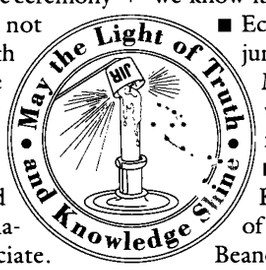
Briefings

edited by CONSTANCE HOLDEN

Nobel Knock-Off

With mock solemnity, the first annual Ig Nobel prize ceremony opened last week not with a bang, but with a spritzer. Not all the winners were scientists, but four real-life Nobelists, including Harvard physicist Sheldon Glashow, helped officiate. The award is said to be the legacy of Ignatius ("Ig") Nobel, mythical inventor of soda pop and lesser known relative of Alfred, the inventor of dynamite. In keeping with Ig's wishes, winners are honored for their "irreproducible achievements in the sciences and the humanities." Organizer of the occasion was Marc Abrahams, editor of the *Journal of Irreproducible Results*. Cosponsor was the Massachusetts Institute of Technology Museum in Cambridge, Massachusetts. The Peter deFlorez '38 Fund for Humor at MIT provided support for the event.



Some winners, with their official citations:

■ Education: Vice President Dan Quayle, "for demonstrating, better than anyone else, the need for science education."

■ Chemistry: French biologist Jacques Benveniste of the National Institute for Health and Medical Research—"prolific proselytizer and dedicated correspondent of *Nature*..., for demonstrating to his satisfaction that water is able to remember events long after all trace of those events has vanished."

■ Biology: Entrepreneur Robert Klark Graham, "for his pioneering development of the Repository for Germinal Choice, a sperm bank that accepts donations from Nobelians and Olympians."

■ Literature: Erich Von Daniken, best-selling author of *Chariots of the Gods*, "for explaining how human civilization was influenced by ancient astronauts from outer space."

■ Peace: Physicist Edward Teller, father of the hydrogen bomb and first champion of the Star Wars weapons system—"for his lifelong efforts to change the meaning of peace as we know it."

■ Economics: Convicted junk bond impresario Michael Milken—"to whom the world is indebted."

■ Medicine: Alan Kligerman, inventor of the flatulence fighter Beano, "for his pioneering work with anti-gas liquids that prevent...discomfort and embarrassment."

Gene Therapy Trials on the Move

Two research teams last week won approval from NIH's Recombinant DNA Advisory Committee for gene therapy experiments with human patients, thereby becoming members of a still highly exclusive club. The targets of their work: cancer and cholesterol.

Just hours after clearing their last regulatory hurdle, Steven A. Rosenberg and colleagues at the National Cancer Institute and W. French Anderson at the National Heart, Lung, and Blood Institute began the first-ever attempt to treat cancer patients with genetically altered cells grown from their own tumors.

The researchers took tumor cells from a 46-year-old man with metastatic melanoma and altered them to produce excess quantities of the anti-tumor toxin TNF (tumor necrosis factor)—which, it is hoped, will make the tumor more susceptible to attack from the man's own immune system. Rosenberg has permission to treat 15 patients in this protocol. He also got approval for a protocol to treat 15 other patients with tumor cells altered to express excess IL-2, an immune modifier.

The other newly approved study is aimed to help patients with extremely high levels of cholesterol in their blood. James M. Wilson and colleagues at the University of Michigan Medical Center will insert a gene into progenitor liver cells of these patients that will help remove the excess cholesterol.

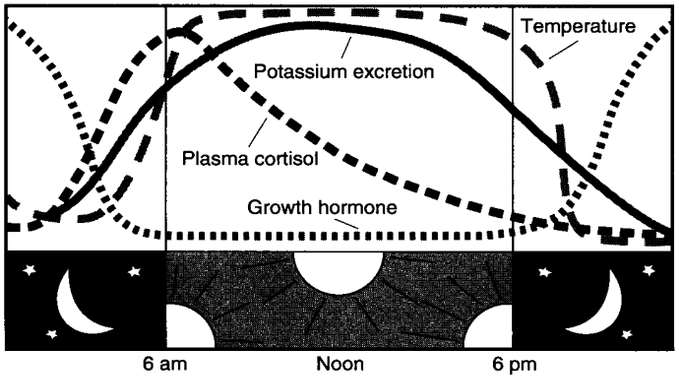
Yet a third group has had its plans stalled by the NIH committee. Scott M. Freeman and co-workers at the University of Rochester Medical Center have been told to collect more safety data before proceeding with an experiment to alter cancer cells to make them more susceptible to attack by the drug gancyclovir.

OTA Endorses the Rhythm Method

But it's not what you think. The congressional Office of Technology Assessment (OTA) has taken U.S. industry to task in a recent report* for failing to apply research findings on human circadian rhythms, which affect fatigue levels and alertness, to the workplace. Since extended or nighttime work shifts conflict with natural cycles, OTA says, organizations that rely on shift workers—particularly in such hazardous occupations as emergency services and nuclear power plant operations—need to consider ways to counteract the negative effects of circadian disruption.

Circadian, or 24-hour, rhythms are found in fluctuations that occur throughout the day in body temperature, growth hormone and cortisol (a metabolic hormone linked to stress) secretions, and potassium excreted in urine (see chart). When these cycles conflict with environmental cues, workers frequently suffer from sleep problems and impaired performance until they readjust. While there are promising strategies for directing this readjustment—exposure to bright light, for instance, has been shown to "resynchronize" natural rhythms—few employers have shown any interest in them, OTA says.

Much of this indifference might be due to the paucity of data outlining the potential health and safety hazards of circadian disruption, as well as of research that explores intervention strategies. The report suggests that Congress consider pushing for more such research, directing statistical agencies to gather more data on shift work and workplace safety, and reviewing labor regulations regarding shift work.



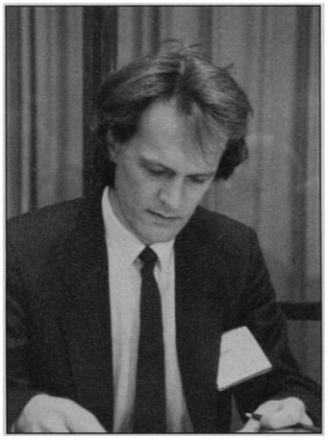
Circadian rhythms in a human subject.

**Biological Rhythms: Implications for the Worker*, Office of Technology Assessment, U.S. Congress, OTA-BA-463, September 1991.

Windfall for Meta-Analysis

The application of techniques of meta-analysis to clinical trials is likely to receive new attention with the bestowal of a new prize worth about $700,000 to two pioneers in the field.

The million-Swiss-franc Helmut Horten Research Award is going to Richard Peto, director of the Cancer Studies Unit at Oxford University, and his mentor, famed Oxford epidemiologist Richard Doll (see *Science*, 3 August 1990, p. 476). The two will be honored at a 29 November ceremony in Lugano, Switzerland, along with biochemist Martin Spiess of the University of Basel. Spiess is getting a 400,000-franc "incentive prize" for research on the biochemistry



Richard Peto

of cell membranes.

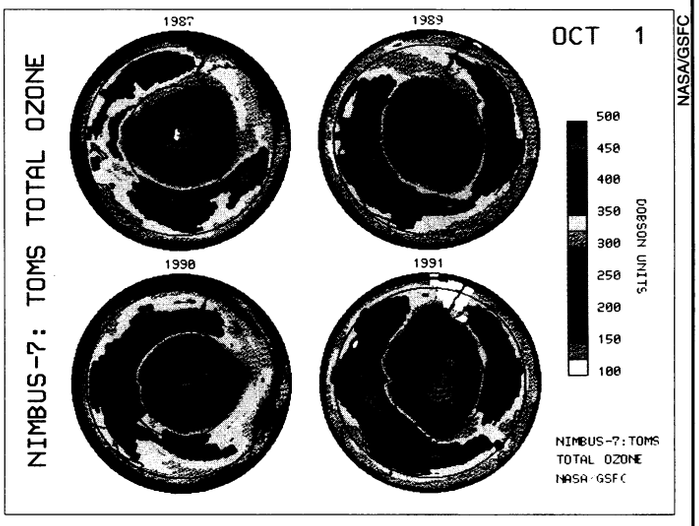
Kenneth Warren, director for science at Maxwell Macmillan and the person who nominated Peto for the award, says it confers much-needed recognition for randomized control trials and meta-analysis, which he calls "the gold standard for clinical decision making." Warren adds that although it's "an enormously important field," many medical professors in both Europe and the United States still have only a vague notion of what it's all about.

The Horten award, billed as a competitor to the Nobel, is a biennial award for advances in medicine established from a bequest by Helmut Horten, a German supermarket magnate.

Antarctic Ozone Hole Hits Record Depth

A bad year for the ozone over Antarctica looked like a good bet this year. For the past 2 years, stratospheric ozone destruction has equaled the record set in 1987. Now things look even worse, with a record-setting ozone hole.

In 1987, 1989, and 1990, the minimum amount of ozone over Antarctica early each October was 120 to 125 Dobson units (the standard ozone measure) compared to the typical level of 220 that prevailed before manmade chlorofluorocarbons (CFCs) began eating into the ozone layer. The depletion allowed as much as twice the usual amount of biologically damaging ultraviolet light to reach the earth's surface. But researchers took some comfort in the fact that the hole seemed to have hit a barrier to further losses.



A bad year getting worse. *In these 1 October maps, the 1991 hole* (purple and pink area) *looked like the 3 previous years. By 6 October, it had hit a new low.*

Now that barrier may have been breached. On 6 October, the satellite-borne Total Ozone Mapping Spectrometer detected an ozone minimum of 110 Dobson units, according to Richard McPeters of NASA's Goddard Space Flight Center in Greenbelt, Maryland.

The region of the lower stratosphere where icy cloud particles and the chlorine of CFCs combine to destroy ozone—between 14 and 24 kilometers—looks much the same as it did in 1987, says Samuel Oltmans of the National Oceanic and Atmospheric Administration in Boulder, who monitors ozone instruments lofted on balloons from the South Pole. However, says Oltmans, "what seems to be different is that there's less ozone around 28 kilometers. The reason is not clear." Has CFC-induced destruction escaped from its genie's bottle? Or has an errant wind of ozone-poor air just happened over the Antarctic this year? Scientists need more time to say.

Living Thin and Long

For almost a century, studies have shown that when you feed rodents and other animals low-cal diets, they tend to live longer and stay healthier. Now, a new study of 1100 mice—the largest population yet for this kind of project—by Tufts University veterinary pathologist Roderick Bronson has yielded the most specific and dramatic findings to date. It shows that underfed rodents are not only less prone to cancer but exhibit fewer physiological signs of aging.

When their calories were cut 40%, the mice lived 29% longer than average. Furthermore, an examination of their tissues—including sections of brain, ears, eyes, and throats—showed fewer age-related abnormalities. The reduction in the incidence of tumors and other lesions was especially striking: the slender mice had fewer at all ages, while the fatter ones had four times as many by age 2. Says Richard L. Sprott of the National Institute on Aging, which funded the project, "What stunned us was that every single type of tumor and nearly every kind of lesion were delayed (in the skinnier mice)."

The study is one of 14 NIA is supporting as part of a 10-year effort—involving 9000 rodents—to identify which physiological changes are due to normal aging, and which to disease. It's too early to tell what all this means for humans, say the researchers, but studies in primates are reportedly yielding encouraging results—except for those who look forward to their meals. Years spent on 40% fewer calories is no trivial lifestyle change.

The Ex-Commies Are Coming

As might be predicted, a big surge of scientists from the disintegrating Soviet empire is clamoring at the gates of the National Institutes of Health seeking jobs, fellowships, and opportunities for research collaboration.

NIH in turn is increasing its efforts to alert former Communists of opportunities, according to Philip E. Schambra, director of the Fogarty International Center, NIH's international arm. Among programs available is a new one called Fogarty International Research Collaboration Awards. Next year plans are to award about 35 grants of up to $20,000 a year, for a maximum of 3 years, for Soviet and East European scientists' research labs as well as travel expenses for them and their U.S. collaborators.

Schambra estimates that the resources NIH is putting into collaborative research activities with scientists from former Eastern bloc countries will have trebled in 3 years—to between $5 million and $6 million by 1992. Their presence on the NIH campus—where one-third of the Ph.D.-level staff are from abroad—is also becoming more marked. In 1988 there were 67 Hungarians, Czechs, Poles, Bulgarians, and Russians at NIH; in 1990 there were 111.

Correction

In a list of the world's 10 most-cited scientists (*Science*, 4 October, p. 28), the name of biologist Robert Tjian was spelled wrong, and his institution was misidentified. Tjian is a Howard Hughes Medical Institute investigator at the University of California at Berkeley. We regret the errors.