrelet flies into logging dispute.

Moffett, spokeswoman for the Portland-based American Forest Resource Alliance. “And then they propose listing the marbled murrelet!”

Can PR Cool the Greenhouse?

If a slick ad campaign can cool Americans’ enthusiasm for controls on greenhouse warming, stand by for a big chill. “Some scientists say the earth’s temperature is rising. They say that catastrophic global warming will take place in the years ahead,” reads one of the ads, test-marketed this spring by the Information Council for the Environment. “Yet, average temperature records show Minneapolis has actually gotten

National Audubon Society

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 C₆₀

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 C₆₀, the 60-carbon "fullerene" molecule whose fame grows by the week. But their imaging technique may have wrought an intriguing transformation in the material.

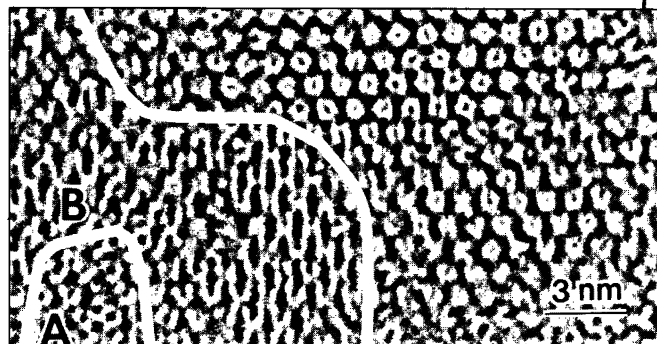
The Tempe researchers got a sample from front-line fullerene researchers Donald R. Huffman and Lowell D. Lamb of the University of Arizona, crystallized it, and took a look at the crystals with a high-resolution transmission electron microscope (HRTEM)—an instrument that is well suited for revealing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

The sample, they were told by Lamb, consisted largely of molecules of C₆₀ and C₇₀, another fullerene, in a ratio of 9 to 1. The images indeed reveal crystalline planes made mostly of C₆₀ 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.