national science strategy, so who are we trying to kid?" asks Paul Hough, executive director of the Canadian Consortium for Research, an association of scientific lobbies.

But universities realize that some collaboration is inevitable, if not also desirable, says Brown. "Budget cuts have forced it," she says. "It's not often national in scope, but there's certainly a lot more of this stuff going on."

Strangeway acknowledges that there are a host of potential political land mines. But he says the CFI must exercise "due diligence" in ensuring that taxpayers "get the best return on intellectual activity." And Chad Gaffield, president of the Humanities & Social Sciences Federation of Canada, agrees that half a billion dollars provides a strong impetus for collaboration: "They have a lot of money as a carrot, so, presumably, there is a very good incentive to get this worked out." **–WAYNE KONDRO**

Wayne Kondro writes from Ottawa.

SCIENTIFIC PRIZES

Lasker Awards Go to Cancer Researchers

Seven biologists received coveted Albert Lasker Medical Research Awards this week. The award for basic research went to three scientists in recognition of their contributions toward understanding cell division mechanisms, while three others shared the clinical prize for their studies on the genetic basis of cancer. In addition, former *Science* Editor-in-Chief Daniel E. Koshland Jr. received a separate Lasker award for lifetime achievement in medical research. Although not the most lucrative awards—this year's basic and clinical winners get $10,000 each—the Laskers are considered highly prestigious because they frequently foreshadow the Nobel Prize. Indeed, 59 Lasker winners have gone on to win Nobels.

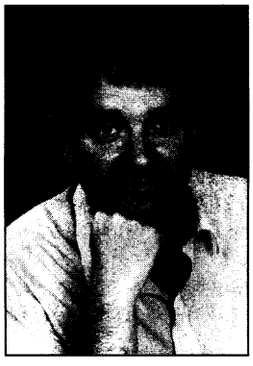
Lifetime achiever. Daniel E. Koshland Jr.

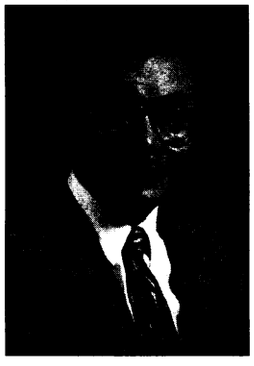
The chair of the jury that selected the winners, Joseph Goldstein of the University of Texas Southwestern Medical Center in Dallas, who is himself both a Lasker and a Nobel Prize winner, says that the current awardees "really provided the foundation" for understanding both normal cell division and the genetic errors that cause it to go awry, as happens in cancer. The winners for basic research—Yoshio Masui, a professor emeritus of zoology at the University of Toronto; Lee Hartwell, director of the Fred Hutchinson Cancer Research Center in Seattle; and Paul Nurse, director-general of the Imperial Cancer Research Fund in London—helped tease out the many components of the biochemical machinery that drives cell division.

Masui provided the first clue with his 1971 discovery of the then-uncharacterized maturation promoting factor (MPF), which stimulates cell division in frog eggs. Then, Hartwell and Nurse, working with two different yeast species, identified a series of genes involved in regulating cell division in those organisms and, as they and others showed, in other species as well. In fact, one of the genes turned out to encode a component of Masui's MPF.

The winners of the clinical award—Alfred Knudson Jr., former president of the Fox Chase Cancer Center in Philadelphia; Peter Nowell of the University of Pennsylvania School of Medicine in Philadelphia; and Janet Rowley of the University of Chicago Medical Center—examined how genetic abnormalities may trigger cancer. Nowell and Rowley proved that leukemia could be caused by faulty genes, while Knudson showed that development of certain childhood cancers requires mutations in both copies of the genes at fault, a finding that led to the idea of tumor suppressor genes, currently one of the hottest topics in cancer research.

And finally, Koshland, currently a biochemist at the University of California, Berkeley, was honored for his work on enzyme regulation and cell signaling systems, as well as his efforts to reshape biology studies at Berkeley and his success at improving the quality of *Science*. **–JENNIFER COUZIN**





Cell cycle pioneers. From left to right are Paul Nurse, Yoshio Masui, and Lee Hartwell.

U.K. ASTRONOMY

300-Year-Old RGO Finally to Close

LONDON—Like Lewis Carroll's Cheshire cat, which disappeared leaving only its grin, one of Britain's oldest scientific institutions will vanish next month leaving only its name. The 300-year-old Royal Greenwich Observatory (RGO) in Cambridge, which provides technical and scientific support for Britain's astronomers, will close in October as part of cost-cutting measures by the Particle Physics and Astronomy Research Council (PPARC). Far from leaving a grin, however, the loss has left many astronomers grimacing. "The closure sends a very unfortunate signal to our foreign colleagues, students, and the public about the status of British astronomy," says Britain's Astronomer Royal, Martin Rees.

After reviews of Britain's home-based astronomy facilities over 15 years, RGO finally lost out last year in a contest with the Royal Observatory Edinburgh to become Britain's single Astronomy Technology Centre (ATC), serving telescopes in the Canary Islands and Hawaii (*Science*, 13 June 1997, p. 1641). The ATC opens officially next month. The former science minister, John Battle, backed the decision but asked the council to try to find a way of saving the name of the RGO in some form. However, to stay afloat as a semi-independent scientific institution, RGO staff developed a business plan for telescope design and construction and discussed the possibility of closer links with Cambridge University.

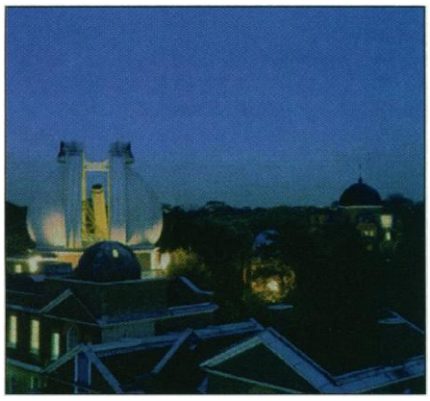
But at the end of last year, PPARC finally decided to close the observatory, in part because of worries that a reconfigured RGO might end up in competition with the new ATC (*Science*, 19 December 1997, p. 2049). PPARC says the closure will release an extra $3.2 million for astronomy research over the next 4 years and $6.5 million each year after that.

PPARC and the government are now discussing plans to transfer the RGO name back to its original site in Greenwich, southeast London. The old observatory at Greenwich, straddling the Greenwich Meridian at zero degrees longitude, is now a museum and will house new public exhibitions on astronomy under a plan agreed this month between the National Maritime Museum—its owner—and PPARC. Many old instruments held in Cambridge and the RGO's public as-

tronomy information service will also be moved to Greenwich.

PPARC has been trying hard to minimize the number of job losses among RGO's staff of 110 and says that all senior researchers have been found alternative university positions. "We expect very few to be unemployed by the end of the year," says PPARC administrator Jim Sadlier. A few staff members will move to a telescope construction company set up by researchers from John Moores University in Liverpool, called Telescope Technologies Limited; five are expected to transfer to the new ATC; and another six will set up temporary home at Cambridge University's Cavendish Laboratory to complete ongoing projects.

RGO



Coming home. The RGO name will return to the original Greenwich observatory.

Despite PPARC's efforts, staff at the RGO are still bitter about the closure. "A close-knit, high-tech family has been blown apart, and we feel it very personally," says RGO director Jasper Wall. And many astronomers are still concerned about the effects of dispersing the RGO team. "Crucial technical expertise for future projects is being lost," says astronomer Phil Charles at the University of Oxford. "In the coming years, there are going to be many occasions when we realize we just don't have the support we need." –NIGEL WILLIAMS

ECOLOGY

NSF Eyes Biodiversity Monitoring Network

To most people, an observatory is a place for astronomers to probe the far reaches of the universe. But some life scientists think the concept might also help unlock secrets in their own backyards. In what could turn into the most ambitious effort yet to systematically study Earth's ecosystems, the National Science Foundation (NSF) has begun planning what may become a global system of biodiversity observatories. The idea appears to be on a fast track at NSF as one of several environmental initiatives promoted by new director Rita Colwell (see p. 1944).

The observatories program would build on a spate of NSF-funded activity in recent years to study biodiversity and ecological processes. NSF already funds 21 Long-Term Ecological Research (LTER) sites that monitor ecosystems ranging from Antarctic dry valleys to New England forests (*Science*, 15 October 1993, p. 334). Three years ago it created a National Center for Ecological Analysis and Synthesis in Santa Barbara, California, to support projects that attempt to glean insights from existing data collected across LTER sites and any number of field and marine research stations (*Science*, 17 January 1997, p. 310). More recently, Arctic researchers funded by NSF proposed pooling data from a network of circumpolar studies. And this fall the agency is preparing a competition to support microbial research at a half-dozen or so existing outposts.

The observatories idea is likely to incorporate elements of all those programs—although planners have not yet hammered out any details, including the definition, number, and locations of the observatories. The program's budget is also unknown, although researchers and NSF officials hope that some work can begin within 2 years. Despite such gaps, organizers have at least outlined the project's philosophical underpinnings: to take the broadest possible look at how organisms interact and evolve in a range of ecosystems. "We're trying to get away from the stamp-album approach, in which scientists go to one site and take a snapshot of conditions at that time for a particular organism," explains Doug Siegel-Causey, NSF's program manager for biotic surveys and inventories, who will manage the initiative. "But it's hard to take a picture of a dynamic process."

NSF took the first step in that direction earlier this month when it convened 15 experts. The group endorsed the idea of such observatories, agreeing that it is long overdue, says meeting chair Leonard Kristtalka, director of the University of Kansas Biodiversity Research Center. "Historically, the systematists and the ecologists have gone their separate ways, and biology has been the worse for it," he says. "These two approaches need to be brought together if we hope to understand biodiversity over time."

One idea likely to receive scrutiny is for a center to support any number of sites in what NSF officials describe as a hub-and-spokes arrangement. Whether it's a physical entity or a virtual presence, the center could serve as both online database and administrative support for field researchers. Participants also envision establishing the observatories at some combination of existing

ScienceScope

GORE GETS POLITICAL MILEAGE FROM NSF INTERNET GRANTS

The pivotal New Hampshire presidential primary election may be more than a year away, but Oval Office wanna-be Vice President Al Gore is already grabbing his chances to impress the state's voters. Last week's opportunity came in the form of a National Science Foundation (NSF) announcement that 36 universities had won grants of up to $350,000 each to hook up to the NSF's speedy Internet backbone. The headline on NSF's press release: "Vice President Gore Announces High Performance Award to University of New Hampshire." The names of the other worthy winners are relegated to a list at the end of the release.

Gore

An NSF official claims there is a nonpartisan explanation for the headline: Gore announced the awards during a visit to New Hampshire, after shelving a plan to announce them in California. More politically savvy headlines could be on the way: NSF plans to award at least a dozen more Internet grants before the 2000 elections.

HUGHES HEAD TO STEP DOWN

The largest U.S. private nonprofit biomedical research funder is looking for a new leader. On 22 September, Purnell Choppin, 69, president of the Howard Hughes Medical Institute (HHMI), announced that he will retire at the end of next year. In 2000, "it will be time for someone else to take up the reins," Choppin wrote in a memo that surprised staffers at the institute.

Choppin, a virologist, was recruited from The Rockefeller University to serve as HHMI's science chief in 1985. After becoming president in 1987, he oversaw construction of a new headquarters in Chevy Chase, Maryland, and guided the organization through a decade of extraordinary growth, focused on molecular biology. During his tenure, the number of HHMI scientists has grown from 96 to 330 and the annual budget from $77 million to $556 million. HHMI's endowment is roughly $11 billion.

A conservative manager, Choppin carefully planned his own departure, noting his 15-month advance warning "will allow ample time for the trustees to select a new president." The institute has not yet named a search committee.

Contributors: Elizabeth Pennisi, Richard Stone, David Malakoff, Eliot Marshall