

SCIENCE POLICY

The Biggest Shake-Up for British Science in 30 Years

LONDON—For more than 20 years, Britain's government-funded, peer-reviewed basic research has been pretty much run by scientists, for scientists. The government supplied a pot of money, and a committee largely made up of scientists carved it up between five research councils, who doled it out to worthy researchers. It was a cozy arrangement, but it meant that science never really had a voice in government. When a budget-cutting administration got to work, as Margaret Thatcher's did in the 1980s, science's belt got tightened. And when the structure of science needed reform, no one was there to do it.

But British scientists unexpectedly gained a representative at the center of government when, a year ago, former health secretary William Waldegrave became Britain's first cabinet minister for science in some 30 years. He had a mandate to reform, and now researchers have the chance to judge whether their new standard bearer has delivered a convincing "new deal" for British science.

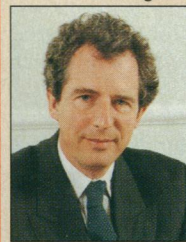
The policy document released by Waldegrave last week, known as a "white paper," is the most far-reaching review of UK government science policy since the mid-1960s. (In Britain, a white paper is an outline of measures that the government intends to implement.) The goal, Waldegrave said, was to tackle the mismatch between Britain's "continued excellence" in science, engineering, and technology, and its weakness in exploiting those results for economic gain. This would be done by building a "closer and more systematic partnership" among researchers, government, and industry. The ingredients: a reliance on Japanese-style "technology foresight," bringing together scientists and industrialists to identify important emerging technologies; an overhaul of government's machinery for science advice, with the promise that the government will publish a "forward look," outlining its science strategy, every year; and a shake-up of the research councils that will focus them on underpinning the British economy and separate most "big science" into a council of its own.

The reaction of scientists to these long-awaited changes? A tentative thumbs up for most of the proposals, tempered by some nervousness about the emphasis on economic payoff that underpins the new structure. "[I]t's quite a good framework," says Cambridge University mathematician Michael Atiyah, presi-

dent of the Royal Society. But many researchers are frustrated that Waldegrave hasn't done more to address the failings of British industry directly. Rewarding R&D investment with tax breaks might have encouraged companies to pick up on the research themes to be identified in the new technology foresight program, they argue, but these measures are rejected in the white paper as being inconsistent with the Conservative government's free-market economic policies.

A big gap in the paper, from some researchers' point of view, is the lack of commitment to increase what many see as the British government's inadequate funding for science. "There are no targets here—not even a mention of the national level of investment in R&D, and what it should be,"

William Waldegrave



Minister for Science

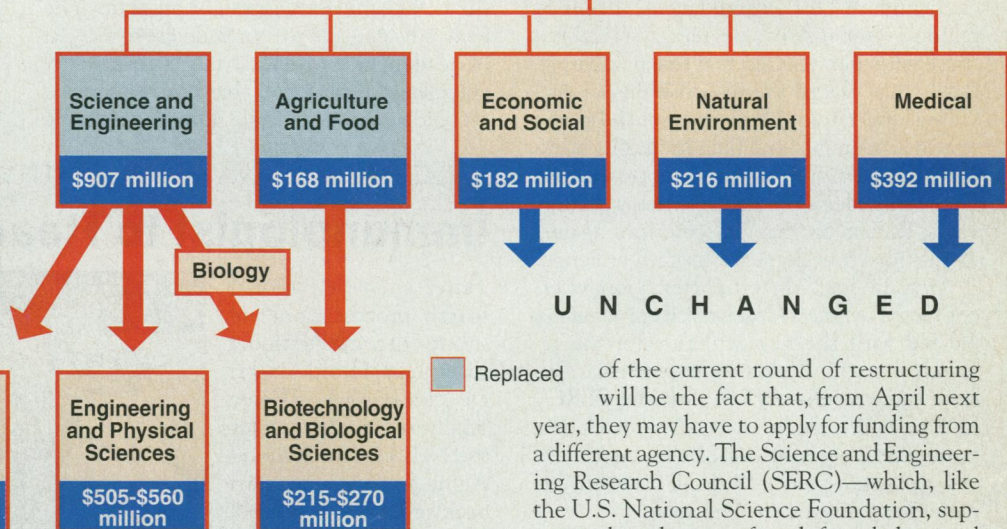
William Stewart



Chief Scientific Adviser

Advisory Board for the Research Councils

Director-General of Research Councils



Replaced

complaints John Mulvey of the pressure group Save British Science. But with Britain emerging only gingerly from a severe economic recession, politically savvy researchers accept that Waldegrave had little option but to play with the structure of British science for now, and press for more money at a later date.

What's more disappointing to these scientists is that Waldegrave has not wrested control of other elements of the government's R&D spending away from other departments. The direct financial responsibility of his Office of Science and Technology (OST) re-

mains limited to the research councils' budgets—which together account for only about one-sixth of the government's total spending on research. The rest is spread over various government departments—including more than \$1 billion a year given directly to the universities, mostly for research overheads and salaries, via the Department for Education. Mathematical biologist Roy Anderson of London's Imperial College is just one of many who think the science minister has missed an opportunity to gain direct control over a greater proportion of government science spending. "I very much am in favor of a strong central research ministry, as in Germany and France," he says. Nevertheless, with Waldegrave asserting that last week's document "represents the beginning of a process of change, not the end," the door may still be open for future transfers of money from other government departments.

For bench scientists, the most obvious result

of the current round of restructuring will be the fact that, from April next year, they may have to apply for funding from a different agency. The Science and Engineering Research Council (SERC)—which, like the U.S. National Science Foundation, supports a broad range of work from behavioral science through to manufacturing technology, and currently accounts for more than half of the \$1.7 billion spent by the research councils each year—is to be dismantled. Particle physics and astronomy will be transferred to a new research council, while most if not all of SERC's biology will be transferred to the Agricultural and Food Research Council (AFRC), to be renamed the Biotechnology and Biological Sciences Research Council. The rump of the SERC—responsible for engineering, chemistry, and small-scale physics—will be known as the Engi-

neering and Physical Sciences Research Council.

The names of these two councils hint at the cultural shift that all the research councils must now embrace. Each will be given a mission statement that for the first time stresses its role in enhancing Britain's industrial competitiveness. And each council will be chaired part-time by an industrialist to ensure that their full-time chief executives heed this message. Not surprisingly, some academics are alarmed by this focus on wealth creation. Even the Royal Society's Atiyah, who supports the new arrangements, is concerned that too much emphasis on industrial competitiveness could "distort basic research." But Waldegrave argued last week that fundamental research labs in many other countries have "much more intimate connections" with industry than their British counterparts, without getting drawn away from basic science.

Most academic scientists are reserving judgment on that issue until they see just how the research councils interpret their new missions. And it's also unclear how the white paper will affect the main problem facing Britain's young scientists: a university system that trains thousands of Ph.D.s, employs them on temporary contracts until their mid-thirties, and then throws most of them on the scrap heap. As a start, Waldegrave is proposing to reform postgraduate training, by encouraging all Ph.D. candidates to begin by taking 1-year master's degrees, to weed out those who aren't suited to a research career. But he has placed the responsibility of providing longer-term job security for those who stay in academia—and help in finding alternative options for those who do not—squarely on the shoulders of the universities, with only vague threats of financial sanctions against institutions that don't rise to the challenge.

Despite such uncertainties, researchers contacted by *Science* last week were generally pleased with the new structure for the research councils. Biologists, in particular, believe merging the AFRC with the SERC's biology will bring a stronger focus on the nonmedical applications of molecular biology and neuroscience. "I think it's a sensible move," says Imperial's Anderson.

High-energy physicists hope that their new Particle Physics and Astronomy Research Council will remove uncertainty about Britain's future commitment to CERN, the European high-energy physics center based in Geneva. Britain's subscription to CERN has fluctuated wildly in the past due to Europe's unstable currency exchange rates and, until now, the SERC has had to bear the cost of any increases alone. In 1987, this nearly led to Britain pulling out of the lab. In future, the burden is expected to be shared across all six research councils.

Such budget juggling will be just part of

the job of the director-general of the research councils, a new government research supremo who will advise Waldegrave on how much money to give each of the six councils. The director-general replaces the Advisory Board for the Research Councils (ABRC), a body that currently provides advice on the allocation of money to the councils, but from an ambiguous position—neither clearly inside nor outside government. Interviewed by *Science* earlier this year, Waldegrave said that this "arm's length" advisory mechanism was one of the reasons why ministers have in the past never really learned how British science works.

The government's top-level general science advisory committee will also be beefed up. The Advisory Council on Science and Technology (ACOST) is to be replaced by the Council for Science and Technology (CST). Like ACOST, it will consist of senior figures from science and industry, but with the addition of the chief scientists from each of the government departments with a strong interest in science. One of the CST's main jobs will be to help draw up the government's promised annual overall science strategy document, and researchers hope that the fact that it will be chaired by Waldegrave himself will ensure that its views aren't ignored—as often happened with ACOST.

Part of this annual review process will be the new technology foresight program. The idea is to consult with a wide cross-section of academics and industrialists to identify emerging technologies that have the greatest economic potential. The deep divide

between the industrial and the scientific communities is often blamed for Britain's poor recent record in converting progress in science into industrial innovation. The foresight program should be "an extremely effective means of changing attitudes," says Martin Wood, deputy chairman of Oxford Instruments.

But the noble aspirations of industrial-academic cooperation may be forgotten when it comes to the unenviable task of carving up budgets—not least how much money should be transferred from the SERC to the new Biotechnology and Biological Sciences Research Council. SERC officials say that their annual spending on biology is only about \$45 million. But AFRC director-general Tom Blundell, who's expected to become the new biology research council's chief executive, is adamant that the true figure—accounting for biologists' use of facilities like supercomputers and synchrotron radiation—is more than \$100 million. "There's clearly going to be a battle," says Mark Richmond, who chairs the SERC.

Maybe so, but if the SERC and AFRC can't resolve their differences quickly, they can expect to incur the wrath of the government's chief scientific adviser, William Stewart, the man credited with bringing science policy onto the British government's agenda after years on the political back burner. "The government has admitted to having a strategy....And that's a major change," he told *Science*. And an opportunity, he suggested, that shouldn't become clouded by a squabble over turf. "We should be looking at what's best for science and technology."

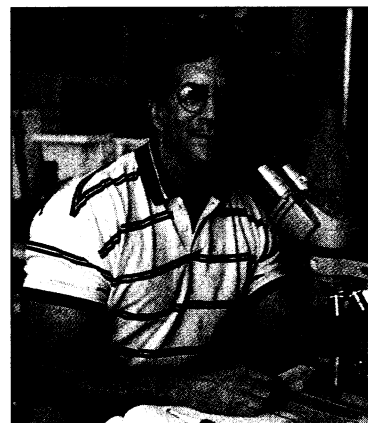
—Peter Aldhous

NATIONAL INSTITUTES OF HEALTH

Immunologist to Head Aging Institute

After a 2-year national search process came up short, outgoing National Institutes of Health (NIH) Director Bernadine Healy finally found a director for the National Institute on Aging (NIA) in her own backyard. The new head, effective immediately, is immunologist Richard Hodes, who has been at the National Cancer Institute (NCI) since 1973.

Hodes, who until last week headed the small Immune Regulation Section at NCI's Experimental Immunology Branch, has spent most of his NIH career in the lab. That was just the ticket for Healy, who has been pushing for NIA to strengthen its basic research efforts, especially in pursuing the fundamental bio-



Moving along. Richard Hodes is transferring from NCI to NIA.

logical mechanisms involved in aging. Hodes' science experience should make the 49-year-old researcher especially effective "in strengthening and expanding the scientific base of the Institute," Healy said in a statement last week. Hodes stresses this won't be at the expense of the behavioral side of aging research. "In the context of recent advances in cellular and molecular research all aspects of aging research are poised to profit," he

says. Hodes replaces T. Franklin Williams, who left in 1991 for the University of Rochester. Gene Cohen had been acting director until last week.

—C.A.