

Briefings

edited by CONSTANCE HOLDEN

Britannica in the Doghouse

The *Encyclopaedia Britannica* may be more careful in selecting its contributors in the future following a furor it has stirred up over its entry on "dogs" in the 1991 edition.

One section of the 7-page article states that among the roles filled by dogs is "test subject for the vivisection laboratory." Later on, the entry relates that the use of dogs, especially beagles, in biomedical research, "which often entails much suffering, has been questioned for its scientific validity and medical relevance to human health problems. For example, beagles and other animals have been forced to inhale tobacco smoke for days and have been used to test household chemicals such as bleach and drain cleaner. In addition, dogs have been used to test the effects of various military weapons and radiation."

And the author chosen as an expert in canines by the encyclopedia? None other than Michael W. Fox, veterinarian at the Humane Society of the United States and prominent critic of the use of animals in research.

The entry has raised a ruckus in the pharmaceutical and biomedical communities. It began last August when Tony Mazzaschi, public affairs officer for the American Society for Pharmacology and Experimental Therapeutics (ASPET), came across a reference to the encyclopedia entry—in which its antivivisectionist tone was approvingly mentioned—in an obscure newsletter. After verifying that the company stood behind the wording, ASPET chief Frank Standaert notified ASPET's membership, urging them to check out the encyclopedia before they buy it or recommend its use. The Foundation for Biomedical Research also swung into action, alerting its members and several dozen

research groups. The newsletter of the Federation of Societies for Experimental Biology has devoted a full page in its December newsletter to the issue. Barbara Rich of the Foundation for Biomedical Research points out that the information in the offensive section is mostly out of date—beagles, for example, have not been used for defense research in two decades—and that the article contains no mention of benefits from dog research.

According to a 14 November letter Standaert received from a *Britannica* spokesman, the company is thinking the matter over. "We always attempt to secure competent and well-respected authorities in their respective field[s]....The question you raise is being investigated carefully, and your comments, as well as those of other correspondents who may feel otherwise, will be seriously considered when the article...is...updated."

Mazzaschi, by the way, says he looked up "cats"—and found it free of animal rights rhetoric.

Beryllium Disease

After two workers at the nuclear weapons plant at Oak Ridge National Laboratory in Tennessee were diagnosed earlier this year with chronic beryllium disease (CBD), a rare and sometimes fatal scarring of the lungs, the Department of Energy ordered up a 4-year probe. Now, part of that probe has begun—tests conducted by the Oak Ridge Associated Universities' Center for Epidemiological Research measuring "beryllium sensitivity" in 3000 people who've been exposed to the metal's dust since Manhattan Project managers opened the Y-12 plant at Oak Ridge in 1943. Buck Jones, the plant's medical director, calls the study the most comprehensive of its kind.

Currently, 119 Y-12 employees process beryllium, which has a number of industrial uses, including rocket heat shields and nuclear weapon and electrical components. Jones says the disease often takes 20 to 25 years to develop, and adds

that the stricken employees haven't worked with the stuff for years. There is no cure for CBD, estimated to strike 2% of people exposed to the metal. Anti-inflammatory steroids alleviate such symptoms as a dry cough, weight loss, and fatigue. Like other lung-fibrosis diseases that are linked to lung cancer, "some people suspect [CBD] might cause some lung cancer" too, Jones says.

While difficult to diagnose, about 900 cases of CBD have been reported since a Beryllium Case Registry was established in 1952. The Department of Energy (DOE) estimates that about 10,000 DOE employees and 800,000 people in private industry have worked with beryllium.

Radar Gun Hazards?

Radar guns—hand-held units used by the law to nail speeders—have been in use since the early '60s. Now they've been accused of causing cancer.

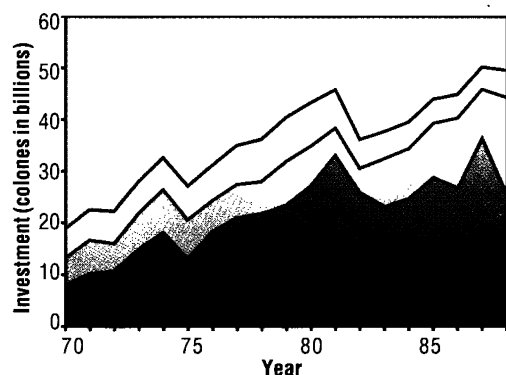
Police officers in several states

Accounting for the Environment

The "debt crisis" facing many developing countries is in reality more of an environmental crisis, one that is "triggered by faulty economic indicators that allow the destruction of natural resources to masquerade as economic growth," according to the World Resources Institute (WRI), a Washington, D.C., think tank.

Take the case of Costa Rica. A recent WRI analysis of that nation's economy, done in cooperation with the Tropical Science Center in San Jose, concludes that depreciation of the country's forests, soils, and fisheries has robbed it of almost 30% of its potential net growth over the past 20 years. "Every year... 5% of [Costa Rica's] Gross Domestic Product has vanished without a trace," said WRI economist Robert Repetto at a 12 November press conference held in Washington. In other words, accounting procedures have totally failed to reflect erosion of the natural resource base.

Indeed, a 1989 WRI analysis of Indonesia's national accounting system showed an annual growth rate of 4%—far less than the 7% shown from conventional calculations. "Governments today worship at the altar of national accounts," which are "tragically flawed," concluded WRI president Gus Speth at the briefing. Speth laid the blame at the door of the United Nations Statistical Commission, which supplies a national accounting framework followed worldwide. WRI labeled the system a "relic of the 1930s"—when no one was worrying about resource depletion—that "fosters the illusion that countries can prosper by destroying their natural resource base." That's why they can carry on for years with no indication of problems and then suddenly



Costa Rica. Dramatic reduction in net investment is seen when accounts are adjusted for natural resource depletion.

they go bankrupt, said Repetto—as happened in Costa Rica in the early '80s.

Perhaps a dozen countries around the world are currently attempting to revise their accounting procedures. Indeed, said Repetto, the only real resistance to reform is from statisticians, who he says are resistant to change and chronically underfunded. And the United States is a case in point: Although Congress has directed the Commerce Department to develop a revised system of national accounting, nothing has been done because of budgetary constraints.

From "Accounts Overdue: Natural Resource Depletion in Costa Rica," available for \$12.50 plus \$3 shipping from WRI Publications, P.O. Box 4852, Hampden Station, Baltimore, Md. 21211.

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have so far filed eight suits against the manufacturer, claiming that they have contracted rare forms of cancer, such as of the eyelid and the testicle, from frequent proximity to the devices.

Spurred by concerns expressed by police groups, researchers at the Rochester Institute of Technology are conducting what they believe to be the first research of its kind in the nation. Last month psychologist John Violanti, an expert in police psychology and health, sent out a one-page survey to 6000 active and retired police officers in New York State, asking them about their health and their use of radar guns. Violanti says melanoma, leukemia, and lymph node cancer may be linked to these as well as other electromagnetic devices.

The Food and Drug Administration earlier this year issued a warning about radar guns, telling users not to operate them closer than 6 inches from the body. But this may not be a sufficient safeguard, says Violanti, since the instruments can give off crisscrossing wave emissions within a police vehicle. The survey will be used to help determine if it would be safer to mount the guns, which are currently either hand-held or mounted on dashboards, outside troopers' cars.

Computer Moguls Slam Data Plan

A group of 12 heavy-hitting U.S. computer executives has ruffled some feathers in the federal bureaucracy with a report that criticizes aspects of the High-Performance Computing and Communications Initiative, a multibillion-dollar effort being cooked up by the White House Office of Science and Technology Policy.

In its 3 December report, the group praises the aims of the computer R&D crusade, an effort to develop state-of-the-art computer hardware and high-

**"Expanding the Vision of High-Performance Computing and Communications," by the Computer Systems Policy Project.

Seal Tests



Seal watching. J. Ward Testa prepares to collect urine from a Weddell seal resting near Big Razorback Island in McMurdo Sound.

Scientists trying to relate global ocean circulation changes to an El Niño event may get some answers from Antarctic seals. J. Ward Testa of the University of Alaska in Fairbanks has been studying the dispersal and diving behavior of Weddell seals that live in the area around McMurdo Sound. Although the population has remained relatively stable over the past 20 years, Testa and his team of graduate students have found, reproductive rates decline in El Niño years. Moreover, the seal pups experience a longer wait for sexual maturity, and their elders show a decrease in age-related survival rates.

Testa believes that the changes are based on the availability of food for the seals. Using recorders attached to the animals, Testa has shown that they commonly dive 150 to 300 feet deep in search of Antarctic silverfish, their only prey. He believes that when El Niño conditions exist, the normal north-to-south water flow is interrupted, and fewer fish wind up in Antarctic waters. With less food available, the seals are less able to reproduce. To test these hypotheses, Testa plans to continue studying the seals for a decade or more.

speed data links that is budgeted at \$640 million this year (*Science*, 6 December, p. 1459). But it criticizes the effort for inefficiency, for focusing on the needs of the elite, and for emphasizing hardware over software.

At a press conference, Hewlett Packard chairman John Young said there has been too much focus on "esoteric" applications, and not enough on areas "that affect the lives of everyday people"—such as medical diagnosis, industrial engineering design, and education. The 12 executives also claim that changes could be made cheaply—for example, by diverting funds used to duplicate hardware at the agencies to software research. And the government could achieve more "balance" by reducing its emphasis on the hot topic of "massively parallel" structures in favor of "other high-perfor-

mance computing tools."

The CEOs also decried the absence of a central administrator for the initiative, which spans eight agencies and is being loosely coordinated by the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) under presidential science adviser D. Allan Bromley. They argue that "there is no unified vision" or any "ultimate point of responsibility."

On the surface, everyone was delighted with the report when it was presented last week. "This is an august group," said the Department of Energy's David Nelson, who chairs the FCCSET committee that tracks high-performance computing. "We're going to take [their advice] very seriously....In no way are we trying to brush them off." Off the record, though, government staffers said they were offended

by the industry group's chutzpah and pointed out that it did not have access to the latest information on the project's second year of operation. Some also thought the executives had a vested interest in belittling the technologies they criticized.

Industry people dismiss these objections as attempts at turf protection. "They thought we were trying to steal their underwear," says one CEO. Eugene Wong of Bromley's office says the conflict no doubt "will solve itself in time....It was probably a communication problem." Or, to be precise: a high-performance communication problem.

More on Vitamin C

Things seem to be looking up for Vitamin C. Last year the National Cancer Institute held a conference highlighting some positive findings, and interest is mounting in its role as an antioxidant in chronic diseases (see *Science*, 18 October, p. 374). And now the *Proceedings of the National Academy of Sciences* has published a paper by biologist Bruce Ames and his group at the University of California, Berkeley, collaborating with Robert Jacob of the Agricultural Research Service, suggesting that Vitamin C may help prevent genetic defects.

The team, headed by Cesar G. Fraga, reports that high levels of oxidative damage to sperm—which may lead to mutations and hence birth defects—were correlated with low levels of ascorbic acid in the seminal fluid of healthy subjects. A link was demonstrated by manipulating dietary ascorbic acid in a control group: When ascorbic acid was decreased, levels of one of the major products of oxidative damage went up. It went down again when ascorbic acid was restored. The researchers concluded that Vitamin C has a protective effect against endogenous oxidative DNA damage. "This is particularly important for black males and smokers, many of whom have low levels of ascorbic acid," says Ames.